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Equity and Debt Market Timing, Cost of Capital and Value and Performance: Evidence from Listed Firms in Thailand

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Abstract

Market timing is an infant theory of capital structure used to explain concealed motivation of managers. Equity market timing refers to equity issuance when the stock market is favourable to reduce the cost of capital, while debt market timing refers to debt financing when the interest rate is particularly low to minimize the cost of capital. However, there is no consensus in the literature as to whether firms can take such advantages in real markets, especially in Thailand. Furthermore, it is far from settled as to what the determining factors of market timing are. Additionally, the success of the decrease in cost of capital remains ambiguous. This study investigates market timing theory through three empirical studies.

The first study examines the presence of equity market timing in Thailand with 285 IPO firms and 1,038 SEO issuances from 2000 to 2014. The results reveal that IPO and SEO firms tend to take advantage in the stock market when the market is in a good condition, such as a hot period, economic expansion, and bullish time. In addition, the study finds that timers obtain higher proceeds and maintain these proceeds as cash after offering. Moreover, this is the first study to explore how the corporate governance dimension is the potential determinants of equity market timing.

The second study looks at the existence of debt market timing in Thailand with 189 corporate bond’s issuances from 2001 to 2014. The results indicate that the firms tend to time the debt market when the market is hot and there is a low interest rate. Likewise, we find that timers gain more proceeds and pay lower interest rates. Moreover, this is the first study to reveal that timers retain the proceeds as cash after issuance and that the corporate governance and board structure are significant determinants of debt market timing.

The third study investigates the influence of market timing on cost of capital and firm performance. We find that market timing policy can lead to both success and failure of cost reduction and performance increment, depending on the types of issued securities, the strategy of market timing, and the method of cost of capital and firm performance estimation.

Furthermore, this study provides some suggestions for managers, shareholders, investors, regulators and other stakeholders to comprehend the cause and effect of market timing and to prepare in order to protect their benefits. Also, this study informs regulators and policy makers to improve the efficiency of stock and bond markets in Thailand.

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List of Abbreviations

AEC	ASEAN Economic Community
AF	Debt adjustment factor of Bloomberg database
AMEX	American stock exchange
ASEAN	The Association of Southeast Asian Nations
B	Book value of equity
BEX	Bond Electronic Exchange
b_i	Firm’s beta
BIBOR	Bangkok Interbank offered rate
B/M	Book-to-market ratio
BOT	Bank of Thailand
BVPS	Book value per share
CAPEX	Capital expenditure
CAPM	Capital asset pricing model
CARs	Cumulative abnormal returns
CASH	Cash and short-term investments
CEO	Chief executive officer
CFO	Chief financial officer
CG	Corporate governance
CPI	Consumer price index
CS	Pre-tax cost of short-term debt
CT	Implied cost of equity capital by Claus and Thomas (2001)
D	Cash dividends
DCF	Discounted cash flow model
DDM	Discounted dividend model
Div	Common dividend
DMT	Debt market timing
DPS	Dividends per share
E	Expected future earning
EBIT	Earnings before interest and tax
EBITDA	Earnings before interest, tax, depreciation and amortization
Eff_Tax	Effective tax rate
EMT	Equity market timing
EPS	Earnings per share
EVA	Economic value added
FCF	Free cash flow
GDP	Gross domestic product
GLS (1)	Generalized lest squares
GLS (2)	Implied cost of capital by Gebhardt et al. (2001)
g	Nominal growth rate
g_{lt}	Long-term abnormal earnings growth rate

g_{st}	Short-term growth rate
HHI	Herfindahl-Hirschman index
IBEI	Income before extraordinary items
I/B/E/S	Institutional Brokers' Estimate System
IE	Interest expenses
IRR	Internal rate of return
IOD	Thai Institute of Directors Association
IPO	Initial public offering
k_d	Cost of debt after taxes
k_e	Cost of common stock
k_p	Cost of preferred stock
k_{rf}	Risk-free rate
LD	Long-term debt
MAI	Market for alternative investment
MLR	Minimum lending rate
MOR	Minimum overdraft rate
MPEG	Modified PEG ratio
MRR	Minimum Retail Rate
MVA	Market value added
NASDAQ	National Association of Securities Dealers Automated Quotations
NI	Net income available to common equity
NOPAT	Net operating profit after-tax
NPL	Non-performing loan
NPV	Net present value
NS	Net sales
NYSE	The New York Stock Exchange
OJ	Implied cost of capital by Ohlson and Juettner-Nauroth (2005)
OLS	Ordinary lest squares
OTC	Over-the-counter
P (1)	Market price
P (2)	Preferred equity
P/E	Price per share
PO	Public offering
POUT	The dividend payout ratio
PP	Private placement
PPE	Net property, plant, and equipment
PPI	Producer price index
RE	Retained earnings
REIT	Real estate investment trust
R&D	Research and development

RIM	Residual income method
ROA	Return on assets
ROE	Return on equity
ROIC	Return on invested capital
ROS	Return on sales
SEC	The Securities and Exchange Commission
SD	Short-term debt
SEO	Seasoned equity offering
SET	The Stock Exchange of Thailand
SET index	Stock market index
SETSMART	SET Market Analysis and Reporting Tool
SOEs	State-owned enterprises
t	Time
TA	Total assets
TBX	Thailand Bond Exchange
T-bills	Treasury bills
T-bonds	Treasury bonds
TC	Total capital
TD	Total debt
TE	Total Equity
TH	Thailand
ThaiBMA	Thai bond market association
TRIS	Thai rating and information service corporation limited
TV	Terminal value
UK	United Kingdom
US	United States
VE	Intrinsic value of equity
VIF	Variance inflation factor
WACC	Weighted average cost of capital
W_d	Proportion of debt
W_e	Proportion of common stock
W_p	Proportion of preferred stock
XD	Stock dividend
XE	Warrant
XR	Right for old shareholder
YTM	Yield to maturity

Definition of Market Timing

There are various definitions for both equity and debt market timing in the extant literature. Equity market timing is defined as equity issuance when market-to-book ratio is high (Baker & Wurgler, 2002) or when stock market is hot (Alti, 2006) and IPO issuance when IPO will be high underpricing (Santos, 2017). Debt market timing is that firms prefer to issue debt when interest rates are low (Graham & Harvey, 2001) or when debt market is hot (Doukas et al., 2011) and long-term debt issuance when excess bond returns is low (Baker et al., 2003). Therefore, there is no consensus in the definition of market timing (Barry et al., 2005). However, market timing in this thesis is equity or debt issuance when the market is in a good condition such as a hot market.

CHAPTER 1:

Introduction

1.1 Overview of this thesis

This study is a PhD thesis entitled "Equity and debt market timing, cost of capital and value and performance: evidence from listed firms in Thailand". This study examines three empirical studies in market timing, comprising five main chapters: the introduction, the first empirical study in equity market timing, the second empirical study in debt market timing, the third empirical study in equity and debt market timing as well as cost of capital and firm performance and, finally, the conclusion.

1.2 Background of the study

Capital structure is a classic policy whereby no firm can escape the decision-making required in this policy. It is well-known that corporate finance consists of two main activities: finding the sources of funds and using these funds for investing in a firm's assets. The objective of the first activity is minimizing the cost of capital, while the purpose of the second activity is maximizing cash flows or benefit from the investment of capital. However, the core goal of both activities is a maximizing of shareholder wealth. As a result, capital structure policy is one of the crucial elements that drive the firms towards their objective (Berger & Di Patti, 2006). Hence, this policy is of great significance for corporations and it is the major duty of managers to attempt to accomplish this goal. However, as there are two main sources of capital, namely equity and debt, whereby each source has different advantages and disadvantages, it is quite difficult to combine these in appropriate proportions to reach the optimal cost of capital (Berk & DeMarzo, 2011). Therefore, there are several theories that have made the effort to document the behaviour of managers in the decision-making for this policy. Recently, four main theories of capital structure have been put forward, namely MM theory (Modigliani and Miller (1958), trade-off theory (Myers, 1977), pecking order theory (Myers, 1984; Myers & Majluf, 1984) and market timing theory (Baker & Wurgler, 2002).

Market timing[1] is the most recent theory of capital structure containing equity and debt market timings. Equity market timing is defined as when firms select to finance with

[1] In the view of new shareholders, equity market timing is taking the benefit from them since this action transfers wealth from new shareholders to existing shareholders because of selling overpriced stocks. In

equity when their stocks are overvalued (Baker & Wurgler, 2002) or when the stock market is hot, which means high volume of equity issuance (Alti, 2006). Debt market timing is defined as when companies choose to finance with debt when the interest rate is comparatively low (Graham & Harvey, 2001) or when the debt market is in a hot period (Doukas et al., 2011). Therefore, equity market timing relies on an information asymmetry between insiders/managers and outside investors, while debt market timing depends on public information which both managers and outside investors are equally aware of, such as inflation and interest rates (Baker et al., 2003). Even though equity and debt market timing are considerably different, the reduction of the cost of capital is the objective in both these policies because equity market timing is selling stocks at high price or low cost of equity and debt market timing refers to issuing debt at low interest rates or low cost of debt (Baker & Wurgler, 2002; Song, 2009).

As market timing is the most recent theory in the field of capital structure (Cole, 2013) and this policy occurs only during a specific period, a different environment of a market may lead to a non-identical effect of this policy's implementation. However, the majority of studies mainly focus on developed countries, whereas there is little evidence in the emerging market in spite of the fact that the dissimilar efficiency of a market may relate to decisions regarding the use of this policy by managers (Lucas & McDonald, 1990; Korajczyk et al., 1992). Furthermore, an emerging market is less efficient than the developed market (Griffin et al., 2010), therefore there are lower barriers to conducting this policy in an emerging market. Thus, investigating this in the context of an emerging market is of substantial interest.

Thailand is an emerging market and the second-largest economy among South-east Asian countries (ASEANUP, 2017). Even though the growth of GDP in Thailand is not outstanding (see figure 1.2), compared to other Asian countries, there is a tendency towards gradual enhancement in the future, as seen in figure 1.1. *Interestingly,* the economic growth rate in Thailand fluctuates more than the US (see figure 1.1), which may lead to the motivation of market timing relying on an economic boom in Thailand. In addition, Thailand contains 10 unique features which are interesting to investigate in the context of market timing.

First, there is a high military power in Thailand as it forms the regime with the "constitutional monarchy" in which the prime minister is the leader of government and

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contrast, debt market timing does not resort to such an exploitation due to the availability of the public information.

society, while the political sphere is supported by the military staffs (BBC, 2017). *Second*, the power of the law, the judicial system and anti-corruption efforts in Thailand are quite weak (La Porta et al., 1998; Claessens & Yurtoglu, 2013). Moreover, the legal protection of minority shareholders in Thailand is soft and inadequate (Connelly et al., 2012), and the anti-directors in Thailand is low (Brenner & Schwalbach, 2009). *Third*, the stock market of Thailand has a weak-form efficiency (Jiranyakul, 2013). Although the efficiency of the Thai stock market improved after the Asian financial crisis, the change is in terms of evolution rather than revolution (Kim & Shamsuddin, 2008).

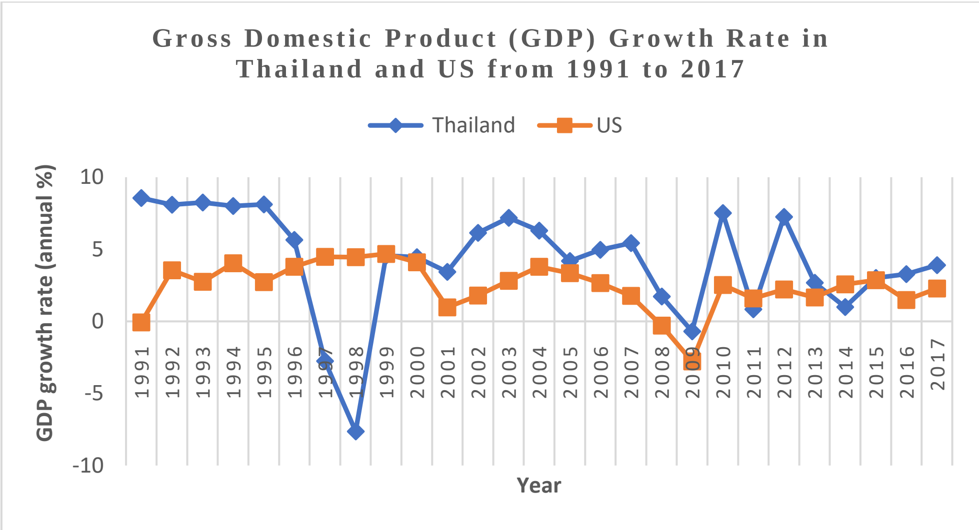


Figure 1.1: The GDP growth rate in Thailand and US (World Bank, 2018)

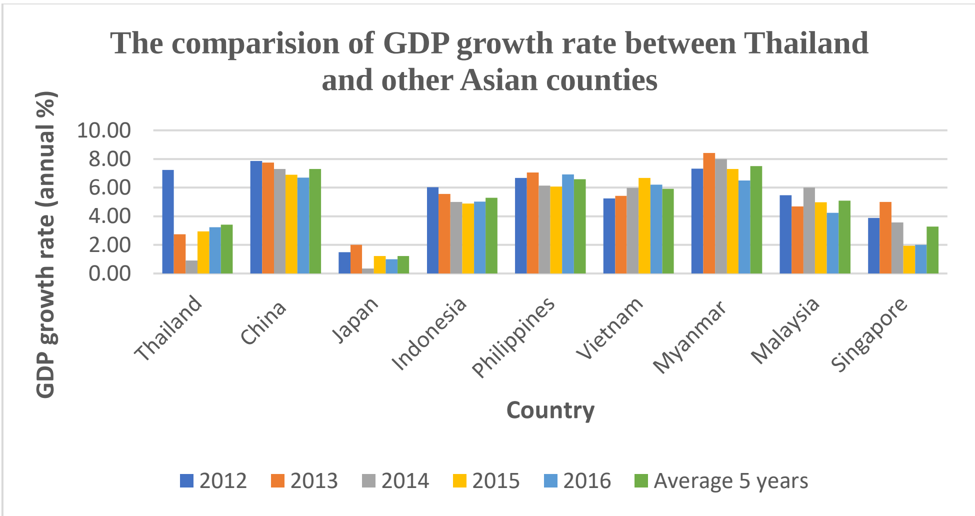


Figure 1.2: The comparison of GDP growth rate between Thailand and other Asian countries for the last five years (World Bank, 2017b)

Fourth, the bond market of Thailand is small and undeveloped (Plummer & Click, 2005; Udomsirikul et al., 2011) and Thai firms depend on bank loans, which leads to a low complication of the bond market in Thailand since Thai companies have less experience in bond transactions (Prommin et al., 2014) as well as other problems due to the closed relationships between firms and banks (Charumilind et al., 2006). *Fifth*, weak corporate governance still exists in Thailand, even though it has considerably improved since the financial crisis in 1997; this problem has only been alleviated and cannot be eliminated (Claessens & Fan, 2002).

Sixth, Thailand contains a high ownership concentration (Udomsirikul et al., 2011), which leads to an increase in the agency problem in companies since the boardroom is controlled by insiders. *Seventh*, there is a connection between the firm and its directors on the board in patterns of "organizational connection" or "personal relationship" (Khanthavit et al., 2003; Nam & Nam, 2004), which seems to be part of "Thai culture" (Connelly et al., 2012). This appears to be large barrier to detecting the weak corporate governance of boards of directors in Thailand. *Eighth*, the level of information asymmetry in Thailand is quite high since there is less "disclosure standard" in conjunction with the high opacity found in the country (Limpaphayom, 2000). Also, Thailand has a unique database provided by SET, while several data are unavailable on internationally known databases. Thus, this may lead to high information asymmetry between insiders and foreign shareholders.

Ninth, there are few research studies in the area of capital structure in Thailand although financing decisions play an important role for all firms in every region. For instance, Wiwattanakantang (1999) claims that the tax effect and pecking order theories can document the behaviour of Thai managers in their decision-making regarding capital structure, while Charumilind et al. (2006) explored how corporations that have a link with financial institutions and politicians can borrow long-term debt more easily than others. Moreover, Udomsirikul et al. (2011) found that equity financing is driven by the higher liquidity of Thai firms. Recently, Thippayana (2014) posited that trade-off and pecking order theories can explain the hidden behaviour of Thai companies. Furthermore, previous studies have been less concerned with market timing theory due to few studies of equity market timing in Thailand, namely by Thuwajaroenpanich (2002) and Limpaphayom and Ngamwutikul (2004), whereby the findings from these are still unsettled. Therefore, the existing literature is insufficient to explain the behaviour of Thai managers regarding their capital structure policy, especially in conjunction with market timing theory. *Finally*, Thailand's admittance to the ASEAN Economic Community (AEC) in 2015, through which capital, goods, service and investment freely flow into the country (Soesastro, 2007), has had an impact by increasing the number of new sources of funds in Thailand, therefore it is likely that Thai firms have changed their capital structure policy.

As a result, it is interesting to examine the context of market timing in Thailand as one of the emerging markets. Furthermore, Thailand contains several unique characteristics that support an enhancement of the probability that corporate managers time the market because these factors (i.e., especially low legal protection of minority shareholders, weak efficiency of financial markets, high information asymmetry, weak corporate governance and high ownership concentration) make the market timing of Thai managers easier.

1.3 Problem statements

This study focuses on three major parts to enhance the literature and provide further evidence in the context of market timing.

1.3.1 The determinants of equity market timing: evidence from IPOs and SEOs in Thailand

The first part concentrates on the area of equity market timing, in which there is ambiguous evidence in the existing literature. Baker and Wurgler (2002) posit that there is the presence of equity market timing in capital structure and that the effect of this policy is in the short and long term. However, Alti (2006), Kayhan and Titman (2007) and Huang and Ritter (2009) argue that equity market timing has an influence on capital structure only in the short term since firms have a tendency to rebalance their capital structure to reach the target capital structure in the long term. On the other hand, other research studies contend that there is no presence of equity market timing since the stock market is efficient (Çelik & Akarim, 2012; Lee et al., 2012; Chen et al., 2013). Therefore, there is unclear evidence of the existence of equity market timing, including in Thailand, according to the above section.

Additionally, some crucial factors which may relate to the decision to implement an equity market timing policy have been neglected by the previous literature, particularly those relating to ownership and board structures. Moreover, equity overpricing, which appears to be an important determinant of equity market timing, is calculated using the market-to-book (M/B) ratio (Baker & Wurgler, 2002; Bougatef & Chichti, 2011). However, Elliott et al. (2007) argue that this measure is inappropriate and unable to capture the mispricing of stocks and that the value-based approach with the residual income (RIM) method is more suitable than the market-to-book ratio. In contrast, there is strong evidence that the RIM method is equal in efficiency to the discounted cash flow (DCF) model (Lundholm & O'Keefe, 2001), but this approach is less concerned with the context of equity market timing. Moreover, the traditional discounted dividend model (DDM) has been abandoned by the prior literature in the field of equity market timing although dividends are the main expected returns of equity holders (Gordon, 1962).

Therefore, this study attempts to examine whether there is the presence of equity market timing in Thailand and what the determinants of the existence and level of equity market timing are while also addressing the ignored factors and various procedures of an equity's intrinsic value estimation to fill these gaps.

1.3.2 The determinants of debt market timing: evidence from corporate bonds in Thailand

The second part focuses on the field of debt market timing, which has been of less concern to the previous literature even though debt financing is as important as equity financing. Moreover, there is vague evidence of the presence of debt market timing in capital structure. Baker et al. (2003), Barry et al. (2008) and Doukas et al. (2011) claim that there is strong evidence of debt market timing in terms of interest rate, maturity and inflation rate since they found significant relationship between these factors and more debt issuance of firms. In contrast, Butler et al. (2006), Zhou et al. (2012) and Kaya (2013a) argue that debt market timing does not exist as insiders do not have more information than outsiders. Thus, it remains a debatable issue as to whether debt market timing is present. Moreover, there is no evidence of this issue in Thailand because of inactive and undeveloped Thai bond market and the difficulty of information access for bond issuance in Thailand.

Simultaneously, some variables that may be determinants of debt market timing have been ignored by the prior literature, especially the structure of ownership and board of directors. In addition, the interest rate is mainly estimated by the yields of treasury bills and government bonds. However, there are several types of interest rate in the debt market, including the interbank rate and lending rate such as minimum lending rate (MRR), minimum overdraft rate (MLR) and minimum retail rate (MOR). Moreover, the lending rate directly relates to the cost of firms since this is the rate which a financial institution charges corporations for their loans (BOT, 2004), yet this interest rate has been disregarded in the context of debt market timing.

Consequently, this study aims to examine whether debt market timing exists in Thailand as well as explore the determinants of the presence and degree of debt market timing, including the neglected variables and other types of interest rate, to fill these gaps.

1.3.3 Market timing, cost of capital and firm performance: evidence from Thailand

The final part highlights the scope of the association among equity and debt market timings, cost of capital and firm performance, as the main objective of market timing is the reduction of cost of capital (Baker & Wurgler, 2002; Baker et al., 2003). However, there are extremely few research studies focusing on this issue. Even through Chang et al. (2008) and Chang et al. (2010a) conducted research in the area of equity market timing, they focused only on cost of equity rather than on cost of capital, while the overall cost of capital contains the cost of debt and equity and a decrease in cost of equity does not mean that the overall cost of capital also declines (Brigham & Ehrhardt, 2013). Most importantly, *there is no evidence of the effect of debt market timing on cost of debt and overall cost of capital*.

Also, it is generally understood that the objective of corporations is maximizing firm value (Berk & DeMarzo, 2011). However, the majority of the previous literature concentrates only on the context of equity and debt allocations and firm performance, such as Ritter (1991), Loughran and Ritter (1997), Spiess and Affleck-Graves (1999) and Datta et al. (2000), rather than directly in terms of market timing. Although there are some research studies investigating in the effect of market timing on firm performance, including those by Song (2009), Bougatef and Chichti (2011) and Sah and Seagraves (2012), their results are mixed.

As a result, this study aims to explore the impact of equity and debt market timings on cost of separate source, overall cost of capital, and firm value and performance to enhance the existing literature on market timing.

1.4 Research questions

As this study contains three empirical studies, there are three main groups of research questions; these are as follows:

Group 1: Equity market timing

- Is equity market timing present in Thailand?

- What are the determinants of the existence and the level of equity market timing?

Group 2: Debt market timing

- Is debt market timing present in Thailand?

- What are the determinants of the existence and the degree of debt market timing?

Group 3: Equity and debt market timings, cost of capital and firm performance

- How does equity market timing affect cost of equity and cost of capital?

- How does equity market timing influence firm value and performance?

- How does debt market timing affect cost of debt after taxes and cost of capital?

- How does debt market timing influence firm value and performance?

1.5 Overview of the sample selection, data and research methods

The quantitative research method is employed in this study to conduct investigations within the three empirical studies. In the first empirical study (chapter 2), the data on equity issuance are separately collected from IPO and SEO samples. The data for IPO allocation are obtained from the SEC's official website and cross-checked with the SETSMART database. The data for SEO issuances are collected from the combination of three sources, including the SET's Fact Books and the SETSMART and Thomson ONE databases. The final samples of equity issuance are 285 IPOs and 1,038 SEOs in the Stock Exchange of Thailand (SET) during the period of 2000 to 2014. For the second empirical study (chapter 3), the data on corporate bond allocation are taken from three sources, consisting of SET's Fact Books and the SET and ThaiBMA official websites. The final samples of corporate bond offering are 189 issuances in the Thai bond market, both the organizational (which has to former be registered with the stock market) and OTC markets, from 2001 to 2014.

Moreover, the data on ownership structure are collected from the Form 56-1 annual report submitted to the SEC available on the SEC's official website as well as the Bloomberg and SETSMART databases. Also, the data on board of directors are taken from the Form 56-1 annual report. The macroeconomic data and the data on debt market condition are collected from the DataStream database and the Bank of Thailand and ThaiBMA's official websites. In addition, the financial and stock price data are obtained from the DataStream and Bloomberg databases. Additionally, the classification of industry group follows the SET, in which there are seven industry groups.

As this study concentrates on the security issuances of both stocks and corporate bonds, a cross-sectional analysis is required according to the nature of these events. However, the regression methods are different in each empirical study. The probit, OLS and GLS regressions are employed for the examination in the first and second empirical studies. Furthermore, the OLS, GLS, ATE (2-step) and IV (2SLS) regression models are used for the investigation in the third empirical study (chapter 4). The Stata 14.2 SE and 15 SE software programmes are employed to generate the empirical results and the MATLAB programme is used to measure the implied cost of equity in the third empirical study.

1.6 Major findings and contributions of the thesis

This study attempts to investigate the different research questions given in the above section to shed light on the area of market timing theory in capital structure and to provide further insight to fill the gaps, thus enhancing the literature and informing on the implications for practitioners.

The first empirical study (chapter 2) aims to examine whether there is the presence of equity market timing in Thailand and what the determinants of the existence and degree of equity market timing are. This study confirms that there is the presence of equity market timing in Thailand with IPO and SEO events since there is strong evidence demonstrating three indicators of the presence of equity market timing, namely the detection of several hot firms with both IPO and SEO issuances, higher proceeds of hot compared to cold firms, and maintaining the equity proceeds as cash by hot firms after equity issuance. Moreover, our empirical results provide evidence that stock overpricing, ownership structure and board of directors are associated with the presence and degree of equity market timing. However, the effect of these factors varies between IPO and SEO events because of dissimilar characteristics. Also, these determinants have a non-identical influence between the presence and degree of equity market timing.

The second empirical study (chapter 3) aims to examine whether debt market timing exists in Thailand and what the determinants of the presence and level of debt market timing are. The findings affirm that there is the presence of debt market timing in Thailand with corporate bond allocation since there is the strong evidence that gives four indicators of debt market timing, including the capturing of many timers in the bond market, higher proceeds and lower interest rates of timers than non-timers, and the keeping debt proceeds as cash after corporate bond issuance of timers. In addition, this study demonstrates that there is an involvement of interest rates, ownership structure and board composition with the presence and degree of debt market timing. However, the influence is different dependent on the strategy of timing debt market and there are also different factors between the presence and level of debt market timing.

The final empirical study (chapter 4) aims to explore the impact of equity and debt market timings on cost of capital and firm value and performance. This study discloses that there is an influence of equity and debt market timings on the cost of separate source, overall cost of capital and firm performance. However, there is a different influence depending on the type of security, i.e. IPO, SEO or corporate bond, the strategy of market timing, and the measurement of cost of capital and firm performance.

Overall, this thesis provides *19* contributions with *7, 5 and 7* contributions in the first, second and third empirical studies, respectively.[2] Briefly, this study offers new measurements to capture equity market timing with an economic boom variable (probability) and the number of stock issuance (level) and to detect debt market timing with the number of bond issuance (level). Moreover, we are the first employing DDM method to estimate intrinsic value in context of equity market timing. Also, we use interbank rate, MOR, MRR and MLR rates to estimate the short-term interest rate, which have been ignored in the literature, in the context of debt market timing. In addition, this study is the first that investigates the motivation of spending the money after bond issuance for debt market timers. Furthermore, we explore the evidence that corporate governance dimension is the determinant of both equity and debt market timing. *Interestingly,* this study provides new evidence that equity market timing has an impact on overall cost of capital. *Most importantly,* we initially show that debt market timing has an influence on cost of debt after taxes and overall cost of capital. Additionally, this study confirms that equity and debt market timing relate to firm value and performance. We also employ the new regression methods such as GLS, ATE and IV approaches to mitigate some issues of econometrics and obtain some of data through hand collection. Finally, this study is that first that investigates debt market timing and the effect of equity and debt market timing on cost of capital and firm performance in Thailand and provides the practical implications for all stakeholders. Therefore, this thesis clearly contributes certain aspects to the literature as well as theoretical and practical implications for market timing theory.

[2] The details are provided in each empirical chapter.

CHAPTER 2:

The Determinants of Equity Market Timing: Evidence from IPOs and SEOs in Thailand[3]

2.1 Introduction

Market timing is the newest theory in capital structure. It shows that a manager can take advantage of certain window of opportunity through equity issuance when market conditions are good (Guney & Iqbal-Hussain, 2010). Equity market timing refers to a company financing with equity when its shares are overvalued, meaning that the cost of capital is relatively low (Baker & Wurgler, 2002). In other words, managers issue their stocks when the equity market is favourable (Alti, 2006). If they can be successful in timing the market, then the overall cost of capital will be lower (Song, 2009). These situations appear because insiders have more inside information than outsiders; therefore, this demonstrates the presence of asymmetric information in the financial market.

In their influential study, Baker and Wurgler (2002) initially studied equity market timing in capital structure and found that there is empirical evidence that managers tend to finance with equity when their shares are high. Furthermore, the resulting effect of equity market timing on capital structure is persistent in the long term. However, Alti (2006) argues that firms attempt to time the stock market, going public when it is hot, but the influence is only in the short term, and Hovakimian (2006), Kayhan and Titman (2007), Elliott et al. (2008) and Huang and Ritter (2009) support Alti (2006). On the other hand, some research studies contend that there is no evidence of equity market timing as the stock market is efficient (Çelik & Akarim, 2012; Lee et al., 2012; Chen et al., 2013).

Regarding the previous literature, this indicates that there is ambiguous evidence about the presence of equity market timing. In addition, there is a lack of research into some of the determinants of equity market timing. Many research studies employ the market-to-book ratio as a variable for equity market timing (Baker & Wurgler, 2002; Bougatef & Chichti, 2011). However, Elliott et al. (2007) and Elliott et al. (2008) argue that the market-to-book ratio is an inappropriate measurement of stock valuation. They claim that this variable can be interpreted in various ways including indicators of growth opportunities as well as stock mispricing, while the valuation methods account for equity mispricing, directly. Thus, they use the residual income method (RIM) instead of the

[3] This empirical study was presented in the Behavioural Finance Working Group Conference 2017 at Queen Mary University of London, London in June 2017.

market-to-book ratio in capturing equity overpricing. However, Lundholm and O'Keefe (2001) claim that the RIM approach is equally efficient to the discounted cash flow model (DCF), but there is little research using the DCF approach to assess equity market timing. Therefore, this thesis attempts to examine whether equity overpricing with respect to the calculated using the intrinsic value with the DCF and RIM methods is a determinant of equity market timing. Moreover, as there is the problem of negative earnings over time for some companies, we employ the traditional discounted dividend model (DDM), whereby dividends cannot be a negative value to estimate the intrinsic value as well.

Further interesting determinants of market timing are ownership and board structure, as the reason for timing the market is asymmetric information between insiders and outsiders (Korajczyk et al., 1991). Therefore, ownership and board structure may be determinants of equity market timing decisions. According to the literature on ownership structure, few research studies have inspected these variables. For example, Chang et al. (2008) included the proportion of dedicated institutional investors to test the effect of institutional ownership on equity market timing, showing that a higher proportion of dedicated institutional investors enhances the benefits obtained from a window of opportunity in the stock market. Additionally, De Cesari et al. (2012) found that the proportion of institutional shareholders reduces equity market timing in share repurchases. In contrast, Larrain and Urzúa (2013) argue that higher institutional ownership minimizes equity market timing and further claim that higher ownership concentration increases equity market timing. Also, Hovakimian and Hu (2016) found that equity market timing with SEO allocations declines with larger institutional shareholders. Therefore, there is unclear evidence about the influence of institutional ownership on the equity market timing. Moreover, there is a lack of using other ownership variables, such as managerial and foreign ownerships. Even though Gounopoulos et al. (2014) explored the evidence of the impact of CEO ownership on the magnitude of SEO proceeds, they did not directly concentrate on equity market timing. Therefore, this study attempts to examine the association of ownership structure with equity market timing.

In particular, research studies employing board structure as a variable for equity market timing are considerably rare. Gounopoulos et al. (2014) explored the size of the board of directors to investigate in the context of the conducting follow-on stocks, speed of the first SEO issuance, and the magnitude of SEO proceeds. However, this factor has still been neglected in the existing research studies in the field of obtaining benefit from good conditions in the stock market, since their focus is only in terms of the conducting

SEOs. Moreover, the variable based on the structure of the board of directors contains not only board size, but also other factors such as the percentage of board independence as well as women and audit committee members on the board. Consequently, this paper aims to explore board structure as a determinant of equity market timing.

Most importantly, the review of the literature indicates that the study of market timing is considerably lacking in the context of Thailand. In addition, the limited empirical results from studies that have been conducted in this area demonstrate mixed findings. For instance, Limpaphayom and Ngamwutikul (2004) claim that there is market timing with SEOs in Thailand, whereas Thuwajaroenpanich (2002) contends that equity market timing does not occur in Thailand. Therefore, this is still a gap regarding market timing in the context of Thailand.

In summary, based on the previous literature, there are several gaps in the existing research on equity market timing. *First*, there is ambiguous evidence as to whether there is the existence of equity market timing. *Second*, there is little research employing the DCF and DDM approaches in estimating the intrinsic value of stock overpricing in the context of equity market timing. Negative earnings in the DCF method can indicate negative intrinsic value, while dividends in the DDM method cannot have negative value. Conversely, DDM can only be employed in firms that pay dividends. *Third*, there is little empirical evidence of the impact of ownership structure on equity market timing. *Fourth*, the variable of board structure has been ignored from the context of equity market timing. *Finally*, there are few and ambiguous empirical results regarding equity market timing in Thailand. As a result, this chapter attempts to fill these gaps to enhance and contribute to the literature of equity market timing.

2.1.1 Research aims and contributions

This chapter attempts to provide further insights into equity market timing to fill the gaps and enhance the literature. This chapter aims to investigate equity market timing by addressing the three main research questions, which are as follows:

1. Is there the presence of equity market timing in Thailand?
2. What are the determinants of the existence of stock market timing?
3. What are the determinants of the level of equity market timing?

Generally, this study provides empirical results that are separated between IPO and SEO events from 2000 to 2014 since the two events have different natures, including the mechanism of issuance, the process of allocation and the availability of data.

Additionally, the probit, OLS and GLS regression analyses are employed to address the above questions. Overall, the findings show considerable differences between the IPO and SEO samples, whereby the results can be briefly concluded as follows.

The first aim of this chapter is to examine whether there is the presence of equity market timing in Thailand as there is no consensus in the existing literature. This study provides the empirical results showing that there is strong evidence of the existence of equity market timing in Thailand, in the case of both IPO and SEO events. Based on the definition of equity market timing by Alti (2006), there are two implications of equity market timing, consisting of timing the equity market when the stock market is desirable and timing the stock market with the allocation of more stocks when the market is in a good condition. Our findings reveal strong evidence of the first implication of Alti (2006) since we can capture 215 hot and 70 cold firms in the case of going public. Also, in case of SEOs, there are 660 hot and 372 cold issuances. Hence, this study supports the first implication by Alti (2006). However, our results do not statistically and significantly support the second implication by Alti (2006) in terms of the amount of proceeds of both IPO and SEO events using the t-test mean difference method; nevertheless, there is economic significance of the second implication for the proceeds divided by total assets at time t-1 between timers and non-timers. Moreover, this study offers the novel implication in the case of SEOs regarding the issuing of follow-on stock several times when the market is favourable as we find evidence that there is a statistically significant mean difference of the log of the quantity of SEO issuances between timers and non-timers. Most importantly, our empirical results disclose strong evidence that there is an increase in cash holding after stock allocation for both IPO and SEO samples, which supports the claim by Blanchard et al. (1993), Loughran and Ritter (1997), Kim and Weisbach (2008) and DeAngelo et al. (2010) that if firms keep the proceeds gained from stock selling as cash savings, it is more likely that equity market timing was one of the motivations for their stock allocation. Therefore, this study provides evidence that there is equity market timing in Thailand, which supports Limpaphayom and Ngamwutikul (2004), who found evidence of equity market timing with SEO allocation in Thailand.

The second purpose of this chapter is to explore the determinants of the existence of equity market timing, whereby some variables show ambiguous results. This study focuses on various variables, including equity overpricing, ownership structure and board of directors. Moreover, we capture the presence of equity market timing in three different approaches consisting of hot and cold markets following Alti (2006), and this study contributes to the literature in that it offers relatively new variables to capture equity market timing in terms of economic boom and bust periods and bullish and bearish stock markets. Overall, our results show conflicting findings between the IPO and SEO samples. In the case of IPOs, we find that institutional ownership and board independence are the determinants of the existence of equity market timing with a negative effect. On the other hand, ownership concentration and board size are the factors for the presence of equity market timing with a positive influence. Moreover, stock overpricing and the proportion of audit committee members are determinant of the presence of equity market timing, yet the impact is mixed depending on each situation. This suggests that these factors lead to employ different strategies to time the equity market of IPO firms. However, managerial ownership and women on the board do not significantly[4] impact the probability of IPO market timing. In case of SEOs, this study shows that ownership concentration and board independence are determinants for the existence of equity market timing with a negative effect, while stock overpricing, institutional and foreign ownership, women and audit committee members on the board are the factors for the presence of equity market timing with a positive influence. Moreover, board size is a determinant of the existence of stock market timing, but the effect is uncertain, depending upon each condition between economic expansion and a bullish stock market. Conversely, managerial ownership is not significantly related with the chance of SEO market timing because of the absence of statistical significance.

The third objective of this chapter attempts to inspect the determinants of the level of equity market timing in the form of the amount of proceeds for IPO and SEO allocations and the quantity of follow-on stock selling, which is a new approach to capture the degree of equity market timing. The variables are employed to detect their effects, consisting of stock overpricing, ownership structure and board of directors. Most of our findings are non-identical between IPO and SEO samples. In the case of IPOs, this study illustrates that only stock overpricing, managerial ownership, board size and audit committee members on the board are significant determinants for the degree of equity market timing in terms of larger proceeds, with a positive influence. However, the remaining factors do not significantly affect the level of equity market timing with larger proceeds. For the case of SEOs, only equity overpricing, managerial and foreign ownership, board size and audit committee members on the board are significant determinants for the level of equity market timing with more money. Conversely, we do

[4] "Significant" means statistically significant unless otherwise stated.

not find a significant relationship between the remaining factors and the magnitude of SEO proceeds. *Interestingly,* stock overpricing, managerial ownership, board size and audit committee members on the board have opposite results between IPO with positive effect and SEO with negative effect for equity market timing with larger proceeds. This indicates that timing the equity market to gain huge proceeds is the main strategy for IPO firms who contain with these factors, while SEO firms with same characteristics prefer not to time the market with this strategy. Moreover, based on the degree of equity market timing in terms of the amount of SEO allocation, we find that ownership concentration is a determinant of the degree of equity market timing in patterns of multiple SEO allocations with a negative influence, while institutional and foreign shareholders, independent directors and women on the board have a positive effect on equity market timing with multiple SEO issuances. Conversely, the remaining variables in this study do not have a significant influence on the SEO market timing with several allocations.

Overall, this chapter investigates the presence of equity market timing in Thailand and the determinants of the existence and level of timing the equity market. Most importantly, this chapter can contribute to the literature for *7* reasons. *First*, to the best of our knowledge, this study is the first to include economic boom and bust to capture stock market timing. *Second,* unlike most of the previous literature, this study is the first to employ three different methods, namely the DCF, RIM and DDM approaches, to estimate the intrinsic value of equity overpricing in the field of equity market timing, especially the DDM model as there is no research study employing this method in the context of equity market timing. *Third,* this study is a novel study as it includes the proportion of foreign ownership and the variable of board structure to test their effect on equity market timing. *Fourth,* this study is the first to inspect the determinant of the degree of equity market timing while also offering a new variable of the level of equity market timing in terms of the quantity of SEO issuance during the allocating period. *Fifth,* this study contributes to the data, as access to data in Thailand is quite difficult, therefore it is necessary for some of the data collected by hand from the Form 56-1 annual report, while some data are available on a unique database (SETSMART database) that is provided by the Stock Exchange of Thailand. *Sixth,* this study employs the GLS regression to account for heteroskedasticity, which is the main problem in cross-sectional data (Wooldridge, 2006), while most prior research studies used only the OLS regression method. *Finally,* unlike most of the literature, this study investigates the equity market timing in Thailand, which is an emerging market, and there are few research studies focusing on this issue, even though the Stock Market of Thailand has a weak-form efficiency (Kim & Shamsuddin, 2008; Aumeboonsuke, 2012), and their findings are ambiguous. Therefore, this study contributes by filling the gaps in the existing literature, supporting the development of the financial market, reducing the agency problem and enhancing corporate governance in Thailand.

The remaining of chapter is organized as follows. Section 2.2 gives the literature review for this chapter. Next, section 2.3 illustrates the hypothesis development for this chapter. Subsequently, the data and methods are presented in section 2.4, while section 2.5 exhibits the results and findings. Then, the discussion of the findings is presented in section 2.6, and section 2.7 displays the practical implications of this chapter. Afterwards, section 2.8 focuses on the limitations of this chapter. Finally, the conclusion of this chapter is presented in section 2.9.

2.2 Literature review

2.2.1 Capital structure

Capital structure theory was originally developed by Modigliani and Miller (1958) and is currently known as MM theory. After 30 years, the development of this theory dramatically increased. Therefore, Harris and Raviv (1991) classified capital structure theory into four categories, consisting of agency method, asymmetric information approach, product/input market interaction technique, and corporate control consideration approach.

The agency cost area was initially studied by Jensen and Meckling (1976), who identified two problems. The first problem is the conflicts between shareholders and managers, since managers have an ownership proportion of less than 100 percent. Consequently, they do not maximize shareholder wealth, however, they reduce firm value through an increase in firm expenses for their activities, such as renovating their office and personally purchasing official cars; therefore, the solution to this conflict is debt financing. Another issue is the conflict between debt and equity holders as the debt contract generates a tendency for equity holders to inefficiently invest. The asymmetric information aspect was originally investigated by Ross (1977). Myers and Majluf (1984) contributed to an important branch of the literature, showing that managers have more inside information on firm value compared to outside investors, while the stock price of a company may later be mispriced.

The third group is based on product/input market interaction relating to industrial organization. Brander and Lewis (1986) state that monopolists use less debt than oligopolists. Moreover, Titman (1984) informs that firms that have high product quality and reputation may have low leverage. However, the fourth category is motivated by corporate control decisions. Harris and Raviv (1988) and Stulz (1988) claim that there is a positive relationship between takeover target and the level of debt, while there is a negative correlation between leverage and successful tender offers.

However, there are currently three major theories of capital structure (Guney & Iqbal-Hussain, 2010). First, trade-off theory demonstrates that firms need to balance between benefits and the costs of debt and equity to reach the target capital structure (Myers, 1977). However, pecking order theory claims that there is no target debt, however, firms consider financing decisions first with internal sources of funds, then with less-risky debt and finally with equity (Myers, 1984; Myers & Majluf, 1984). On the other hand, there is market timing theory, which was primarily studied by Baker and Wurgler (2002) and they argue that a company issues equity when historical stock market prices were high. Hence, market timing theory is considerably challenging for capital structure theory (Chen et al., 2013). Consequently, this paper focuses on the market timing theory of capital structure, which is an infant and interesting theory.

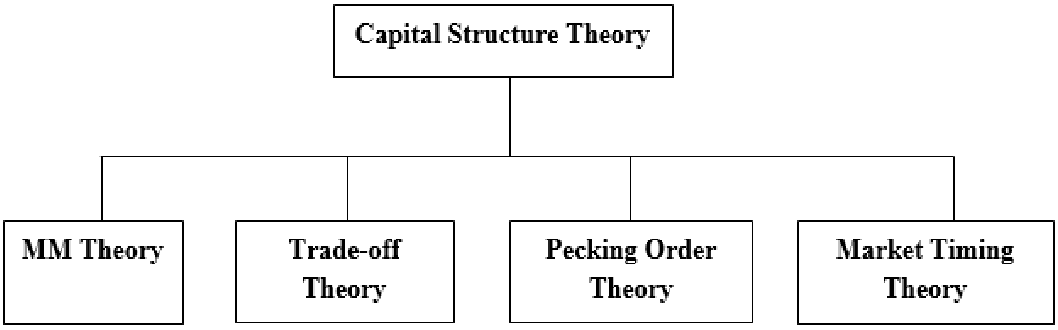


Figure 2.1: The summary of capital structure theory (Guney & Iqbal-Hussain, 2010)

2.2.2 Equity market timing

A large amount of the literature has reported evidence of equity market timing. To begin with, Taggart (1977) explored the model of company financing decisions and showed that there are some clues of market timing. Moreover, Pagano et al. (1998) indicate that the purpose of a firm going public is not future investment and growth but rather a rebalancing of the accounts. Furthermore, Bayless and Chaplinsky (1996) define a hot market as having a high volume of stock issuance, whereas a cold market has a low quantity of equity issuance, and they claim that a hot market seems to be a window of opportunity for business in raising their capital. However, while several primary research studies focus on the behaviour of companies in timing the market, their works do not extend to capital structure (Kaya, 2013c).

The study by Baker and Wurgler (2002) was a pioneer in enlarging market timing to capital structure. They examined whether market timing impacts on capital structure using the historical market-to-book ratio and showed that there is a significantly negative relationship between them in the long term. In addition, Bougatef and Chichti (2010) found that decisions regarding debt and equity issuances related to market timing in the Tunisian and French markets in the long term. Additionally, Chong et al. (2012) tested whether trade-off theory, pecking order or market timing were appropriate for Singapore, Hong Kong and Taiwan and concluded that there is significant evidence of market timing in the long term. Also, Kaya (2013c) explored the impact of market timing on capital structure and indicated that there is relevance in the long term, whereby he classified the market timing as occurring in hot, neutral or cold months, depending on the volume of equity issuance each month.

On the other hand, Alti (2006) argues that market timing affects capital structure only in the short term, whereby he defines the hot and cold markets according to the volume of IPO issuance. Similarly, Guney and Iqbal-Hussain (2010) found that there is a negative involvement between the market-to-book ratio and leverage in the short term, and then the rebalance of leverage occurs immediately after the IPO year. Furthermore, Hovakimian (2006) claims that there is a negative association between the historical market-to-book ratio and leverage in the short term. Furthermore, Kayhan and Titman (2007) investigate whether firm leverage is impacted by cash flow, capital expenditure and historical equity price, and their results demonstrate that historical stock price affects the debt ratio in the short term, and then the corporations adjust their capital structure to target leverage according to trade-off theory, but if cost of rebalance is high, then the capital structure is gradually adjusted. Huang and Ritter (2009) found that a firm issues a huge financing deficit when the equity risk premium is low, and then the companies endeavour to moderately rebalance their capital structure. Moreover, Brendea (2012) demonstrated that when the market value of firms is high, the equity is increasingly financed but the effect is only in the short term.

In contrast, there are many research studies that claim that market timing theory cannot describe capital structure decisions. To start with, Thuwajaroenpanich (2002) considered whether equity market timing generates a change of capital structure by detecting the connection between stock market and the announcement of equity in Thailand during the 1992-1996 period, proving that Thailand has no sign of market timing. Likewise, Çelik and Akarim (2012) claim that market timing cannot be evidenced for Turkish firms. In addition, Chen et al. (2013) examined whether pecking order theory or market timing theory accounted for capital structure in Taiwan from 1990 to 2005 and showed that there was market timing in 1990-2001, but no market timing in 2002-2005. Again, Lee et al. (2012) classified UK companies as financially constrained firms and Japanese businesses as financially unconstrained firms and demonstrated that the result of market timing is insignificant in UK, however it emerges in Japan.

In addition, not only does a manager time the stock market regarding equity issuance, there also is some evidence of equity market timing with the repurchase of undervalued stocks. For instant, Brockman and Chung (2001) studied the market timing of stock buyback in Hong Kong from 1991 to 1999 and the effect of this activity on liquidity, concluding that there is evidence of timing the stock repurchasing market while the spreads between bid and offer prices are narrowed, which implies that liquidity is affected by the timing of the share buyback market. Likewise, Bozanic (2010) has been presented a reverse way, which is timing the market with share repurchase when a company's shares are undervalued. Simultaneously, Dittmar and Field (2015) investigated the equity market timing of managers with share repurchases in the United States from 2004 to 2011, and they found that stocks are repurchased at a lower price compared with the average closing stock price for firms whose managers have ownership in their companies. In contrast, Cook et al. (2004) contend that there is unclear evidence of the managerial timing of share buyback in the US from 1993 to 1994; however, they found that buyback activity supports the enhancing of the liquidity of the market.

Moreover, there are several important implications that can be drawn from this topic. First, DeAngelo et al. (2010) examined SEO issuance relating to market timing or life cycle of business, and they contend that both market timing and life cycle of business have an effect on SEO allocation, although life cycle is more influential than market timing. Also, Chang et al. (2010b) claim that the decision to issue equity is more correlated with market conditions for keiretsu members than for unaffiliated firms in Japan. Furthermore, Cook and Tang (2010) found that a good market condition stimulates the rebalancing to target the debt ratio more rapidly than normal market circumstance. Moreover, Arosa et al. (2014) indicate that firms relate market timing to reducing their leverage when the stock price goes up, and companies in countries with a high uncertainty avoidance and power distance have lower market leverage. Also, Lewis and Tan (2016) claim that managers issue equity rather than debt when their companies have growth in the long term. Further, Handy (2015) investigated the effect of managerial overconfidence on the decision of equity market timing with SEO stocks and found that equity market timing with SEO issuance is less related to overconfident managers and it is possible that SEO market timing is also minimized by overconfident executives. Again, Vermaelen and Xu (2014) analysed market timing and acquisition activity, indicating that target firms accept stock payment only when the decision regarding optimal capital structure is justified in terms of the economic foundation of bidder companies, whereas they otherwise adopt cash payment.

Most research studies focus on hot and cold markets to classify the timing of the equity market by managers according to Alti (2006). Interestingly, recent research studies have come to concentrate on the duration and speed of IPO and SEO offering. Qian (2014) analysed the duration of stock reissuance after an IPO event and the factor of the decision in timing the equity market in the US from 1975 to 2004, and they demonstrated that follow-on equity is issued more slowly than the first SEO after an IPO, and the benefit of misvalued stock is obtained for the first SEO rather than consequent SEOs. Moreover, Bilinski and Mohamed (2015) examined the impact of equity overpricing on the period of equity and debt issuances, and they indicated that if a company has a short duration in which it conducts equity and debt offerings, this means that they might be attempting to time the market with overvalued stock issuance, which implies that investors are able to recognize the reason for the issuance by the lifetime of the security offering. In addition, Plotnicki and Szyszka (2014) inquired whether the speed of the IPO procedure affects the decision of equity market timing with IPO offering, and they showed that there is a negative relationship between the span of the IPO procedure and the returns of equity. Additionally, they found that a company quickly issues IPOs in a bullish market, while they slowly launch IPOs in a bearish market, which means that the duration of the equity issuing process is an important factor for a manager to time the equity market.

2.2.3 Equity mispricing and equity market timing

2.2.3.1 Equity mispricing definition

Equity misvaluation is when a stock market price is not in equilibrium and is classified into two patterns. First, undervalued stock is a stock with a market price that is lower than the intrinsic value, while overvalued stock is a share with a market price that is greater than the intrinsic value (Johnson, 2009). Lee et al. (1999) claim that the residual income pricing (RIM) model can estimate a valuation over 20 percent in real stock returns, and other models, including market-to-book ratio, are uncertain and absent measures due to the difficulty of estimating the cost of equity. However, Lundholm and O'Keefe (2001) found that there are not different results between the RIM and discounted cash flow (DCF) approaches. Likewise, Plenborg (2002) documented that the RIM model is superior to the DCF approach in some cases, whereas the DCF approach yields a more accurate evaluation than the RIM method in others. Furthermore, Courteau et al. (2000) state that the finance literature prefers to use the DCF technique because of the unrelated accounting approach.

2.2.3.2 The empirical evidence of equity ovepricing and market timing

There are numerous studies using the market-to-book ratio to capture stock overpricing in equity market timing, including Baker and Wurgler (2002), Bougatef and Chichti (2010) and Brendea (2012). On the other hand, Elliott et al. (2007) argue that the market-to-book ratio is inappropriate to determine stock misvaluation, and they tested the impact of market timing on a company's financing deficit with the earnings-based valuation technique. They found that there is a significantly positive association between the overpricing of firms and the business's financing deficit which is financed with stock. In addition, Elliott et al. (2008) investigated the relevance of equity mispricing, calculating with the earnings-based pricing model and firm's choices, and concluded that equity market timing is the important factor in funding decisions since companies have a tendency to finance with large equity when their shares are overvalued. Bonaimé et al. (2014) analysed whether managers take advantage of mispricing opportunities by repurchasing undervalued stocks, calculated using the RIM and the Rhodes–Kropf et al. (2005) (RKRV) methods, and found that stock repurchase by a company tends to increase when their stocks are undervalued and their capital structures are underleveraged.

2.2.4. Ownership structure and equity market timing

Stulz (1988) states that ownership concentration is a crucial determinant of a company's financing policy due to the conflicts of interest between insiders/managers and outside investors. In addition, Zingales (1995) studied the relevance between insider ownership and the decision for a firm to go public and demonstrated that the corporate control dimension is one factor in whether to be a public or private company. Surprisingly, there has been little research studying the impact of ownership on equity market timing. For example, Chang et al. (2008) employed the proportion of stocks owned by dedicated institutional investors in equity market timing, claiming that firms with a high proportion of dedicated institutional shareholders benefit from the advantages obtained from timing the equity market. In addition, De Cesari et al. (2012) claim that timing the equity market with inverse equity buyback can be reduced through a higher proportion of institutional shareholders, whereas the portion of insider ownership enhances the timing of stock buyback to gain high profits. Also, Larrain and Urzúa (2013) investigated the relationship between controlling ownership held by the highest fraction of 12 shareholders and the proportion of institutional ownership and equity market timing with selling overvalued stocks to outside investors; they found evidence that corporations with higher ownership concentration tend to time the equity market by issuing overvalued stocks to outside investors despite the reduction of their ownership; however, these are compensated by the high value of dividends. Furthermore, firms with higher institutional ownership are less absent from the reduction of performance after stock issuance. Moreover, Gounopoulos et al. (2014) provide evidence that CEO and controlling ownerships have a positive effect on the magnitude of SEO proceeds. Recently, Hovakimian and Hu (2016) found that corporations with higher institutional ownership tend to decrease equity market timing with follow-on stocks issuance. However, there are other ownership variables, not only institutional and controlling shareholders, but these are also ignored by the literature of equity market timing, especially with regard to foreign ownership. Moreover, although Gounopoulos et al. (2014) employed CEO ownership to investigate its influence on SEO selling, they do not focus on these factors in the direct context of equity market timing. Thus, managerial ownership is still a gap in the field of equity market timing.

2.2.5 Board size and composition and equity market timing

There is an abundance of research studies insisting that there is a significant relevance between capital structure and board structure, including that by Preffer and Salancik (1978). Furthermore, Berger et al. (1997) claim that there is a negative correlation between size and composition of board and debt-equity ratio. However, Jensen (1986) argues that there is a significantly positive association between size and structure of board of directors and gearing ratio. Abor (2007) said that firms with a larger board size and a higher proportion of non-executive directors tend to finance with debt rather than with equity. Interestingly, there is little evidence showing the impact of board structure on equity market timing. In the previous literature, Gounopoulos et al. (2014) was the first study to employ board size, testing whether the size of the board IPO firms has an effect on the speed of conducting the first SEO, the returns of SEO, the magnitude of money gained from SEO issuance, and the decision regarding the first SEO allocation in China. They found that firms with a larger board size are willing to faster allocate the first SEO after going public. Therefore, the prior research studies lack the test of the structure of board of directors and equity market timing, while other factors of the composition of the board, such as board independence and the presence of women and audit committee members, are ignored from the existing literature.

2.2.6 Equity market timing in Thailand

There are very few research studies on equity market timing in Thailand. To begin with, Thuwajaroenpanich (2002) claim that there is no evidence of market timing in Thailand as she found that the declaration of equity does not relate to the stock market. Conversely, Limpaphayom and Ngamwutikul (2004) found evidence of equity market timing with SEO allocation when stocks were overvalued in Thailand during the period of 1991 to 1994, whereby a number of SEOs were really active during this period. Hence, it is still ambiguous whether insiders time the equity market in Thailand, and the existing literature on equity market timing in the context of Thailand is insufficient.

2.3 Hypothesis development

2.3.1. The presence of equity market timing

In the prior literature, Baker and Wurgler (2002) claim that there is the existence of equity market timing in the long term, while Alti (2006), Hovakimian (2006) and Huang and Ritter (2009) argue that the presence of equity market timing is found only in the short term. However, Lee et al. (2012), Çelik and Akarim (2012) and Chen et al. (2013) contend that there is no presence of equity market timing since the equity market is efficient. Therefore, there is no consensual evidence of the existence of equity market timing, especially in Thailand, as few research studies have focused on this topic. Hence, we consider this issue worthy of investigation. As Kim and Shamsuddin (2008) claim that the Stock Market of Thailand is inefficient while Limpaphayom and Ngamwutikul (2004) provided some evidence of equity market timing with allocating the high value of follow-on stocks in Thailand, we expect that:

Hypothesis 1: *There is the presence of equity market timing in Thailand.*

2.3.2. Equity overpricing

According to the literature, several studies (Baker & Wurgler, 2002; Alti, 2006) claim that firms try to time the equity market when their stocks are overvalued to take the benefit from high stock prices; therefore, equity overpricing may be a crucial determinant of equity market timing. However, numerous studies choose the market-to-book ratio as a variable for equity overpricing, including Baker and Wurgler (2002), Hovakimian (2006), and Bougatef and Chichti (2010). However, Lee et al. (1999) argue that the RIM model is superior to market-to-book ratio, while Lundholm and O'Keefe (2001) found that both the RIM and DCF methods provide a similarly efficient result for stock pricing. Furthermore, DDM method can deal with the problem of negative intrinsic values due to negative earnings in the DCF and RIM methods. Therefore, we decide to include equity overpricing estimated the stock intrinsic value with RIM, DCF and DDM methods as a variable for equity market timing and we expect that:

Hypothesis 2: *If a firm's equity is overvalued, the probability and degree of equity market timing increase.*

2.3.3. Ownership

Chang et al. (2008) initially introduced dedicated institutional ownership as a determinant of equity market timing and found that firms with higher dedicated institutional ownership obtain higher benefit from timing the equity market. Consequently, we acknowledge that institutional ownership seems to be a determinant for equity market timing decisions. However, the ownership variables were not the only factor employed by Chang et al. (2008), managerial, foreign and controlling ownerships can also be variables for ownership structure. Furthermore, few studies employ these variables in equity market timing, thus we consider including them in this study.

2.3.3.1 Managerial ownership

Asymmetric information between insiders/managers and outside investors is the important factor of equity market timing (Baker & Wurgler, 2002). Hence, managers may associate themselves with timing the equity market. Moreover, there is evidence that managerial ownership associates with debt ratio, yet their findings are ambiguous with positive relationship (Kim & Sorensen, 1986; Ağca & Mansi, 2008) and negative relationship (Friend & Lang, 1988). However, no research study employs this variable to test in the context of equity market timing. Based on agency problem, Stulz (1988) states that managers attempt to avoid equity issuance in order to control their voting rights and to prevent from the dilution of their wealth from new shareholders. Thus, we expect that:

Hypothesis 3.1: *The probability and degree of equity market timing decrease with higher managerial ownership.*

2.3.3.2 Institutional ownership

There is little research investigating the impact of institutional ownership on equity market timing, although institutional ownership has an important role in reducing the agency problem (Agrawal & Mandelker, 1990). Thus, we enter this variable testing in the context of equity market timing. Huang (2006) showed that there is no association between institutional ownership and debt ratio. Conversely, Bathala et al. (1994), Pushner (1995) and Dahlquist and Robertsson (2001) argue that institutional ownership conversely relates with leverage. However, Chang et al. (2008) found that firms with higher dedicated institutional ownership earn higher benefit from equity market timing. Hence, we expect that:

Hypothesis 3.2: *The probability and degree of equity market timing increase with higher institutional ownership.*

2.3.3.3 Foreign ownership

Foreign institutional ownership is able to reduce agency cost (Stulz, 1999). Moreover, there is evidence of a relationship between foreign ownership and leverage, but the results are under discussion. For instance, Kang (1997) found that foreigners have a positive relationship with highly leveraged companies. In contrast, Dahlquist and Robertsson (2001) argue that there is a negative relevance between them. However, no research study investigates the effect of this variable on equity market timing. Hence, based on the recent study in the context of capital structure, Li et al. (2009) found that foreign shareholders prefer to finance with equity rather than debt because of high risk of debt. Moreover, foreign shareholders may obtain benefit from timing the equity market since they are existing shareholders. Thus, we expect that:

Hypothesis 3.3: *The probability and degree of equity market timing increase with higher foreign ownership.*

2.3.3.4 Ownership concentration

Firms with greater ownership concentration prefer to use debt rather than equity since new equity issuance might dilute their wealth (Céspedes et al., 2010). Conversely, Jensen and Meckling (1976) argue that if firms have high equity ownership concentration, they tend to avoid debt because debt financing leads to high pressure. This is the cause of the decrease in the role of debt to minimize the "moral hazard" and "adverse selection problem" (Deesomsak et al., 2004). Recently, Margaritis and Psillaki (2010) found that there is a negative relationship between ownership concentration and debt ratio. Therefore, controlling shareholders may be a determinant of equity market timing; however, this variable has received less attention from the literature of equity market timing. Moreover, Wiwattanakantang (1999) found that Thai firms with a large ownership concentration prefer using less debt since managers are monitored from the larger shareholders in Thailand. Also, major shareholders are existing shareholders who tend to earn the benefit from equity market timing. Hence, we expect that:

Hypothesis 3.4: *The probability and degree of equity market timing increase with a higher proportion of ownership concentration.*

Furthermore, ownership concentration is estimated using the Herfindahl-Hirschman index (HHI) because cumulative concentration allows us to evaluate the equal weight of all the equity holders, whereas the size of stockholding is the concern of the Herfindahl-Hirschman index (Hay & Morris, 1979). Moreover, Goergen and Renneboog (2001) claim that the HHI can achieve a capture of the distribution of ownership throughout shareholders, while this method does not affect the individual equity holders in allied voting power.

2.3.4. Board structure

With regard to agency cost theory, Mehran (1992) said that the conflict between managers and shareholders can be minimized through the observation by the board of directors. Thus, we decide to employ board structure as a determinant for equity market timing decisions. Furthermore, there is no research study investigating this topic. According to the literature, some studies employ board structure variables, such as the ratio of independent directors and board size (Lim et al., 2007), and the number of women on the board (Bear et al., 2010). Therefore, we include these variables in this study.

2.3.4.1 Board independence

Independent board members may be a variable for equity market timing since the literature presents that a high proportion of independent board members affects high leverage (Lim et al., 2007). Moreover, higher proportion of board independence leads to higher corporate governance of firms (Core et al., 1999; Gillan & Starks, 2000). Therefore, equity market timing refers to taking the benefit of asymmetry information between insiders and outside investors. Hence, firms with higher independent directors on the board tend to contain with higher corporate governance; thus, they avoid timing the equity market. Consequently, we expect that:

Hypothesis 4.1: *The probability and degree of equity market timing decline with a higher proportion of independent board members.*

2.3.4.2 Board size

Regarding the previous literature, the association between board size and market timing still does not have a study concentrating in this topic. However, there are some studies examining the impact of board size on capital structure, so board size seems to be a determinant of market timing. Berger et al. (1997) claims that a high number of directors on the board influences low leverage, while Lim et al. (2007) argue that there is a positive relation between them. Recently, Wang (2012) and Upadhyay (2015) found that there is a significantly positive relationship between the debt ratio and board size. Moreover, a large size of board leads to high efficiency for decision-making in the boardroom because of the diversification of insider power (Berger et al., 1997). Therefore, the firms with larger board size prevent from the policy which may be the cause of dilution in shareholders' wealth such as equity market timing. Hence, we suggest that:

Hypothesis 4.2: *The probability and degree of equity market timing decline with larger board size.*

2.3.4.3 Women on the board

A firm's monitoring efficiency can be improved with board diversity (Carter et al., 2003). Adams and Ferreira (2009) also found that the women on the board exert more attention when participating in board meetings. Simultaneously, Alves et al. (2014) showed that board composition has an influence on a firm's financing. Therefore, we consider employing the percentage of woman on the board as a determinant of equity market timing. Interestingly, there is no research study examining this topic. According to the previous literature, Coleman and Cohn (1999) and Verheul and Thurik (2001) presented that there is no difference in debt financing between male and female decisions. Recently, Alves et al. (2014) disputed that boards with higher diversity of genders have a positive correlation with external equity but an inverse relation with short-term debt. Moreover, Faccio et al. (2016) found that female executives prefer to use equity since they avoid to employ aggressive policy with using debt financing. Hence, we suggest that:

Hypothesis 4.3: *The probability and degree of equity market timing increase with a higher proportion of women on the board of directors.*

2.3.4.4 Audit committee members on the board

An audit committee acts as a detector or monitor of a firm in the place of investors (Xie et al., 2003). Furthermore, there are three aspects to measure the audit committee quality, namely proportion, independence and professionalism (Krishnan, 2005). Also, Menon and Williams (1994) claim that agency cost is diminished by the monitoring by the audit committee. In addition, they support the oversight of the behaviour of other members on the board of directors, including executive managers, to appropriately decide and protect the dilution of shareholder's wealth (Adams, 1997). Most importantly, the asymmetric information between insiders/managers and outside investors, which is an important cause of equity market timing, can be decreased by an audit committee's control (Méndez & García, 2007). Therefore, the existence of the audit committee on the board might relate to equity market timing and we suggest that:

Hypothesis 4.4: *The probability and degree of equity market timing decrease with a higher proportion of the audit committee members on the board of directors.*

Table 2.1: Summary of hypothesis for equity market timing

Order		Hypothesis	The presence and degree of IPO market timing	The presence and degree of SEO market timing
1.	H1	There is the presence of equity market timing in Thailand.	NA	NA
2.	H2	Equity overpricing	+	+
3.	H3	Ownership structure		
	H3.1	Managerial ownership	-	-
	H3.2	Institutional ownership	+	+
	H3.3	Foreign ownership	NA	+
	H3.4	Ownership concentration	+	+
4.	H4	Board structure		
	H4.1	Board independence	-	-
	H4.2	The extent of board size	-	-
	H4.3	Women on board of directors	+	+
	H4.4	Audit committee on board of directors	-	-

2.4 Data and methods

2.4.1 Sampling design and data sources

The IPO data during the period of 2000 to 2014 are collected from the official website of the Securities and Exchange Commission (SEC), Thailand and are cross-checked with the SETSMART (SET Market Analysis and Reporting Tool) database, which is a unique database of Thailand provided by the Stock Exchange of Thailand (SET). There are 332 companies which issued IPOs from 2000 to 2014, excluding the property fund and real estate investment trusts (REITs) sectors. After that, the samples are screened for the financial companies, which consist of 38 firms; therefore, the samples of IPO are 294 non-financial companies, including the SET and MAI markets in Thailand, from 2000 to 2014. The data on SEO issuance are collected from three main sources, consisting of the SET's Fact Books, which are available in SET's official website, as well as the SETSMART and Thomson ONE databases. Initially, there were 1,415 SEOs in Thailand during the period of 2000 to 2014 consisting of public offering (PO), private placement (PP), right for old shareholder (XR), warrant (XE) and stock dividend (XD). However, we drop stock dividend from our observations as we focus only exactly incremental capital to company according to the information reported by the SET's official website (SET, 2016). Moreover, we exclude 150 observations as the data on the issuing date are unavailable as well as 13 samples which are financial companies. Therefore, the primary samples of SEO are 1,169 samples of 335 listed firms on the Thai stock market or approximately 67.37% of non-financial listed companies of the Stock Exchange of Thailand for 2014 (521 non-financial firms).

Furthermore, in the previous literature, Baker and Wurgler (2002), Alti (2006) and Guney and Iqbal-Hussain (2010) among others excluded the observations containing EBITDA/TA, INV/A, or DIV/E exceeding 100%. Hence, our samples contain 9 IPO companies and 6 SEO firms who have these ratios over 100%, thus these samples are removed from our observations. In addition, in prior research studies of SEO events, they dropped the samples which had proceeds of less than 5% of total assets; however, we cannot eliminate from our samples following the literature since the size of our market is quite small as it is an emerging market compared to the previous research studies, whereas their samples were in the developed market. Thus, if we similar exclude the samples, we lose from our observations 665 samples, which is a high number of observations. Hence, we decide to eliminate the samples which have proceeds of less than 0.05% of total assets, of which there are 124 observations in total. Ultimately, our final samples consist of 285 IPO samples and 1,038 SEO observations in Thailand for this study.

The ownership data consisting of managerial, institutional, foreign and controlling ownership are obtained from various sources, including Form 56-1, which is a firm's annual report submitted to the SEC and is available on the official website of the SEC, Thailand, as well as the Bloomberg and SETSMART databases. The board of director's data containing board size, board independence, women, audit committee and military experience on the board and CEO and CFO characteristics are collected from Form 56-1 on the official website of the SEC, Thailand, as well as the SETSMART database. Most importantly, almost all of these data are only available in the Thai language, thus it is necessary to translate these data into English to estimate them for analysis and some types of data are required to be collected by hand, especially the data on board of directors and managerial characteristics.

The financial and market price data are obtained from the DataStream database and the missing data are taken from the Bloomberg database. Also, the economic data including gross domestic product (GDP), stock market index (SET index) and producer price index (PPI) are taken from the DataStream database. Furthermore, the other data, such as the weighted average cost of capital (WACC) and effective taxed rate, are obtained from the Bloomberg database. The duration of IPO process data is collected from the official website of the SEC, Thailand, and the SETSMART database. The date and types of IPO issuance and the proceeds data are obtained from the company's filing form on the official website of the SEC, Thailand. The date and types of SEO issuance data are gained from the SET's Fact Books and the SETSMART database. Additionally, the net proceeds of SEO data are collected from the DataStream and Bloomberg databases. Finally, the industry groups are classified according to the SET, thus there are seven industry groups.

Overall, as the data on Thai companies are difficult to obtain because of the barriers of language and of information access, thus we need to combine several sources and some data must be collected by hand. Hence, the following sections can significantly contribute to the literature in this area.

Table 2.2: Summary of the number of final samples for IPOs and SEOs			
Year	IPO samples	SEO observations	Total
2000	2	14	16
2001	6	28	34
2002	18	40	58
2003	26	86	112
2004	42	90	132
2005	43	80	123
2006	18	84	102
2007	13	73	86
2008	11	35	46
2009	16	22	38
2010	10	35	45
2011	10	88	98
2012	15	99	114
2013	25	145	170
2014	30	119	149
Total	**285**	**1,038**	**1,323**

2.4.2 Data definition

2.4.2.1 The dependent variables

The dependent variables consist of the presence and level of equity market timing.

a.) The presence of equity market timing

Equity market timing is defined using three different methods, namely using the hot and cold markets according to Alti (2006), the GDP growth rate, or the stock market index. Regarding Alti (2006), the existence of equity market timing is captured by stock allocation in a hot market, whereby he employed a 3-month moving average of the volume of stock each month, and then the median of the detrended moving average of the IPO and SEO volumes is taken to separate the hot and cold markets. The hot market variable is the representation of the presence of equity market timing with a high volume of stock allocation in the stock market. In addition, Virolainen (2009) claims that the number of stock issuances depends on both macro and micro factors. Moreover, there is evidence that there are macroeconomic factors involved in the financing policy (Korajczyk & Levy, 2003; Cook & Tang, 2010). Therefore, it is possible that macro factors such as growth domestic product (GDP) and stock market index can be used to capture equity market timing. Additionally, there is some evidence of equity market timing when the stock market is bullish (Limpaphayom & Ngamwutikul, 2004; Plotnicki & Szyszka, 2014). Hence, macro factors, including GDP and stock market index, are used to capture equity market timing as well. The 3-month moving average and the median of the detrended moving average are employed similar to Alti (2006), but the quarterly nominal GDP growth rate and the monthly growth rate of stock index are used instead of IPO and SEO volumes.

b.) The degree of equity market timing

The level of equity market timing is defined using two different ways, namely via the equity proceeds and the number of stock issuances. However, as an IPO can be allocated only one time and the following instances of issuance are called SEOs, the level of equity market timing with IPO is estimated only in terms of the proceeds ratio. Furthermore, the data about the primary proceeds of SEOs are unavailable for almost 75% of Thai companies, so it is essential to employ the net proceeds data instead of the primary proceeds data for SEOs.

2.4.2.2 The explanatory variables

The explanatory variables consist of equity overpricing, ownership structure and board of directors.

The equity overpricing estimation

The equity overpricing variable is measured by the dummy variable of overvalued stock *(Overpricing)* which is equal to 1 when the ratio of a stock's intrinsic value divided by the market stock's price *(V/P)* is lower than 1. The equity's intrinsic value is estimated with the discounted cash flow (DCF) method, residual income (RIM) method and dividend discounted model (DDM) as follows:

1.) The discounted cash flow (DCF) method (Stowe et al., 2007)

$$Firm\ value = \sum_{t=1}^{T} \frac{FCFF_t}{(1+WACC)^t} + \frac{FCFF_{T+1}}{(WACC-g)(1+WACC)^T} \tag{2.1}$$

FCFF = Free cash flow to the firm

= EBIT - Corporate Tax + Depreciation and Amortization - Change in net working capital - Capital expenditures + After-tax asset sales (Kaplan & Ruback, 1995) (2.2)

EBIT = Earnings before interest and tax

Corporate Tax = EBIT* Effective tax rate

T = 2 years (Warr et al., 2012)

WACC = Weighted average cost of capital following the definition of the Bloomberg database

$$WACC = (W_d \times k_d) + \left(W_p \times k_p\right) + (W_e \times k_e) \quad (2.3)$$

Where, $$W_d = (\frac{TD}{V}),\ \ W_p = (\frac{P}{V}),\ W_e = (\frac{E}{V}) \quad (2.4)$$

Where, W_d = the proportion of debt, W_p = the proportion of preferred stock, W_e = the proportion of common stock.

k_d = After-taxed cost of debt following the Bloomberg calculation;

$$k_d = \left[(\frac{SD}{TD}) \times (CS \times AF)\right] + \left[\left(\frac{LD}{TD}\right) \times (CL \times AF)\right] \times (1 - TR) \quad (2.5)$$

Where, SD = Short-term debt, LD = Long-term debt, CS = Pre-tax cost of short-term debt, CL= Pre-tax cost of long-term debt, AF = Debt adjustment factor of the Bloomberg database, TR= Effective tax rate.

k_p = Cost of preferred stock,

k_e= Cost of common stock employing the capital asset pricing model (CAPM);

$$k_s = k_{rf} + (country\, risk\, premium)b_i \quad (2.6)$$

Where, k_{rf} = Risk-free rate using the country's 10-year long-term bond rate, b_i = Firm's beta, TD = Total debt, P = Preferred equity, E = Equity capital, V = Total capital.

g = Nominal growth rate is assumed at 3% which is considered from the average of actual real GDP growth rate (2.94%) per year and the average actual inflation rate (3.5%) per year from 1999-2014 in Thailand according to Kaplan and Ruback (1995), Gilson et al. (2000) and Penman (2001), who employed the fixed rate of terminal growth rate at 4%, 4% and 3%, respectively, to deal with the problem of cost of capital estimated by WACC being greater than the terminal growth rate, which leads to be the incorrect intrinsic value of stock price.

After that, the equity valuation is calculated as below:

$$Equity\ value = Firm\ value - Book\ value\ of\ debt$$
$$- Book\ value\ of\ preferred\ stock \quad (2.7)$$

Then the intrinsic price is estimated as follows:

$$Intrinsic\ value\ of\ common\ stock = \frac{Equity\ Value}{Number\ of\ common\ stock} \quad (2.8)$$

In addition, the disadvantages of the DCF method are that it is impossible to estimate the firms that have negative earnings and high leverage (Damodaran, 1999), whereby this is the cause of the inappropriate intrinsic value of equity. Also, it is unreasonable if the firms have the negative terminal value because this means that the companies reinvesting internal financing in their projects have a negative net present value (NPV), which is impossible in real business (Elliott et al., 2007). Accordingly, there are several methods for dealing with these issues. Firstly, Damodaran (1999) suggests that there are some ways to solve the negative earnings, consisting of "normalize earnings" and "reduce leverage". The normalized earnings approach is the replacement of negative earnings with the average historical earnings, while the leverage reducing approach is the diminution of a firm's leverage since when companies have a growth of operation over time, this leads to a minimization in the cost of debt as well. Moreover, Elliott et al. (2008) recommends that if the positive abnormal earnings should be found in firms that contain growth opportunity, they employ a calculation that covers more than 2 years to meet the positive earnings. Other options of dealing with the negative terminal value problem is replacing the negative terminal value with 0, as if the firms contain a negative NPV, they will decide to not invest in this project because of wealth dilution. Therefore, we employ mixed methods, following the above approaches to deal with the unsuitable intrinsic stock price of firms because each company has a different problem and it is necessary to employ non-identical methods to solve these problems case by case. However, some companies cannot solve their issues because of several aspects such as negative earnings in every year, significantly high leverage, all negative cost of capital, and thus we drop those companies which have a negative intrinsic price from our data for the overpricing variable to avoid the bias of estimation.

2.) Residual income method (RIM) (Warr et al., 2012)

$$VE_0 = B_0 + \sum_{t=1}^{n} \frac{(E_t - (k_e x B_{t-1}))}{(1+k_e)^t} + \frac{TV}{(1+k_e)^n x k_e} \tag{2.9}$$

Where, $$TV = \frac{(E_t - (k_e x B_{t-1})) + (E_{t+1} - (k_e x B_t))}{2} \tag{2.10}$$

Where, VE_0 is intrinsic value of equity at time 0 (the end of fiscal year). B_0 is book value of equity at time 0. E_t is expected future earning for year t at time 0. B_{t-1} is book value of equity at time t-1. k_e is cost of equity. TV is terminal value and N is 2 years.

However, as the data on expected future earning (E_t) for Thai firms are unavailable in both the DataStream and Bloomberg databases, the perfect foresight model, which employs the actual earnings data, is used in this study. Again, the estimation of intrinsic price is controlled to evade the problem of negative intrinsic value with the normalize earnings and the reduce leverage approaches (Damodaran, 1999). Furthermore, if these methods cannot solve the negative intrinsic price of some companies, other approaches, including replacing with 0 for negative terminal value and the extension of earnings estimation over 2 years, are employed to deal with the unsuitable intrinsic value. Finally, we drop the value of some companies where the problem of negative intrinsic value could not be solved.

3.) Dividend discounted model (DDM) (Lundholm & O'Keefe, 2001; Warr et al., 2012)

As there is a drawback of the DCF and RIM methods, which is the cause of a negative intrinsic value when the companies have all negative earnings, the DDM model is employed as another choice for the stock estimation since the benefit of this approach is that the result obtained by this method is not lower than 0. Therefore, we employ this model to calculate the intrinsic value as the third option. The equation follows Lundholm and O'Keefe (2001), and the terminal value is similar to the calculation of Warr et al. (2012).

$$VE_0 = \sum_{t=1}^{T} \frac{D_t}{(1+k_e)^t} + \frac{TV}{(1+k_e)^T x k_e} \tag{2.11}$$

Where, $$TV = \frac{D_t + D_T}{2} \tag{2.12}$$

Where, D = Cash dividends, k_e = Cost of equity, TV = Terminal value, T = 2 years

Most importantly, there is a special estimation of IPOs for intrinsic value because we consider the time of IPO issuance, but the above formulas provide the fundamental price at the end of the IPO year. Hence, as the price of first-day trading in stock market is used as the market price of IPO, the intrinsic value received from the formula is calculated at same time as market price with a discount rate of the IPO year depending on the proportion of the allocated month. The formula is as follows:

$$Discount\ intrinsic\ price\ to\ IPO\ date = \frac{Intrinsic\ value\ at\ the\ end\ of\ IPO\ year}{(1 + \left(\frac{Discounted\ rate}{12}\right)^{n})} \qquad (2.13)$$

Where, Discounted rate = Cost of capital (WACC) for DCF method and cost of equity for RIM and DDM approaches

n = The number of discounted months / 12

Table 2.3: Definition of dependent, explanatory and control variables				
The order	**The variables**	**The notation**	**The definition**	**Sign**
1. Dependent variables				
1.1 The presence of equity market timing				
1.1.1	Hot equity variable	HOT_{Equity}	- The dummy variable which captures the equity market timing = 1 if a firm issues equity in a hot market and 0 if a firm issues equity in a cold market (Alti, 2006).	NA
1.1.2	Economic boom variable	*BOOM*	- The dummy variable which captures the equity market timing = 1 if a firm issues equity in the period of economic expansion and 0 if a firm issues equity in economic depression.	NA
1.1.3	Bullish stock market variable	*Bullish*	- The dummy variable which captures the equity market timing = 1 if a firm issues equity in bullish market and 0 if a firm issues equity in bear market.	NA
1.2 The level of equity market timing				
1.2.1	Equity proceeds	*Proceeds/TA*	- The amount of capital that is raised during equity issuance divided by year-end assets at time t (Kim & Weisbach, 2008).	NA
1.2.2	The number of stock issuances	*DG*	-Log of the number of stock issuances per year at the time of equity offering.	NA
2. Explanatory variables				
2.1	**Equity Overpricing**	*Overpricing*	- The dummy variable which captures the overvaluation of stock = 1 if a firm has the V/P <1; otherwise = 0. Where, V/P = Equity's intrinsic value divided by the market stock price at time zero where the time 0 is the year of IPO and SEO allocations (Elliott et al., 2007; Warr et al., 2012)	+
2.2	**Ownership Structure**			
2.2.1	Managerial ownership	*%MOWN*	- The proportion of stocks held by managers (Wiwattanakantang, 1999).	-
2.2.2	Institutional ownership	*%IOWN*	-The proportion of stocks held by institutions (Pruitt & Wei, 1989; Nikolov & Whited, 2014).	+
2.2.3	Foreign ownership	*%FROWN*	-The proportion of stocks held by foreign investors (Gul et al., 2010).	-
2.2.4	Ownership concentration	*HHI3*	- The Herfindahl index of three largest shareholders (Goergen & Renneboog, 2001). **The Herfindahl- Hirschman index (HHI)** (Baysinger et al., 1991) $\%\text{HHI} = \sum_{i=1}^{n} S_i^2$ S_i = the proportion of equity held by the i^{th} shareholder. N = 3 (Goergen & Renneboog, 2001).	+
2.3	**Board structure**			
2.3.1	Board independence	*%IBO*	-The percentage of independent board members (Cotter et al., 1997; Ho & Wong, 2001; Mak & Kusnadi, 2005).	-
2.3.2	Board size	*BOZ*	-The total number of board members at the end of the fiscal year (Mak & Li, 2001; Linck et al., 2008).	-
2.3.3	Women on board	*%WBO*	-The percentage of women on the board of directors (Carter et al., 2003; Farrell & Hersch, 2005; Adams & Ferreira, 2009; Huang & Kisgen, 2013).	+
2.3.4	Audit committee on board	*%ACO*	- The percentage of audit committee members on the board of directors.	-

3. Control variables			
3.1	Military experience on board	*Military*	-The dummy variable which captures the military experience on board of directors = 1 if there is any member of board of directors who has the position in military such as lieutenant, major, colonel etc. and = 0 otherwise.
3.2	Managerial characteristics		
3.2.1	Gender of managers	*GM*	-The dummy variable which captures the gender of CFO/CEO = 1 if the gender of CFO/CEO is female and = 0 otherwise (Huang & Kisgen, 2013). **Note:** the CEO is equal to the managing director (Wiwattanakantang, 1999).
3.2.2	Age of managers	*AM*	-The age of the CFO/CEO (Huang & Kisgen, 2013).
3.2.3	Financial education of managers	*FEM*	-The dummy variable which captures the financial education of CFO/CEO = 1 if a CFO/CEO graduated in the field of finance, which consists of both undergraduate and graduate degrees in accounting, finance, business, and economics, and = 0 otherwise (Malmendier & Tate, 2005).
3.3	CEO duality	*CEOD*	- The dummy variable which captures the CEO duality = 1 if a CEO has 2 positions both CEO and chairman of board of directors and = 0 otherwise (Huang & Kisgen, 2013).
3.4	Speed of IPO process	*SIPOP*	-The time span between approved filing and IPO date (Plotnicki & Szyszka, 2014).
3.5	Type of allocation		
3.5.1	The types of IPO allocation	*BB*	- The dummy variable which captures the types of IPO allocation = 1 if IPO is issued with book building method = 0 if IPO is issued with fixed price method.
3.5.2	The types of SEO allocation	*PP*	The dummy variable which captures the types of SEO allocation = 1 if SEO is issued with private placement method = 0 if SEO is issued with other types.
3.6	Profitability	*Profit*	- Earnings before interest, taxes and depreciation over total assets.
3.7	Firm size	*Size*	- The logarithm of net sales.
3.8	Asset tangibility	*Tang*	- Net plant, property and equipment over total assets.
3.9	Dividends	*Div/E*	- Common dividends divided by book equity (Baker and Wurgler, 2002; Alti, 2006).
3.10	Cash	*CASH/A*	- Cash and short-term investment divided by total assets.
3.11	Nominal GDP growth	*NG*	- Real GDP growth rate plus inflation rate.
3.12	Industry dummies	*Industry*	-The dummy variable control for heterogeneity in industry characteristics.

2.4.3 Empirical analysis

2.4.3.1. Regression model

Regarding the hypothesis development, due to the nature of studying IPO and SEO events, a cross-sectional analysis is employed to understand the behaviour of companies during these situations. Furthermore, the methods used in this study consist of ordinary least squares (OLS), generalized least squares (GLS) and probit regressions to investigate the relationship between the explained and explanatory variables for 15 years from 2000 to 2014, depending on the type of dependent variables. The OLS regression with industry dummy is used for the models which contain the continuous dependent variables and the White (1980) standard errors are used to estimate the coefficient's significance level. In addition, we employ the GLS regression to explain for heteroskedasticity (Gil-Bazo & Ruiz-Verdu, 2009). The probit regression is run for the limited dependent variables, which consist of the value of 0 and 1. Therefore, the regression analysis is conducted as the below models, which are separated into two main parts: (1) the presence of equity market timing (2) the determinants of the existence and degree of equity market timing. The Stata 14 software programme is done to run these regressions.

1.) The presence of equity market timing

After we classify the firms that time the equity market with hot and cold markets, we check that the firms that are identified as hot firms keep the proceeds from the stock issuance as cash. If there is evidence thereof, this means that the firms tend to time the equity market (Blanchard et al., 1993; Loughran & Ritter, 1997; DeAngelo et al., 2010). The OLS and GLS regressions are operated following Kim and Weisbach (2008) and as there is the difference in the nature of IPO and SEO events, the models are done separately, as shown below:

1.1) IPO firms

$$Y = \beta_1 ln\left[\left(\frac{Primary\ proceeds}{total\ asset_0}\right)+1\right] + \beta_2 ln\left[\left(\frac{Other\ sources\ of\ fund}{total\ asset_0}\right)+1\right] + \beta_3 ln[total\ assets_0] + \sum_{i=2000}^{2014}\theta_i year + \sum_{j=1}^{7}\lambda_j Industry + \varepsilon_i \qquad (2.14)$$

The dependent variables *(Y)* are classified into two groups: the asset-based variables *(Y_1)* (total assets, cash, cash and short-term investment, inventory and property, plant, and equipment) and the expenditures *(Y_2)* (capital expenditure, dividend payout and long-term debt repayment[5]). Moreover, each variable is in logarithmic form to mitigate the effect of outliers.

a.) The asset-based variables *(Y_1)* which are the items of balance sheet estimated by one plus the change in each item *(V)* normalized by total assets.

$$Y_1 = ln\left[\left(\frac{V_t - V_0}{total\ asset_0}\right) + 1\right] \tag{2.15}$$

Where, V = total assets, cash, cash and short-term investment, inventory and property, plant and equipment.

Year t = 1,2,3,4 years after year 0.

Year 0 = the fiscal year-end prior to the IPO.

b.) The expenditures *(Y_2)* which are the items of income statement and cash flow statement calculated by one plus the accumulation of each item *(V)* normalized by total assets.

$$Y_2 = ln\left[\left(\sum_{i=1}^{t}\left(\frac{V_i}{total\ asset_0}\right)\right) + 1\right] \tag{2.16}$$

Where, V = capital expenditure, dividend payment and long-term debt repayment.

t = 1,2,3,4 years after year 0.

0 = the fiscal year-end prior to the IPO.

$$Other\ sources = \ln\left[\left(\sum_{i=1}^{t}\frac{Total\ source\ of\ funds_i - Primary\ proceed\ capital}{Total\ asset_0}\right) + 1\right] \tag{2.17}$$

In addition, the equation 2.14 includes a specification which permits new funds from the primary stocks sold which is $\beta_1 ln\left[\left(\frac{Primary\ proceeds}{total\ asset_0}\right) + 1\right]$ and other sources of raised funds which is $\beta_2 ln\left[\left(\frac{Other\ sources\ of\ fund}{total\ asset_0}\right) + 1\right]$ to include the specification, separately.

[5] As the data on R&D for Thai companies are unavailable, approximately 95%, and the data on mergers and acquisitions are unavailable as well, these variables are excluded from our equation.

1.2) SEO firms

For SEOs, as there is a limitation of the data on primary proceeds, of which almost 75% are unavailable, the net proceeds are employed instead of the primary proceeds. Consequently, we cannot measure the other sources of funds for SEO samples, so we drop this variable from the above equation. The equation for motives behind SEO issuance is run as follows:

$$Y = \beta_1 ln\left[\left(\frac{Net\,proceeds}{total\,asset_0}\right) + 1\right] + \beta_2 ln[total\,assets_0] + \sum_{i=2000}^{2014} \theta_i year + \sum_{j=1}^{7} \lambda_j Industry + \varepsilon_i \qquad (2.18)$$

Where, the dependent variables are similar to the spending money model for IPOs and the measurement also follows the same dimensions as that of IPO. Again, year 0 means the fiscal year-end prior to the SEO event and year t is 1,2,3,4 years after year 0.

2.) The determinants of equity market timing

After we confirm that there is empirical evidence of equity market timing, the regression models of the determinants of equity market timing are subsequently conducted. However, there are two major types of dependent variables, thus the regressions are separately run in two parts, as follows:

2.1.) The determinants of the presence of equity market timing

The probit regressions are employed to investigate the determinants of the existence of equity market timing. However, there are different characteristics between IPOs and SEOs, hence the regression models are classified into two parts.

a.) The IPO event

IPO is the first equity allocation of firms; hence, they have just begun to disclose their information to the public. Therefore, several data are unavailable prior to the time of IPO, especially in the case of Thailand. Hence, it is necessary to use the explanatory variables at time t. However, there are some data available, including the control variables, so we use the lagged one period for the control variables to avoid the endogeneity problem. Additionally, it is possible that the managerial characteristics variables between CEO and CFO may have some correlations leading to the multicollinearity problem because some companies may have the same person holding both positions of the CEO and CFO, thus we run the regression model between them separately. The equation model of the probit regression is as below (Aldrich & Nelson, 1984).

$$P(Y_t = 1|X) = \Phi(z_i) = \frac{1}{2\pi}\int_{-\infty}^{z_i} e^{-\frac{z_i{}^2}{2}} dz \qquad (2.19)$$

Where; Y_t = HOT_{Equity}, BOOM, Bullish

Φ = The probability density function for the standard normal distribution.

t = The IPO year

$$\begin{aligned} z_i = {} & \beta_1 + \beta_2 Overpricing_t + \beta_3\%MOWN_t + \beta_4\%IOWN_t + \beta_5 HHI3_t \\ & + \beta_6\%IBO_t + \beta_7 BOZ_t + \beta_8\%WBO_t + \beta_9\%ACO_t + \sum_{k=1}^{13}\Psi k Control_{t-1} \\ & + \sum_{i=1}^{7}\delta i Industry_i + u_i \end{aligned} \qquad (2.20)$$

This regression provides the fitted probability of equity market timing with IPO; $(Y_t = 1|X)$, or Y_t is equal to 1, which is calculated with hot and cold equity markets (*HOT_{Equity}*), economic boom period (*BOOM*) and bullish stock market (*Bullish*). β is the coefficient variable which measures the effect of the shift of the explanatory variable (X) on the unobserved variable (Y). The explanatory variables are equity overpricing (*Overpricing*), managerial ownership *(%MOWN*), institutional ownership *(%IOWN*), ownership concentration (*HHI3*), board independence (*%IBO*), board size (*BOZ*), women on board (%*WBO*) and audit committee on board (%*ACO*). Ψ is the parameter of the control variables consisting of military experience on board, gender of managers, age of managers, financial education of managers, CEO duality, speed of the IPO process, book building mechanism, profitability, firm size, asset tangibility, dividends, cash and nominal GDP growth. δ is the parameter which controls for industry effects with seven industry dummy groups.

b.) The SEO event

For the determinants of SEO market timing, the probit regression is operated to investigate the probability of equity market timing with SEO issuance. As the nature of an SEO event is the allocation of a firm's stock after the IPO, there is no problem of unavailable data before the SEO period. Consequently, we use the lagged one period for the explanatory variables to avoid the endogeneity issue. However, it is necessary to divide the regression analysis into two models between CEO and CFO variables to avoid the multicollinearity problem since these may have high correlation. Accordingly, the equation model of probit regression is as below.

$$P(Y_t = 1|X) = \Phi(z_i) = \frac{1}{2\pi}\int_{-\infty}^{z_i} e^{-\frac{{z_i}^2}{2}} dz \qquad (2.21)$$

Where; Y_t = $HOT_{Equity,}$ BOOM, Bullish

t = The SEO year

Φ = The probability density function for the standard normal distribution.

$$\begin{aligned} z_i = {} & \beta_1 + \beta_2 Overpricing_{t-1} + \beta_3 \%MOWN_{t-1} + \beta_4 \%IOWN_{t-1} \\ & + \beta_5 \%FROWN_{t-1} + \beta_6 HHI3_{t-1} + \beta_7 \%IBO_{t-1} + \beta_8 BOZ_{t-1} \\ & + \beta_9 \%WBO_{t-1} + \beta_{10} \%ACO_{t-1} + \sum_{k=1}^{12} \Psi k Control_{t-1} + \sum_{i=1}^{7} \delta i Industry_i \\ & + u_i \end{aligned} \qquad (2.22)$$

This regression produces the fitted probability of equity market timing with SEO; $P(Y_t = 1|X)$, or Y_t is equal to 1, which is calculated with hot and cold equity markets (*HOT_{Equity}*), economic boom period (*BOOM*) and bullish stock market (*Bullish*). β is the coefficient variable which measures the effect of the shift of the explanatory variable (X) on the unobserved variable (Y). The explanatory variables are equity overpricing (*Overpricing*), managerial ownership (*%MOWN*), institutional ownership (*%IOWN*), foreign ownership (*%FROWN*), ownership concentration (*HHI3*), board independence (*%IBO*), board size (*BOZ*), women on board (%*WBO*) and audit committee on board (%*ACO*). Ψ is the parameter of the control variables which contain military experience on board, gender of managers, age of managers, financial education of managers, CEO duality, private placement mechanism, profitability, firm size, asset tangibility, dividends, cash and nominal GDP growth. δ is the parameter which controls for industry effects with seven industry dummy groups.

2.2.) The determinants of the level of equity market timing

For the analysis model of the determinants of the degree of equity market timing, the dependent variable is the degree of equity market timing, which are the continuous variables, hence the OLS regression is used to examine the relationship between the explained and the explanatory variables. In addition, we employ the GLS regression, which explains for the heteroskedasticity problem. However, there are the different characteristics between IPO and SEO events, hence the measures of the level of equity market timing are dissimilar between them. As a company can go public by issuing an IPO only once, while they can decide to allocate SEOs following an IPO several times, the level of timing the market as evaluated by the quantity of stock issuance is unable to assess an IPO event. Therefore, we independently conduct the regression models for IPO and SEO occasions.

a.) IPO issuance

$$\begin{aligned} Y_t = \alpha + \beta_1 Overpricing_t + \beta_2 \%MOWN_t + \beta_3 \%IOWN_t + \beta_4 HHI3_t + \beta_5 \%IBO_t \\ + \beta_6 BOZ_t + \beta_7 \%WBO_t + \beta_8 \%ACO_t + \Psi k \sum_{k=1}^{13} Control_{t-1} \\ + \delta i \sum_{i=1}^{7} Industry_i + \varepsilon_t \end{aligned} \quad (2.23)$$

Where, Y_t = Proceeds/total assets

t = The IPO year

This regression provides the effect of the determinants on the level of timing the equity market with IPO issuance (Y_t), which is valued with the proceeds divided by the total assets during the time of the IPO period. The explanatory variables are similar to equation (2.20) and we also control for industry effects with seven industry dummy groups.

b.) SEO issuance

$$\begin{aligned} Y_t = \alpha + \beta_1 Overpricing_{t-1} + \beta_2 \%MOWN_{t-1} + \beta_3 \%IOWN_{t-1} \\ + \beta_4 \%FROWN_{t-1} + \beta_5 HHI3_{t-1} + \beta_6 \%IBO_{t-1} + \beta_7 BOZ_{t-1} \\ + \beta_8 \%WBO_{t-1} + \beta_9 \%ACO_{t-1} + \sum_{k=1}^{12} \Psi k Control_{t-1} + \sum_{i=1}^{7} \delta i Industry_i \\ + \varepsilon_t \end{aligned} \quad (2.24)$$

Where, Y_t = Proceeds/total assets and the number of stock issuances

t = The SEO year

This regression provides the effect of the determinants on the level of equity market timing with SEO issuance (Y_t), which are valued with the proceeds divided by the total assets and the quantity of SEO issuances during the SEO period. The explanatory variables are similar to equation (2.22) and we also control for industry effects with seven industry dummy groups.

2.5 Results and findings

2.5.1 Descriptive statistics

a.) IPO samples

Table 2.4 gives the descriptive statistics for the core variables of equity market timing with an IPO event. There are 285 IPO firms. The table presents that the mean values for the hot equity and economic boom variables is 75.44% and 54.04%, respectively, indicating that three quarters of IPO companies in Thailand tend to time the equity market for when the market is favourable, and more than a half are willing to benefit from the stock market during a period of economic expansion. On the other hand, the average value of the bullish stock market variable is 42.46%, suggesting that Thai firms prefer not to time the IPO market when the stock market has high returns, on average. Moreover, the maximum and minimum values of the IPO proceeds ratio are considerably different, as the highest value is 99.46% of total assets while the lowest value is 0.11% of total assets. However, the average of this variable is 26.54% of total assets, indicating that Thai firms on average obtain money from selling their stocks to the public for the first time at 26.54% of total assets, which is quite low compared to other research studies in developed countries, where the average of this ratio for hot and cold companies of IPO firms on the Securities Data Company (SDC) has been reported as being 47.95% and 37.87%, respectively (Alti, 2006).

Furthermore, the overpricing variable evaluated by the DCF method has mean value of 0.4512, indicating that IPO stocks are, on average, underpriced. In contrast, this variable estimated by the RIM and DDM approaches have an average value of 0.6329 and 0.8365, respectively. These figures imply that the stocks of IPO companies are overpriced, again, on average. Therefore, these results suggest that the method of estimation for stock's intrinsic value is important because the different method also provides the non-identical value.

Additionally, the table reports that the average for managerial ownership is 34.31%, with a maximum value of 96.37% and a minimum value of 0%. These figures are quite high because most private firms in Thailand are operated by founders, families, and their companions before going public. However, these results are similar to

Wiwattanakantang (1999), who found that for Thai companies the mean, maximum and minimum values of this variable were at 35.08%, 92.53% and 0%, respectively. Next, the mean of institutional ownership for IPO firms is 6.67%, while the average of ownership concentration of the three largest shareholders is 21.95%. This indicates that the ownership structure of Thai firms has a slightly high concentration, which is consistent with the suggestion by La Porta et al. (2000) and Thanatawee (2013).

Table 2.4: Summary statistics of the dependent and independent variables of IPO market timing

Variable	Number of Observations	Mean Value	Standard Deviation	Minimum Value	Maximum Value
HOT Equity	285	0.7544	0.4312	0	1
Economic Boom	285	0.5404	0.4992	0	1
Bullish Stock Market	285	0.4246	0.4951	0	1
Proceeds(T)/Total Assets	273	0.2654	0.1520	0.0011	0.9946
Overpricing (DCF)	246	0.4512	0.4986	0	1
Overpricing (RIM)	237	0.6329	0.4830	0	1
Overpricing (DDM)	263	0.8365	0.3705	0	1
Managerial Ownership	266	0.3431	0.2716	0	0.9637
Institutional Ownership	271	0.0667	0.1311	0	0.9406
Ownership Concentration	273	0.2195	0.1549	0.00001	0.8850
Board Independence	259	0.3500	0.1149	0	0.6667
Board Size	263	9.4373	2.0272	5	18
Women on Board	263	0.1899	0.1584	0	0.6667
Audit Committee on Board	262	0.3327	0.0807	0	0.6
Military Experience on Board	267	0.2247	0.4182	0	1
Female CEO	273	0.0696	0.2549	0	1
Female CFO	259	0.6023	0.4904	0	1
Age of CEO	265	50.0642	8.5564	29	82
Age of CFO	248	42.8186	7.3756	25	72
Financial Education of CEO	273	0.4982	0.5009	0	1
Financial Education of CFO	259	0.9035	0.2959	0	1
CEO Duality	273	0.1575	0.3649	0	1
Speed of IPO Issuance	275	5.3273	3.6879	1	29
Book Building	273	0.2491	0.4333	0	1
Profitability	274	0.1696	0.1163	-0.5000	0.6119
Firm Size (in Thousand Baht)	264	5,817,682	28,600,000	14,622.14	351,000,000
Asset Tangibility	274	0.3881	0.2556	0.0028	0.9700
Dividends	277	0.0943	0.1710	0.0000	0.7465
Cash	274	0.0872	0.1118	0.00003	0.7415
Nominal GDP growth	285	0.0705	0.0322	-0.0056	0.1117

For the board structure of IPO companies, the largest and smallest board sizes are 18 and 5 people, respectively, with a mean size of almost 10 persons, which is equal to prior research studies for non-fiancial listed firms in Thailand, including those by Connelly and Limpaphayom (2004) and Yammeesri and Kanthi Herath (2010). The mean, highest and lowest proportions of board independence, at 35%, 66.67% and 0%, is close to the percentage of audit committee on the board at 33.27%, 60% and 0%, since most audit committee members are independent to monitor the management of companies via managers. Likewise, the mean proportion of women on the board is 18.99%, which is relatively high compared to Carter et al. (2003), who reported mean of 9.6% for this ratio of the Fortune 1000 companies. Therefore, this suggests that there is high diversification on the boards of directors of IPO corporations in Thailand.

For the control variables, the mean of military experience on board, female CEO, female CFO, age of CEO, age of CFO, financial education of CEO, financial education of CFO, CEO duality, speed of IPO issuance and book building mechanism is 22.47%, 6.96%, 60.23%, 50.0642 years old, 42.8186 years old, 49.82%, 90.35%, 15.75%, 5.3273 days and 24.91%, respectively. Furthermore, the average for profitability, firm size, asset tangibility, dividends, cash and nominal GDP growth for IPO samples are 16.96%, 5,817,682,000 baht, 38.81%, 9.43%, 8.72% and 7.05%, respectively.

b.) SEO samples

Table 2.5 illustrates the descriptive statistics for the core variables of equity market timing with SEO events. Our SEO samples contain 1,038 issuances from 2000 to 2014. On average, companies tend to time the equity market with SEO allocation when the market is in a hot period, at approximately 63.95%. In contrast, they have a low motivation to time the stock market when the economy is in expansion and the stock market is bullish, with the average figures at 39.98% and 44.89%, respectively. The largest and smallest proportions of net proceeds divided by total assets are 96.55% and 0.05%, respectively, with a mean value of 16.06%. This is relatively high compared to the average proceeds ratio for Asia, Japan, and Australia and New Zealand at 5.7%, 10.1% and 0.6%, respectively, according to Kim and Weisbach (2008). In addition, the average number of SEO allocations per year is roughly 4 times, with the greatest and lowest numbers at 59 and 1 times. This suggests that firms tend to issue SEO stocks more than once per year.

In addition, the mean of overpricing variable with the DCF, RIM and DDM methods is 0.5165, 0.7718 and 0.9072, respectively, indicating that the stocks of Thai SEO firms are overvalued. This is consistent with Warr et al. (2012) who show that the intrinsic value divided by the market value for US non-financial listed firms has a mean value of 0.975, implying that the stocks of their samples were overpriced.

According to the variables of ownership structure, the means of managerial, institutional and controlling shareholders for SEO firms are 8.21%, 9.43% and 12.12%, respectively. In a comparison, SEO companies have less ownership density than IPO firms, whereas the mean of institutional ownership is slightly higher than for IPO companies, as seen in table 2.4. This implies that after going public, it is more likely that insider control begins to be decline because of the increase in the number of outside shareholders. Similarly, Kutsuna et al. (2002) report that ownership concentration reduces after an IPO issuance, by 7.31% for top ownership and 15.44% for the top 10 shareholders. Furthermore, the mean of foreign ownership is 14.54% which is nearly equal to that of Wiwattanakantang (1999), whose figure was 12.3%.

In addition, the means for the board structure variables consisting of board independence, board size, women and audit committee on the board are 37.16%, 10.0539, 15.10% and 32.28%, respectively, for SEO corporations, which is almost equivalent to these variables for the IPO samples as seen in table 2.4.

Based on control variables, the mean of military experience on board, female CEO, female CFO, age of CEO, age of CFO, financial education of CEO, financial education of CFO, CEO duality and private placement mechanism is 34.43%, 5.96%, 43.94%, 52.1954 years old, 46.3236 years old, 55.86%, 83.74%, 17.36% and 23.89%, respectively. Additionally, the averages for profitability, firm size, asset tangibility, dividends, cash and nominal GDP growth for SEO samples are 7.97%, 8,473,132,000 baht, 36.34%, 4.65%, 9.09% and 7.47%, respectively.

Table 2.5: Summary statistics of the dependent and independent variables of SEO market timing

Variable	Number of Observations	Mean Value	Std. Dev.	Minimum Value	Maximum Value
HOT Equity	1,032	0.6395	0.4804	0	1
Economic Boom	1,038	0.3998	0.4901	0	1
Bullish Stock Market	1,038	0.4489	0.4976	0	1
Proceeds/Total Assets	985	0.1606	0.5749	0.0005	0.9655
Number of SEO Issuances	1,038	3.5135	4.6339	1	59
Overpricing (DCF)	848	0.5165	0.5000	0	1
Overpricing (RIM)	977	0.7718	0.4199	0	1
Overpricing (DDM)	937	0.9072	0.2904	0	1
Managerial Ownership	982	0.0821	0.1338	0	0.8764
Institutional Ownership	941	0.0943	0.1260	0	0.8372
Foreign Ownership	941	0.1454	0.1762	0	0.9718
Ownership Concentration	941	0.1212	0.1277	0.0005	0.8331
Board Independence	930	0.3716	0.1118	0	0.8
Board Size	1,002	10.0539	2.7316	3	23
Women on Board	1,002	0.1510	0.1459	0	0.8333
Audit Committee on Board	976	0.3228	0.0845	0.0435	0.6667
Military Experience on Board	1,002	0.3443	0.4754	0	1
Female CEO	1,006	0.0596	0.2369	0	1
Female CFO	1,006	0.4394	0.4966	0	1
Age of CEO	957	52.1954	8.8382	28	85
Age of CFO	825	46.3236	7.5730	24	74
Financial Education of CEO	981	0.5586	0.4968	0	1
Financial Education of CFO	947	0.8374	0.3692	0	1
CEO Duality	985	0.1736	0.3790	0	1
Private Placement	1,038	0.2389	0.4266	0	1
Profitability	1,033	0.0797	0.1867	-1.7347	0.8391
Firm Size (in Thousand Baht)	1,027	8,473,132	51,100,000	316.86	1,110,000,000
Asset Tangibility	1,033	0.3634	0.2532983	0.0001	0.9958
Dividends	1,035	0.0465	0.0777195	0.0000	0.9686
Cash	1,035	0.0909	0.112129	0.00001	0.7900
Nominal GDP growth	1,038	0.0747	0.027334	-0.00564	0.1117

Table 2.6: Correlation matrix of the dependent and independent variables of IPO market timing

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
HOT Equity	(1)	1																
Economic Boom	(2)	-0.040	1															
Bullish Market	(3)	-0.018	-0.155	1														
Proceeds/Total Assets	(4)	0.070	-0.039	-0.099	1													
Overpricing (DCF)	(5)	-0.047	-0.196	-0.144	0.284	1												
Overpricing (RIM)	(6)	0.020	-0.164	0.047	0.270	0.301	1											
Overpricing (DDM)	(7)	0.041	-0.095	0.107	0.132	0.278	0.548	1										
Managerial Ownership	(8)	0.162	-0.016	-0.022	0.171	0.065	-0.004	0.092	1									
Institutional Ownership	(9)	-0.084	0.043	-0.006	0.006	0.003	-0.032	0.128	-0.112	1								
Ownership Concentration	(10)	0.061	0.136	0.008	-0.074	-0.058	-0.027	0.055	0.007	0.304	1							
Board Independence	(11)	-0.031	-0.200	-0.107	0.123	0.014	-0.034	-0.141	0.184	-0.107	-0.072	1						
Board Size	(12)	-0.072	0.203	0.025	0.005	0.017	0.040	0.109	-0.234	0.071	0.118	-0.494	1					
Woman on Board	(13)	0.024	-0.101	0.007	0.151	0.055	-0.068	0.022	0.232	0.122	0.060	0.027	-0.023	1				
Audit Committee on Board	(14)	0.151	-0.147	-0.124	0.197	0.104	0.056	-0.004	0.276	-0.106	-0.069	0.551	-0.596	0.075	1			
Military on Board	(15)	0.053	-0.154	0.108	-0.049	0.004	0.009	0.083	-0.050	-0.034	-0.098	-0.026	0.096	-0.013	-0.003	1		
Female CEO	(16)	0.002	-0.189	0.083	-0.046	0.030	0.069	0.143	-0.022	-0.040	0.071	0.040	0.013	0.134	0.027	0.035	1	
Female CFO	(17)	-0.058	-0.148	0.113	0.149	0.042	-0.076	-0.105	-0.035	0.109	0.040	-0.016	0.005	0.143	-0.106	-0.018	-0.078	1
Age of CEO	(18)	-0.068	-0.108	-0.014	0.106	0.214	-0.011	-0.054	-0.065	-0.032	-0.130	-0.018	0.167	0.044	-0.068	0.028	0.134	0.059
Age of CFO	(19)	-0.094	0.033	-0.210	0.149	0.118	-0.068	-0.133	-0.098	0.052	-0.098	-0.009	0.122	-0.031	-0.019	-0.051	-0.052	-0.038
Financial Education of CEO	(20)	-0.064	0.011	-0.038	-0.040	0.132	0.118	0.039	-0.063	-0.016	-0.024	-0.043	-0.058	0.053	0.009	0.075	-0.004	0.023
Financial Education of CFO	(21)	-0.119	-0.069	-0.084	0.034	0.026	0.075	0.004	-0.006	0.019	0.025	-0.048	0.010	-0.014	-0.049	-0.131	0.077	0.071
CEO Duality	(22)	-0.084	0.025	0.034	0.070	0.135	-0.033	0.039	0.004	0.029	0.068	0.063	-0.089	-0.017	-0.039	-0.001	-0.128	0.119
Speed of IPO Issuance	(23)	-0.064	-0.022	0.060	-0.028	-0.075	0.079	0.029	-0.265	-0.069	0.222	-0.061	0.022	-0.117	-0.013	-0.106	0.281	0.039
Book Building	(24)	-0.199	-0.013	-0.062	0.158	0.225	0.119	0.074	-0.110	0.162	-0.010	-0.023	0.130	-0.014	-0.068	-0.083	-0.066	-0.086
Profitability	(25)	0.064	-0.041	0.020	0.435	0.081	0.087	-0.112	0.041	-0.123	-0.042	0.043	-0.040	0.035	0.054	-0.112	0.023	0.088
Firm Size	(26)	-0.104	-0.035	0.090	-0.145	-0.121	-0.083	-0.162	-0.220	-0.030	0.162	-0.056	0.344	-0.146	-0.195	0.141	-0.048	0.004
Asset Tangibility	(27)	-0.156	-0.046	0.007	0.011	0.143	0.090	0.007	-0.072	0.004	-0.023	0.029	0.037	-0.020	0.019	-0.138	-0.126	0.043
Dividends	(28)	0.130	-0.059	0.081	0.180	0.152	-0.058	-0.148	0.114	-0.142	-0.064	0.197	-0.039	0.039	0.113	-0.131	0.002	0.137
Cash	(29)	0.114	-0.045	-0.040	0.264	0.071	0.141	0.003	-0.108	-0.076	-0.147	-0.123	0.076	-0.041	-0.072	0.134	0.009	0.028
Nominal GDP Growth	(30)	0.079	0.070	0.116	-0.177	-0.165	-0.122	-0.065	-0.111	0.135	0.162	-0.229	0.053	-0.148	-0.096	-0.009	0.009	-0.129

Table 2.6: Correlation matrix of the dependent and independent variables of IPO market timing (Cont.)

		(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
Age of CEO	(18)	1												
Age of CFO	(19)	0.264	1											
Financial Education of CEO	(20)	-0.253	-0.140	1										
Financial Education of CFO	(21)	-0.004	-0.012	0.056	1									
CEO Duality	(22)	0.055	0.060	0.012	-0.027	1								
Speed of IPO Issuance	(23)	0.008	-0.094	0.035	0.130	-0.022	1							
Book Building	(24)	0.070	0.146	-0.023	-0.080	0.054	-0.128	1						
Profitability	(25)	0.097	0.191	0.042	0.011	-0.041	0.054	0.038	1					
Firm Size	(26)	0.061	0.090	-0.045	0.044	0.014	0.131	-0.013	-0.017	1				
Asset Tangibility	(27)	0.131	0.114	-0.203	-0.067	0.040	-0.074	0.260	-0.060	0.075	1			
Dividends	(28)	0.054	0.049	-0.020	-0.011	0.072	-0.064	0.032	0.303	-0.095	-0.011	1		
Cash	(29)	-0.029	-0.037	0.120	0.053	-0.041	0.078	-0.141	0.264	-0.002	-0.253	-0.022	1	
Nominal GDP Growth	(30)	-0.128	-0.197	-0.166	-0.021	0.044	0.080	0.032	-0.016	-0.006	-0.083	-0.019	0.072	1

Table 2.7: Correlation matrix of the dependent and independent variables of SEO market timing

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
HOT Equity	(1)	1																
Economic Boom	(2)	0.140	1															
Bullish Stock Market	(3)	-0.032	0.060	1														
Proceeds(T)/Total Assets	(4)	-0.077	-0.029	-0.061	1													
The Number of SEO Issuances	(5)	0.008	0.039	0.051	-0.032	1												
Overpricing (DCF)	(6)	0.078	0.052	0.046	-0.035	0.092	1											
Overpricing (RIM)	(7)	0.026	0.065	0.052	-0.104	0.088	0.214	1										
Overpricing (DDM)	(8)	0.036	0.150	0.042	-0.103	0.028	0.266	0.241	1									
Managerial Ownership	(9)	-0.005	-0.050	-0.056	-0.011	-0.080	-0.017	0.130	-0.016	1								
Institutional Ownership	(10)	0.024	0.016	0.099	-0.009	0.300	0.020	0.067	0.018	-0.121	1							
Foreign Ownership	(11)	0.016	0.003	0.078	-0.032	0.317	0.041	0.019	0.014	-0.171	0.579	1						
Ownership Concentration	(12)	-0.086	-0.038	0.071	0.002	-0.090	0.003	0.090	-0.006	0.065	0.080	0.103	1					
Board Independence	(13)	-0.109	-0.019	0.032	-0.055	-0.015	0.013	0.010	0.056	0.132	-0.103	-0.044	0.125	1				
Board Size	(14)	0.076	-0.028	0.004	-0.056	0.000	-0.096	-0.089	-0.042	-0.177	0.127	0.032	-0.053	-0.457	1			
Woman on Board	(15)	0.047	0.095	0.027	0.033	-0.007	0.034	-0.008	-0.076	0.074	-0.111	-0.200	-0.069	0.016	-0.145	1		
Audit Committee on Board	(16)	-0.085	0.028	0.039	-0.008	-0.065	0.114	0.071	0.057	0.150	-0.168	-0.064	0.067	0.484	-0.829	0.101	1	
Military Experience on Board	(17)	-0.021	0.036	-0.011	0.045	-0.114	-0.035	-0.083	-0.094	-0.009	-0.063	-0.084	0.061	0.038	0.085	0.069	-0.066	1
Female CEO	(18)	-0.097	0.002	-0.013	-0.026	-0.051	-0.090	-0.106	-0.086	-0.053	-0.082	-0.095	-0.110	-0.084	-0.001	0.238	-0.013	-0.006
Female CFO	(19)	0.009	0.068	-0.007	-0.018	-0.073	-0.043	-0.044	-0.081	-0.043	-0.110	-0.123	-0.020	0.066	-0.135	0.086	0.116	-0.022
Age of CEO	(20)	-0.046	-0.030	0.006	-0.009	-0.033	0.027	-0.077	-0.087	0.023	-0.062	-0.038	-0.057	-0.086	0.123	0.109	-0.098	0.057
Age of CFO	(21)	-0.098	-0.072	0.004	0.005	-0.033	-0.013	-0.149	-0.086	0.022	0.039	-0.019	0.040	0.060	0.147	-0.032	-0.052	0.067
Financial Education of CEO	(22)	0.096	-0.062	-0.064	-0.038	0.034	-0.126	-0.034	0.022	-0.063	-0.064	0.033	-0.019	-0.048	-0.033	-0.090	0.030	-0.014
Financial Education of CFO	(23)	0.102	0.047	-0.004	-0.282	-0.020	0.026	0.058	0.021	0.045	-0.042	-0.031	-0.053	0.050	-0.013	-0.022	0.006	0.001
CEO Duality	(24)	-0.033	-0.055	-0.057	0.105	0.072	0.069	0.012	-0.111	0.270	0.110	0.039	-0.024	-0.021	-0.161	0.141	0.122	-0.085
Private Placement	(25)	-0.111	0.003	-0.056	0.229	-0.093	-0.026	-0.070	0.038	-0.025	0.018	0.000	-0.032	-0.024	-0.003	-0.064	0.037	0.032
Profitability	(26)	-0.028	-0.001	0.018	-0.177	0.110	-0.009	0.137	-0.116	0.160	0.005	0.006	0.178	-0.058	0.101	0.017	-0.128	0.010
Firm Size (Thousand Baht)	(27)	-0.019	0.012	0.023	-0.044	0.037	0.062	0.035	0.022	-0.068	0.119	0.064	0.122	0.136	0.161	-0.057	-0.109	0.024
Asset Tangibility	(28)	-0.026	0.067	0.071	0.028	0.091	0.042	-0.032	0.001	-0.106	0.126	0.032	0.005	-0.111	0.209	-0.031	-0.196	0.054
Dividends	(29)	-0.078	-0.057	0.089	-0.095	0.075	-0.033	0.188	-0.135	0.105	-0.044	0.023	0.111	0.036	-0.069	-0.068	0.038	-0.121
Cash	(30)	-0.010	-0.043	-0.056	0.029	0.020	0.001	0.141	-0.066	0.016	-0.007	0.042	0.098	-0.006	-0.123	0.033	0.075	-0.045
Nominal GDP Growth	(31)	-0.023	-0.056	0.156	-0.147	0.120	-0.009	0.077	-0.110	-0.017	0.070	0.073	0.052	-0.041	0.050	-0.007	-0.071	-0.064

Table 2.7: Correlation matrix of the dependent and independent variables of SEO market timing (Cont.)

		(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)
Female CEO	(18)	1													
Female CFO	(19)	0.050	1												
Age of CEO	(20)	0.048	0.140	1											
Age of CFO	(21)	0.026	-0.046	0.259	1										
Financial Education of CEO	(22)	0.072	0.006	-0.192	-0.058	1									
Financial Education of CFO	(23)	0.047	0.150	0.046	-0.093	0.094	1								
CEO Duality	(24)	-0.092	0.056	0.193	-0.054	-0.127	-0.037	1							
Private Placement	(25)	0.002	-0.045	-0.052	-0.073	0.006	-0.050	-0.004	1						
Profitability	(26)	-0.003	0.017	0.072	0.043	0.047	0.037	0.040	-0.203	1					
Firm Size (Thousand Baht)	(27)	-0.028	-0.109	0.024	0.136	0.040	-0.009	-0.055	-0.013	0.077	1				
Asset Tangibility	(28)	-0.052	-0.064	0.051	0.021	-0.079	-0.089	-0.049	0.034	0.035	0.062	1			
Dividends	(29)	0.095	0.137	0.149	0.076	0.047	-0.007	0.010	-0.145	0.364	0.045	-0.09	1		
Cash	(30)	-0.032	0.126	-0.040	-0.032	0.020	-0.052	-0.001	0.093	0.115	0.005	-0.24	0.211	1	
Nominal GDP Growth	(31)	-0.003	0.014	-0.058	-0.068	0.014	0.027	0.023	-0.143	0.196	0.079	0.055	0.143	0.001	1

2.5.2 Correlation matrix

Tables 2.6 and 2.7 present the correlation of all the variables employed in the regression analysis of IPO and SEO market timings, respectively. Overall, no other variables have a higher absolute correlation than 0.8 (Farrar & Glauber, 1967). Thus, our results do not violate on the assumption of the explanatory variable.

2.5.3 Regression results

2.5.3.1 The presence of equity market timing

1.) The detrended moving average of equity market timing

This study captures the equity market timing with three different procedures, including the quantity of equity issuance, the growth of the economy, and the increase of the stock market index. The 3-month detrended moving average is employed to classify timing and non-timing the equity market following Alti (2006). The result of these classifications is presented in three main groups as follows.

1.1) Hot and cold markets

a.) Hot and cold markets of IPOs

Figure 2.2 shows the number of IPO issuances from 1st January 2000 to 31st December 2014, whereby the data are obtained from the official website of the SEC, Thailand, and we cross-check these data with the SETSMART database and the SET's official website to examine the IPO volume for each month. The figure indicates that the highest volume of IPO allocation is 13 IPOs in November 2005, while the lowest number of IPO issuances is 0, which is no IPO issuance, with median value at 1. We smooth the volume of the IPO data to remove the seasoned deviation with a 3-month detrended moving average[6] for IPO issuance each month, and the result is shown in figure 2.3 with a median value of 0. Hence, a month that is greater than 0 is classified as a hot month, whereas otherwise is a cold month. Therefore, this study can classify the samples into 215 hot and 70 cold IPO firms.

[6] This study uses the detrending data with the absolute difference = actual data – trend (calculation with 3-month weighed moving average). This method is different from Alti (2006), who employed the proportional difference = (actual data/ trend) -1, because our results for trend values contain 0, thus we cannot estimate the proportional differences of some months, hence the actual difference approach is employed instead of the proportional difference method.

b.) Hot and cold markets of SEOs

Figure 2.4 illustrates the number of SEO issuances by listed firms in the Stock Market of Thailand from 1st January 2000 to 31st December 2014 whereby the data are gained from three sources, namely the SET's Fact Books and the SETSMART and Thomson ONE databases, to estimate the monthly SEO volume. As shown in figure 2.4, the greatest number of SEO allocations is 33 allocations[7] in May 2013, while the lowest is 0, which is no issuance of SEO stocks. The same approach as with IPOs is done to identify a hot market for SEO issuances. The detrended data for the 3-month moving average is displayed in figure 2.5 with the absolute difference value and a median value of -0.17. Thus, a month which contains a value greater than the median is classified as a hot month and otherwise as a cold month. Consequently, there are 660 hot and 372 cold SEO allocations.

1.2) Economic boom and bust periods

Figure 2.6 exhibits the quarterly data for the nominal growth rate in Thailand, which is measured by the real GDP growth rate plus inflation rate[8] from 2000 to 2014, obtaining the data from the DataStream database[9] to determine the economic boom and bust periods. The maximum value of the nominal growth rate is 12.29% in the 4th quarter of the year 2009, whereas the minimum value is -10.15% in the 4th quarter of the year 2008, which is the time of the global financial crisis, and has a median value at 2.09%. We use the similar method as for the identification of hot and cold markets with a 3-quarter detrended moving average to categorize the economic boom and bust periods. The median of the detrended moving average is -0.41%, as seen in figure 2.7. Thus, the time of economic expansion has a higher value than the median, while a period of recession is otherwise. Consequently, our samples comprise 154 and 131 IPO firms who allocate their first equity in the economic boom and bust periods, respectively. Furthermore, there are 415 and 623 SEO issuances in the periods of economic expansion and recession, respectively.

1.3) Bullish and bearish stock markets

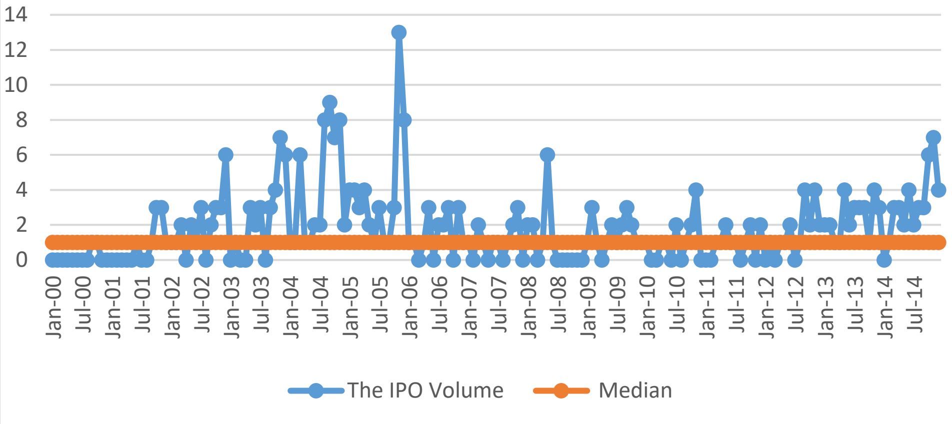
Figure 2.8 reports the monthly data of the SET index growth rate from 2000 to 2014, obtaining the data from the DataStream database to investigate the bullish and

[7] We merge the number of SEOs of the companies who issue SEOs more than one time for one fiscal year into one allocation.
[8] The inflation rate is estimated from PPI collecting data from DataStream database.
[9] The data is available in terms of quarterly data, while the monthly data is unavailable.

bearish periods. The highest value is 23.62% in January 2001 and the lowest value is -30.18% in October 2008, which is the period of global financial crisis and the median value is 1.46%. The 3-month detrended moving average is used to categorize the bullish and bearish stock markets. Regarding the median detrended moving average of 0.29% in figure 2.9, the bullish market is captured by a greater value than the median, while the bearish market is identified by a lower value than the median. Consequently, we can classify our samples into 121 and 164 IPO firms who go public when the stock market is bullish and bearish, respectively. Moreover, there are 466 and 572 SEO allocations when the stock market is bullish and bearish, respectively.

Overall, there is the timing of the equity market when the stock market is attractive, the economy is in expansion and the stock market is in a high return period, as shown in figures 2.2 to 2.9. Therefore, our dependent variables are classified into three aspects to investigate the determinants of the presence of equity market timing.

Figure 2.2: The number of monthly IPO issuances 2000-2014



Source: *The official website of SEC, (Thailand) and SET and SETSMART database*

Figure 2.3: The detrended monthly moving average of IPO volume

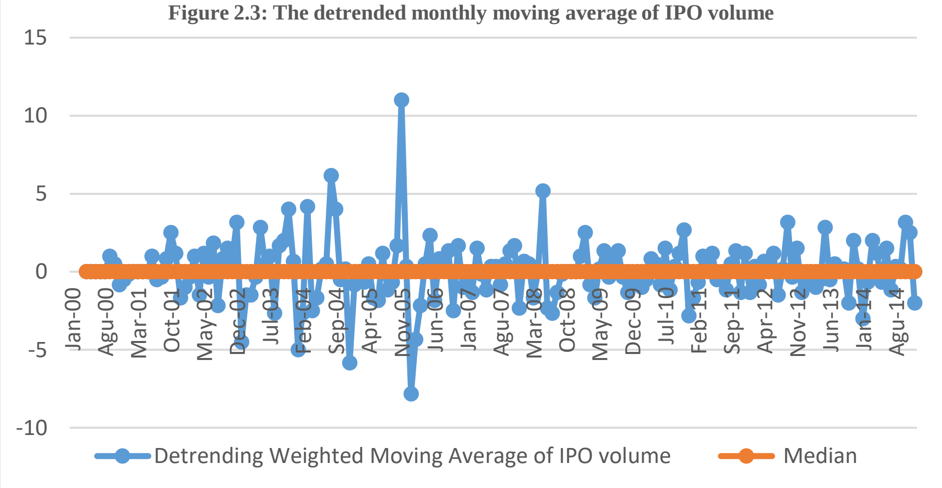
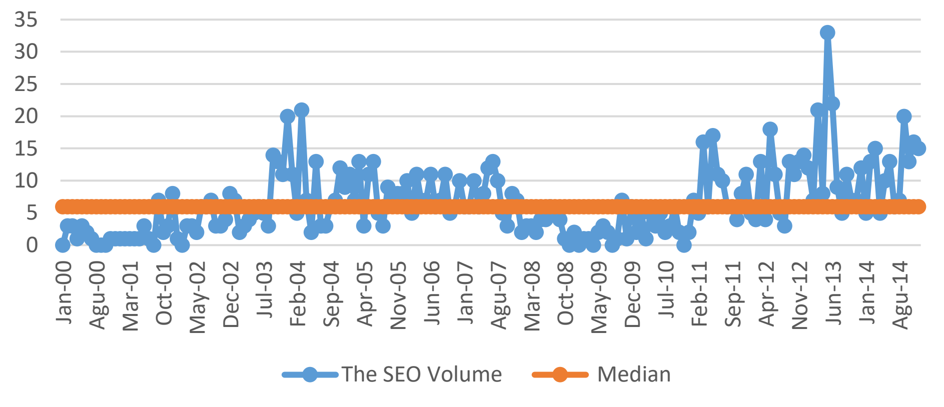


Figure 2.4: The number of monthly SEO issuances 2000-2014



Source: *SET's Fact Books, SETSMART and Thomson ONE databases*

Figure 2.5: The detrended monthly moving average of SEO volume

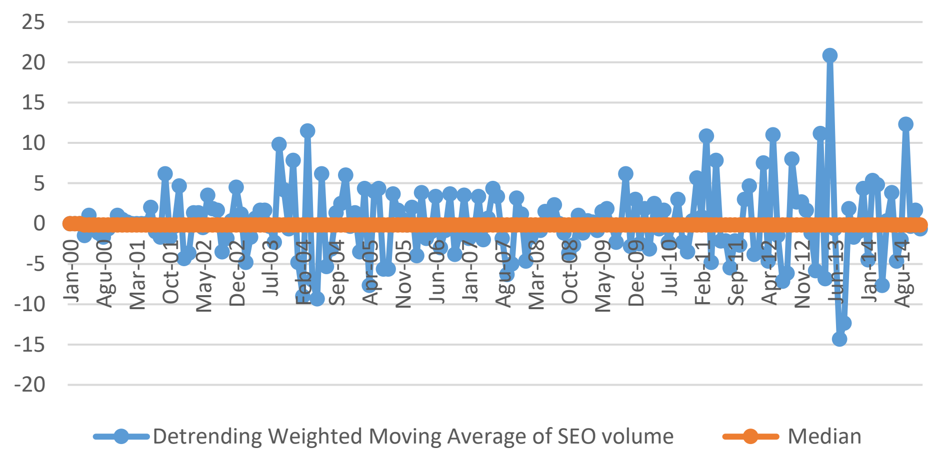
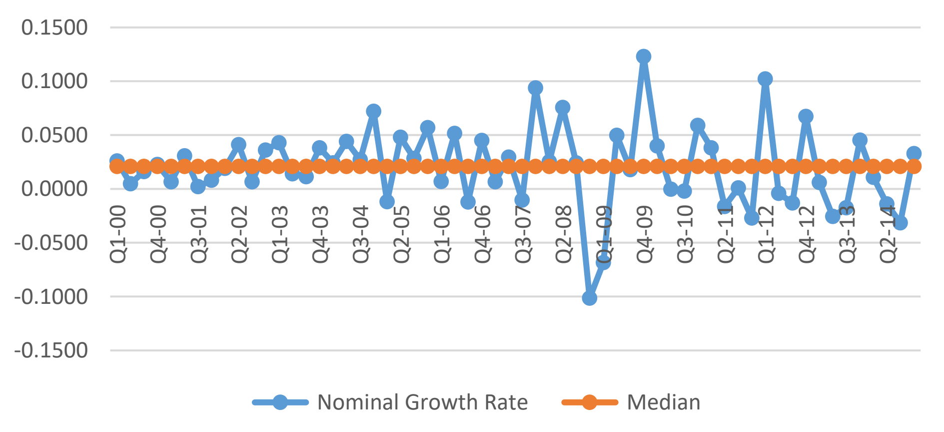


Figure 2.6: The nominal growth rate from 2000 to 2014



Source: *DataStream database*

Figure 2.7: The detrended weighted moving average of nominal growth rate 2000-2014

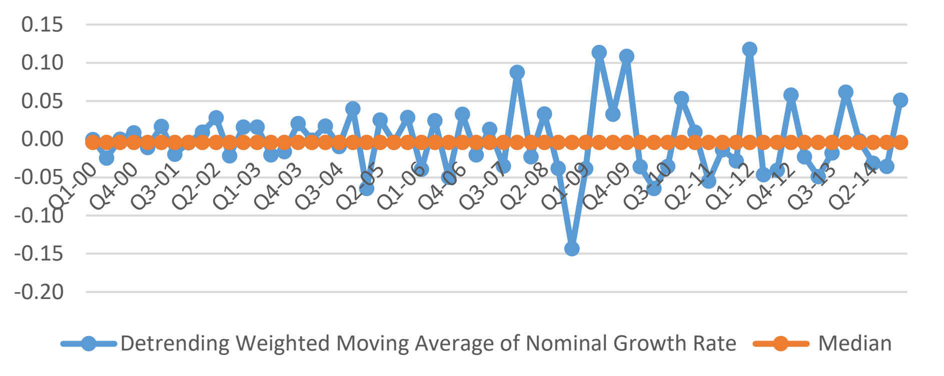
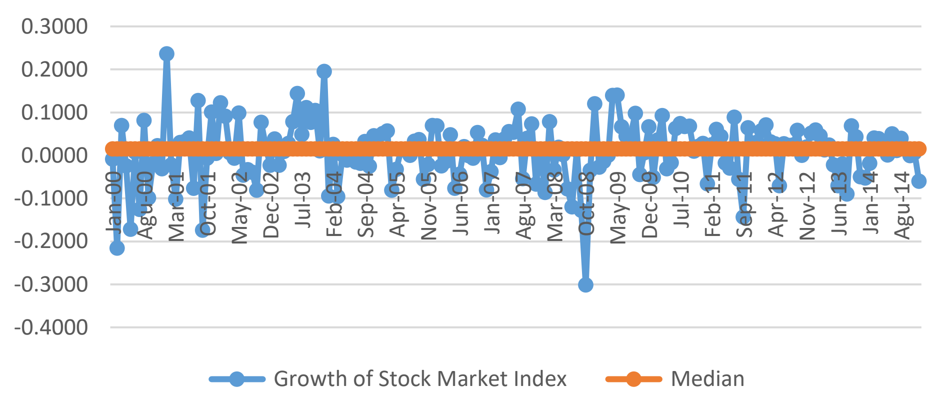
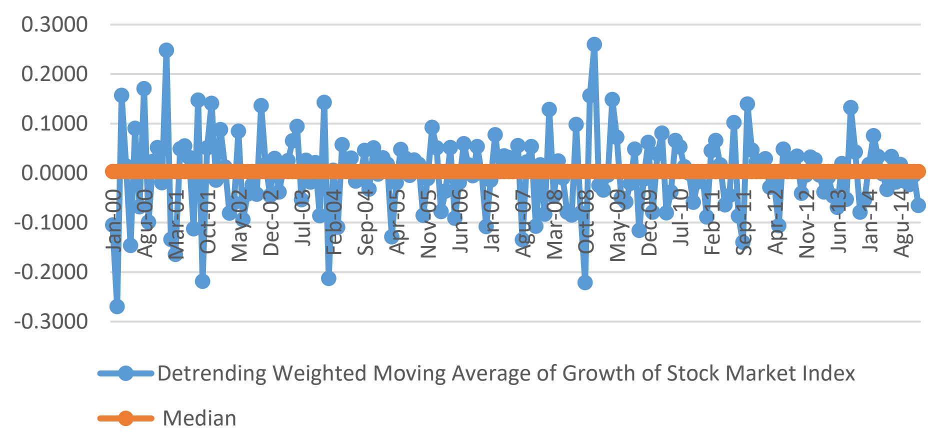


Figure 2.8: The growth of stock market index 2000–2014



Source: *DataStream database*

Figure 2.9: The detrended weighted moving average of growth of stock market index 2000 – 2014



2.) T-test difference for mean value between timer and non-timer equity markets

Regarding Alti (2006), there are two measurements to define equity market timing. The first implication is that firms tend to sell their stocks when the equity market is in a good condition. Another implication is that the firms that issue equity when the stock market is in a positive condition gain more proceeds than the firms who allocate equity when the stock market is in a bad condition. Consequently, we also examine the amount of proceeds obtained from selling IPO and SEO stocks to capture the presence of equity market timing in Thailand. Our variable testing the amount of raised money is the primary proceeds divided by total assets for IPOs and the net proceeds divided by total assets for SEOs.

Table 2.8 (panel A) shows the results of the mean value test of the proceeds ratio for the IPO samples for the three categories of equity market timing. These results report that the mean value of the proceeds ratio for hot firms is 26.63% and for cold firms is 26.25%, suggesting that IPO hot firms gain slightly more money, approximately 0.38%, than IPO cold companies, yet the result is statistically insignificant for both equal and unequal variances. Additionally, the difference of the mean IPO proceeds ratio in the period between economic boom and bust is 1.94% (Boom at 27.44% vs Bust at 25.50%), indicating that IPO companies during a good economic condition receive more incremental capital than in a bad economic condition, but this result is statistically insignificant. On the other hand, IPO market timers in a bullish stock market obtain less proceeds, roughly 2.91%, than non-timers, on average, yet the result is statistically insignificant.

Next, the mean difference test of SEO event is demonstrated in table 2.8 (panel B). The difference in the average proceeds ratio between hot and cold allocations is 2.22% (Hot at 16.79% vs Cold at 14.57%). This suggests that allocating firms in a hot period gain slightly more money than in a cold period, but this difference is statistically insignificant. Conversely, the difference in the average proceeds ratio of timers when the economy is expansion and stock market is bullish raise less money than non-timers, at 0.16% and 3.98%, respectively, but these variations are statistically insignificant.

Furthermore, we test another aspect of equity market timing with the quantity of equity issuance; however, this approach can be investigated only for SEO events because IPO events can only occur once, namely when firms decide to go public. According to table 2.8 (panel B), the timers of three categories including Hot, Boom and Bullish issue follow-on equity more frequent than non-timers by approximately 0.3027, 0.2084 and 0.2443 times, respectively. However, these variations are statistically insignificant. In addition, we examine the difference mean value of log of the number of SEO issuances and the result is presented in table 2.8 (panel B). Moreover, there is a difference in the mean value of log of the number of SEO allocations between hot and cold issuances by 0.0413 times (Hot at 0.3976 vs Cold at 0.3563). This indicates that hot firms have more frequent issuances than cold firms, which is statistically significant at the 90% confidence level. Also, when the stock market is bullish the timers have a higher issuance than non-timers, at roughly 0.0043 times, but this divergence is statistical insignificant. In contrast, on average, the log of number of SEO allocations for timers when the economy is in expansion is lower than for non-timers at 0.0086 times, yet the difference is statistically insignificant.

Moreover, based on table 2.8, the result of the proceeds divided by total assets at time t-1 demonstrates that although the result is statistically insignificant in all measurements, there is economic significance in the difference between their mean values. For instance, the difference in the mean value of the lagged proceeds ratio between hot and cold IPO firms is 5.59% (Hot at 45.27% and Cold at 39.68%), as shown in table 2.8 (panel A). Also, in a bullish stock market the timers gain an, on average, higher incremental capital than non-timers, by approximately 2.54%. On the other hand, in an economic boom period, the timers obtain less incremental money than non-timers, by approximately 0.48%. In addition, based on table 2.8 (panel B), examining of mean difference of SEO samples indicates that hot firms earn a considerably higher proceeds ratio at time t-1 than cold companies, roughly 21.4%. In contrast, timing companies during an economic boom and bullish market gain lower incremental money than non-timers, by approximately 19.8% and 0.46%, respectively.

Table 2.8: Mean value test of IPO and SEO samples													
Variable	Number of Stock Volume		t-value (difference) equal variance	t-value (difference) unequal variance	Economic Growth		t-value (difference) equal variance	t-value (difference) unequal variance	Stock Market Growth		t-value (difference) equal variance	t-value (difference) unequal variance
	HOT	COLD			BOOM	BUST			BULLISH	BEARISH		
Panel A: IPO samples												
Proceeds/Total Assets$_i$	0.2663	0.2625	(0.1777)	(0.1727)	0.2744	0.2550	(1.0497)	(1.0594)	0.2484	0.2775	(-1.5671)	(-1.6225)
N	207	66			146	127			114	159		
Proceeds/Total Assets$_{i-1}$	0.4527	0.3968	(0.9400)	(1.0358)	0.4372	0.4420	(-0.0947)	(-0.0952)	0.4504	0.4250	(0.4991)	(0.5151)
N	206	62			142	128			112	156		
Panel B: SEO samples												
Proceeds/Total Assets$_i$	0.1679	0.1457	(0.5763)	(0.7006)	0.1596	0.1612	(-0.0415)	(-0.0446)	0.1385	0.1783	(-1.0786)	(-1.1413)
N	631	348			390	595			439	546		
Number of Stock Issuance	3.6333	3.3306	(1.0051)	(0.9938)	3.6386	3.4302	(0.7095)	(0.6655)	3.6481	3.4038	(0.8444)	(0.8281)
N	660	372			415	623			466	572		
Log of (Number of Stock Issuance)	0.3976	0.3563	(1.8585*)	(1.8675*)	0.3764	0.3850	(-0.3921)	(-0.3881)	0.3839	0.3796	(0.2032)	(0.202)
N	660	372			415	623			466	572		
Proceeds/Total Assets$_{i-1}$	0.4963	0.2823	(1.0611)	(1.3855)	0.3003	0.4983	(-1.0113)	(-1.1656)	0.4174	0.4220	(-0.0239)	(-0.0226)
N	631	349			390	596			439	547		

3.) The motivation of spending money after stock issuance of equity market timers

To verify the existence of equity market timing, we inquire as to the motivation for the spending of the proceeds raised from stock allocation following Kim and Weisbach (2008). As there are some previous studies insisting that if firms raise new capital with stock issuance and then they hold the proceeds as cash, it is likely that they are timing the equity market (Blanchard et al., 1993; Loughran & Ritter, 1997; DeAngelo et al., 2010). Hence, we follow the regression model of Kim and Weisbach (2008) to support the presence of equity market timing in Thailand, and the results are presented in table 2.9.

However, the equation model following Kim and Weisbach (2008)[10] in table 2.9 reports a high VIF value[11] in each equation. Thus, it is likely that these models may contain a multicollinearity problem due to the high correlation between primary proceeds and other sources of fund variables and the year dummy variables. Also, the results mostly lack a statistically significant difference from zero. Thus, we improve the model by removing the other sources of funds variable from our model and replace the year dummy variables with the macroeconomic factor to control for time fixed effects. The result of the new model is illustrated in table 2.10. The results of the OLS and GLS regressions demonstrate that there is a substantial increase in statistical significance for the coefficients of primary capital from the seven models in table 2.9 to 18 models in table 2.10, which is approximately twice the number of old models. Additionally, the VIF[12] values of the new equation model of the coefficients on the new capital raised from IPOs obviously decrease by roughly 2 times the old models as well.

Table 2.10 exhibits the motivation for spending IPO proceeds for hot companies that issue initial stocks when the market is favourable in order to explore the existence of equity market timing. Overall, almost all coefficients of primary money raised from going public are positive directions that are statistically significantly different from 0. These findings suggest that after firms go public, they use their funds gained from selling initial stocks for several purposes, including total assets, cash holding, short-term investment, inventory storing, property, plant and equipment investment, capital expenditure expenses, dividend payout and repayment of long-term debt. Moreover, these findings

[10] The model is slightly different from Kim and Weisbach (2008) as we exclude R&D expense and merger and acquisition variables since these data are unavailable in more than 90% of cases. However, we include additional variables consisting of property, plant and equipment (PPE) and dividend payout variables for our regression analysis.

[11] VIF values of OLS regression in table 2.11: 9.18 (Max), 6.67 (Min) and 7.87 (Mean).

[12] VIF values of OLS regression in table 2.12: 3.88 (Max), 3.37 (Min) and 3.68 (Mean).

are similar to those by Kim and Weisbach (2008), who found that the parameters of new capital obtained from IPO issuance are almost entirely positive signs with statistical significance.

Furthermore, hot firms continuously increase the investment in total assets from years 1 until 3 after the IPO event with statistical significance at least at the 95% confidence level, and then they begin to reduce the spending of the IPO proceeds in year 4, but the result is insignificant. However, they minimize the storing of inventory from years 1 until 2 after the IPO, and then they reverse to increase the spending of the primary proceeds on inventory in years 3 and 4, yet the results are insignificant. In addition, there are positive signs of new capital raised from the IPO on the change in property, plant and equipment and capital expenditure over time according to table 2.10. These outcomes imply that one of motivations for hot IPO firms is that they have growth opportunity, such as an investment in new projects, mergers and acquisitions with other companies and extending their business lines, thus they issue the initial stocks to gain the money. This result is similar to that by Celikyurt et al. (2010), who report that IPO firms spend the proceeds on capital expenditure and merger and acquisition.

Likewise, the other interesting variables are the accumulation of dividend payout and the repayment of long-term debt. The outcomes show that there is a significantly positive effect of new capital gained from IPOs on dividend payout over time at the 99% confidence level. This indicates that the one purpose of IPO issuance for hot firms is a desire to use the new proceeds to pay dividends. However, this finding differs from that by Ritter and Welch (2002), who discovered that there is no evidence that firms pay more dividends after the IPO event. For the coefficient of primary proceeds on the long-term debt repayment of hot IPO firms, the direction is positive from years 1 until 3 post-offering, especially in year 1, and is statistically significant at the 99% confidence level. In contrast, the result reports that the parameters of long-term debt repayment in year 4 is a negative sign, yet this effect is insignificant. This denotes that hot firms tend to rebalance their capital structure since they spend their new capital to repay long-term debt over 3 years after the IPO, and then they begin to minimize the long-term debt repayment in year 4. This indicates that firms try to rebalance their capital structure towards an optimal level of leverage leading to the minimum cost of capital after IPO, and when they achieve their optimal level, they tend to reduce the repayment of debt. This finding is consistent with that by Pagano et al. (1998), who claim that the aim of the IPO of firms is rebalancing their leverage level.

Most importantly, the change in cash holding after going public is in focus to investigate the existence of equity market timing by hot firms. The coefficients of the primary proceeds raised from IPO issuance for the shift of pure cash holding and cash holding plus short-term investment are mostly significant and positive. It is clearly seen that the coefficients of cash holding are highly positive in year 1 and there is a slight reduction in year 2, which is statistically and economically significant at 95% and 99% in OLS and GLS regressions, respectively. Although there is the decrease in cash holding in year 3, the coefficient is still positive, but the result is insignificant and then they begin to decrease the savings of cash holding. Also, the coefficients of the change in cash and short-term investment storing are positive over 4 years with statistical and economic significance at least at the 95% confidence level in the GLS models. This suggests that equity market timing is one of the purposes when hot firms go public because when they gain the proceeds from the IPO, they keep this money as an increase in cash saving, whereby it is likely that they tend to obtain the benefit of overvalued stocks. This finding is similar to that by Blanchard et al. (1993), Loughran and Ritter (1997), Kim and Weisbach (2008), who found that there is stock market timing as cash holding increases after equity issuance. Therefore, these findings support hypothesis 1 that there is the presence of equity market timing with going public in Thailand.

Moving on to the spending of money riased from the SEO allocation of hot firms, the results are shown in tables 2.11 and 2.12. Table 2.11 presents the result of the regression analysis for the equations following Kim and Weisbach (2008). However, as the primary proceeds of the SEOs are mostly unavailable, the net proceeds are used instead of primary proceeds and this effects an inability to estimate the other sources of funds for SEO firms. Table 2.12, on the other hand, reports the outcomes with the same purpose, whereby the year dummy variables are removed due to the avoidance of the multicollinearity problem and are replaced with the macroeconomic factor. We can see that the results in table 2.11 are mostly equal to those in table 2.12 and the VIF[13] values of both models are insignificantly different; however, the macroeconomic factor models contain relatively lower VIF values than the other one, although almost all coefficients of table 2.12 are slightly greater than the parameters in table 2.11. This implies that there is a high correlation between the variables of the proceeds obtained from a new equity offering and other sources of funds because the SEO spending models exclude the other

[13] VIF values of table 2.13 with OLS regressions are 5.51 (Max), 3.24 (Min) and 4.79 (Mean), whereas the VIF values of table 2.14 are 3.74 (Max), 3.2(Min) and 3.49 (Mean).

sources of funds, but the results of both year dummy variables and the macroeconomic factor are not definitely dissimilar.

Tables 2.11 and 2.12 show the coefficients of the net proceeds obtained from a SEO event with the assets and expenses for hot firms that issue follow-on equity when the stock market is in a window of opportunity period. Overall, the results illustrate that almost all coefficients of net proceeds raised from SEOs are in positive directions on the change in total assets, cash holding, cash and short-term investment holding, inventory investment, property, plant and equipment investment, capital expenditure, dividend payout and long-term debt repayment over time until 4 years after the SEO offering and are mostly statistically significantly different from zero. These outcomes are similar to the motivation of spending money for hot IPO companies, whereby there is a diversification of the marginal proceeds of SEO events towards several aims of the corporations. Again, these findings are very close to the results of Kim and Weisbach (2008), who found that nearly all coefficients of primary capital obtained from SEO issuance on assets and expenditures are positively and significantly unequal to zero. However, there is a decrease in spending net proceeds on dividend payout in year 1 after an SEO offering, although the result is insignificant.

Similarly, hot SEO firms tend to spend their incremental money on total assets and capital expenditures over time, which is statistically significant at the 90% confidence level, and property, plant, and equipment with a statistical significance at least at the 95% confidence level over 2 to 4 years in the GLS regression model, which is consistent with IPO hot firms. Therefore, this implies that one of the motivations for stock reselling of hot companies is the growth opportunities for their business, which very similar to Walker and Yost (2008), who discovered that companies enhance their capital expenditure after an SEO event. In contrast, there are some differences in spending the proceeds between IPO and SEO events. Firstly, the spending of money by an IPO by hot firms on inventory diminishes in years 1 and 2, after which they turn to boost the investment in inventory, but the results are insignificant, while this consumption of the proceeds for SEO hot firms on the inventory investment continuously grows over time and is statistically significant at the 99% confidence level in GLS regressions. Secondly, hot IPO companies exhaust the incremental proceeds to pay dividends over time, whereas hot SEO corporations tend to minimize the dividend payment in the first year after SEO, and then they begin to increase the payout of dividends from years 2 to 4. This means that hot SEO companies tend to accumulate the retained earnings in the first year after an SEO event, so they are not willing to pay dividends because of business growth opportunities in the future. This outcome is similar to that by DeAngelo et al. (2007), who discovered that SEO firms do not pay dividends a mere 1 year after an SEO event; however, this occurred in only 12% of their samples. Thirdly, the coefficients of the net proceeds on long-term debt repayment are significantly positive at the 99% confidence level in GLS regressions, indicating that there is also a rebalancing of the capital structure of hot SEO companies to reach into their optimal leverage, as is the case with hot IPO firms. This finding is identical to that by Leary and Roberts (2005), who found that there is a dynamic rebalancing of a firm's leverage to adjust their cost of capital.

Most importantly, the coefficients of net capital raised from an SEO event on cash holding and cash plus short-term investment are significantly positive at the 99% confidence level over time until 4 years, as can be seen in tables 2.11 and 2.12. These findings suggest that it is more likely that SEO proceeds are kept as cash, implying that the timing of the stock market may be the one reason for issuing follow-on stocks during a favourable period. Also, this result is consistent with the findings by Blanchard et al. (1993), Loughran and Ritter (1997), Kim and Weisbach (2008) and DeAngelo et al. (2010). Consequently, this outcome supports hypothesis 1 in that there is the existence of equity market timing in Thailand with strong evidence in the SEO event.

Regarding the findings of motivation for spending the money raised from equity offering in both IPO and SEO events, there is some evidence that there are several reasons for selling the stocks of hot firms, and one of the purposes is equity market timing, which supports hypothesis 1 that there is the existence of equity market timing in Thailand for both IPO and SEO events.

V	t	N		Primary Proceeds/TA0		Other Sources of Fund/TA0		Total Assets0		F	Wald Chi2	R^2
		OLS	GLS	OLS	GLS	OLS	GLS	OLS	GLS	OLS	GLS	OLS
Δ Total Asset 1	1	204	204	-1.196	-1.196	-2.297	-2.297*	-0.0718***	-0.0718***	5.913***	104.0***	0.338
				(-0.75)	(-1.09)	(-1.18)	(-1.81)	(-3.65)	(-4.45)			
Δ Total Asset 2	2	202	202	-1.176	-1.176	-2.386	-2.386	-0.0816***	-0.0816***	4.776***	72.12***	0.263
				(-0.64)	(-0.76)	(-1.08)	(-1.34)	(-3.41)	(-3.55)			
Δ Total Asset 3	3	181	181	-6.135**	-6.135**	-8.708***	-8.708**	-0.111***	-0.111***	5.158***	62.56***	0.257
				(-2.53)	(-2.11)	(-3.17)	(-2.46)	(-3.24)	(-3.25)			
Δ Total Asset 4	4	164	164	-6.294**	-6.294*	-8.717***	-8.717**	-0.0992**	-0.0992***	4.736***	365.9***	0.202
				(-2.22)	(-1.95)	(-2.73)	(-2.21)	(-2.46)	(-2.60)			
Δ Cash1	1	203	203	-0.395	-0.395	-0.925	-0.925	0.00191	0.00191	1.666**	78.81***	0.280
				(-0.40)	(-0.73)	(-0.71)	(-1.46)	(0.24)	(0.24)			
Δ Cash 2	2	203	203	-1.133**	-1.133***	-1.601**	-1.601***	-0.00596	-0.00596	2.482***	64.48***	0.241
				(-2.07)	(-2.79)	(-2.26)	(-3.40)	(-0.87)	(-1.00)			
Δ Cash 3	3	183	183	-0.801	-0.801	-1.094	-1.094	0.00484	0.00484	2.136***	57.26***	0.193
				(-1.36)	(-1.04)	(-1.55)	(-1.16)	(0.60)	(0.55)			
Δ Cash 4	4	168	168	-2.785***	-2.785***	-3.381**	-3.381***	0.00168	0.00168	2.352***	86.51***	0.340
				(-2.72)	(-3.44)	(-2.57)	(-3.42)	(0.21)	(0.18)			
Δ Cash and Short-Term Investment 1	1	204	204	0.0173	0.0173	-0.909	-0.909	-0.0491***	-0.0491***	5.139***	127.6***	0.385
				(0.01)	(0.02)	(-0.59)	(-1.06)	(-3.17)	(-4.50)			
Δ Cash and Short-Term Investment 2	2	204	204	-0.681	-0.681	-1.542	-1.542**	-0.0347***	-0.0347***	2.896***	90.77***	0.308
				(-0.81)	(-1.01)	(-1.50)	(-1.96)	(-3.03)	(-3.49)			
Δ Cash and Short-Term Investment 3	3	184	184	-0.731	-0.731	-1.478	-1.478	-0.0183	-0.0183	2.041***	95.48***	0.202
				(-0.57)	(-0.61)	(-0.93)	(-1.01)	(-1.17)	(-1.34)			
Δ Cash and Short-Term Investment 4	4	169	169	-3.163**	-3.163**	-4.419***	-4.419***	-0.0291*	-0.0291**	2.527***	117.9***	0.256
				(-2.38)	(-2.51)	(-2.68)	(-2.86)	(-1.94)	(-2.02)			
Δ Inventory 1	1	204	204	-0.110	-0.110	-0.105	-0.105	-0.00172	-0.00172	1.234	20.15	0.0899
				(-0.30)	(-0.25)	(-0.28)	(-0.21)	(-0.26)	(-0.27)			
Δ Inventory 2	2	204	204	-0.242	-0.242	-0.355	-0.355	-0.00541	-0.00541	1.575*	38.90**	0.160
				(-0.51)	(-0.36)	(-0.71)	(-0.46)	(-0.59)	(-0.55)			
Δ Inventory 3	3	184	184	-0.333	-0.333	-0.882	-0.882	-0.00346	-0.00346	1.476*	90.74***	0.149
				(-0.26)	(-0.22)	(-0.57)	(-0.48)	(-0.21)	(-0.20)			
Δ Inventory 4	4	169	169	0.763	0.763	0.637	0.637	0.0125	0.0125	1.385	102.4***	0.149
				(0.52)	(0.45)	(0.36)	(0.31)	(0.68)	(0.65)			
Δ PPE 1	1	204	204	-0.641	-0.641	-1.001	-1.001	-0.00344	-0.00344	2.776***	47.70**	0.190
				(-1.21)	(-1.17)	(-1.57)	(-1.58)	(-0.48)	(-0.43)			
Δ PPE 2	2	204	204	-0.916	-0.916	-1.454	-1.454	-0.00820	-0.00820	2.075***	19.20	0.0860
				(-0.76)	(-0.73)	(-1.05)	(-1.00)	(-0.51)	(-0.45)			
Δ PPE 3	3	184	184	-4.064**	-4.064*	-5.349**	-5.349**	-0.0277	-0.0277	1.498*	22.66	0.110
				(-1.99)	(-1.87)	(-2.17)	(-2.01)	(-0.99)	(-1.11)			
Δ PPE 4	4	169	169	-5.222**	-5.222**	-6.710**	-6.710**	-0.0287	-0.0287	1.723*	91.44***	0.132
				(-2.33)	(-2.02)	(-2.52)	(-2.12)	(-0.85)	(-0.97)			

Table 2.9: The spending money after stock issuance of IPO samples

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 2.9: The spending money after stock issuance of IPO samples (Cont.)

V	*t*	*N*		*Primary Proceeds/TA₀*		*Other Sources of Fund/TA₀*		*Total Assets₀*		*F*	*Wald Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*
∑ CAPEX 1	1	204	204	-0.387	-0.387	-0.670	-0.670	-0.00909	-0.00909	2.827***	53.51***	0.208
				(-0.78)	(-0.81)	(-1.10)	(-1.20)	(-1.39)	(-1.28)			
∑ CAPEX 2	2	204	204	0.337	0.337	0.000938	0.000938	-0.0162	-0.0162	3.346***	36.84***	0.153
				(0.44)	(0.37)	(0.00)	(0.00)	(-1.44)	(-1.22)			
∑ CAPEX 3	3	184	184	-0.753	-0.753	-1.552	-1.552	-0.0249	-0.0249	2.909***	287.8***	0.183
				(-0.40)	(-0.49)	(-0.63)	(-0.82)	(-1.53)	(-1.41)			
∑CAPEX 4	4	169	169	-1.685	-1.685	-2.708	-2.708	-0.0373*	-0.0373*	3.196***	339.0***	0.218
				(-0.82)	(-0.93)	(-1.02)	(-1.22)	(-1.93)	(-1.80)			
∑ Dividend Payment 1	1	204	204	0.0628	0.0628	-0.315	-0.315	-0.0100**	-0.0100**	2.936***	76.21**	0.272
				(0.14)	(0.20)	(-0.52)	(-0.84)	(-2.24)	(-2.12)			
∑ Dividend Payment 2	2	204	204	0.322	0.322	-0.234	-0.234	-0.0153**	-0.0153**	3.696***	95.29***	0.318
				(0.70)	(0.73)	(-0.39)	(-0.46)	(-2.20)	(-2.35)			
∑ Dividend Payment 3	3	184	184	-1.053	-1.053	-2.283	**-2.283****	-0.0233**	-0.0233**	4.176***	402.8***	0.376
				(-0.98)	(-1.29)	(-1.58)	(-2.28)	(-2.34)	(-2.50)			
∑ Dividend Payment 4	4	169	169	-1.532	-1.532	**-3.051***	**-3.051****	-0.0261**	-0.0261**	3.961***	97.70***	0.366
				(-1.20)	(-1.53)	(-1.79)	(-2.50)	(-2.27)	(-2.29)			
∑ Repayment of Long-Term Debt 1	1	204	204	-0.150	-0.150	-0.593	-0.593	0.0239***	0.0239***	2.354***	79.40***	0.280
				(-0.32)	(-0.41)	(-0.97)	(-1.41)	(4.13)	(4.48)			
∑ Repayment of Long-Term Debt 2	2	204	204	-0.565	-0.565	-1.178	-1.178	0.0103	0.0103	4.956***	62.49***	0.234
				(-0.50)	(-0.43)	(-0.92)	(-0.77)	(0.54)	(0.53)			
∑ Repayment of Long-Term Debt 3	3	184	184	-1.562	-1.562	-2.520	-2.520	0.0121	0.0121	3.743***	822.3***	0.223
				(-0.67)	(-0.67)	(-0.87)	(-0.88)	(0.43)	(0.45)			
∑ Repayment of Long-Term Debt 4	4	169	169	-3.707	-3.707	-4.441	-4.441	-1.029***	-1.029***	145.5***	1475.1***	0.897
				(-1.46)	(-1.26)	(-1.49)	(-1.23)	(-29.69)	(-30.57)			

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 2.10: The spending money after stock issuance of IPO samples (adjusted)

V	*t*	*N*		*Primary Proceeds/TA₀*		*Total Assets0*		*Macroeconomic Factor*		*F*	*Wald Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*
Δ Total Asset 1	1	204	204	**0.790*****	**0.790*****	-0.0709***	-0.0709***	1.333**	1.333*	8.829***	76.13***	0.272
				(3.26)	(3.77)	(-3.74)	(-4.53)	(2.12)	(1.89)			
Δ Total Asset 2	2	202	202	**0.949*****	**0.949*****	-0.0739***	-0.0739***	2.408**	2.408**	6.468***	45.53***	0.184
				(3.29)	(3.21)	(-3.21)	(-3.31)	(2.40)	(2.43)			
Δ Total Asset 3	3	181	181	**0.973****	**0.973****	-0.107***	-0.107***	1.842	1.842	5.073***	36.40***	0.167
				(2.24)	(2.19)	(-3.10)	(-3.19)	(1.09)	(1.13)			
Δ Total Asset 4	4	164	164	0.698	0.698	-0.0993**	-0.0993***	2.207	2.207	2.964***	20.65**	0.112
				(1.38)	(1.34)	(-2.50)	(-2.63)	(0.84)	(1.15)			
Δ Cash1	1	203	203	**0.445****	**0.445*****	0.00819	0.00819	-0.436	-0.436	1.424	35.53***	0.149
				(2.42)	(4.13)	(1.13)	(1.02)	(-1.12)	(-1.20)			
Δ Cash 2	2	203	203	**0.248****	**0.248*****	0.000962	0.000962	0.0455	0.0455	1.563	20.30**	0.0909
				(2.59)	(3.07)	(0.17)	(0.16)	(0.14)	(0.17)			
Δ Cash 3	3	183	183	0.115	0.115	0.00429	0.00429	0.261	0.261	0.906	8.071	0.0422
				(1.03)	(0.95)	(0.58)	(0.49)	(0.48)	(0.59)			
Δ Cash 4	4	168	168	-0.0163	-0.0163	-0.00150	-0.00150	0.931	0.931*	0.877	13.65	0.0752
				(-0.10)	(-0.11)	(-0.16)	(-0.15)	(1.51)	(1.73)			
Δ Cash and Short-Term Investment 1	1	204	204	**0.856*****	**0.856*****	-0.0430***	-0.0430***	-0.393	-0.393	7.749***	104.8***	0.339
				(4.24)	(6.11)	(-2.94)	(-4.11)	(-0.92)	(-0.83)			
Δ Cash and Short-Term Investment 2	2	204	204	**0.669*****	**0.669*****	-0.0302***	-0.0302***	-0.171	-0.171	3.425***	60.23***	0.228
				(4.33)	(5.14)	(-2.85)	(-3.10)	(-0.40)	(-0.39)			
Δ Cash and Short-Term Investment 3	3	184	184	**0.518****	**0.518*****	-0.0206	-0.0206	-0.536	-0.536	2.222**	27.31***	0.129
				(2.32)	(2.87)	(-1.36)	(-1.56)	(-0.90)	(-0.81)			
Δ Cash and Short-Term Investment 4	4	169	169	**0.463***	**0.463****	-0.0307*	-0.0307**	0.234	0.234	1.725*	23.39***	0.122
				(1.86)	(2.22)	(-1.90)	(-2.10)	(0.33)	(0.30)			
Δ Inventory 1	1	204	204	-0.0654	-0.0654	-0.00310	-0.00310	0.165	0.165	0.742	6.703	0.0318
				(-0.90)	(-0.80)	(-0.55)	(-0.51)	(0.66)	(0.60)			
Δ Inventory 2	2	204	204	-0.00442	-0.00442	-0.00723	-0.00723	0.633	0.633	1.243	10.70	0.0498
				(-0.04)	(-0.03)	(-0.86)	(-0.75)	(1.64)	(1.46)			
Δ Inventory 3	3	184	184	0.228	0.228	-0.0132	-0.0132	0.683	0.683	1.316	15.14	0.0760
				(1.14)	(1.02)	(-0.86)	(-0.80)	(0.87)	(0.83)			
Δ Inventory 4	4	169	169	0.161	0.161	-0.00612	-0.00612	0.285	0.285	0.559	7.477	0.0424
				(0.71)	(0.60)	(-0.37)	(-0.32)	(0.30)	(0.28)			
Δ PPE 1	1	204	204	**0.235***	**0.235****	-0.00110	-0.00110	0.888***	0.888**	3.799***	23.65***	0.104
				(1.95)	(2.24)	(-0.16)	(-0.14)	(3.23)	(2.52)			
Δ PPE 2	2	204	204	0.364	0.364	-0.00977	-0.00977	1.150	1.150	2.551***	10.61	0.0494
				(1.64)	(1.57)	(-0.60)	(-0.56)	(1.65)	(1.47)			
Δ PPE 3	3	184	184	0.298	0.298	-0.0305	-0.0305	1.116	1.116	2.344**	9.010	0.0467
				(0.80)	(0.92)	(-1.04)	(-1.28)	(1.15)	(0.93)			
Δ PPE 4	4	169	169	0.150	0.150	-0.0336	-0.0336	0.782	0.782	2.806**	7.084	0.0402
				(0.32)	(0.36)	(-0.96)	(-1.16)	(0.58)	(0.51)			

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 2.10: The spending money after stock issuance of IPO samples (adjusted) (Cont.)

V	*t*	*N*		*Primary Proceeds/TA₀*		*Total Assets0*		*Macroeconomic Factor*		*F*	*Wald Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*
∑ CAPEX 1	1	204	204	0.174	**0.174***	-0.00687	-0.00687	0.728***	0.728**	3.324***	26.18***	0.114
				(1.56)	(1.87)	(-1.10)	(-0.99)	(2.93)	(2.33)			
∑ CAPEX 2	2	204	204	**0.369****	**0.369****	-0.0154	-0.0154	1.117**	1.117*	4.359***	21.62**	0.0958
				(2.02)	(2.16)	(-1.41)	(-1.21)	(2.03)	(1.95)			
∑ CAPEX 3	3	184	184	**0.511***	**0.511****	-0.0248	-0.0248	1.339*	1.339	4.063***	21.80**	0.106
				(1.70)	(2.18)	(-1.50)	(-1.44)	(1.75)	(1.55)			
∑ CAPEX 4	4	169	169	0.451	0.451	-0.0401*	-0.0401*	0.575	0.575	3.302***	18.66**	0.0994
				(1.19)	(1.52)	(-1.97)	(-1.92)	(0.62)	(0.52)			
∑ Dividend Payment 1	1	204	204	**0.329*****	**0.329*****	-0.0106**	-0.0106**	-0.0315	-0.0315	3.069***	61.59***	0.232
				(3.37)	(5.46)	(-2.29)	(-2.35)	(-0.15)	(-0.16)			
∑ Dividend Payment 2	2	204	204	**0.515*****	**0.515*****	-0.0162**	-0.0162***	0.0491	0.0491	4.449***	81.68***	0.286
				(4.08)	(6.22)	(-2.30)	(-2.62)	(0.18)	(0.18)			
∑ Dividend Payment 3	3	184	184	**0.798*****	**0.798*****	-0.0236**	-0.0236***	0.0796	0.0796	5.213***	92.08***	0.334
				(4.85)	(6.54)	(-2.29)	(-2.64)	(0.17)	(0.18)			
∑ Dividend Payment 4	4	169	169	**0.914*****	**0.914*****	-0.0277**	-0.0277**	0.128	0.128	4.209***	75.15***	0.308
				(4.24)	(5.76)	(-2.22)	(-2.48)	(0.22)	(0.22)			
∑ Repayment of Long-Term Debt 1	1	204	204	**0.366*****	**0.366*****	0.0257***	0.0257***	0.137	0.137	4.754***	63.39***	0.237
				(2.86)	(5.38)	(4.79)	(5.05)	(0.67)	(0.60)			
∑ Repayment of Long-Term Debt 2	2	204	204	0.459	**0.459***	0.0130	0.0130	1.373*	1.373	7.520***	37.96***	0.157
				(1.61)	(1.82)	(0.71)	(0.69)	(1.76)	(1.62)			
∑ Repayment of Long-Term Debt 3	3	184	184	0.486	0.486	0.0115	0.0115	2.142*	2.142	4.784***	29.47**	0.138
				(1.12)	(1.36)	(0.42)	(0.44)	(1.93)	(1.63)			
∑ Repayment of Long-Term Debt 4	4	169	169	-0.304	-0.304	-1.049***	-1.049***	-3.204	-3.204	72.69***	710.2***	0.808
				(-0.47)	(-0.50)	(-24.05)	(-24.34)	(-1.64)	(-1.41)			

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 2.11: The spending money after stock issuance of SEO samples

V	*t*	*N*		*Net Proceeds/TA_0*		*Total $Assets_0$*		*F*	*Wald Chi2*	*R^2*
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*
Δ Total Asset 1	1	661	661	**0.735*****	**0.735*****	-0.0244	-0.0244**	5.328***	445.2***	0.402
				(7.64)	(17.01)	(-1.19)	(-2.13)			
Δ Total Asset 2	2	583	583	**0.832*****	**0.832*****	-0.0204	-0.0204	8.783***	326.5***	0.359
				(7.08)	(13.09)	(-1.31)	(-1.31)			
Δ Total Asset 3	3	502	502	**0.673*****	**0.673*****	-0.0418*	-0.0418**	6.867***	230.3***	0.314
				(4.32)	(8.60)	(-1.78)	(-2.08)			
Δ Total Asset 4	4	427	427	**0.651*****	**0.651*****	-0.0430	-0.0430*	7.789***	387.7***	0.356
				(3.33)	(7.32)	(-1.64)	(-1.87)			
Δ Cash1	1	664	664	**0.167*****	**0.167*****	-0.00879	-0.00879*	2.303***	144.1***	0.178
				(3.02)	(8.96)	(-1.33)	(-1.80)			
Δ Cash 2	2	590	590	**0.145****	**0.145*****	-0.0153**	-0.0153**	2.479***	99.55***	0.144
				(2.41)	(5.69)	(-2.30)	(-2.48)			
Δ Cash 3	3	541	541	**0.114****	**0.114*****	-0.0166***	-0.0166***	2.611***	212.6***	0.216
				(2.33)	(6.32)	(-2.75)	(-3.75)			
Δ Cash 4	4	446	446	**0.101***	**0.101*****	-0.0133**	-0.0133***	2.981***	156.8***	0.210
				(1.71)	(5.12)	(-2.42)	(-2.72)			
Δ Cash and Short-Term Investment 1	1	664	664	**0.281*****	**0.281*****	-0.0109	-0.0109**	2.373***	334.7***	0.335
				(4.04)	(15.36)	(-1.59)	(-2.28)			
Δ Cash and Short-Term Investment 2	2	590	590	**0.203*****	**0.203*****	-0.0148**	-0.0148**	2.573***	153.4***	0.206
				(4.04)	(8.25)	(-2.01)	(-2.51)			
Δ Cash and Short-Term Investment 3	3	518	518	**0.131****	**0.131*****	-0.0148**	-0.0148**	2.248***	107.6***	0.172
				(2.01)	(5.51)	(-2.12)	(-2.50)			
Δ Cash and Short-Term Investment 4	4	446	446	**0.265***	**0.265*****	-0.0109	-0.0109	1.865**	169.3***	0.237
				(1.67)	(8.69)	(-1.16)	(-1.43)			
Δ Inventory 1	1	664	664	0.0690	**0.0690*****	-0.0201	-0.0201***	1.761**	58.30***	0.0807
				(1.37)	(2.91)	(-1.29)	(-3.23)			
Δ Inventory 2	2	590	590	**0.147****	**0.147*****	-0.0129*	-0.0129*	2.475***	125.5***	0.136
				(2.46)	(4.93)	(-1.68)	(-1.78)			
Δ Inventory 3	3	518	518	**0.218*****	**0.218*****	-0.00602	-0.00602	2.494***	118.1***	0.186
				(2.98)	(6.33)	(-0.77)	(-0.70)			
Δ Inventory 4	4	446	446	0.110	**0.110****	-0.0163	-0.0163	2.527***	81.09***	0.154
				(1.39)	(2.55)	(-1.40)	(-1.52)			
Δ PPE 1	1	664	664	0.0204	0.0204	-0.0126	-0.0126	2.306***	23.30	0.0339
				(0.19)	(0.68)	(-1.29)	(-1.60)			
Δ PPE 2	2	590	590	**0.243***	**0.243*****	-0.0193	-0.0193	3.095***	121.9***	0.156
				(1.76)	(4.23)	(-1.19)	(-1.39)			
Δ PPE 3	3	518	518	0.187	**0.187*****	-0.0351*	-0.0351**	3.080***	115.0***	0.182
				(1.56)	(2.80)	(-1.88)	(-2.10)			
Δ PPE 4	4	446	446	0.158	**0.158****	-0.0398**	-0.0398**	3.429***	129.9***	0.225
				(1.22)	(2.05)	(-2.02)	(-2.06)			

t statistics in parentheses: * $p<0.1$, ** $p<0.05$, *** $p<0.01$

Table 2.11: The spending money after stock issuance of SEO samples (Cont.)

V	t	N		Net Proceeds/TA_0		Total Assets$_0$		F	Wald Chi2	R^2
		OLS	GLS	OLS	GLS	OLS	GLS	OLS	GLS	OLS
∑ CAPEX 1	1	664	664	0.221**	0.221***	0.00427	0.00427	4.954***	245.1***	0.270
				(2.49)	(14.17)	(0.71)	(1.05)			
∑ CAPEX 2	2	590	590	0.370**	0.370***	0.00819	0.00819	6.499***	569.9***	0.294
				(2.42)	(13.83)	(1.15)	(1.27)			
∑ CAPEX 3	3	518	518	0.430**	0.430***	0.00596	0.00596	6.407***	213.1***	0.291
				(2.35)	(12.18)	(0.68)	(0.67)			
∑ CAPEX 4	4	446	446	0.485**	0.485***	0.00478	0.00478	6.000***	186.2***	0.295
				(2.37)	(10.81)	(0.39)	(0.43)			
∑ Dividend Payment 1	1	664	664	-0.0102	-0.0102	-0.0104	-0.0104***	5.027***	38.15**	0.0543
				(-0.34)	(-0.77)	(-0.89)	(-3.01)			
∑ Dividend Payment 2	2	590	590	0.0168	0.0168	0.0000844	0.0000844	8.027***	342.7***	0.114
				(0.60)	(1.52)	(0.02)	(0.03)			
∑ Dividend Payment 3	3	518	518	0.0264	0.0264*	0.00520	0.00520	7.992***	452.4***	0.143
				(0.71)	(1.86)	(1.32)	(1.46)			
∑ Dividend Payment 4	4	446	446	0.0837	0.0837***	0.0103*	0.0103**	8.598***	85.90***	0.162
				(1.24)	(4.02)	(1.73)	(1.99)			
∑ Repayment of Long-Term Debt 1	1	661	661	0.0671	0.0671***	0.0116***	0.0116***	2.606***	51.81***	0.0727
				(1.14)	(4.49)	(5.10)	(2.92)			
∑ Repayment of Long-Term Debt 2	2	583	583	0.101	0.101***	0.0140***	0.0140**	2.494***	49.06***	0.0776
				(0.96)	(3.73)	(2.76)	(2.11)			
∑ Repayment of Long-Term Debt 3	3	502	502	0.122	0.122***	0.0163**	0.0163*	2.573***	232.4***	0.0918
				(1.03)	(3.70)	(2.52)	(1.92)			
∑ Repayment of Long-Term Debt 4	4	427	427	0.175	0.175***	0.0264***	0.0264**	2.962***	273.3***	0.104
				(1.24)	(4.40)	(3.72)	(2.56)			

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 2.12: The spending money after stock issuance of SEO samples (adjusted)

V	t	N		Net Proceeds/TA_0		Total Assets$_0$		Macroeconomic Factor		F	Wald Chi2	R^2
		OLS	GLS	OLS	GLS	OLS	GLS	OLS	GLS	OLS	GLS	OLS
Δ Total Asset 1	1	661	661	0.753***	0.753***	-0.0182	-0.0182	0.0565	0.0565	9.645***	368.7***	0.358
				(7.83)	(16.91)	(-0.90)	(-1.55)	(0.11)	(0.09)			
Δ Total Asset 2	2	583	583	0.848***	0.848***	-0.0111	-0.0111	1.404**	1.404*	10.90***	237.3***	0.289
				(7.50)	(12.74)	(-0.65)	(-0.68)	(1.97)	(1.67)			
Δ Total Asset 3	3	502	502	0.694***	0.694***	-0.0274	-0.0274	0.563	0.563	6.937***	132.4***	0.209
				(4.44)	(8.31)	(-1.10)	(-1.28)	(0.54)	(0.54)			
Δ Total Asset 4	4	427	427	0.704***	0.704***	-0.0221	-0.0221	2.360*	2.360**	7.732***	155.2***	0.267
				(3.64)	(7.47)	(-0.81)	(-0.92)	(1.80)	(2.00)			
Δ Cash1	1	664	664	0.171***	0.171***	-0.00918	-0.00918*	-0.244	-0.244	1.495	120.8***	0.154
				(2.99)	(9.15)	(-1.42)	(-1.88)	(-0.97)	(-0.97)			
Δ Cash 2	2	590	590	0.147**	0.147***	-0.0163**	-0.0163***	-0.169	-0.169	2.455***	63.42***	0.0971
				(2.31)	(5.63)	(-2.33)	(-2.61)	(-0.78)	(-0.52)			
Δ Cash 3	3	541	541	0.116**	0.116***	-0.0156**	-0.0156***	-0.0786	-0.0786	2.576***	83.91***	0.134
				(2.26)	(6.17)	(-2.48)	(-3.39)	(-0.37)	(-0.34)			
Δ Cash 4	4	446	446	0.107*	0.107***	-0.0105*	-0.0105**	-0.297	-0.297	2.662***	59.63***	0.118
				(1.68)	(5.17)	(-1.80)	(-2.06)	(-0.88)	(-1.18)			
Δ Cash and Short-Term Investment 1	1	664	664	0.285***	0.285***	-0.0102	-0.0102**	-0.363	-0.363	2.630***	311.1***	0.319
				(4.00)	(15.52)	(-1.54)	(-2.13)	(-1.58)	(-1.48)			
Δ Cash and Short-Term Investment 2	2	590	590	0.206***	0.206***	-0.0149**	-0.0149**	0.0372	0.0372	2.843***	104.5***	0.150
				(4.03)	(8.16)	(-1.99)	(-2.47)	(0.15)	(0.12)			
Δ Cash and Short-Term Investment 3	3	518	518	0.131*	0.131***	-0.0135*	-0.0135**	-0.400	-0.400	2.281**	59.26***	0.103
				(1.90)	(5.31)	(-1.89)	(-2.20)	(-1.34)	(-1.33)			
Δ Cash and Short-Term Investment 4	4	446	446	0.272*	0.272***	-0.00728	-0.00728	0.156	0.156	1.788*	103.2***	0.188
				(1.66)	(8.69)	(-0.77)	(-0.95)	(0.33)	(0.41)			
Δ Inventory 1	1	664	664	0.0743	0.0743***	-0.0184	-0.0184***	-0.0434	0.941**	1.945**	12.31	0.0501
				(1.57)	(3.10)	(-1.25)	(-2.95)	(-0.16)	(-0.14)			
Δ Inventory 2	2	590	590	0.152**	0.152***	-0.0113	-0.0113	-0.230	1.557**	2.807***	64.13***	0.0980
				(2.54)	(5.01)	(-1.52)	(-1.56)	(-0.73)	(-0.61)			
Δ Inventory 3	3	518	518	0.226***	0.226***	-0.00364	-0.00364	-0.353	1.366	3.251***	62.42***	0.142
				(3.16)	(6.40)	(-0.49)	(-0.42)	(-0.91)	(-0.82)			
Δ Inventory 4	4	446	446	0.121	0.121***	-0.0137	-0.0137	-0.0912	2.188**	3.366***	78.03***	0.113
				(1.63)	(2.74)	(-1.20)	(-1.26)	(-0.21)	(-0.17)			
Δ PPE 1	1	664	664	0.0269	0.0269	-0.0118	-0.0118	0.941**	-0.0434	0.937	35.05***	0.0182
				(0.25)	(0.89)	(-1.22)	(-1.50)	(2.11)	(2.34)			
Δ PPE 2	2	590	590	0.253*	0.253***	-0.00927	-0.00927	1.557**	-0.230	2.153**	64.14***	0.0980
				(1.82)	(4.27)	(-0.56)	(-0.65)	(2.43)	(2.10)			
Δ PPE 3	3	518	518	0.197*	0.197***	-0.0227	-0.0227	1.366	-0.353	2.881***	85.67***	0.108
				(1.68)	(2.83)	(-1.18)	(-1.32)	(1.61)	(1.61)			
Δ PPE 4	4	446	446	0.186	0.186**	-0.0226	-0.0226	2.188**	-0.0912	3.194***	56.69***	0.149
				(1.47)	(2.30)	(-1.10)	(-1.14)	(2.10)	(2.23)			

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 2.12: The spending money after stock issuance of SEO samples (adjusted) (Cont.)

V	*t*	*N*		*Net Proceeds/TA₀*		*Total Assets₀*		*Macroeconomic Factor*		*F*	*Wald Chi2*	*R^2*
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*
∑ CAPEX 1	1	664	664	0.222**	0.222***	0.00558	0.00558	0.529**	0.529**	2.504***	220.8***	0.114
				(2.53)	(14.13)	(0.95)	(1.36)	(2.38)	(2.52)			
∑ CAPEX 2	2	590	590	0.372**	0.372***	0.0108	0.0108*	0.929***	0.929***	2.780***	210.7***	0.0958
				(2.49)	(13.67)	(1.51)	(1.66)	(2.72)	(2.73)			
∑ CAPEX 3	3	518	518	0.437**	0.437***	0.0102	0.0102	1.073**	1.073**	3.676***	172.7***	0.106
				(2.45)	(12.09)	(1.18)	(1.13)	(2.38)	(2.43)			
∑ CAPEX 4	4	446	446	0.504**	0.504***	0.0116	0.0116	1.230**	1.230**	4.682***	148.7***	0.0994
				(2.53)	(10.93)	(0.99)	(1.03)	(2.15)	(2.19)			
∑ Dividend Payment 1	1	664	664	-0.00739	-0.00739	-0.00930	-0.00930***	0.0567	0.0567	8.807***	22.03**	0.232
				(-0.27)	(-0.56)	(-0.82)	(-2.68)	(0.34)	(0.32)			
∑ Dividend Payment 2	2	590	590	0.0164	0.0164	0.00101	0.00101	0.531***	0.531***	18.57***	51.11***	0.286
				(0.58)	(1.47)	(0.29)	(0.38)	(4.71)	(3.79)			
∑ Dividend Payment 3	3	518	518	0.0277	0.0277*	0.00648*	0.00648*	0.678***	0.678***	7.053***	54.84***	0.334
				(0.74)	(1.91)	(1.65)	(1.80)	(4.43)	(3.81)			
∑ Dividend Payment 4	4	446	446	0.0899	0.0899***	0.0128**	0.0128**	1.201***	1.201***	7.821***	64.98***	0.308
				(1.38)	(4.25)	(2.18)	(2.45)	(5.37)	(4.66)			
∑ Repayment of Long-Term Debt 1	1	661	661	0.0652	0.0652***	0.0117***	0.0117***	0.0666	0.0666	3.358***	31.01***	0.237
				(1.11)	(4.32)	(4.74)	(2.94)	(0.38)	(0.33)			
∑ Repayment of Long-Term Debt 2	2	583	583	0.0979	0.0979***	0.0130**	0.0130*	-0.261	-0.261	3.168***	27.82***	0.157
				(0.93)	(3.59)	(2.34)	(1.95)	(-1.00)	(-0.76)			
∑ Repayment of Long-Term Debt 3	3	502	502	0.116	0.116***	0.0153**	0.0153*	-0.0108	-0.0108	2.943***	29.28***	0.138
				(0.99)	(3.49)	(2.31)	(1.79)	(-0.03)	(-0.03)			
∑ Repayment of Long-Term Debt 4	4	427	427	0.166	0.166***	0.0267***	0.0267***	-0.178	-0.178	4.004***	32.74***	0.808
				(1.17)	(4.12)	(3.69)	(2.59)	(-0.48)	(-0.35)			

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

2.5.3.2 The determinants of equity market timing

1.) The determinants of the existence of equity market timing

1.1) IPO event

Tables 2.13 and 2.14 provide the results of the marginal effects of probit regression with robust command where the dependent variable is the presence of equity market timing for IPO samples estimated in three different ways, including hot market, economic boom and bullish stock market. All explanatory and dependent variables are evaluated at time t. These outcomes report the determinants of the existence of stock market timing with an IPO event and are separated into 2 tables between CFO in table 2.13 and CEO in table 2.14 to avoid the multicollinearity problem.

The first variable is the equity overpricing, the results show that this variable does not relate to the hot equity variable due to lack of statistical significance (model 1 to 3). In contrast, there is a significantly negative effect of the overpricing variable in an economic boom at least at the 90% confidence level (model 4 to 6), rejecting hypothesis 2. This indicates that the probability of IPO market timing during an economic boom decreases, when a firm's stock is overpriced. This is inconsistent with that of Baker and Wurgler (2002), Alti (2006) and Elliott et al. (2007), who found that when the firms have high value of equity, they tend to time the equity market. Conversely, the parameter of overpricing variable on bullish variable is a significantly positive sign at 90% confidence level. However, there is the significant result in only 1 out of 6 models, thus this partially supports hypothesis 2. Also, this indicate that the likelihood of IPO market timing during stock bullish market increases with stock overpricing and this is consistent with that of Baker and Wurgler (2002), Alti (2006) and Elliott et al. (2007). Therefore, these findings suggest that equity overpricing is the significant determinant of equity market timing when economy is in boom and stock market is bullish, yet the effect is different between these situations.

Based on the ownership structure, there are different findings for each type of shareholders. To begin with managerial ownership, the results show that this variable does not associate with hot equity, economic boom and bullish variables because of insignificant results. Thus, this does not support hypothesis 3.1, implying that managerial shareholders do not significantly alter the propensity of IPO market timing.

In contrast, the parameter of institutional ownership on hot equity has a significantly negative relationship at the 95% confidence level in model 1 (table 2.13).

However, there is a significant result only 1 out of 6 models, hence this partially rejects hypothesis 3.2. This means that the corporations with high institutional shareholders reduce the propensity for equity market timing during hot equity market. In addition, this is consistent with that of Hovakimian and Hu (2016), who documented that equity market timing decreases with higher institutional ownership since institutional shareholders do not gain benefit from timing the equity market. Moreover, as institutional investors are outside investors who monitor the executives' operations and they know the information as well as insiders (Sias et al., 2006), they avoid to time the equity market to prevent the dilution of shareholder wealth because of the negative impact of equity market timing on corporate performance. However, this variable does not relate to an economic boom and bullish variables due to the insignificant results.

Next, the findings illustrate that the parameters of ownership concentration on hot equity and economic boom are significantly positive signs at least at the 90% confidence level. This provides some support for hypothesis 3.4 for hot equity (50% significant models)[14] but this strongly supports this hypothesis for an economic boom. This indicates that the likelihood of equity market timing increases with higher ownership concentration. Furthermore, this suggests that major shareholders are not willing to receive high pressures from the monitoring of lenders; therefore, they prefer to issue equity when the stock market and economy are in a good condition. This result is similar to that by Wiwattanakantang (1999), who found that Thai firms with a large ownership concentration prefer to use less debt. However, there is no relationship between this variable and bullish variable because of insignificant results.

According to the structure of board of directors, the parameters of board independence are significantly negative for the hot variable at least at the 90% confidence level (model 1). This provides some support for hypothesis 4.1 (33.33% significant models), meaning that the propensity of equity market timing during hot market declines with greater board independence. Moreover, this suggests that as the proportion of board independence highly relates to the corporate governance of firms (Bhagat & Black, 2002), it is likely that the firms with a large percentage of independent directors on the board have a high degree of corporate governance, hence it might be that they prefer not to time the equity market. Conversely, this variable does not associate with economic boom and bullish variables due to the lack of significant results.

[14] This means that 3 out of 6 significant models in tables 2.13 and 2.14 are significant.

Moreover, the parameters of the number of board members are significantly positive for economic boom at least at the 95% confidence level (model 4 to 6), strongly rejecting hypothesis 4.2. This suggests that there is a positive effect of board size on the likelihood of IPO market timing during an economic boom. Also, this implies that IPO firms with a large number of board members tend to avoid using debt because of the high pressure and the risk of debt security, thus they tend to time the IPO market. Furthermore, this result is similar to that of Berger et al. (1997), who found that there is a negative relationship between board size and financial leverage. However, this variable is not the determinant of the propensity of IPO market timing during hot and bullish equity markets because of insignificant results.

Next, the results of the women on the board on the probability of equity market timing are statistically insignificant. Hence, this does not support hypothesis 4.3, implying that the chance of timing the equity market with an IPO allocation neither increases nor decreases with a higher percentage of women on the board.

Interestingly, table 2.14 demonstrates that there is a significantly positive effect of the audit committee members on the board on a hot variable (model 2) at the 90% confidence level, partially rejecting hypothesis 4.4 (16.67% significant models). This means that IPO companies with a high proportion of audit committee members on the board tend to time the IPO market during a hot market. This finding differs from that by Méndez and García (2007) who documented that the information asymmetry between insiders and outsiders, which is a crucial reason for equity market timing, reduces with the monitoring by the audit committee. On the other hand, table 2.14 reports that this variable has a significantly negative effect on a bullish variable at the 90% confidence level (model 9), partially supporting hypothesis 4.4 (16.67% significant models). This suggests that the likelihood of timing the IPO market when the stock market offers high returns declines with a higher proportion of audit committee members on the board. Also, this is consistent with Méndez and García (2007). However, there is no association between this variable and economic boom variable. Therefore, our results indicate that the audit committee members on the board influences the IPO market timing only during hot and bullish stock markets and the effect is different depending on each situation.

For the control variables, the results show that military experience on the board, speed of IPO issuance, book building mechanism, cash, dividends and nominal GDP growth have some significant influence on a hot variable. Moreover, military experience on the board, female managers, financial education of CFO and firm size have some

Y / X	Table 2.13: The marginal effect of probit regression for determinants of the presence of IPO market timing (CFO)								
	HOT Equity			Economic BOOM			Bullish Stock Market		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Overpricing (DCF)	0.0241			**-0.140***			-0.121		
	(0.36)			(-1.86)			(-1.56)		
Overpricing (RIM)		0.0464			**-0.166****			0.105	
		(0.67)			(-2.27)			(1.38)	
Overpricing (DDM)			0.0222			**-0.221****			0.140
			(0.24)			(-2.17)			(1.39)
Managerial Ownership	0.134	0.123	0.128	0.0442	0.0259	0.0867	0.0839	0.00635	0.0963
	(0.95)	(0.87)	(0.88)	(0.30)	(0.17)	(0.60)	(0.56)	(0.04)	(0.66)
Institutional Ownership	**-0.468****	-0.268	-0.353	0.0400	-0.0575	-0.0555	-0.0721	0.211	0.0948
	(-2.03)	(-1.19)	(-1.57)	(0.15)	(-0.20)	(-0.21)	(-0.25)	(0.74)	(0.36)
Ownership Concentration	**0.474***	0.358	**0.419***	**0.524****	**0.459***	**0.472***	-0.0729	-0.250	-0.201
	(1.94)	(1.47)	(1.73)	(2.12)	(1.86)	(1.91)	(-0.28)	(-0.98)	(-0.81)
Board Independence	**-0.835****	-0.365	-0.479	-0.719	-0.678	-0.709	-0.599	-0.558	-0.399
	(-1.96)	(-0.84)	(-1.05)	(-1.15)	(-1.25)	(-1.29)	(-1.03)	(-1.03)	(-0.77)
Board Size	-0.548	-0.369	-0.450	**1.531*****	**1.305****	**1.656*****	-0.163	-0.0972	-0.178
	(-1.26)	(-0.80)	(-0.93)	(2.77)	(2.38)	(2.90)	(-0.24)	(-0.14)	(-0.26)
Women on Board	-0.0505	0.0839	0.0685	-0.333	-0.371	-0.271	-0.0626	-0.0899	-0.142
	(-0.28)	(0.45)	(0.36)	(-1.37)	(-1.59)	(-1.16)	(-0.26)	(-0.38)	(-0.60)
Audit Committee on Board	0.415	0.505	0.394	0.145	0.345	0.435	-0.737	-0.714	-0.960
	(0.99)	(1.17)	(0.88)	(0.27)	(0.65)	(0.79)	(-1.07)	(-1.04)	(-1.40)
Military Experience on Board	**0.138***	0.0619	0.133	**-0.160***	**-0.287*****	**-0.237*****	**0.171****	0.140	**0.145***
	(1.72)	(0.78)	(1.57)	(-1.76)	(-3.27)	(-2.64)	(1.97)	(1.55)	(1.71)
Female CFO	-0.0222	-0.0595	-0.0405	**-0.139***	-0.108	-0.0897	0.0960	0.0704	0.102
	(-0.35)	(-0.92)	(-0.61)	(-1.86)	(-1.47)	(-1.23)	(1.27)	(0.92)	(1.38)
Age of CFO	0.0740	-0.143	0.163	0.0476	-0.0649	-0.375	-0.711	**-1.469*****	**-0.923****
	(0.18)	(-0.33)	(0.38)	(0.09)	(-0.13)	(-0.73)	(-1.46)	(-3.09)	(-1.99)
Financial Education of CFO	-	-	-	-0.121	**-0.234***	-0.205	-0.214	**-0.244***	-0.210
	-	-	-	(-0.84)	(-1.73)	(-1.45)	(-1.36)	(-1.68)	(-1.57)
CEO Duality	-0.109	-0.0367	-0.0415	0.0730	0.0768	0.0743	0.0183	0.0434	-0.0109
	(-1.32)	(-0.38)	(-0.44)	(0.73)	(0.78)	(0.78)	(0.18)	(0.45)	(-0.12)
Speed of Issuance	-0.00641	-0.00817	-0.000364	-0.0117	-0.00763	-0.0101	0.0108	0.00463	0.0119
	(-0.74)	(-1.04)	(-0.04)	(-1.03)	(-0.67)	(-1.00)	(0.97)	(0.44)	(1.31)
Book Building	-0.109	-0.105	-0.0817	-0.0362	-0.00444	-0.0400	-0.00471	-0.0955	-0.0514
	(-1.63)	(-1.55)	(-1.15)	(-0.43)	(-0.05)	(-0.47)	(-0.05)	(-1.11)	(-0.61)
Profitability	0.351	-0.0107	0.145	-0.137	-0.224	-0.149	0.0604	0.426	0.268
	(1.04)	(-0.03)	(0.44)	(-0.36)	(-0.62)	(-0.41)	(0.15)	(1.08)	(0.69)
Firm Size	0.0377	0.0143	-0.00912	**-0.128***	-0.0781	-0.0807	0.0129	0.0400	0.0458
	(0.66)	(0.24)	(-0.15)	(-1.85)	(-1.15)	(-1.17)	(0.19)	(0.61)	(0.72)
Asset Tangibility	-0.0874	-0.0770	-0.0898	-0.0387	-0.187	-0.106	0.136	0.126	0.115
	(-0.71)	(-0.61)	(-0.69)	(-0.23)	(-1.17)	(-0.66)	(0.83)	(0.77)	(0.70)
Dividends	**0.380***	**0.551****	**0.477****	-0.0462	-0.194	-0.211	**0.377***	0.281	0.310
	(1.83)	(2.38)	(2.24)	(-0.22)	(-0.94)	(-1.03)	(1.66)	(1.27)	(1.46)
Cash	-0.213	0.314	-0.174	-0.413	-0.0984	-0.347	-0.424	-0.573	-0.569
	(-0.69)	(0.83)	(-0.56)	(-1.28)	(-0.26)	(-1.08)	(-1.11)	(-1.31)	(-1.48)
Nominal GDP growth	**2.717*****	**2.615*****	**2.727*****	0.00794	-0.781	-0.242	1.409	1.366	1.931
	(2.60)	(2.60)	(2.73)	(0.01)	(-0.68)	(-0.21)	(1.15)	(1.08)	(1.62)
N	145	141	153	169	166	179	169	166	179
Wald chi2	41.79**	32.45	33.77*	30.39	33.2	31.34	27.06	29.22	28.03
Pseudo R2	0.2461	0.2395	0.2119	0.1496	0.1575	0.1398	0.1046	0.1205	0.111

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Y / X	Table 2.14: The marginal effect of probit regression for determinants of the presence of IPO market timing (CEO)								
	HOT Equity			Economic BOOM			Bullish Stock Market		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Overpricing (DCF)	0.00595			**-0.130***			-0.116		
	(0.09)			(-1.76)			(-1.47)		
Overpricing (RIM)		-0.00167			**-0.140***			0.0829	
		(-0.03)			(-1.93)			(1.08)	
Overpricing (DDM)			0.0290			**-0.181***			**0.171***
			(0.35)			(-1.93)			(1.74)
Managerial Ownership	0.0508	0.0712	0.0761	0.00599	-0.0421	0.0124	0.0806	0.0608	0.104
	(0.39)	(0.52)	(0.55)	(0.04)	(-0.28)	(0.09)	(0.55)	(0.39)	(0.72)
Institutional Ownership	-0.271	-0.159	-0.136	0.0370	-0.151	-0.152	0.0103	0.193	0.143
	(-1.24)	(-0.71)	(-0.59)	(0.13)	(-0.56)	(-0.59)	(0.04)	(0.68)	(0.56)
Ownership Concentration	**0.379***	0.274	0.295	**0.442***	**0.432***	**0.440***	-0.0939	-0.256	-0.201
	(1.65)	(1.20)	(1.33)	(1.75)	(1.77)	(1.79)	(-0.35)	(-0.98)	(-0.79)
Board Independence	**-0.716***	-0.460	-0.484	-0.580	-0.499	-0.582	-0.394	-0.361	-0.194
	(-1.65)	(-1.16)	(-1.17)	(-0.95)	(-0.93)	(-1.07)	(-0.67)	(-0.66)	(-0.37)
Board Size	-0.526	-0.456	-0.573	**1.727*****	**1.476*****	**1.709*****	-0.205	-0.184	-0.296
	(-1.13)	(-0.96)	(-1.19)	(3.15)	(2.74)	(3.11)	(-0.29)	(-0.27)	(-0.43)
Women on Board	0.0887	0.119	0.139	-0.262	-0.293	-0.195	0.000748	-0.0415	-0.0750
	(0.46)	(0.63)	(0.69)	(-1.13)	(-1.30)	(-0.87)	(0.00)	(-0.17)	(-0.32)
Audit Committee on Board	0.631	**0.765***	0.561	0.373	0.359	0.456	-0.961	-0.930	**-1.149***
	(1.44)	(1.71)	(1.29)	(0.72)	(0.71)	(0.89)	(-1.40)	(-1.39)	(-1.69)
Military Experience on Board	0.0856	0.0127	0.0878	**-0.195****	**-0.268*****	**-0.244*****	**0.190****	**0.159***	**0.162***
	(1.06)	(0.16)	(1.07)	(-2.22)	(-3.21)	(-2.90)	(2.17)	(1.76)	(1.91)
Female CEO	0.0761	0.173	0.148	**-0.316***	-0.258	-0.239	0.142	0.137	0.0805
	(0.75)	(1.27)	(1.15)	(-1.87)	(-1.55)	(-1.54)	(1.03)	(1.00)	(0.62)
Age of CEO	0.0990	-0.0183	0.0965	-0.114	-0.617	-0.537	-0.185	-0.574	-0.239
	(0.23)	(-0.04)	(0.23)	(-0.22)	(-1.18)	(-1.08)	(-0.35)	(-1.08)	(-0.47)
Financial Education of CEO	-0.0302	-0.0995	-0.0341	0.101	0.0638	0.0665	-0.00118	-0.0307	-0.00377
	(-0.48)	(-1.56)	(-0.53)	(1.38)	(0.87)	(0.92)	(-0.01)	(-0.38)	(-0.05)
CEO Duality	-0.0647	-0.0499	-0.0273	0.0717	0.0723	0.0744	0.0130	0.0232	-0.0166
	(-0.80)	(-0.59)	(-0.32)	(0.73)	(0.74)	(0.79)	(0.13)	(0.24)	(-0.18)
Speed of Issuance	-0.0116	**-0.0138***	-0.00569	-0.00918	-0.00868	-0.0122	0.00937	0.00670	0.0117
	(-1.38)	(-1.72)	(-0.71)	(-0.83)	(-0.79)	(-1.26)	(0.82)	(0.61)	(1.28)
Book Building	**-0.109***	**-0.123****	**-0.109***	-0.0848	-0.0213	-0.0599	-0.0132	-0.0867	-0.0605
	(-1.72)	(-2.03)	(-1.69)	(-1.03)	(-0.26)	(-0.75)	(-0.15)	(-1.00)	(-0.74)
Profitability	0.00928	-0.258	-0.0226	-0.286	-0.278	-0.313	-0.102	0.115	0.0973
	(0.03)	(-0.81)	(-0.07)	(-0.78)	(-0.80)	(-0.89)	(-0.26)	(0.29)	(0.26)
Firm Size	0.0255	0.0406	0.0119	**-0.113***	-0.104	-0.0914	-0.0278	-0.00223	0.00605
	(0.49)	(0.81)	(0.23)	(-1.69)	(-1.63)	(-1.42)	(-0.42)	(-0.03)	(0.10)
Asset Tangibility	-0.0539	-0.0425	-0.0744	-0.0236	-0.148	-0.0861	0.102	0.0635	0.0733
	(-0.40)	(-0.31)	(-0.55)	(-0.14)	(-0.93)	(-0.55)	(0.61)	(0.38)	(0.45)
Dividends	0.267	**0.423****	**0.358****	-0.0569	-0.232	-0.194	0.375	0.298	0.331
	(1.59)	(2.23)	(1.99)	(-0.26)	(-1.07)	(-0.90)	(1.62)	(1.30)	(1.54)
Cash	0.167	**0.850***	0.137	-0.303	-0.193	-0.264	-0.520	-0.599	-0.595
	(0.45)	(1.87)	(0.38)	(-0.90)	(-0.54)	(-0.81)	(-1.38)	(-1.40)	(-1.57)
Nominal GDP growth	1.285	1.313	1.593	0.0283	-0.755	-0.299	1.344	1.572	**1.998***
	(1.21)	(1.27)	(1.58)	(0.02)	(-0.65)	(-0.26)	(1.12)	(1.29)	(1.70)
N	162	157	170	178	176	189	178	176	189
Wald chi2	37.66**	39.51**	38.48**	32.91	33.37	33.55	20.01	16.46	22.05
Pseudo R2	0.1746	0.2129	0.168	0.1476	0.1567	0.1394	0.0818	0.0784	0.089

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

significant effect on an economic boom variable. Finally, military experience on the board, age of CFO, financial education of CFO, dividends and nominal GDP growth some significantly relate to a bullish variable.

1.2) SEO event

Tables 2.15 and 2.16 provide the empirical results of the marginal effects of probit regression with robust command where the explained variable is the presence of the equity market timing of an SEO event estimated in three different ways, namely hot market, economic boom and bullish stock market. In addition, all explanatory variables are measured at a lagged one period, while the dependent variables are calculated at time t to avoid the problem of endogeneity between them. The findings report the effect for the factors on the probability of equity market timing with SEO allocation divided into two tables between CFO in table 2.15 and CEO in table 2.16, since it is likely that they have a high correlation leading to the multicollinearity issue.

The outcomes of these tables show that there is a significantly positive sign of the overpricing parameters on hot equity and economic boom variables at least at the 90% confidence level. These findings lend some support for hypothesis 2 (33.33% for hot equity and 50% for economic boom significant models). This indicates that the probability of SEO market timing during a hot market and an economic boom increases with stock overpricing. Also, this result is consistent with that by Baker and Wurgler (2002), Elliott et al. (2007) and Khan et al. (2012), who found that the important determinant of equity market timing is a high valuation of firm’s stocks. However, this variable does not relate to a bullish variable because of insignificant results. Therefore, this suggests that equity overpricing is the significant determinant of the SEO market timing only when stock market is hot and economy is the booming.

Moving on to the ownership structure, the parameters of managerial ownership on the SEO market timing are statistically insignificant. Therefore, hypothesis 3.1 is not supported, implying that managerial ownership does not impacts the likelihood of SEO market timing.

However, the results for the parameters of institutional ownership are significantly positive for the bullish variables at the 90% confidence level (table 2.15), providing some support for hypothesis 3.2 (33.33% significant models). This means that the likelihood of SEO market timing during a bullish stock market increases with higher institutional ownership. Furthermore, this is consistent with that by Dahlquist and Robertsson (2001), who stated that institutional ownership negatively associates with leverage, indicating that institutional shareholders persuade firms to use less debt due to the high pressure of debt regulation. Conversely, this variable does not relate to the SEO market timing during a hot market and economic boom due to the lack of significant results.

Simultaneously, the parameter of foreign ownership has a significantly positive effect on a hot variable (table 2.16) at the 90% confidence level, partially supporting hypothesis 3.3 (16.67% significant models). This is consistent with that by Li et al. (2009), who found that the foreign shareholders have a negative effect on debt ratios. This suggests that foreign investors prefer not to get higher pressure from debt financing, so they tend to time the SEO market during a hot period. However, there is no relationship between this variable and economic boom and bullish variables because of insignificant results.

In contrast, the parameters for ownership concentration significantly and negatively associate with hot equity at least at the 90% confidence level, refuting hypothesis 3.4. This means that the likelihood of SEO market timing during a hot market decreases with higher ownership concentration. This implies that large owners convince firm managers to use more debt to avoid stock issuance since they prefer to prevent the dilution of their wealth. Also, this is consistent that of Céspedes et al. (2010), who found ownership concentration positively relates to debt ratio. Conversely, this variable does not impact economic boom and bullish variables because of insignificant results.

Regarding the board structure, there is a significantly negative direction of parameters for board independence on hot equity and economic boom variables at least at the 90% confidence level. This provides some support for hypothesis 4.1 for hot equity (33.33% significant models) and strongly supports this hypothesis for economic boom (83.33% significant models). This means that the firms with a higher board independence have less likelihood of timing the stock market. Also, this was clarified by Hermalin and Weisbach (2001), who found that the board independence positively associates with the corporate governance. So, this implies that firms who have a high level of corporate governance quality prefer not to time the SEO market. However, this variable does not associate with a bullish market due to the lack of statistical significance.

Likewise, the board size significantly and negatively impacts on economic boom variable at least at the 90% confidence level (table 2.16), providing some support for hypothesis 4.2 (50% significant models). This means that the probability of SEO market

Table 2.15: The marginal effects of probit regression for determinants of the presence of SEO market timing (CFO)

Y / X	HOT Equity			Economic BOOM			Bullish Stock Market		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Overpricing (DCF)	0.0626*			0.0448			0.0500		
	(1.72)			(1.10)			(1.23)		
Overpricing (RIM)		0.0524			0.0647			0.0274	
		(1.18)			(1.34)			(0.55)	
Overpricing (DDM)			0.0321			0.249***			0.0785
			(0.51)			(3.32)			(1.11)
Managerial Ownership	0.113	0.0456	0.0737	0.0591	-0.00217	-0.109	-0.0875	-0.170	-0.0781
	(0.73)	(0.31)	(0.47)	(0.34)	(-0.01)	(-0.66)	(-0.52)	(-1.06)	(-0.47)
Institutional Ownership	0.0338	0.102	0.136	0.0658	0.0304	0.0905	0.413*	0.319	0.382*
	(0.17)	(0.51)	(0.67)	(0.30)	(0.14)	(0.43)	(1.91)	(1.56)	(1.88)
Foreign Ownership	0.208	0.187	0.171	0.0989	0.0887	0.0839	0.0726	0.106	0.0683
	(1.58)	(1.44)	(1.29)	(0.69)	(0.66)	(0.61)	(0.51)	(0.79)	(0.51)
Ownership Concentration	-0.242	-0.271*	-0.289*	-0.133	-0.131	-0.140	0.161	0.131	0.148
	(-1.60)	(-1.81)	(-1.89)	(-0.78)	(-0.81)	(-0.85)	(0.95)	(0.81)	(0.89)
Board Independence	-0.344*	-0.315	-0.348*	-0.306	-0.399*	-0.430**	0.193	0.145	0.171
	(-1.70)	(-1.60)	(-1.72)	(-1.32)	(-1.86)	(-1.97)	(0.84)	(0.69)	(0.79)
Board Size	-0.119	-0.256	-0.128	-0.299	-0.558	-0.408	0.669	0.413	0.466
	(-0.32)	(-0.76)	(-0.34)	(-0.69)	(-1.52)	(-1.02)	(1.57)	(1.12)	(1.17)
Women on Board	0.313**	0.251*	0.229*	0.394***	0.444***	0.373***	0.153	0.168	0.242*
	(2.29)	(1.91)	(1.68)	(2.64)	(3.24)	(2.65)	(1.02)	(1.20)	(1.69)
Audit Committee on Board	-0.206	-0.229	-0.0991	-0.155	-0.333	-0.0493	1.079**	0.486	0.431
	(-0.43)	(-0.52)	(-0.21)	(-0.27)	(-0.66)	(-0.09)	(2.09)	(1.01)	(0.85)
Military Experience on Board	-0.0115	-0.00526	-0.00244	0.0409	0.0560	0.0496	-0.00832	-0.0135	0.0102
	(-0.28)	(-0.13)	(-0.06)	(0.92)	(1.36)	(1.18)	(-0.19)	(-0.33)	(0.24)
Female CFO	0.0163	0.0236	0.0250	0.0593	0.0517	0.0734*	0.0160	0.00901	-0.000657
	(0.40)	(0.61)	(0.64)	(1.34)	(1.29)	(1.82)	(0.36)	(0.22)	(-0.02)
Age of CFO	-0.627**	-0.579**	-0.596**	-0.350	-0.284	-0.334	-0.0228	-0.243	-0.241
	(-2.36)	(-2.17)	(-2.19)	(-1.17)	(-1.00)	(-1.18)	(-0.08)	(-0.84)	(-0.82)
Financial Education of CFO	0.258**	0.217**	0.202**	0.115	0.0691	0.0579	-0.00547	0.0246	0.0195
	(2.43)	(2.31)	(2.09)	(0.85)	(0.63)	(0.54)	(-0.04)	(0.23)	(0.18)
CEO Duality	-0.0454	-0.0172	-0.0393	-0.0911	-0.0887*	-0.0967*	-0.132**	-0.117**	-0.0973*
	(-0.87)	(-0.34)	(-0.77)	(-1.61)	(-1.70)	(-1.82)	(-2.34)	(-2.24)	(-1.82)
Private Placement	-0.144***	-0.110**	-0.128***	0.0212	0.0416	0.0182	-0.0381	-0.0587	-0.0291
	(-3.03)	(-2.37)	(-2.70)	(0.37)	(0.79)	(0.34)	(-0.68)	(-1.14)	(-0.55)
Profitability	-0.0961	0.0421	0.0535	0.0983	0.105	0.218	-0.0894	-0.0416	-0.0863
	(-0.62)	(0.29)	(0.35)	(0.52)	(0.68)	(1.35)	(-0.48)	(-0.26)	(-0.54)
Firm Size	0.0143	0.0212	0.0268	-0.0188	-7.58×10^{-6}***	-6.09×10^{-6}***	-0.0178	-8.02×10^{-6}***	-7.84×10^{-6}
	(0.42)	(0.70)	(0.83)	(-0.52)	(-6.38)	(-7.34)	(-0.48)	(-3.29)	(-1.46)
Asset Tangibility	-0.0897	-0.0988	-0.0938	0.113	0.125	0.0951	0.00529	0.00729	0.0306
	(-1.09)	(-1.26)	(-1.17)	(1.27)	(1.52)	(1.15)	(0.06)	(0.09)	(0.35)
Dividends	-0.454**	-0.543**	-0.447*	-0.236	-0.184	-0.130	0.427	0.385	0.547**
	(-2.06)	(-2.38)	(-1.96)	(-0.90)	(-0.75)	(-0.51)	(1.62)	(1.51)	(2.10)
Cash	0.109	0.0465	0.0758	-0.172	-0.198	-0.146	-0.269	-0.311*	-0.281
	(0.68)	(0.30)	(0.47)	(-0.96)	(-1.20)	(-0.88)	(-1.48)	(-1.81)	(-1.60)
Nominal GDP growth	-0.773	-0.716	-0.518	-0.299	-0.645	-0.944	2.416***	1.884***	2.196***
	(-1.10)	(-1.09)	(-0.76)	(-0.39)	(-0.92)	(-1.32)	(3.11)	(2.61)	(2.95)
N	579	662	634	580	663	635	580	663	635
chi2	58.1***	53.6***	48.53***	27.65	84.06***	187.18***	43.14**	57.15***	42.47**
Pseudo R2	0.0867	0.0668	0.0626	0.0368	0.0431	0.0537	0.0524	0.048	0.0469

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 2.16: The marginal effects of probit regression for determinants of the presence of SEO market timing (CEO)

Y / X	HOT Equity			Economic BOOM			Bullish Stock Market		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Overpricing (DCF)	0.0614*			-0.00293			0.0330		
	(1.77)			(-0.08)			(0.86)		
Overpricing (RIM)		0.0601			0.0982**			-0.0184	
		(1.44)			(2.21)			(-0.40)	
Overpricing (DDM)			0.0455			0.183***			0.0321
			(0.75)			(2.69)			(0.49)
Managerial Ownership	0.151	0.135	0.169	-0.0557	-0.0774	-0.192	-0.154	-0.198	-0.141
	(1.01)	(0.95)	(1.13)	(-0.34)	(-0.53)	(-1.27)	(-0.96)	(-1.36)	(-0.94)
Institutional Ownership	-0.0816	-0.0387	-0.0108	0.0572	0.0425	0.0853	0.213	0.168	0.168
	(-0.46)	(-0.22)	(-0.06)	(0.28)	(0.22)	(0.44)	(1.12)	(0.91)	(0.91)
Foreign Ownership	0.230*	0.195	0.199	0.0363	0.0233	0.00885	0.0764	0.131	0.110
	(1.85)	(1.59)	(1.57)	(0.27)	(0.18)	(0.07)	(0.59)	(1.05)	(0.87)
Ownership Concentration	-0.308**	-0.297**	-0.307**	-0.0979	-0.0969	-0.109	0.208	0.135	0.162
	(-2.20)	(-2.16)	(-2.19)	(-0.62)	(-0.66)	(-0.72)	(1.34)	(0.92)	(1.08)
Board Independence	-0.263	-0.200	-0.263	-0.460**	-0.423**	-0.511**	0.0226	-0.0193	0.00400
	(-1.33)	(-1.04)	(-1.34)	(-2.05)	(-2.06)	(-2.42)	(0.10)	(-0.10)	(0.02)
Board Size	-0.194	-0.264	-0.240	-0.658*	-0.731**	-0.723**	0.810**	0.474	0.529
	(-0.59)	(-0.84)	(-0.70)	(-1.69)	(-2.19)	(-2.01)	(2.22)	(1.44)	(1.53)
Women on Board	0.479***	0.372***	0.325**	0.242*	0.303**	0.244*	0.143	0.240*	0.261*
	(3.79)	(3.01)	(2.53)	(1.69)	(2.36)	(1.82)	(1.01)	(1.85)	(1.93)
Audit Committee on Board	-0.529	-0.516	-0.479	-0.401	-0.560	-0.395	1.354***	0.671	0.635
	(-1.16)	(-1.23)	(-1.06)	(-0.77)	(-1.17)	(-0.79)	(2.78)	(1.51)	(1.38)
Military Experience on Board	-0.0321	-0.0174	-0.0155	0.00315	0.0331	0.0175	-0.0185	-0.0163	0.00321
	(-0.84)	(-0.48)	(-0.42)	(0.07)	(0.86)	(0.44)	(-0.45)	(-0.42)	(0.08)
Female CEO	-0.162**	-0.162**	-0.164**	-0.0713	-0.0548	-0.0721	-0.0360	-0.0659	-0.0611
	(-2.38)	(-2.33)	(-2.37)	(-0.89)	(-0.73)	(-0.96)	(-0.45)	(-0.85)	(-0.78)
Age of CEO	-0.435	-0.151	-0.0733	-0.0723	0.0233	-0.0981	0.0720	-0.0324	0.00815
	(-1.63)	(-0.60)	(-0.28)	(-0.25)	(0.09)	(-0.37)	(0.25)	(-0.12)	(0.03)
Financial Education of CEO	0.0832**	0.0798**	0.0727**	-0.0497	-0.0268	-0.0241	-0.0371	-0.0258	-0.0328
	(2.30)	(2.31)	(2.04)	(-1.24)	(-0.73)	(-0.65)	(-0.94)	(-0.70)	(-0.87)
CEO Duality	-0.0180	-0.00376	-0.0362	-0.0645	-0.0748	-0.0864*	-0.0910*	-0.0834*	-0.0631
	(-0.36)	(-0.08)	(-0.74)	(-1.17)	(-1.48)	(-1.67)	(-1.65)	(-1.66)	(-1.22)
Private Placement	-0.141***	-0.107**	-0.138***	0.0166	0.0269	0.00596	-0.0225	-0.0312	-0.00245
	(-3.11)	(-2.46)	(-3.13)	(0.31)	(0.56)	(0.12)	(-0.44)	(-0.66)	(-0.05)
Profitability	-0.0934	-0.0230	-0.0289	0.215	0.0282	0.0785	-0.0613	0.125	0.0842
	(-0.65)	(-0.23)	(-0.28)	(1.20)	(0.24)	(0.62)	(-0.35)	(1.12)	(0.75)
Firm Size	6.83x10^{-6}	0.0209	0.0209	-0.0160	-7.27x10-^{6}***	-6.19x10^{-6}***	-7.65x10^{-6}***	-7.26x10^{-6}***	-7.09x10^{-6}***
	(0.99)	(0.76)	(0.72)	(-0.47)	(-8.01)	(-8.16)	(-3.22)	(-9.79)	(-8.00)
Asset Tangibility	-0.0800	-0.0919	-0.0983	0.105	0.0920	0.0688	0.0765	0.0661	0.0920
	(-1.03)	(-1.24)	(-1.30)	(1.24)	(1.18)	(0.86)	(0.90)	(0.84)	(1.14)
Dividends	-0.385*	-0.453**	-0.392*	-0.256	-0.149	-0.0114	0.586**	0.565**	0.639**
	(-1.75)	(-2.05)	(-1.77)	(-0.98)	(-0.63)	(-0.05)	(2.18)	(2.23)	(2.48)
Cash	0.0407	0.0274	0.0377	-0.220	-0.230	-0.153	-0.216	-0.336**	-0.320*
	(0.25)	(0.18)	(0.24)	(-1.25)	(-1.48)	(-0.97)	(-1.22)	(-2.06)	(-1.91)
Nominal GDP growth	-0.899	-0.826	-0.642	0.149	-0.159	-0.394	2.055***	1.554**	1.733**
	(-1.39)	(-1.35)	(-1.02)	(0.21)	(-0.25)	(-0.60)	(2.89)	(2.36)	(2.55)
N	662	765	733	663	766	734	663	766	734
chi2	67.87***	51.28***	48.04***	23.42	114.87***	188.48***	57.76***	189.6***	156.83***
Pseudo R2	0.0821	0.0545	0.053	0.0275	0.0334	0.0343	0.0499	0.0458	0.0455

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

timing during an economic boom decreases with larger board size. Also, this is consistent with Wang (2012) and Upadhyay (2015), who found that firms with a higher number of board members prefer to use more debt. In contrast, there is a significantly positive effect for this variable based on *Bullish Stock Market* at the 95% confidence level (table 2.16), providing partial rejecttion for this hypothesis (16.67% significant models). This indicates that the likelihood of timing the equity market during a bullish market increases with the size of the board, which is not in line with Wang (2012) and Upadhyay (2015). Conversely, this variable does not significantly relate to a hot variable. Thus, it suggests that the board size is the determinant of SEO market timing only during an economic boom and a bullish market, yet the effect depends on the situation in the macroeconomic environment.

Interestingly, the women on the board have significantly positive effect on three measurements at least at the 90% confidence level, confirming hypothesis 4.3. This indicates that the likelihood of SEO market timing increases with a higher proportion of women on the board. Moreover, this is consistent with Alves et al. (2014) who posit that the diversification of genders on the board positively associates with using external equity. This implies that female directors are less overconfident as they avoid using an aggressive policy regarding debt financing.

Additionally, the audit committee members on the board significantly and positively associate with a bullish variable at least at the 95% confidence level (model 7), hence, to some extent opposing hypothesis 4.4 (33.33% significant models). This means that the chance of SEO market timing during a bullish market increases with a larger percentage of audit committee members on the board. This is inconsistent with that by Méndez and García (2007), who claim that the audit committee members on the board can decrease the information asymmetry between insiders and outside investors. Thus, this implies that this factor does not reduce the information asymmetry, which is the crucial cause of equity market timing. However, this variable is not the determinant of SEO market timing during a hot market and an economic boom because of insignificant results.

Regarding the control variables, the outcomes exhibit that female CEO, age of CFO, financial education of managers, private placement mechanism and dividends significantly relate to a hot variable. Conversely, female CFO, CEO duality and firm size are significant for the economic boom variable for some models. Finally, CEO duality, firm size, asset tangibility, dividends and nominal GDP growth get significant coefficients for the bullish variable for some models.

2.) The determinants of the level of equity market timing

2.1) IPO events

Tables 2.17[15] and 2.18[16] provide the outcomes for the OLS with robust command and GLS regression models where the explained variable is the level of stock market timing measured by the amount of IPO proceeds divided by total assets. All explanatory and dependent variables are calculated at time t. These results detect the determinants of the degree of equity market timing with IPO issuance and are divided into two tables consisting of CFO in table 2.17 and CEO in table 2.18, since these variables may have a high correlation leading to the multicollinearity issue.

Regarding the overpricing variable, the parameters of this variable have significantly positive signs on the proceeds ratio at least at the 90% confidence level, supporting hypothesis 2. This implies that the degree of IPO market timing increases with the overvalued stocks of a firm, which is consistent with Baker and Wurgler (2002), Alti (2006) and Elliott et al. (2007).

Moving onto the ownership structure variables, the finding demonstrates that the direction of the parameters for managerial ownership on the proceeds ratio is significantly positive at the 90% confidence level (table 2.17), partially rejecting hypothesis 3.1 (8.33% significant models). This means that the degree of IPO market timing increases with higher managerial ownership, which is consistent with Friend and Lang (1988), who found that managerial ownership negatively relates to financial leverage. Therefore, this implies that managerial shareholders are eager to avoid the high pressure and risk resulting from debt financing.

However, the coefficient estimates on institutional ownership and ownership concentration are statistically insignificant. Hence, this does not support hypotheses 3.2 and 3.4, indicating that institutional and controlling shareholders neither increase nor decrease the level of timing the IPO market.

Based on board structure, board size positively and significantly impacts on the degree of equity market timing at the 99% confidence level in all models, rejecting hypothesis 4.2. This means that IPO firms with a larger board size tend to time the IPO

[15] VIF value for OLS regression models: 1.89 (Mean), 1.94 (Max) and 1.87 (Min).
[16] VIF value for OLS regression models: 1.84 (Mean), 1.91 (Max) and 1.80 (Min).

market with huge proceeds. This finding is documented by Berger et al. (1997), who found that the number of directors on the board negatively influences debt ratio. Also, this implies that board size is an instrument for monitoring a manager's operation, hence they prefer not to take on the risk of using debt.

Table 2.17: The regression for the determinants of the level of timing IPO market (CFO)

Y / X	Proceeds/Total Assets					
	OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*
	(1)	(2)	(3)	(4)	(5)	(6)
Overpricing (DCF)	0.0259	0.0259				
	(1.31)	(1.40)				
Overpricing (RIM)			0.0594***	0.0594***		
			(3.60)	(3.45)		
Overpricing (DDM)					0.0468**	0.0468**
					(2.12)	(2.07)
Managerial Ownership	0.0522	0.0522	0.0627	0.0627*	0.0477	0.0477
	(1.36)	(1.49)	(1.63)	(1.83)	(1.26)	(1.41)
Institutional Ownership	0.0423	0.0423	0.0424	0.0424	0.0278	0.0278
	(0.67)	(0.60)	(0.69)	(0.63)	(0.50)	(0.43)
Ownership Concentration	0.0301	0.0301	0.0179	0.0179	0.0478	0.0478
	(0.45)	(0.50)	(0.29)	(0.31)	(0.76)	(0.83)
Board Independence	0.161	0.161	0.135	0.135	0.156	0.156
	(1.01)	(1.13)	(0.96)	(1.08)	(1.14)	(1.22)
Board Size	0.418***	0.418***	0.423***	0.423***	0.367***	0.367***
	(2.73)	(2.91)	(3.51)	(3.17)	(2.82)	(2.67)
Women on Board	0.0363	0.0363	0.0338	0.0338	0.0238	0.0238
	(0.67)	(0.65)	(0.64)	(0.65)	(0.46)	(0.45)
Audit Committee on Board	0.370***	0.370***	0.336***	0.336**	0.330***	0.330**
	(2.77)	(2.59)	(3.00)	(2.54)	(2.81)	(2.43)
Military Experience on Board	-0.00758	-0.00758	0.0134	0.0134	-0.00240	-0.00240
	(-0.31)	(-0.34)	(0.59)	(0.62)	(-0.10)	(-0.11)
Female CFO	0.0162	0.0162	0.0246	0.0246	0.0184	0.0184
	(0.83)	(0.90)	(1.27)	(1.43)	(0.96)	(1.08)
Age of CFO	0.134	0.134	0.238	0.238**	0.217	0.217*
	(0.95)	(1.10)	(1.58)	(2.05)	(1.49)	(1.87)
Financial Education of CFO	0.0301	0.0301	0.0471	0.0471	0.0345	0.0345
	(0.71)	(0.83)	(1.39)	(1.40)	(0.94)	(1.03)
CEO Duality	0.0287	0.0287	0.0367	0.0367	0.0241	0.0241
	(1.09)	(1.22)	(1.42)	(1.64)	(1.01)	(1.08)
Speed of IPO Issuance	-0.00169	-0.00169	-0.00155	-0.00155	-0.00246	-0.00246
	(-0.59)	(-0.62)	(-0.62)	(-0.61)	(-1.13)	(-1.07)
Book Building	0.0699***	0.0699***	0.0664***	0.0664***	0.0738***	0.0738***
	(3.08)	(3.31)	(2.81)	(3.30)	(3.34)	(3.69)
Profitability	0.329**	0.329***	0.354***	0.354***	0.347***	0.347***
	(2.52)	(3.59)	(2.90)	(4.04)	(2.67)	(3.94)
Firm Size	-0.0447***	-0.0447***	-0.0502***	-0.0502***	-0.0442***	-0.0442***
	(-2.47)	(-2.72)	(-2.95)	(-3.34)	(-2.63)	(-2.92)
Asset Tangibility	-0.0401	-0.0401	-0.0343	-0.0343	-0.0356	-0.0356
	(-0.89)	(-1.02)	(-0.80)	(-0.91)	(-0.83)	(-0.94)
Dividends	0.0165	0.0165	0.00352	0.00352	0.0287	0.0287
	(0.27)	(0.31)	(0.06)	(0.07)	(0.48)	(0.57)
Cash	0.356***	0.356***	0.194	0.194**	0.357***	0.357***
	(2.75)	(4.07)	(1.59)	(2.08)	(2.99)	(4.24)
Nominal GDP growth	-0.359	-0.359	-0.242	-0.242	-0.396	-0.396
	(-1.09)	(-1.26)	(-0.77)	(-0.89)	(-1.23)	(-1.47)
Constant	-0.336	-0.336	-0.490	-0.490*	-0.418	-0.418
	(-1.02)	(-1.27)	(-1.47)	(-1.93)	(-1.29)	(-1.64)
N	168	168	165	165	178	178
F	4.750***	-	5.058***	-	4.649***	-
R2	0.474	-	0.486	-	0.473	-
Wald chi2	-	151.4***	-	156.3***	-	159.5***

t statistics in parentheses: * $p<0.1$, ** $p<0.05$, *** $p<0.01$

Furthermore, there is a significantly positive direction for the audit committee members on the board on the proceeds ratio at the 99% confidence level in all models, strongly rejecting hypothesis 4.4. This indicates that the level of IPO market timing increases with a higher proportion of audit committee members on the board. However, this is inconsistent with Méndez and García (2007). In contrast, this finding suggests that a high percentage of audit committee members is unable to reduce the information asymmetry between insiders and outside investors.

However, the coefficients of the board independence and women on the board are statistically insignificant for the proceeds ratio. Hence, this does not support hypotheses 4.1 and 4.3, indicating that these variables may not be the determinants of the level of IPO market timing.

According to the control variables, the results show that age of CFO, book building mechanism, profitability, firm size, cash and nominal GDP growth have some significant impacts on the proceeds ratio.

Table 2.18: The regression for the determinants of the level of timing IPO market (CEO)

Y / X	Proceeds/Total Assets					
	OLS	GLS	OLS	GLS	OLS	GLS
	(1)	(2)	(3)	(4)	(5)	(6)
Overpricing (DCF)	0.0345*	0.0345*				
	(1.84)	(1.88)				
Overpricing (RI)			0.0594***	0.0594***		
			(3.74)	(3.48)		
Overpricing DDM)					0.0462**	0.0462**
					(2.09)	(2.09)
Managerial Ownership	0.0410	0.0410	0.0470	0.0470	0.0370	0.0370
	(1.08)	(1.19)	(1.24)	(1.39)	(0.96)	(1.10)
Institutional Ownership	0.0342	0.0342	0.0659	0.0659	0.0376	0.0376
	(0.58)	(0.50)	(1.12)	(1.01)	(0.68)	(0.59)
Ownership Concentration	0.0267	0.0267	0.00471	0.00471	0.0435	0.0435
	(0.42)	(0.44)	(0.08)	(0.08)	(0.71)	(0.75)
Board Independence	0.149	0.149	0.125	0.125	0.157	0.157
	(0.92)	(1.06)	(0.90)	(1.02)	(1.10)	(1.24)
Board Size	0.431***	0.431***	0.444***	0.444***	0.390***	0.390***
	(3.03)	(3.00)	(3.89)	(3.35)	(3.12)	(2.82)
Women on Board	0.0475	0.0475	0.0490	0.0490	0.0271	0.0271
	(0.91)	(0.86)	(0.93)	(0.95)	(0.53)	(0.51)
Audit Committee on Board	0.344***	0.344**	0.329***	0.329**	0.321***	0.321**
	(2.91)	(2.44)	(3.42)	(2.51)	(3.21)	(2.37)
Military Experience on Board	-0.00469	-0.00469	0.0119	0.0119	0.000349	0.000349
	(-0.21)	(-0.22)	(0.56)	(0.58)	(0.02)	(0.02)
Female CEO	-0.0171	-0.0171	-0.0487	-0.0487	-0.0283	-0.0283
	(-0.39)	(-0.52)	(-1.30)	(-1.56)	(-0.70)	(-0.91)
Age of CEO	-0.115	-0.115	0.0501	0.0501	-0.0101	-0.0101
	(-1.04)	(-0.96)	(0.49)	(0.43)	(-0.10)	(-0.09)
Financial Education of CEO	-0.0220	-0.0220	-0.0235	-0.0235	-0.0206	-0.0206
	(-1.16)	(-1.22)	(-1.35)	(-1.36)	(-1.18)	(-1.21)
CEO Duality	0.0176	0.0176	0.0313	0.0313	0.0151	0.0151
	(0.66)	(0.77)	(1.24)	(1.43)	(0.60)	(0.69)
Speed of IPO Issuance	-0.000925	-0.000925	0.000152	0.000152	-0.00158	-0.00158
	(-0.30)	(-0.34)	(0.06)	(0.06)	(-0.69)	(-0.69)
Book Building	0.0654***	0.0654***	0.0553***	0.0553***	0.0664***	0.0664***
	(2.87)	(3.23)	(2.58)	(2.89)	(3.10)	(3.47)
Profitability	0.419***	0.419***	0.440***	0.440***	0.454***	0.454***
	(3.37)	(4.73)	(3.84)	(5.22)	(3.63)	(5.30)
Firm Size	-0.0459**	-0.0459***	-0.0483***	-0.0483***	-0.0458***	-0.0458***
	(-2.60)	(-2.94)	(-2.97)	(-3.36)	(-2.74)	(-3.15)
Asset Tangibility	-0.0386	-0.0386	-0.0318	-0.0318	-0.0308	-0.0308
	(-0.90)	(-0.98)	(-0.81)	(-0.85)	(-0.76)	(-0.81)
Dividends	-0.00417	-0.00417	-0.00628	-0.00628	0.00198	0.00198
	(-0.07)	(-0.08)	(-0.11)	(-0.13)	(0.03)	(0.04)
Cash	0.285**	0.285***	0.151	0.151*	0.291**	0.291***
	(2.26)	(3.46)	(1.32)	(1.76)	(2.44)	(3.63)
Nominal GDP growth	-0.534*	-0.534*	-0.496*	-0.495*	-0.578*	-0.578**
	(-1.75)	(-1.89)	(-1.83)	(-1.85)	(-1.93)	(-2.15)
Constant	0.131	0.131	-0.158	-0.158	-0.0189	-0.0189
	(0.46)	(0.50)	(-0.62)	(-0.61)	(-0.07)	(-0.07)
N	176	176	174	174	187	187
F	5.649***	-	6.245***	-	5.518***	-
R2	0.465	-	0.469	-	0.452	-
Wald chi2	-	152.7***	-	153.6***	-	154.5***

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

2.2) SEO events

a.) Proceeds/total assets

Tables 2.19[17] and 2.20[18] show the results for the OLS with robust command and GLS regression models where the dependent variable is the degree of equity market timing estimated by the amount of SEO proceeds divided by total assets at time t, whereby all explanatory variables are calculated at time t-1 to avoid the problem of endogeneity. These outcomes investigate the determinants of the level of equity market timing in terms of money raised from SEOs. However, as the variables of CFO and CEO may have a high correlation leading to the problem of multicollinearity, the regression models are separated into two tables consisting of CFO in table 2.19 and CEO in table 2.20.

These tables report that the parameters of overpricing have significantly negative effects on the proceeds ratio at the 99% confidence level (model 6), partially rejecting hypothesis 2 (16.67% significant models). This suggests that the level of equity market timing with large proceeds reduces with the overvaluation of SEO stocks. However, this is consistent with that by Spiess and Pettway (1997), who claim that the stock underpricing signals that the fundamental condition of a firm is that the firm can be considered by investors to buy its stocks. Therefore, the firms with underpriced equity obtain more money raised through equity allocation.

Next, there is the significantly negative effect of managerial ownership on the proceeds ratio at the 90% confidence level (table 2.20), partially supporting hypothesis 3.1 (16.67% significant models). This indicates that firms with higher managerial ownership reduce the level of SEO market timing with huge proceeds. However, this finding differs from Gounopoulos et al. (2014), who found that there is a positive association between CEO ownership and the magnitude of SEO issuance. In contrast, this result is consistent with that by Ağca and Mansi (2008), who found a positive relationship between managerial ownership and debt ratio. This suggests that managerial shareholders prefer to avoid the dilution of wealth by new shareholders.

Besides, the foreign ownership significantly and negatively influences the proceeds ratio at least at the 90% confidence level, providing some evidence against hypothesis 3.3 (50% significant models). This suggests that firms with a higher foreign ownership decrease the degree of SEO market timing with large proceeds. This is similar to Kang (1997), who found that there is a positive relationship between foreign ownership and debt ratio.

[17] VIF value for OLS regression models: 1.78 (Mean), 1.80 (Max) and 1.77 (Min).
[18] VIF value for OLS regression models: 1.72 (Mean), 1.73 (Max) and 1.70 (Min).

In contrast, the coefficient estimates of institutional ownership and ownership concentration are statistically insignificant. Hence, hypotheses 3.2 and 3.4 are not supported, indicating that the level of equity timing market with large proceeds neither increases nor decreases with a higher proportion of institutional and controlling shareholders.

Furthermore, the size of the board significantly and negatively influences the proceeds ratio at least at the 90% confidence level, providing some support for hypothesis 4.2 (58.33% significant models). This suggests that SEO corporations with a larger board size reduce the level of equity market timing. Also, this implies that more members in the

Table 2.19: The regression for the determinants of the level of timing SEO market (CFO)

Y / X	Proceeds/Total Assets					
	OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*
	(1)	(2)	(3)	(4)	(5)	(6)
Overpricing (DCF)	0.000759	0.000759				
	(0.03)	(0.03)				
Overpricing (RIM)			-0.0393	-0.0393		
			(-1.45)	(-1.39)		
Overpricing (DDM)					-0.113	-0.113***
					(-1.50)	(-3.14)
Managerial Ownership	-0.142	-0.142	-0.101	-0.101	-0.0186	-0.0186
	(-1.54)	(-1.41)	(-1.30)	(-1.10)	(-0.23)	(-0.22)
Institutional Ownership	0.0723	0.0723	0.0575	0.0575	-0.0176	-0.0176
	(0.66)	(0.56)	(0.50)	(0.47)	(-0.19)	(-0.16)
Foreign Ownership	-0.102*	-0.102	-0.140***	-0.140*	-0.0910**	-0.0910
	(-1.96)	(-1.19)	(-3.00)	(-1.75)	(-2.17)	(-1.25)
Ownership Concentration	0.0197	0.0197	0.0184	0.0184	0.0553	0.0553
	(0.26)	(0.19)	(0.26)	(0.19)	(0.73)	(0.64)
Board Independence	-0.105	-0.105	-0.122	-0.122	-0.143	-0.143
	(-0.92)	(-0.77)	(-1.12)	(-0.97)	(-1.33)	(-1.25)
Board Size	-0.736*	-0.736***	-0.482	-0.482**	-0.497	-0.497**
	(-1.75)	(-3.05)	(-1.40)	(-2.29)	(-1.31)	(-2.42)
Women on Board	-0.00893	-0.00893	0.00167	0.00167	0.0218	0.0218
	(-0.07)	(-0.10)	(0.02)	(0.02)	(0.19)	(0.29)
Audit Committee on Board	-0.538	-0.538*	-0.234	-0.234	-0.469	-0.469*
	(-0.99)	(-1.69)	(-0.53)	(-0.83)	(-0.99)	(-1.74)
Military Experience on Board	-0.000193	-0.000193	0.00904	0.00904	0.0256	0.0256
	(-0.01)	(-0.01)	(0.33)	(0.38)	(1.16)	(1.16)
Female CFO	0.0203	0.0203	0.0201	0.0201	0.00898	0.00898
	(1.03)	(0.78)	(1.11)	(0.85)	(0.51)	(0.42)
Age of CFO	0.00607	0.00607	-0.0772	-0.0772	0.0162	0.0162
	(0.03)	(0.03)	(-0.50)	(-0.47)	(0.11)	(0.11)
Financial Education of CFO	-0.426*	-0.426***	-0.338*	-0.338***	-0.336*	-0.336***
	(-1.75)	(-5.88)	(-1.87)	(-5.50)	(-1.91)	(-6.08)
CEO Duality	0.0413	0.0413	0.0515	0.0515*	0.0574*	0.0574**
	(1.02)	(1.24)	(1.37)	(1.70)	(1.65)	(2.07)
Private Placement	0.120**	0.120***	0.0931**	0.0931***	0.108**	0.108***
	(2.43)	(3.57)	(2.08)	(3.10)	(2.30)	(3.90)
Profitability	-0.147	-0.147	-0.272***	-0.272***	-0.374***	-0.374***
	(-1.51)	(-1.37)	(-3.25)	(-3.00)	(-5.17)	(-4.53)
Firm Size	-5.99×10^{-7}**	-5.99×10^{-7}	-4.95×10^{-7}**	-4.95×10^{-7}	-9.26×10^{-7}**	-9.26×10^{-7}
	(-2.48)	(-0.41)	(-2.33)	(-0.35)	(-2.03)	(-0.72)
Asset Tangibility	-0.0730	-0.0730	-0.0586	-0.0586	0.00637	0.00637
	(-1.38)	(-1.39)	(-1.20)	(-1.21)	(0.18)	(0.14)
Dividends	-0.128	-0.128	-0.121	-0.121	-0.105	-0.105
	(-1.32)	(-0.85)	(-1.28)	(-0.84)	(-1.18)	(-0.80)
Cash	-0.116	-0.116	0.0550	0.0550	0.115	0.115
	(-0.96)	(-1.06)	(0.50)	(0.55)	(1.10)	(1.27)
Nominal GDP growth	-0.932	-0.932**	-0.912	-0.912**	-1.041	-1.041***
	(-1.18)	(-2.02)	(-1.28)	(-2.20)	(-1.35)	(-2.71)
Constant	1.561**	1.561***	1.301**	1.301***	1.284*	1.284***
	(2.26)	(3.67)	(2.26)	(3.36)	(1.96)	(3.55)
N	557	557	637	637	613	613
F	3.670***	-	8.808***	-	8.741***	-
R2	0.158	-	0.159	-	0.201	-
Wald chi2	-	104.3***	-	120.1***	-	153.9***

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 2.20: The regression for the determinants of the level of timing SEO market (CEO)

X \ Y	Proceeds/Total Assets					
	OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*
	(1)	(2)	(3)	(4)	(5)	(6)
Overpricing (DCF)	-0.00515	-0.00515				
	(-0.20)	(-0.23)				
Overpricing (RIM)			-0.0394	-0.0394		
			(-1.30)	(-1.55)		
Overpricing (DDM)					-0.0968	-0.0968***
					(-1.26)	(-2.87)
Managerial Ownership	-0.176*	-0.176*	-0.119	-0.119	-0.0461	-0.0461
	(-1.71)	(-1.86)	(-1.51)	(-1.43)	(-0.58)	(-0.59)
Institutional Ownership	0.0391	0.0391	0.0342	0.0342	-0.0174	-0.0174
	(0.38)	(0.34)	(0.30)	(0.31)	(-0.18)	(-0.17)
Foreign Ownership	-0.0789	-0.0789	-0.120**	-0.120*	-0.0697	-0.0697
	(-1.46)	(-1.01)	(-2.51)	(-1.66)	(-1.53)	(-1.04)
Ownership Concentration	0.0671	0.0671	0.0622	0.0622	0.0910	0.0910
	(0.94)	(0.74)	(0.90)	(0.74)	(1.31)	(1.18)
Board Independence	-0.142	-0.142	-0.158	-0.158	-0.143	-0.143
	(-1.28)	(-1.11)	(-1.51)	(-1.35)	(-1.53)	(-1.32)
Board Size	-0.512	-0.512**	-0.366	-0.366**	-0.367	-0.367**
	(-1.42)	(-2.44)	(-1.19)	(-1.97)	(-1.09)	(-2.03)
Women on Board	0.0561	0.0561	0.0274	0.0274	0.0627	0.0627
	(0.52)	(0.68)	(0.29)	(0.37)	(0.61)	(0.90)
Audit Committee on Board	-0.327	-0.327	-0.131	-0.131	-0.341	-0.341
	(-0.68)	(-1.14)	(-0.33)	(-0.51)	(-0.78)	(-1.39)
Military Experience on Board	-0.0137	-0.0137	-0.00582	-0.00582	0.00887	0.00887
	(-0.50)	(-0.57)	(-0.25)	(-0.27)	(0.45)	(0.44)
Female CEO	-0.0418*	-0.0418	-0.0511**	-0.0511	-0.0357*	-0.0357
	(-1.71)	(-0.90)	(-2.34)	(-1.17)	(-1.69)	(-0.90)
Age of CEO	-0.298*	-0.298*	-0.317**	-0.317**	-0.111	-0.111
	(-1.72)	(-1.77)	(-2.27)	(-2.13)	(-1.06)	(-0.80)
Financial Education of CEO	-0.00412	-0.00412	0.0105	0.0105	0.00637	0.00637
	(-0.18)	(-0.18)	(0.57)	(0.50)	(0.35)	(0.33)
CEO Duality	0.0615	0.0615*	0.0651*	0.0651**	0.0575	0.0575**
	(1.42)	(1.93)	(1.67)	(2.28)	(1.51)	(2.16)
Private Placement	0.108**	0.108***	0.0958**	0.0958***	0.111***	0.111***
	(2.54)	(3.56)	(2.57)	(3.55)	(2.77)	(4.40)
Profitability	-0.194**	-0.194**	-0.184***	-0.184***	-0.238***	-0.238***
	(-2.51)	(-1.99)	(-2.99)	(-2.88)	(-3.87)	(-4.05)
Firm Size	-4.85×10^{-7}***	-4.85×10^{-7}	-5.47×10^{-7}***	-5.47×10^{-7}	-9.42×10^{-7}**	-9.42×10^{-7}
	(-2.68)	(-0.34)	(-3.10)	(-0.40)	(-2.51)	(-0.74)
Asset Tangibility	-0.0495	-0.0495	-0.0287	-0.0287	0.0275	0.0275
	(-1.19)	(-1.01)	(-0.76)	(-0.64)	(0.94)	(0.66)
Dividends	-0.0558	-0.0558	-0.108	-0.108	-0.152	-0.152
	(-0.67)	(-0.39)	(-1.21)	(-0.80)	(-1.58)	(-1.23)
Cash	-0.0669	-0.0669	0.0719	0.0719	0.125	0.125
	(-0.66)	(-0.64)	(0.79)	(0.78)	(1.38)	(1.46)
Nominal GDP growth	-0.831	-0.831**	-0.877	-0.877**	-0.982	-0.982***
	(-1.09)	(-2.03)	(-1.32)	(-2.40)	(-1.37)	(-2.88)
Constant	1.375**	1.375***	1.224**	1.224***	0.956*	0.956***
	(2.15)	(3.48)	(2.20)	(3.51)	(1.66)	(2.89)
N	633	633	732	732	705	705
F	2.716***	-	9.356***	-	9.688***	-
R2	0.108	-	0.116	-	0.130	-
Wald chi2	-	76.72***	-	95.61***	-	104.9***

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

boardroom act to monitor a corporation, and they prefer to use more debt to prevent wealth dilution by equity issuance. This is consistent with Wang (2012) and Upadhyay (2015), who found that board size positively relates to financial leverage.

Additionally, the parameters of the audit committee members on the board have significantly negative effects on the proceeds ratio at the 90% confidence level (table 2.19), partially supporting hypothesis 4.4 (16.67% significant models). This outcome is explained by Méndez and García (2007), who reported that the information asymmetry is reduced by the monitoring of audit committee members.

Conversely, the parameters of board independence and women on the board are statistically insignificant. This does not support hypotheses 4.1 and 4.3, indicating that board independence and women on the board do not influence the level of SEO market timing with large proceeds.

Regarding the control variables, female CEO, age of CEO, financial education of CFO, CEO duality, private placement mechanism, profitability, firm size and nominal GDP growth have a significantly effect on the SEO proceeds ratio.

b.) The number of SEO issuance

Tables 2.21[19] and 2.22[20] provide the outcomes for the OLS with robust command and GLS regression models where the explained variable is the degree of stock market timing measured by the number of SEO issuances[21] at time t, whereby all the explanatory variables are estimated at time t-1 to mitigate the problem of endogeneity. These findings provide empirical evidence for the elements of the degree of equity market timing in terms of the quantity of SEO allocation, whereby the results are separated into two tables, containing CFO in table 2.21 and CEO in table 2.22 due to the multicollinearity problem.

Surprisingly, the parameters of overpricing variable and managerial ownership are statistically insignificant. This does not support hypotheses 2 and 3.1, indicating that stock overpricing and managerial ownership are not the significant determinants of the degree of equity market timing with multiple SEO issuances.

Next, the results report that institutional ownership significantly and positively impacts the number of SEO allocations at the 99% confidence level, strongly supporting hypothesis 3.2. This indicates that the degree of equity market timing with multiple SEO issuances increases with higher institutional ownership. Also, this is consistent with Dahlquist and Robertsson (2001), who found that institutional ownership inversely associates with debt ratio since they prefer to avoid the high pressure and risk of leverage.

Moreover, the parameters of foreign ownership on the number of SEO issuances are significantly positive at least at 90% confidence level, supporting hypothesis 3.3. This suggests that the degree of equity market timing with multiple SEO issuances increases with higher foreign ownership. Additionally, this is consistent with Li et al. (2009), who showed that high foreign ownership leads to low financial leverage because they prefer not to use debt financing.

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[19] VIF value for OLS regression models: 1.79 (Mean), 1.81 (Max) and 1.78 (Min).
[20] VIF value for OLS regression models: 1.72 (Mean), 1.74 (Max) and 1.71 (Min).
[21] This variable is normalized by log transform.

Table 2.21: The regression for the determinants of the level of timing SEO market (CFO)

Y / X	The number of seasoned equity offering (SEO) issuance					
	OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*
	(1)	(2)	(3)	(4)	(5)	(6)
Overpricing (DCF)	0.0298	0.0298				
	(1.04)	(1.04)				
Overpricing (RIM)			0.0162	0.0162		
			(0.51)	(0.48)		
Overpricing (DDM)					-0.0407	-0.0407
					(-0.91)	(-0.84)
Managerial Ownership	-0.130	-0.130	-0.0718	-0.0718	-0.0615	-0.0615
	(-1.15)	(-1.09)	(-0.66)	(-0.65)	(-0.55)	(-0.54)
Institutional Ownership	**0.589*****	**0.589*****	**0.604*****	**0.604*****	**0.614*****	**0.614*****
	(3.52)	(3.88)	(3.79)	(4.16)	(3.84)	(4.21)
Foreign Ownership	0.166	**0.166***	0.146	0.146	**0.176***	**0.176***
	(1.50)	(1.66)	(1.40)	(1.55)	(1.66)	(1.84)
Ownership Concentration	**-0.431*****	**-0.431*****	**-0.434*****	**-0.434*****	**-0.442*****	**-0.442*****
	(-3.68)	(-3.60)	(-3.82)	(-3.82)	(-3.78)	(-3.83)
Board Independence	**0.345****	**0.345****	**0.362****	**0.362****	**0.351****	**0.351****
	(2.08)	(2.17)	(2.28)	(2.45)	(2.14)	(2.34)
Board Size	0.0886	0.0886	0.0884	0.0884	0.0558	0.0558
	(0.32)	(0.31)	(0.38)	(0.35)	(0.21)	(0.20)
Women on Board	0.0682	0.0682	0.0366	0.0366	0.0213	0.0213
	(0.64)	(0.65)	(0.38)	(0.38)	(0.21)	(0.21)
Audit Committee on Board	-0.402	-0.402	-0.397	-0.397	-0.480	-0.480
	(-1.18)	(-1.06)	(-1.36)	(-1.18)	(-1.51)	(-1.34)
Military Experience on Board	-0.0217	-0.0217	-0.0238	-0.0238	-0.0273	-0.0273
	(-0.74)	(-0.70)	(-0.88)	(-0.83)	(-1.00)	(-0.94)
Female CFO	-0.0112	-0.0112	-0.00953	-0.00953	-0.00281	-0.00281
	(-0.38)	(-0.37)	(-0.35)	(-0.34)	(-0.10)	(-0.10)
Age of CFO	-0.218	-0.218	-0.169	-0.169	-0.106	-0.106
	(-1.12)	(-1.06)	(-0.91)	(-0.86)	(-0.57)	(-0.54)
Financial Education of CFO	-0.0794	-0.0794	-0.0659	-0.0659	-0.0805	-0.0805
	(-0.71)	(-0.91)	(-0.79)	(-0.91)	(-0.95)	(-1.08)
CEO Duality	0.0329	0.0329	0.00717	0.00717	-0.000948	-0.000948
	(0.78)	(0.83)	(0.19)	(0.20)	(-0.02)	(-0.03)
Private Placement	-0.0637	-0.0637	**-0.0572***	-0.0572	**-0.0727****	**-0.0727****
	(-1.64)	(-1.62)	(-1.65)	(-1.60)	(-2.04)	(-1.98)
Profitability	0.161	0.161	0.124	0.124	0.0885	0.0885
	(1.29)	(1.26)	(1.23)	(1.14)	(0.86)	(0.80)
Firm Size	**-1.85×10^{-6}*****	-1.85×10^{-6}	**-2.02×10^{-6}*****	-2.02×10^{-6}	**-2.15×10^{-6}*****	-2.15×10^{-6}
	(-6.22)	(-1.06)	(-7.64)	(-1.18)	(-6.24)	(-1.25)
Asset Tangibility	0.0811	0.0811	0.0846	0.0846	0.0927	0.0927
	(1.27)	(1.31)	(1.44)	(1.47)	(1.56)	(1.59)
Dividends	**0.286***	0.286	**0.250***	0.250	**0.255***	0.255
	(1.91)	(1.61)	(1.69)	(1.46)	(1.69)	(1.47)
Cash	0.00578	0.00578	0.0181	0.0181	0.0407	0.0407
	(0.05)	(0.05)	(0.16)	(0.15)	(0.36)	(0.34)
Nominal GDP growth	**1.255****	**1.255****	**1.035****	**1.035****	**1.148****	**1.148****
	(2.38)	(2.31)	(2.20)	(2.09)	(2.37)	(2.25)
Constant	0.577	0.577	0.491	0.491	0.504	0.504
	(1.14)	(1.14)	(1.09)	(1.06)	(1.06)	(1.04)
N	580	580	663	663	635	635
F	36.79***	-	42.81***	-	41.26***	-
R2	0.179	-	0.159	-	0.178	-
Wald chi2	-	126.3***	-	125.6***	-	137.1

t statistics in parentheses: * $p<0.1$, ** $p<0.05$, *** $p<0.01$

On the other hand, the ownership concentration has a significantly negative effect on the number of SEO allocations at the 99% confidence level in all models, strongly rejecting hypothesis 3.4. This suggests that the degree of equity market timing decreases with higher ownership concentration. This finding is similar to that by Céspedes et al. (2010), who found that high ownership concentration leads to high leverage since they are eager to prevent wealth dilution through new shareholders.

Interestingly, the results exhibit that board independence has a significantly positive influence on the quantity of follow-on stock allocations at least at the 95% confidence level in all models, rejecting hypothesis 4.1. This means that the degree of equity market timing increases with a higher proportion of independent directors on the

Table 2.22: The regression for the determinants of the level of timing the SEO market (CEO)

X \ Y	The number of seasoned equity offering (SEO) issuance					
	OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*
	(1)	(2)	(3)	(4)	(5)	(6)
Overpricing (DCF)	0.0180	0.0180				
	(0.69)	(0.69)				
Overpricing (RIM)			-0.00414	-0.00414		
			(-0.15)	(-0.14)		
Overpricing (DDM)					-0.0416	-0.0416
					(-1.01)	(-0.94)
Managerial Ownership	-0.0792	-0.0792	-0.000910	-0.000910	-0.00109	-0.00109
	(-0.76)	(-0.71)	(-0.01)	(-0.01)	(-0.01)	(-0.01)
Institutional Ownership	0.532***	0.532***	0.513***	0.513***	0.515***	0.515***
	(3.68)	(3.97)	(3.74)	(4.00)	(3.72)	(3.99)
Foreign Ownership	0.229**	0.229**	0.223**	0.223***	0.253***	0.253***
	(2.30)	(2.51)	(2.39)	(2.61)	(2.65)	(2.90)
Ownership Concentration	-0.431***	-0.431***	-0.438***	-0.438***	-0.438***	-0.438***
	(-4.17)	(-4.06)	(-4.55)	(-4.41)	(-4.43)	(-4.36)
Board Independence	0.343**	0.343**	0.365**	0.365***	0.361**	0.361***
	(2.17)	(2.34)	(2.43)	(2.68)	(2.33)	(2.60)
Board Size	0.221	0.221	0.209	0.209	0.172	0.172
	(0.94)	(0.90)	(1.03)	(0.95)	(0.76)	(0.72)
Women on Board	0.178*	0.178*	0.126	0.126	0.128	0.128
	(1.89)	(1.84)	(1.49)	(1.43)	(1.45)	(1.40)
Audit Committee on Board	-0.192	-0.192	-0.229	-0.229	-0.298	-0.298
	(-0.63)	(-0.57)	(-0.87)	(-0.75)	(-1.04)	(-0.92)
Military Experience on Board	-0.0227	-0.0227	-0.0200	-0.0200	-0.0262	-0.0262
	(-0.83)	(-0.80)	(-0.80)	(-0.77)	(-1.03)	(-0.99)
Female CEO	-0.110**	-0.110**	-0.0974*	-0.0974*	-0.0951*	-0.0951*
	(-2.08)	(-2.07)	(-1.91)	(-1.92)	(-1.85)	(-1.88)
Age of CEO	-0.265	-0.265	-0.169	-0.169	-0.0176	-0.0176
	(-1.31)	(-1.35)	(-0.92)	(-0.96)	(-0.10)	(-0.10)
Financial Education of CEO	0.0336	0.0336	0.0156	0.0156	0.0218	0.0218
	(1.19)	(1.24)	(0.62)	(0.63)	(0.84)	(0.86)
CEO Duality	0.0224	0.0224	-0.00993	-0.00993	-0.0222	-0.0222
	(0.56)	(0.60)	(-0.27)	(-0.29)	(-0.60)	(-0.63)
Private Placement	-0.0485	-0.0485	-0.0429	-0.0429	-0.0529*	-0.0529
	(-1.43)	(-1.37)	(-1.41)	(-1.34)	(-1.68)	(-1.61)
Profitability	0.136	0.136	0.176***	0.176**	0.154**	0.154**
	(1.23)	(1.18)	(2.86)	(2.30)	(2.48)	(1.98)
Firm Size	-2.14×10^{-6}***	-2.14×10^{-6}	-2.24×10^{-6}***	-2.24×10^{-6}	-2.39×10^{-6}***	-2.39×10^{-6}
	(-8.43)	(-1.26)	(-10.21)	(-1.34)	(-7.94)	(-1.42)
Asset Tangibility	0.0812	0.0812	0.0768	0.0768	0.0915	0.0915*
	(1.34)	(1.41)	(1.39)	(1.45)	(1.63)	(1.69)
Dividends	0.329**	0.329*	0.289**	0.289*	0.243*	0.243
	(2.26)	(1.96)	(2.01)	(1.79)	(1.68)	(1.49)
Cash	-0.000974	-0.000974	0.00450	0.00450	0.0185	0.0185
	(-0.01)	(-0.01)	(0.04)	(0.04)	(0.18)	(0.17)
Nominal GDP growth	0.857*	0.857*	0.740*	0.740*	0.770*	0.770*
	(1.86)	(1.79)	(1.79)	(1.71)	(1.82)	(1.73)
Constant	0.414	0.414	0.290	0.290	0.122	0.122
	(0.91)	(0.89)	(0.75)	(0.70)	(0.29)	(0.28)
N	663	663	766	766	734	734
F	39.49***	-	45.75***	-	44.05***	-
R2	0.175	-	0.161	-	0.178	-
Wald chi2	-	141.1***	-	147.3***	-	158.5***

t statistics in parentheses: * $p<0.1$, ** $p<0.05$, *** $p<0.01$

board. However, the finding is inconsistent with Lim et al. (2007), who find that board independence positively associates with debt ratio since they avoid debt financing.

Likewise, the coefficients of women on the board have a significantly positive effect on the number of SEO allocations at the 90% confidence level (table 2.22), partially supporting hypothesis 4.3 (16.67% significant models). This indicates that the proportion of women on the board has a positive influence on the degree of equity market timing. Also, this is consistent with Alves et al. (2014), who report that the women on the board has a positive impact on external equity. This implies that female board directors are less overconfident since they tend to use less debt.

Table 2.23: Summary results of the tested hypothesis of the probability of equity market timing

Order	Hypothesis	Expected sign (Presence)	The result of IPOs						The result of SEOs					
			HOT Equity	Support/ Reject	*BOOM*	Support/ Reject	*Bullish*	Support/ Reject	*HOT Equity*	Support/ Reject	*BOOM*	Support/ Reject	*Bullish*	Support/ Reject
H1	The presence of equity market timing in Thailand.	YES	YES***						YES***					
H2	Equity overpricing	+	+	NA	-*/-**	Reject	+*	Support	+*	Support	+***	Support	Mixed	NA
H3	Ownership structure													
H3.1	Managerial ownership	-	Mixed	NA	Mixed	NA	Mixed	NA	+	NA	-	NA	-	NA
H3.2	Institutional ownership	+	-**	Reject	Mixed	NA	Mixed	NA	Mixed	NA	Mixed	NA	+*	Support
H3.3	Foreign ownership	+	NA						+*	Support	+	NA	+	NA
H3.4	Ownership concentration	+	+*	Support	+*/+**	Support	-	NA	-**/-*	Reject	-	NA	+	NA
H4	Board structure													
H4.1	Board independence	-	-**/-*	Support	-	NA	-	NA	-*	Support	-**	Support	+	NA
H4.2	Board size	-	-	NA	+***/+**	Reject	-	NA	-	NA	-**/-*	Support	+**	Reject
H4.3	Women on board	+	Mixed	NA	Mixed	NA	Mixed	NA	+*/+**/+***	Support	+***/+*/+**	Support	+*	Support
H4.4	Audit committee on board	-	+*	Reject	+	NA	-*	Support	-	NA	-	NA	+***/+**	Reject

Table 2.24: Summary results of the tested hypothesis of the level of equity market timing

Order	Hypothesis	Expected sign (Presence)	The result of IPOs		The result of SEOs			
			Proceeds/TA	Support/ Reject	Proceeds/TA	Support/ Reject	#SEO Issuance	Support/ Reject
H1	The presence of equity market timing in Thailand.	YES	YES***		YES***			
H2	Equity overpricing	+	+***/+**/+*	Support	-***	Reject	Mixed	NA
H3	Ownership structure							
H3.1	Managerial ownership	-	+*	Reject	-*	Support	-	NA
H3.2	Institutional ownership	+	+	NA	Mixed	NA	+***	Support
H3.3	Foreign ownership	+	NA		-*/-**/-***	Reject	+*/+**/+***	Support
H3.4	Ownership concentration	+	+	NA	+	NA	-***	Reject
H4	Board structure							
H4.1	Board independence	-	+	NA	-	NA	+**/+***	Reject
H4.2	Board size	-	+***	Reject	-*/-**/-***	Support	+	NA
H4.3	Women on board	+	+	NA	+	NA	+*	Support
H4.4	Audit committee on board	-	+***	Reject	-*	Support	-	NA

However, the size of the board and audit committee members on the board do not significantly impact the number of SEO allocations. Thus, hypotheses 4.2 and 4.4 are not supported.

For the control variables, the results exhibit that female CEO, private placement mechanism, profitability, firm size, asset tangibility, dividends and nominal GDP growth have some significant effects on the degree of equity market timing with multiple SEO allocations.

Overall, regarding tables 2.23 and 2.24, Thai listed companies tend to time the equity market with IPO and SEO issuances from 2000 to 2014. Moreover, stock overpricing, ownership structure and board composition significantly relate to the equity market timing. However, their effect alters depending on whether the event is IPO and SEO due to their different characteristics. Furthermore, these significant factors impact conducting different strategies of equity market timing among a hot market, an economic boom and a bullish market for IPO and SEO firms. Interestingly, most of them motivate IPO firms to time the market to gain higher proceeds. In contrast, they drive SEO firms to time the market with multiple SEO issuances rather than substantial proceeds. Therefore, these factors are crucial in equity market timing in Thailand.

2.6 Discussion of the findings

This study sets out to assess whether there is the existence of equity market timing in Thailand and what the determinants of the likelihood and level of equity market timing are in the Stock Exchange of Thailand. The findings of the hypotheses are discussed in this section.

2.6.1 The presence of equity market timing in Thailand

This study investigated the presence of equity market timing in Thailand for both IPO and SEO with 3 indicators, namely the proportion of timers, the amount of proceeds ratio and the number of SEO issuance for timers and the maintaining the proceeds as cash of timers.

Firstly, based on the section 2.5.3.1, this study shows that the proportion of hot firms is significantly higher than cold firms for both IPO (75.44% > 24.56%) and SEO (63.95% > 36.05%) events in Thailand. This is consistent with Alti (2006), who claims that one of implication of equity market timing is that companies prefer to allocate their stocks when the market is favourable.

Secondly, we find that there is no discernible difference for the proceeds ratio between hot and cold firms because of statistical insignificance for both IPO and SEO events. This is inconsistent with Alti (2006) who found that there is a high significant difference in the proceeds ratio between hot and cold firms. In addition, he claimed that another implication of equity market timing is that companies issue more stocks when the market is in a good condition. The different methods in the classification for hot and cold firms and the different market may be the reasons for the dissimilarity between our finding and that by Alti (2006). He employed the proportional difference for the detrended moving average, while we use the absolute difference for this measurement. As the figure of the moving average value contains zero in some months, we cannot classify the type of these months. Thus, the absolute difference method is used to avoid the misevaluation of some months. Moreover, this study focuses on Thailand which is emerging market and has unique characteristics (see section 1.2), while his study examined in all IPO firms in the Security Data Company (SDC). However, our finding is consistent with Guney and Iqbal-Hussain (2010) who find that the proceeds ratio is almost the same between hot and cold firms, yet they report the evidence of equity market timing on capital structure in the UK. Furthermore, our results for the difference of lagged proceeds ratio between hot and cold firms are economically significant for both IPO and SEO events. Also, the mean of the log of the number of SEO issuances for hot firms is significantly higher than for cold firms. Therefore, this partially supports the second indicator of market timing.

Most importantly, this study reveals evidence that timers keep the proceeds as cash savings after IPO and SEO events. This is consistent with Kim and Weisbach (2008), who claim that there is equity market timing due to the increase in cash after equity issuance. This implies that timing firms may not only have growth opportunities, but also may have a timing window of opportunity; so they keep the money from timing the market as cash.

Therefore, our results provide some evidence to support that there is the existence of equity market timing with IPO and SEO events in the Stock Exchange of Thailand. Moreover, this is consistent with Limpaphayom and Ngamwutikul (2004) who find that there is equity market timing with SEO issuance in Thailand. However, they studied indirecly in terms of poor operating performance after SEO allocation, while this study investigates directly in equity market timing with three indicators.

2.6.2 The determinants of the probability of equity market timing

1. Equity overpricing

According to section 2.5.3.2, this study has shown that stock overpricing has a negative effect on IPO market timing during an economic boom but a positive effect on IPO market timing during a bullish market. In contrast, equity overpricing positively relates to SEO market timing during a hot market and an economic boom. The positive effect is consistent with Baker and Wurgler (2002), Elliott et al. (2007) and Elliott et al. (2008), who found that overvalued stock is a crucial factor in firms timing the equity market since there is asymmetric information between insiders and outside investors. However, the negative effect for IPO is consistent with other research studies (Venkatesh & Neupane, 2005; Ekkayokkaya & Pengniti, 2012), who found that Thai firms are underpricing their stocks when they go to public. This implies that IPO firms cannot correctly measure investor demand; in other words, investors do not have enough information to estimate the precise intrinsic value of IPO firms. *Interestingly,* Thai IPO companies prefer not to time the market with stock overpricing only during an economic boom. It is apparent that the economy in Thailand quite fluctuates compared to developed country (see figure 1.1). Thai IPO companies have less experience in equity issuance, so they may hesitate to time the equity market with stock overpricing depending on the economic condition. On the other hand, when they have gained the experience of going public, they prefer to time the SEO market with overvalued equity when economy is booming.

2. Ownership structure

Managerial ownership

Surprisingly, the result has shown that managerial ownership does not relate to the probability of equity market timing in all situations, namely a hot market, an economic boom and a bullish market. However, there is no research study investigating the effect of this variable on the propensity of equity market timing. Hence, this study is the first study that presents that managerial ownership tends not to be a significant determinant of the probability of equity market timing. Furthermore, this is consistent with Wiwattanakantang (1999) who finds the insignificant relationship between managerial ownership and debt ratio in Thailand.

Institutional ownership

This study reveals evidence that institutional ownership has a negative effect on the probability of IPO market timing during a hot market, whereas this variable has a positive effect on the probability of SEO market timing during a bullish market. Thus, this suggests that institutional ownership is the significant determinant of the likelihood of equity market timing, yet the effect is different in IPO and SEO companies. Moreover, the different situation between hot and bullish markets impacts the decision-making by IPO and SEO firms to time the equity market. In IPO firms, institutional shareholders prefer not to time the equity market during a hot period since they do not gain the benefit from this action which this is consistent with Hovakimian and Hu (2016). They found this significantly negative evidence in SEO firms but we found this finding only in IPO firms. In contrast, institutional shareholders in SEO firms are eager to time the equity market during a bullish period as they obtain the benefit from this situation which is consistent with Chang et al. (2008). Moreover, institutional shareholders may not prefer high leverage (Dahlquist & Robertsson, 2001).

Foreign ownership

The outcome has shown that foreign ownership has a positive effect on the propensity for SEO market timing during only a hot market, yet no effect on during an economic boom and bullish market. This indicates that foreign shareholders choose to time the SEO market only in specific situations. Moreover, this implies that they try to avoid more leverage because of high bankruptcy costs and stress (Li et al., 2009).

Ownership concentration

We find that ownership concentration positively influences the propensity of IPO market timing during a hot market and an economic boom. On the other hand, this variable negatively impacts the likelihood of SEO market timing during a hot market. This indicates that IPO and SEO firms have different strategies in timing the equity market. Additionally, this implies that major shareholders in IPO firms prefer to use less debt due to the high pressure of monitoring from creditors, confirming the statement of Wiwattanakantang (1999). In contrast, major shareholders in SEO firms prefer to maintain their voting rights and avoid their wealth dilution from new shareholders (Stulz, 1988).

3. Board structure

Board independence

The evidence shows that the amount of board independence negatively impacts the likelihood of equity market timing for IPO during a hot market and SEO during a hot market and an economic boom. This indicates that a hot market is important situation for independent directors on the board in both IPO and SEO firms. Furthermore, there is no research investigating this issue. However, many studies, namely Bhagat and Black (2002) and Hermalin and Weisbach (2001), found that high board independence leads to high corporate governance. They act as intermediaries to balance authority and benefit among all stakeholders to toward parity and fairness (De Andres & Vallelado, 2008). Therefore, firms with larger board independence abstain to take benefit from the information asymmetry and prefer not to time the equity market.

Board size

We find that board size has a positive effect on only an economic boom for IPO firms. In contrast, this variable has a positive effect on a bullish market, but a negative effect on an economic boom for SEO firms. Therefore, the positive influence supports Berger et al. (1997) who assert that the size of board has a negative effect on leverage. Conversely, the negative effect supports Wang (2012) and Upadhyay (2015), who find that there is a positive association between the size of the board and debt ratio. Hence, our findings suggest that board size, which captures an aspect of the corporate governance of firms, has a significant influence on the probability of equity market timing; however, the direction of the effect depends on the type of equity offering and condition of the environment in which they prefer to time the market.

Women on the board

Our results present that women on the board do not relate to the probability of IPO market timing, yet this variable positively associates with the likelihood of SEO market timing in all three situations. This indicates that women on the board is the important determinant of timing the market with an SEO rather than an IPO. Moreover, our results imply that women on the board in Thai SEO firms are less overconfident since they refrain from aggressive policy with debt financing (Alves et al., 2014).

Audit committee on the board

Surprisingly, our finding presents that audit committee members on the board have a positive effect on the chance of SEO market timing during a bullish market. Conversely, this variable has a positive impact on the probability of IPO market timing only during a hot market, yet a negative effect during a bullish market. The negative effect indicates that the audit committee can minimize information asymmetry (Méndez & García, 2007) and prevent the dilution of shareholder's wealth (Adams, 1997). On the other hand, the positive effect is against this statement: it is possible that the different measurement influences the non-identical and conflicting results. For example, Méndez and García (2007) used the frequency of audit committee meetings, which is in the form of quality, while this study employs the proportion of them, which is in terms of quantity. Hence, we recommend future research studies investigating the effect of quality of the audit committee on the likelihood of equity market timing.

2.6.3 The determinants of the degree of equity market timing

1. Equity overpricing

This study reveals evidence that equity overpricing positively impacts the IPO proceeds ratio, whereas this variable negatively influences the SEO proceeds ratio. For the IPO case, this study broadly supports the prior literature (Baker & Wurgler, 2002; Alti, 2006; Elliott et al., 2007). Conversely, this study argues the previous literature in the case of SEOs. However, we obtain a novel outlook which shows that stock overpricing decreases the degree of SEO market timing with large proceeds. This can be explained by Spiess and Pettway (1997) who find that the underpricing of equity signals the high quality of a company, so firms that offer underpriced stock gain more money. Additionally, it is possible that SEO firms are not willing to signal bad news to investors to entrench the decline of their performance in future based on signalling theory (Loughran & Ritter, 1995), which is consistent with Limpaphayom and Ngamwutikul (2004), who found that the operating performance of Thai corporations drops after an SEO offering.

2. Ownership structure

Managerial ownership

Our findings disclose evidence that managerial ownership positively impacts the IPO proceeds ratio, while this variable negatively influences on the SEO proceeds ratio. In contrast, this variable does not significantly relate to the number of SEO issuance. This indicates that managerial ownership is a significant determinant of the level of equity market timing only with large proceeds. However, this variable has a different influence between IPO firms and SEO firms. In IPO firms, managerial shareholders prefer to time the IPO market to gain huge proceeds because they obtain the benefit from information asymmetry between insiders and outsiders which is the important factor of equity market timing (Baker & Wurgler, 2002). On the other hand, managerial shareholders in SEO firms prefer to control their voting rights, so they prefer not to time the SEO market with larger proceeds (Stulz, 1988).

Institutional ownership

We find that institutional ownership does not associate with the proceeds ratio both IPO and SEO events, but this variable positively influences the number of SEO issuance. Hence, this indicates that institutional ownership is not a determinant of equity market timing with larger proceeds. However, this is consistent with Huang (2006) who posits that there is no association between institutional shareholders and financial leverage. Conversely, the positive association in terms of multiple SEO issuances confirms the result of the probability of SEO market timing during a bullish market. This implies that they gain the benefit from the equity market timing (Chang et al., 2008) only in case of multiple SEO allocations.

Foreign ownership

Our results show that foreign ownership has a negative influence on the SEO proceeds ratio, but a positive effect on the number of SEO issuance. Thus, this suggests that foreign shareholders in SEO firms prefer to time the equity market with multiple SEO allocation rather than larger proceeds. However, this is the first study including this variable to test in the context of equity market timing. Hence, we provide a new perspective that reveals that foreign ownership is a determinant of the degree of equity market timing.

Ownership concentration

The results present that ownership concentration does not associate with the IPO and SEO proceeds ratio. In contrast, this variable negatively impacts the quantity of SEO issuance. This suggests that the presence of major shareholders is not a determinant of the degree of equity market timing with larger proceeds, but such shareholders influence the degree of equity market timing with multiple SEO issuances. Moreover, the negative effect confirms the result of the probability of SEO market timing. Therefore, this strengthens the finding that major shareholders in SEO companies prefer to control their voting rights (Stulz, 1988).

3. Board structure

Board independence

We find that board independence does not significantly influence the IPO and SEO proceeds. Conversely, this variable negatively impacts the number of SEO issuance. This suggests that independent directors on the board prefer not to time the market with larger proceeds, but they prefer to time the market with multiple SEO allocations. Moreover, the positive impact implies that they avoid more risk and pressure from debt financing (Lim et al., 2007).

Board size

Our findings report that board size positively impacts the IPO proceeds ratio, where this variable negatively influence the SEO proceeds ratio. This indicates that a larger board size in SEO firms supports the monitoring of the operations of managers to prevent the dilution of existing shareholder wealth (Lim et al., 2007; Wang, 2012; Upadhyay, 2015). On the other hand, a larger board size in IPO firms is not able to improve the corporate governance of firms, so these firms tend to time the equity market with substantial proceeds.

Women on the board

The results reveal that there is no association between women on the board and the IPO and SEO proceeds ratio. In contrast, this variable has a positive effect on the number of SEO allocation. This indicates that women on the board do not relate to the equity market timing with substantial proceeds, but they prefer to time the equity market with multiple SEO issuances. Also, the positive influence confirms the results for the probability of SEO market timing and the implication of Alves et al. (2014) (see section 2.6.2).

Audit committee on the board

We find that there is a positive influence of audit committee members on the board on the IPO proceeds ratio, whereas this variable has a negative effect on the SEO proceeds ratio. Our outcomes for SEOs agree with the previous studies (Menon & Williams, 1994; Adams, 1997). However, as there is no research directly investigating into this issue, we offer a new perspective which suggests that audit committee members on the board in IPO firms tend to time equity market with larger proceeds.

2.7 Practical implications

Equity market timing is becoming of interest to modern researchers as one of the crucial theories to document the managerial behaviour in decision-making regarding a firm's capital structure. Recently, researchers have provided strong evidence of the existence of equity market timing, captured by various factors and measurements and contributing to the literature to explicitly understand the concealed capital structure policy of corporations. Moreover, the presence of equity market timing seems to be an indicator that reflects the efficiency of the stock market since the main cause of equity market timing is asymmetric information between insiders and outside investors in the stock market. As a result, the findings of this chapter disclose the policy of firms in Thailand for the selection of sources of funds, and these findings offer several implications for different stakeholders and representatives in the financial market, including firm managers, current shareholders, outside investors and regulators.

Firstly, contributing to managerial implication, executives will derive from our findings that there is a window of opportunity in the stock market in which they may be able to gain more proceeds and reduce the cost of equity from IPO and SEO issuances. However, it is necessary for them to consider choosing the situation, such as a hot market, economic boom or bullish market, depending on their strategy. Furthermore, our findings offer guidance to managers that if they are willing to earn more proceeds and reduce the cost of equity, they should suitably select the type of stock issuance, since IPO and SEO events possess different characteristics. In addition, executives can concentrate on the factors related to the probability and level of equity market timing based on the determinants of timing the equity market to support the decisions for conducting this strategy. Additionally, our findings admonish managers that the timing of the equity market may occur only during a specific period, after which the stock market will adjust toward the equilibrium point, whereby they need to consider their decision to employ this strategy and they may trade-off the overall benefit of this strategy by comparing the opportunity cost of holdings the cash with the advantage of obtaining money from the equity issuance. On the other hand, if they acknowledge that the benefit of this policy is less than the cost, they may consider replacing this policy with debt financing as their second plan.

Secondly, regarding the aspect of the current shareholders, managerial equity market timing relies on asymmetric information between insiders and outside investors, whereby the literature claims that insiders have more information about their companies than outsiders. Therefore, shareholders should recognize that it is more likely that managers of firms of which they hold stocks tend to employ this policy to obtain benefit from the stock market. Although this policy leads to a benefit for current shareholders, since it is transferring wealth from new shareholders to current shareholders, the firms may compensate the new shareholders in terms of dividends or similar after conducting this policy, or the price of equity may decline in future to adjust toward the equilibrium because of the market system. Thus, current shareholders should consider the feedback and trade-off between the benefit and cost of this policy. Moreover, our findings for the determinants of equity market timing support current shareholders in focusing on these factors, as these are associated with the decision-making of a firm's managers.

Thirdly, looking at outside investors, our findings offer a caution to outside investors for the decision to select the appropriate stock. As equity market timing is used to exploit new shareholders, when they intend to invest in stock, they should focus on this issue and pay more intention to estimating the valuation of firms to protect themselves from being taken advantage of due to asymmetric information. In addition, the findings for the determinants of equity market timing support that the outside investors should concentrate on these factors to buy suitable stocks and escape from those firms which tend to time the equity market.

Most importantly, as contribution for regulators in the financial market, our findings are signals to the regulators of the stock market regarding the level of the stock market's efficiency, and these should pay more attention to a firm's behaviour in timing the equity market. Again, the crucial factors of equity market timing are asymmetric information between insiders and outsiders. Hence, the presence of equity market timing is a reflector that this stock market may be less efficient, thus it is essential that the regulators, particularly the Stock Exchange of Thailand (SET) and the Security and Exchange Committee (SEC), Thailand, should concentrate on developing and enhancing the efficiency of the stock market, whereby it could increase the sticky rules to prevent this sort of behaviour in the stock market. Furthermore, our findings relating to corporate governance variables can help regulators in setting the rules to enhance the corporate governance of companies as well. Likewise, they should focus on other factors which are vital determinants of equity market timing to use as instruments in monitoring the behaviour of firm's managers.

2.8 Limitations and further research

The major limitation of this chapter is the access to the data, especially the data of IPOs at the time t-1, whereby the explanatory variable data are unavailable for more than 95% of our samples. Therefore, the model for IPOs is assessed by the data at time t for the explanatory variables, while we can gain the data for SEOs at time t-1, so the model for SEOs is estimated by the explanatory variables at time t-1. As a result, this may lead to different results between the IPO and SEO models. Moreover, as the SEO samples are combined from three sources (SET's Fact Books, Thomson ONE and SETSMART databases) because of the difficulty of data access, it is likely that some data may be missing from the cross-checked data among the three sources. Therefore, we suggest that further studies that are interested in the context of equity market timing conduct their examinations in a stock market where they can more easily access the information, especially the corporate governance data, to obtain higher information and larger samples to make the results more robust than in this study. Moreover, in terms of audit committee members on the board, we recommend further study in employing the quality of the audit committee to test this issue to comparison to the results in this study, which used the quantity of the audit committee.

2.9 Conclusion

The three main objectives of this chapter were to examine whether there is the presence of equity market timing in the Stock Exchange of Thailand and to explore the determinants of probability and the level of equity market timing with IPO and SEO allocations during the period of 2000 to 2014. For the first objective, we follow the definition of Alti (2006), who captured equity market timing with hot and cold markets to investigate the existence of equity market timing. Furthermore, this study offers a relatively new method with economic boom and bust periods and bullish and bearish markets in detecting the equity market timing. Furthermore, the motivation for spending the proceeds by timers was investigated to examine the presence of equity market timing following Kim and Weisbach (2008). For the second and third aims, factors were included to test whether they are determinants of the likelihood and degree of equity market timing, consisting of stock overpricing, ownership structure and board of composition.

The first research question aims to inspect the existence of equity market timing when the market is favourable. Regarding the definition by Alti (2006), we find that the issuing firms tend to allocate their equity when the market is favourable for both IPO and SEO events. Additionally, the timers gain higher proceeds at time t-1 than non-timers for both the IPO and SEO samples with economic significance. Also, they issue the SEO stocks more frequently than non-timers with statistical significance. Most importantly, there is a significant increase in cash holding after stock allocation for both IPO and SEO events, which implies that one of the motivations in conducting the stock issuance is to obtain benefit from a window of opportunity (Blanchard et al., 1993; Loughran & Ritter, 1997; DeAngelo et al., 2010). Therefore, this study provides evidence that there is equity market timing in Thailand with both IPO and SEO issuances.

Based on the investigation of the determinants of the probability of equity market timing in the second research question, the marginal effects of the probit regression analysis with robust command was employed to examine this issue, whereby the models are separately conducted between the IPO and SEO events because of different characteristics between them. The empirical results of the IPO samples demonstrate that the likelihood of equity market timing increases with higher ownership concentration and larger board size. On the other hand, institutional shareholders and board independence have a negative effect on the propensity of equity market timing. Also, stock overpricing has a negative impact on the probability of IPO market timing during an economic boom, yet a positive effect during a bullish market. Furthermore, audit committee members on the board have the positive influence on the chance of equity market timing during a hot market, but the negative effect during a bullish market. However, this study provides evidence that managerial ownership and women on the board do not significantly influence the propensity of IPO market timing.

For the case of SEOs, the empirical results from the marginal effects of probit regression analysis present that equity overpricing, institutional ownership, foreign shareholders, women on the board and audit committee members on the board have positive influences on the likelihood of SEO market timing. In contrast, ownership concentration and board independence have negative effects on the propensity of SEO market timing. However, the propensity of SEO market timing increases with a larger size of the board during a bullish market but decreases with this variable during an economic boom. Conversely, managerial ownership does not significantly impact the likelihood of SEO market timing.

The third research question in this chapter explores the crucial factors that influence the level of timing the equity market. According to the OLS and GLS regression analyses of IPOs, this study provides strong evidence that overvalued equity, managerial ownership, board size and audit committee members on the board positively influence the degree of market timing with a huge amount of money from going public. In contrast, the level of timing the equity market with larger proceeds is insignificantly impacted by higher institutional ownership, ownership concentration, board independence and women on the board.

In addition, the OLS and GLS regression models of SEO allocation provide the finding for the determinants of the degree of timing the equity market with huge proceeds and several occurrences of SEO issuance. Firstly, based on the assessment of the level of timing the equity market in the form of larger proceeds, this study exhibits that stock overpricing, managerial ownership, foreign ownership, board size and audit committee members on the board significantly negatively influence the magnitude of SEO market timing with larger proceeds. However, institutional ownership, ownership concentration, board independence and women on the board do not significantly affect the level of SEO market timing with larger proceeds.

Finally, the findings gained from the OLS and GLS regression models to establish the effect of significant factors on the degree of equity market timing with multiple SEO issuances provide evidence that institutional ownership, foreign ownership, board independence and women on the board positively and significantly impact the level of equity market timing with multiple SEO issuances. Conversely, the level of equity market timing in terms of conducting SEO several times diminishes with higher ownership concentration. However, equity overpricing, managerial ownership, board size and audit committee members on the board do not significantly impact the degree of equity market timing with multiple SEO allocations.

In conclusion, this study illustrates that Thai listed companies have different behaviours in timing the equity market depending on the purpose of financing and their strategy. Moreover, the factors which influence the stock market timing are different based on each situation and the aim of funding, and there is especially a considerable difference between IPO and SEO events. Therefore, this study provides guidance for stakeholders, including managers, investors and other stakeholders, regarding the aspects of decision-making for a firm’s financing policy in the context of equity market timing, which is the novel theory of capital structure.

CHAPTER 3:

The Determinants of Debt Market Timing: Evidence from Corporate Bonds in Thailand

3.1 Introduction

Debt market timing is an emerging theory of capital structure in which financial researchers are becoming increasingly interested. There are several definitions of debt market timing, which can be classified into three major aspects based on the level of interest rate, the maturity of debt and the types of coupon rate. Graham and Harvey (2001) define debt market timing as the fact that managers tend to issue debt when they perceive the interest rate to be relatively low, while Baker et al. (2003) describe that debt market timing is that the case where firms tend to finance with long-term debt when excess bond yields are particularly low. On the other hand, Faulkender (2005) explains that debt market timing is where corporations have a tendency to issue fixed coupon debt when the yield curve is declining, whereas floating coupon debt is allocated when the yield curve is surging. Although the definition of debt market timing varies, the main purpose of debt market timing is minimizing cost of debt financing as each definition of previous literature relates to cost of debt such as interest rates, excess bond returns and yield curve. Interestingly, although there are several research studies concerning equity market timing, debt market timing has hardly been in focus although debt is a similarly important financing source as equity.

Regarding the previous literature on debt market timing, Graham and Harvey (2001) report on the result of a survey whereby a crucial factor in financing decisions is choosing debt issuance when the interest rate is particularly low. Then, Baker et al. (2003) showed that firms endeavour to time the debt market by issuing long-term bonds when the expected excess bond return is relatively low. Barry et al. (2008) also found that executives desire to conduct debt when the current interest rate is comparatively low. Antoniou et al. (2009) posit that the environment of the debt and equity markets, such as the interest rate, inflation rate, market-to-book ratio and performance of the stock market, encourages managers to finance with more financial leverage. Correspondingly, Doukas et al. (2011) found that those companies that issue corporate bonds in a hot market tend to gain more proceeds than cold corporations and that debt market timing affects the capital structure of firms in the long term. Kaya (2013b) also supports the idea that there is debt market timing in the private placement market as she found that companies allocate more debt when the yields are relatively low, and executives tend to choose long-term debt in this situation. Recently, Kerr and Ozel (2015) have claimed that firms have a tendency to time the debt market with conducting corporate bonds after they announce their earnings, which is a signal to outside investors regarding the good news of the companies. As a result, there is strong evidence that debt market timing is the one policy for the capital financing of firms that managers employ to reduce the cost of debt financing.

On the other hand, Butler et al. (2006) argue that managers are unable to time the debt market since the proportion of long-term debt disassociates with excess bond returns. Indeed, Barry et al. (2009) insist that managers are unable to succeed in timing the debt market with fixed and floating debt issuances when yield curve is volatile since managers cannot correctly predict the future interest rate. Additionally, Zhou et al. (2012) claim that executives are unable to successfully time the debt market as there is no association between the quantity of debt issuance and the prior interest rate as information asymmetry between inside and outside investors does not exist in the debt market. Likewise, Kaya (2013a) provides strong evidence that corporations issue less debt in a crowded market as there is the barrier of financing with debt in a crowded market. Consequently, firms are unable to time the debt market in a crowded market. Also, Song (2009) supports that fact that corporations are unsuccessful in debt market timing as they cannot enhance firm value after using this strategy, although there is evidence that managers attempt to issue debt during the period of a window of opportunity in the debt market. Therefore, these research studies argue that managers do not achieve debt market timing. Correspondingly, regarding the previous literature, there are ambiguous findings regarding the existence of debt market timing, which is a gigantic gap in the context of debt market timing.

Furthermore, the majority of the prior literature employs interest rate to investigate in this context, and they posit that interest rate is the crucial factor in debt market timing (Graham & Harvey, 2001). Interestingly, even if there are several types of interest rate in the financial market, the prior literature has mostly focused on the real short-term interest rate and term spreads estimated by Treasury bill (T-bill) returns. However, they are less concerned with other kinds of interest rate, such as interbank and lending rates. In particular the lending rate, which is the cost of debt financing quoted by the financial institution, seems to have a greater effect on the cost of capital for firms. Hence, this study attempts to investigate whether interest rate, evaluated by T-bill yields, interbank and lending rates, is a determinant of debt market timing.

In addition, it is widely known that the ownership structure and the structure of board of directors, which are indicators of a firm's corporate governance, are of interest in modern financial research studies since there is significant evidence that these variables associate with the decision-making in selecting the financial policy of corporations, especially the financing policy. For instance, Friend and Lang (1988) found that there is a negative relationship between the proportion of managerial shareholders and debt financing. Conversely, Li et al. (2009) claim that the proportion of foreign ownership has a negative effect on financial leverage. Wang (2012) and Upadhyay (2015) provide the evidence that there is a positive relationship between the size of the board and the gearing ratio. Surprisingly, these factors are of less concern to the previous literature on debt market timing. There is only Doukas et al. (2011), who employed the dimension of ownership concentration to investigate debt market timing, and they claimed that corporations with higher controlling shareholders prefer to time the debt market as they are willing to maintain their voting power. However, ownership structure does not include only ownership concentration, there are other variables, such as managerial, institutional and foreign shareholders, which have been neglected by the literature on debt market timing. Furthermore, there is no research study that includes the structure of the board to detect whether it is a determinant of debt market timing, even though the directors in the boardroom are the representatives of a company's stakeholders in the decision-making for important policies. Hence, this study focuses on ownership and board structures to investigate whether these factors are determinants of debt market timing.

Most importantly, almost all of the research studies in debt market timing mainly focus on the developed market, particularly the US market. In contrast, they have ignored the emerging market, even if both the stock and bond markets in emerging countries are less efficient, especially the bond market. Thailand is one of emerging markets and its bond market is less developed and of a small size (Ruengvirayudh & Panyanukul, 2006), although the Thai bond market consists of organizational and OTC markets (SETa, 2015). Additionally, the ownership structure of Thai companies has a quite high concentration which may be the cause of the agency problem between inside and outside investors. Also, the corporate governance mechanism in this county is weak because insider investors have a high authority to control the boards of directors (Claessens & Fan, 2002). Likewise, companies in this country tend to overfinance (i.e., excessive borrowing) and overinvest, which was the cause of the Asian financial crisis in 1997 (Connelly et al., 2012). Therefore, it is likely that Thai managers prefer to time the debt market. However, based on the best of our knowledge, there is no research study investigating in the context of debt market timing in Thailand. Consequently, this is an immense gap in the research on debt market timing, and this study tries to fill this gap.

In summary, there are several gaps in the context of debt market timing regarding the prior literature. *First,* there are vague findings whether there is the presence of debt market timing in the existing literature. *Second,* other types of interest rates, such as interbank and lending rates, have been neglected by the literature despite the fact that interbank rate is important policy interest rate in Thailand (Caporale et al., 2005) and lending rate, especially MLR rate is popular for financial transactions in Thailand (BOT, 2018). *Third,* some variables of ownership structure, including managerial, institutional and foreign ownerships, have been ignored from the context of debt market timing. *Fourth,* no research study has used the variable of board of directors to test in context of debt market timing. *Finally,* there is no research study examining this issue in Thailand, which is an emerging market, due to the difficulty of accessing corporate bond data and information. Thus, this chapter attempts fill these gaps to enhance and contribute to the literature on debt market timing.

3.1.1 Research aim and contribution

This chapter aims to provide further insights into the context of debt market timing to fill the research gaps and contribute to the existing knowledge. This chapter attempts to examine debt market timing by addressing three research questions as follows:

1. Is there the presence of debt market timing in Thailand?
2. What are the determinants of the existence of debt market timing?
3. What are the determinants of the level of debt market timing?

In addition, this chapter presents the empirical results on debt market timing with corporate bond allocation in the Thai bond market from 2001 to 2014. We capture the existence of debt market timing using four different strategies, consisting of issuing corporate bonds in a hot debt market, in a hot proceeds period, in an extreme interest rate period and in a median interest rate period. Moreover, we estimate the degree of debt market timing using two different methods, including the proceeds ratio and the number of corporate bond issuances. The probit, OLS and GLS regressions are employed to deal with the above questions. Inclusively, this study provides evidence of the existence of debt market timing in Thailand, while the effects of significant factors on the presence and level of debt market timing depend on individual strategy and measurement.

The first intention of this chapter is to probe whether there is the presence of debt market timing in Thailand. This study reveals strong evidence that managers tend to time the debt market in the Thai bond market with corporate bond issuance. Doukas et al. (2011) captured debt market timing in two indicators, whereby firms tend to time the debt market by issuing corporate bonds during a hot period is the first indicator and managers desire to issue more debt when the debt market is affirmative as the second indicator. Our empirical result illustrates that there are debt timers who attempt to time the debt market with each strategy. There are 150 and 117 firms that exert an effort to issue corporate bonds when the debt market is in hot debt and hot proceeds periods, respectively, while, there are only 39 and 72 issuing companies in the cold debt and cold proceeds periods, respectively. Therefore, this verifies the first indicator of the existence of debt market timing. In addition, we develop the measurement of the first indicator based on the posit by some of the literature that executives tend to time the debt market when they perceive that the interest rate is comparably low (Graham & Harvey, 2001) and we define this situation into two strategies, including extreme and median strategies. This study provides evidence that there are 35 and 106 firms employing extreme and median strategies with issuing corporate bond when the interest rate is extremely and monderately low, respectively. Therefore, this finding significantly supports the first indicator of debt market timing. Furthermore, the result of the mean difference test demonstrates that timers tend to obtain more proceeds and pay lower interest rate than non-timers with economic and statistic significances, underlining the second and third indicators of debt market timing. Most importantly, our outcome discloses strong evidence that timers have the motivation to retain the proceeds received from selling corporate bonds as cash after offering, which certifies that one of purposes in corporate bond issuance is timing the debt market, as per Blanchard et al. (1993); Loughran and Ritter (1997); Kim and Weisbach (2008). Hence, our empirical results verify four indicators of debt market timing and confirm that there is debt market timing in Thailand with corporate bond issuance.

Next, the investigation of the determinants of the probability of debt market timing is the second purpose of this chapter. This study explores whether interest rates, ownership structure and board composition are crucial determinants of the likelihood of debt market timing, yet the influence of these variables are non-identical. The probit regression with robust command displays that the chance of debt market timing increases with higher expected interest rate, institutional ownership, board size, women and audit committee on the board. In contrast, the prospect of debt market timing decreases with higher current interest rate, managerial ownership and board independence. However, some factors, consisting of foreign investors and ownership concentration, have a contradicting influence, depending on each situation. We find that foreign investors positively impact the possibility of timing the debt market with the median strategy, while this factor negatively affects the propensity of debt market timing in the case of the hot debt strategy. In addition, there is a positive influence of controlling shareholders on the likelihood of timing the debt market with the extreme strategy, yet there is a negative impact based on the hot debt market.

Finally, the third objective of this chapter is to examine the determinants of the degree of debt market timing. The OLS and GLS regressions provide strong evidence that interest rates, ownership structure, board structure are the determinants of the level of debt market timing. Our empirical results illustrate that the degree of debt market timing is enhanced with higher institutional and controlling shareholders, board independence and board size. In contrast, the level of debt market timing decreases with a higher current interest rate, managerial ownership and foreign ownership. However, there is a conflicting effect of the expected interest rate on the degree of timing the debt market depending on each measurement. The expected interest rate has a positive influence on the level of debt market timing with several bond allocations, while this variable negatively impacts on the degree of debt market timing with larger proceeds.

Overall, this chapter conducts research in the context of debt market timing and provides strong evidence supporting the existence of debt market timing in Thailand, and investigates how interest rate, ownership structure and composition of the board are the determinants of the probability and degree of debt market timing. Most importantly, this chapter provides 5 contributions. *First*, we are the pioneer in the investigation into the motivation of spending the proceeds after corporate bond allocation to confirm the timing of the debt market by developing the approach from Kim and Weisbach (2008) and Julio et al. (2007). *Second,* this study is the first study to include five different types of interest rate, consisting of T-bill, interbank rate, MRR, MLR and MOR rates, and employing both current and expected interest rates to examine the effect of these variables on debt market timing. *Third,* we are the first to include other types of ownership structure, such as managerial, foreign and institutional shareholders and board composition, to detect the influence of these variables on debt market timing. *Fourth,* this study is the first to investigate the factors of the degree of debt market timing, whereby we also offer new variables capturing the level of debt market timing in terms of the number of bond issuances. *Finally*, based on the best of our knowledge, we are pioneers in examining debt market timing in an emerging country, namely Thailand.

The remainder of the chapter proceeds as follows. Section 3.2 illustrates the literature review of this chapter. Next, section 3.3 exhibits the hypothesis development of this chapter. Then, the data and methods are shown in section 3.4, while section 3.5 demonstrates the results and findings. After that, the discussion of findings is shown in section 3.6. Section 3.7 displays the practical implications of this chapter. Subsequently, section 3.8 concentrates on the limitations of this chapter. Finally, the conclusion of this chapter is presented in section 3.9

3.2 Literature review

3.2.1 Debt market timing

There is a considerable number of studies investigating equity market timing. Surprisingly, however, there are few papers which examine the debt market timing of capital structure. Prior to 2001, Graham and Harvey (2001) surveyed 392 CFOs and demonstrated that market timing is an important factor in capital structure decisions. They showed that executives endeavour to time the debt market when the interest rate is specifically low. Then, Baker et al. (2003) tested whether debt market condition, including inflation rate, real interest rate and term spreads, can describe future excess bond returns, and they concluded that companies attempt to exploit the debt market condition as they issue an enormous amount of debt when the predicted excess bond returns are low. Also, Faulkender (2005) claims that there is consistent evidence that the yield curve is a key determinant of fixed or floating instrument choices. They found that floating debt may be financed when the yield curve is increasing, whereas fixed debt may be chosen when the yield curve is declining. In addition, Barry et al. (2008) provided strong evidence that corporations tend to time the debt market with conducting more debt when the current interest rate is lower than during a previous time in the US from January, 1970 to April, 2001. Correspondingly, Antoniou et al. (2009) found that debt market circumstance, consisting of interest rate, inflation rate, the market-to-book ratio and the performance of the stock market, stimulates the large level of debt funding in the UK. Simultaneously, Doukas et al. (2011) tested debt market timing with a classification of hot and cold markets and concluded that businesses significantly raised capital in a hot market rather than a cold market, and this impact still appears in the long term. In addition, Kaya (2013b) analysed the behaviour of executives in debt market timing, however, she focused on the US private placement market and suggested that an amount of private placement debt is definitely high volume when the yields are low. Additionally, long-term maturity debt is selected if the interest rate goes down. Also, Bougatef and Chichti (2011) looked at the correlation between net debt and market timing and summarized that Tunisian firms achieve debt market timing with an increase in firm value; however, French firms are unsuccessful. Recently, Kerr and Ozel (2015) posited that firms tend to offer bond security after the announcement date of a firm's earnings and they claimed that this is the behaviour of timing bond issuance of US companies from 1995 to 2010.

On the other hand, Butler et al. (2006) argue that managers are unable to succeed in timing of the debt market with maturity of debt since they found that there is no relationship between long-term debt issuance and future excess bond returns in the US. Also, Barry et al. (2009) found that executives are unable to time the debt market with fixed and floating debt issuance when yield curves are volatile. Furthermore, Zhou et al. (2012) considered the relevance of corporate debt volumes and the market situation, estimating with inflation rate, real interest rate, yield term spreads, risk spreads and time trends in the US, and claimed that the amount of debt does not relate to the previous interest rate; therefore, this implies that managers are unable to time the debt market and there is no asymmetric information between insiders and outside investors. Likewise, Kaya (2013a) studied debt market timing with an alternative definition of crowded debt markets as opposed to hot markets and demonstrated that companies have a tendency to borrow with smaller amounts of debt security in a crowded market. This result implies that there is the constraint of capital in a crowded market, so firms need to limit their offerings. In addition, a crowded market has an insignificant impact on firm leverage. Also, Song (2009) said that although there is a tendency to take advantage of windows of opportunity for debt, managers cannot accomplish the generation of their firm values because timer and non-timer values are not different in the US.

Consequently, the presence of debt market timing is ambiguous and there are substantially few research studies concerning this context, although debt security is another financial instrument that is as important as equity security, yet they are rarely of interest to the previous literature. Moreover, most prior studies focus on the developed countries, particularly the US market, while the emerging market has been ignored by the literature, even if it has widely known that the emerging market has less efficiency. Thailand is the one of the emerging markets in which the bond market is dramatically less developed and of a small size (Ruengvirayudh & Panyanukul, 2006), although the bond market in Thailand consists of organizational and OTC markets (SETa, 2015). Moreover, the corporations in this country contain a high ownership concentration, leading to an increase in the agency problem, and their corporate governance mechanisms are weak since the boards of directors are controlled by insiders (Claessens & Fan, 2002). Furthermore, they have a tendency to suffer from poor investment decisions and overfinancing, which was the cause of the Asian financial crisis in 1997 (Connelly et al., 2012). Consequently, it is interesting to examine debt market timing in Thailand to improve and develop the efficiency and productivity of the Thai bond market. Additionally, based on the best of our knowledge, there is no research study examining debt market timing in Thailand. Therefore, this study is the first work to explore the presence and the determinants of debt market timing in Thailand, which substantially contributes to the literature in this area.

3.2.2 Corporate governance and debt market timing

3.2.2.1 Ownership structure and debt market timing

There is meaningful evidence that ownership structure relates to capital structure. For instance, Jensen and Meckling (1976) posited that controlling ownership avoids financing with debt financing as they do not desire to gain more pressure from debtholders. Friend and Lang (1988) also claim that managerial shareholders are not willing to use financial leverage since they prefer to entrench themselves from active monitoring and incremental stress from creditors. In contrast, Kim and Sorensen (1986), Mehran (1992) and Stulz (1988) found that managerial investors have a tendency to finance with more debt because they are willing to prevent the dilution of a firm’s valuation for current shareholders by the entry of new investors. Moreover, Bathala et al. (1994), Grier and Zychowicz (1994), Pushner (1995) and Dahlquist and Robertsson (2001) provide the evidence that firms with a higher proportion of institutional shareholders prefer to finance with less debt. On the other hand, Huang (2006) contends that there is no association between the proportion of institutional ownership and financial decisions. In addition, Kang (1997) found that the proportion of foreign investors has a positive effect on debt financing. In contrast, Li et al. (2009) argue that there is a negative relationship between them. Therefore, there is a high probability that ownership structure has an influence on decision-making regarding the financing capital of corporations.

On the other hand, there are significantly few research studies focusing on the effect of ownership structure on debt market timing. For example, Doukas et al. (2011) included the ownership concentration ratio, calculated by the number of equity shareholders divided by the number of outstanding shareholders, as a variable for debt market timing and showed that the ownership controls of hot companies are definitely higher than of cold companies, and they claim that companies with larger controlling shareholders tend to use more debt rather than equity in order to protect the control of power (Stulz, 1988). However, they examined controlling ownership only in the aspect of the difference between hot and cold firms with a t-test mean difference approach and the effect of ownership concentration on the level of debt proceeds and found that corporations with larger controlling shareholders tend to use debt rather than stock in order to maintain their authority in corporate operations. However, there is a lack of using other ownership variables, comprising managerial, institutional and foreign ownerships, whereby there is some evidence that these factors relate to decisions on the financing capital of companies.

3.2.2.2 Structure of board of directors and debt market timing

It has widely acknowledged that board of directors is a crucial component of corporations as the directors in the boardroom are the group that makes the decisions on the important policies of firms. Recently, modern research studies have begun to have more interest in the composition of board of directors and use these variables as the representatives of firm corporate governance as most memberships on the boards include top managers, major shareholders and other important stakeholders. Therefore, it is more likely that they may have conflict of interests among them in the boardroom since they have different roles and demands depending on their positions, responsibilities and benefits. Consequently, the structure of the board may be a determinant of debt market timing as the prior literature has found that board structure associates with decision-making in the capital structure of corporations. For example, Lim et al. (2007) posited that companies with a higher number of independent directors on the board tend to finance with more debt. Moreover, Anderson et al. (2004) provide significant evidence that independent members on the board support the diminishment of the cost of debt financing. In addition, Berger et al. (1997) mention that the size of the board has a negative effect on the gearing ratio, whereas Lim et al. (2007), Wang (2012) and Upadhyay (2015) contend that there is a positive influence of the size of board on the debt ratio. Furthermore, Alves et al. (2014) found that there is an inverse involvement between the proportion of women on the board and debt financing as the diversification of gender on the board of directors leads to an increase in the monitoring of other directors in the boardroom, especially managers who are entrenched from implementing the policy, which might destroy firm value. Additionally, Anderson et al. (2004) report that audit committee has an impact on decreasing the cost of debt.

Based on the above evidence from the previous literature, it is entirely possible that the combination of the board has an influence on the decision-making of managers in selecting the sources of funds for their corporations. However, there is no research study employing board structure to investigate the relationship between this factor and debt market timing. Hence, this study includes the variables of board composition, consisting of the proportion of independent members, women and audit committee members on the board as well as board size, to explore the impacts on debt market timing.

3.2.3 Debt market and types of debt security in Thailand

The bond market in Thailand was considerably developed in 1997 following the Asian financial crisis (Asian Bonds Online, 2015). Regarding the trading of bonds in Thailand it is possible to buy and offer through the OTC market and the Bond Electronic Exchange (BEX) (SETa, 2015). Moreover, there are three main types of debt security in Thailand, including government debt securities, state agency and state-owned enterprise bonds, and corporate debt securities (ThaiBMA, 2009). The government debt securities are divided into T-bills, which have a maturity of less than 1 year, and government bonds, which have a maturity of more than 1 year, while corporate debt securities consist of commercial papers with a maturity of less than 1 year and corporate bonds with a duration of more than 1 year.

Additionally, there are two main agency companies that are approved by the SEC to be able to assess the credit ratings of corporate bonds, namely TRIS Rating Corporation and Fitch Ratings (Thailand) limited (SEC, 2013). Moreover, debt securities are classified into two types depending on the reliability of the investment; these are investment grade bond, which is a debt security with more than BBB- (TRIS) or Baa3 (Fitch) for their credit ratings and the non-investment grade bond or junk bond, which is a bond with less than BBB- (TRIS) or Baa3 (Fitch) for their credit ratings (BOT, 2014). Generally, the rating agency considers the information of company from three aspects, namely (1) default risk, (2) credit spread risk and (3) downgrade risk, to provide the credit ratings to the bond issuing firms (SET, 2017a). Furthermore, the assessment of credit ratings is separated into two main categories, which are a firm's credit ratings and bond ratings. Recently, the TRIS rating agency has present the number of listed companies who have gained credit ratings from them, whereby there are 126 and 94 listed and industrial companies, respectively, that received credit ratings from the TRIS rating agency on 16th

January 2017 (TRIS, 2017), while the total number of listed firms in the Stock Exchange of Thailand was 723 corporations on the same date (SET, 2017c), and only 17.4274% and 13.0138% of listed and industrial companies, respectively, were rated by the rating agency.

3.2.5 The short-term interest rate

In the previous literature on debt market timing, most research studies estimated the interest rate using the difference between T-bill returns and the inflation rate, such as Doukas et al. (2011), Song (2009) and Zhou et al. (2012). However, there are several types of interest rate used in the domestic money market of Thailand, including the "interbank rate, Bangkok Interbank offered rate (BIBOR), Thai Baht Implied Interest Rate, End-of-day Liquidity Rate, deposit rates and lending rates of financial institutions" (BOT, 2015), but these rates have still been ignored by the prior literature although they are also important, especially the lending rate of financial institutions. As the lending rate is directly related to the cost of capital for corporate financing, it is of interest that we include this variable to test the relationship between this variable and debt market timing, whereby there are three main types: 1. MLR (Minimum Lending Rate) 2. MOR (Minimum Overdraft Rate) 3. MRR (Minimum Retail Rate). The MLR rate is the lending rate per annum which the commercial banks charge their prime major borrowers on term loans, the MOR rate is the lending rate per annum which the commercial banks charge their prime major borrowers on the overdraft facility, while the MRR rate is the rate which the commercial banks charge their prime retail borrowers on their term loans (BOT, 2004). As this study examines large and small and medium companies, three kinds of lending rates (MLR, MOR and MRR) may relate to the firms in this study, and these rates are entered into this study. Therefore, we employ the other measurements for the interest rate in five different ways, consisting of real short-term interest rate, following the previous literature, and the interbank and lending rates of financial institutions consisting of MLR, MOL and MRR rates to determine their influences on debt market timing. Even though the BIBOR rate is of enormous interest to commercial banks, as this rate is in substantial fluctuation and can be a strong representative for the money market of Thailand (Vimolchalao, 2011), the historical data before 2006 for the BIBOR rate are unavailable. Hence, we use only the interbank rate to investigate in this content.

3.3 Hypothesis development

3.3.1. The presence of debt market timing

Graham and Harvey (2001), Baker et al. (2003) and Doukas et al. (2011) claim that there is the existence of debt market timing, whereas Butler et al. (2006), Barry et al. (2009) and Zhou et al. (2012) contend that there is no evidence of debt market timing. Hence, we examine the presence of debt market timing in Thailand since few studies focus on this issue. As Kim and Shamsuddin (2008) claim that the financial markets in Thailand are inefficient, we suggest that:

Hypothesis 1: *Corporate debt market timing exists in Thailand.*

3.3.2. Interest rate

In the previous literature, Graham and Harvey (2001) showed that firms tend to time the debt market to minimize their cost of capital when they recognize a lower interest rate. Furthermore, Bancel and Mittoo (2004) posit that debt market timing is when there is more debt issuance when interest rate is relatively low. Likewise, Barry et al. (2008) provide the evidence that companies allocate more debt during a period of low interest rates compared to historical interest rates. Kaya (2013b) found that firms borrow significant amounts of debt when bond returns decline. Therefore, to confirm the prior literature, we employ current interest rate to examine whether this variable is a determinant of debt market timing, and we suggest that:

Hypothesis 2.1: *If the current interest rate is lower, the probability and degree of corporate debt market timing increase.*

Simultaneously, Barry et al. (2009) insist that managers tend to time the debt market with more debt issuances when the current interest rate is particularly lower. However, they argue that executives are unsuccessful in timing the debt market as they are unable to correctly predict the future interest rate. Thus, it is interesting that expected interest rate is included in this study to test whether firm managers can achieve a prediction of the future interest rate. If they feel that the current interest rate is relatively low, then this implies that they expect interest rates to raise in the future. Hence, they tend to issue more debt in the current time to fix their cost of capital before the interest rate goes up in future, and we expect that:

Hypothesis 2.2: *If the expected interest rate is high, the probability and degree of corporate debt market timing increase.*

3.3.3. Ownership structure

3.3.3.1 Managerial ownership

Based on agency problem theory, managers and outside investors may have conflicts of interest in the decision to select the policy for their capital structure. The previous literature provides mixed findings on this issue. Kim and Sorensen (1986) and Mehran (1992) claim that the proportion of managerial shareholders positively relates to the gearing ratio. On the other hand, Friend and Lang (1988) argue that there is a negative association between managerial ownership and financial leverage since managers prefer not to gain more pressure from debtholders. However, managerial ownership has been ignored by the previous literature on debt market timing. Consequently, this study includes this variable to examine the effect on debt market timing. Recently, Ağca and Mansi (2008) find that the percentage of managerial shareholders positively influence debt financing. Furthermore, Stulz (1988) posit that executives prefer to finance with new debt as they desire to maintain the authority of their voting rights. Hence, we suggest that:

Hypothesis 3.1: *The probability and degree of corporate debt market timing increase with higher managerial ownership.*

3.3.3.2 Institutional ownership

Institutional shareholders can be potential instruments in the alleviation of the agency problem (Agrawal & Mandelker, 1990). However, there has been no research study focusing on the impact of this variable on debt market timing, thus this study uses the proportion of institutional shareholders to explore the influence of this variable on debt market timing. Regarding the literature in the context of capital structure, Huang (2006) posits that there is no relationship between institutional ownership and the gearing ratio. In contrast, several research studies have contended that institutional ownership negatively influences the debt ratio, including to Bathala et al. (1994), Pushner (1995) and Dahlquist and Robertsson (2001). This implies that institutional shareholders are outside investors, so they prefer not to take on higher risk from using debt. Thus, we hypothesize that:

Hypothesis 3.2*: The probability and degree of corporate debt market timing decrease with higher institutional ownership.*

3.3.3.3 Foreign ownership

In modern times, many corporations have become multinational companies; meanwhile, the investors have increased their interest in investing in foreign countries. Besides, Stulz (1999) claim that foreign shareholders make it possible to minimize the conflict of interest between managers and their stakeholders. Thus, it is likely that foreign ownership may be a crucial factor in debt market timing, although this variable has been neglected by the previous literature on debt market timing. In addition, there is some evidence that foreign ownership and debt financing have a relationship, but the direction is still under discussion. For example, Kang (1997) found that foreign ownership positively associates with the financial leverage ratio. On the other hand, Dahlquist and Robertsson (2001) dispute that foreign ownership negatively relates to debt financing. Recently, Li et al. (2009) find that foreign ownership has a negative effect on the gearing ratio since they are outside investors and avoid higher risk from using debt. Thus, we suggest that:

Hypothesis 3.3: *The probability and degree of corporate debt market timing decrease with higher foreign ownership.*

3.3.3.4 Ownership concentration

The controlling ownership may relate to the decision-making of managers in debt market timing. However, there are only few studies investigating this topic, even if there is some evidence on the relationship between ownership concentration and financial leverage. Céspedes et al. (2010) claim that companies with more controlling shareholders tend to finance with debt as external equity may lead to the dilution of existing shareholder's wealth by the entrance of new shareholders. In contrast, Jensen and Meckling (1976) argue that corporations with more controlling shareholders tend to escape debt financing since debt securities lead to incremental pressure from lenders based on agency theory. Also, Margaritis and Psillaki (2010) find that the proportion of ownership concentration inversely associates with the debt ratio. Most importantly, Wiwattanakantang (1999) finds that major shareholders in Thai firms are not willing to gain more pressure from debt financing. Hence, we expect that:

Hypothesis 3.4: *The probability and degree of corporate debt market timing decrease with higher ownership concentration.*

3.3.4. Board structure

3.3.4.1 Independent directors on the board

Board independence may associate with debt market timing. Some research studies have claimed that independent directors are an efficient instrument to monitor the executive management and negotiate the arguments between other directors on the board (Byrd & Hickman, 1992). Moreover, several previous studies employed the proportion of independent members on the board as a representative of corporate governance (Core et al., 1999; Gillan & Starks, 2000). In contrast, some papers argue that independent directors are not the inside executives and do not directly benefit from positive firm outcomes. Thus, they may not have the objective to enhance firm value. Also, independent directors do not participate in firm management in the form of practical operations, hence they may not understand the real problems and this may lead to the decision to implement an inappropriate policy for firms (Maug, 1997). However, there is some evidence that the amount of board independence relates to the capital structure of firms, including from Anderson et al. (2004) and Lim et al. (2007). Therefore, we use the proportion of independent directors on the board to inspect the effect of this variable on debt market timing. Recently, Lim et al. (2007) have posited that companies with higher proportion of board independence tend to finance with more financial leverage. Furthermore, Anderson et al. (2004) find that independent members on the board have an impact on the reduction of the cost of debt financing. Thus, we expect that:

Hypothesis 4.1: *The probability and degree of corporate debt market timing increase with a higher proportion of independent board members.*

3.3.4.2 Board size

The size of the board of directors is one variable of board composition. Moreover, there is still a discussion about the appropriate size of a board. For instance, a small board leads to more efficient monitoring of the decisions for the important policies of companies, and this effects an enhancement of the market value of companies (Yermack, 1996), while larger boards may reduce the productivity by monitoring the executives because of the free-riding issue (Raheja, 2005; Harris & Raviv, 2008). On the other hand, some research studies contend that a small board contains a higher level of asymmetric information as the majority of directors are insiders (Yang et al., 2004). Thus, this may lead to the domination by managers of the other directors in choosing a policy that supports the increase of only their own benefit instead of the wealth of firms, whereas a larger size of board effects a diversification that acts to minimize the domination of manager power in the boardroom, and they also exert an observational effort in order to entrench themselves from the destruction of firm value (Berger et al., 1997). Therefore, it is possible that a different size of the board results in the selection of dissimilar policies. Consequently, board size may be a vital factor in manager decisions to time the debt market. This factor has still not been the focus of a research study in the context of debt market timing, although there is some evidence that board size associates with capital structure. For example, Berger et al. (1997) posit that a higher quantity of board members in the boardroom effects a lower financial leverage ratio. In contrast, Lim et al. (2007) argue that the size of the board has a positive effect on debt financing. Recently, Wang (2012) and Upadhyay (2015) also found that corporations with a higher number of board members tend to use more debt. Hence, this study includes the size of the board to explore the association between this variable and debt market timing, and we expect that:

<u>Hypothesis 4.2:</u> *The probability and degree of corporate debt market timing increase with a larger size of the board of directors.*

3.3.4.3 Women on the board

Carter et al. (2003) claim that the efficiency of company monitoring is improved by the diversification of genders on the board of directors as they found that the proportion of women on the board positively influences corporate value. Furthermore, Gul et al. (2008) said that female directors require more auditing effort than male directors. Also, Adams and Ferreira (2009) found that women on the board exert more attention when participating in board meeting, implying that they are more assiduous in monitoring the operations of firm managers. Simultaneously, there is strong evidence that different opinions and experience enter the boardroom via female directors, whereby this supports an enhancement of the quality of decision-making in crucial policies conducted by the board of directors (Hillman et al., 2007). In addition, Gul et al. (2011) mentions that weak corporate governance is reduced by the diversification of genders on the board of directors. Thus, it is interesting to employ the proportion of women on the board in this study to detect the relationship between female directors and debt market timing, whereby no research study has so far focused on this issue. In the prior literature, Coleman and Cohn (1999) and Verheul and Thurik (2001) claim that there is no difference between males and females in the decisions on capital structure. Recently, Alves et al. (2014) dispute that corporations with a higher proportion of female members on the board prefer not to use aggressive debt financing policy. Hence, we expect that:

Hypothesis 4.3: *The probability and degree of corporate debt market timing decrease with a higher proportion of women on the board.*

3.3.4.4 Audit committee on the board

Menon and Williams (1994) posit that the agency problem is minimized by the efficient monitoring by an audit committee. In addition, Xie et al. (2003) claim that the audit committee is a potential detector regarding the management of executives instead of investors. Simultaneously, Adams (1997) found that the audit committee can observe and control the behaviour of managers and outside directors to prevent them from employing an inappropriate policy which may lead to the dilution of shareholder wealth. Hence, it is possible that the proportion of audit committee members on the board is a determinant of debt market timing, thus this study uses this variable to test in the field of debt market timing. Furthermore, Anderson et al. (2004) provide evidence that a lower cost of debt financing relates to an independent audit committee. Thus, we expect that:

Hypothesis 4.4: *The probability and degree of corporate debt market timing increase with a higher proportion of audit committee members on the board.*

Table 3.1: Summary of hypothesis for debt market timing

Order		Hypothesis	The presence/ degree of debt market timing
1.	H1	Corporate debt market timing exists in Thailand.	Yes
2.	H2	Interest rate	
		Current interest rate	-
		Expected interest rate	+
3.	H3	Ownership structure	
	H3.1	Managerial ownership	+
	H3.2	Institutional ownership	-
	H3.3	Foreign ownership	-
	H3.4	Ownership concentration	-
4.	H4	Board structure	
	H4.1	Board independence	+
	H4.2	The number of board size	+
	H4.3	Women on board directors	-
	H4.4	Audit committee on board directors	+

3.4 Data and methods

3.4.1 Sampling design and data sources

Our sample comprises all new corporate bonds, including initial public offering and seasoned corporate bonds. The bond market is different from the equity market, whereby the equity market classifies the equity into two major types, namely IPO and SEO, while the bond market obviously does not have a separation between these types, but there are only new corporate bonds since when the same company issues the second bond it is also called a new bond. Therefore, our sample contains all new corporate bonds, including the first and further corporate bonds, which are issued in the Thai bond market, both the organizational and OTC markets. We follow Doukas et al. (2011: 50) in that their sample comprises *"all new, nonconvertible, public bond issues"* since bond allocation is "*a single financing event".* Therefore, they focused on corporate bonds to classify the hot and cold debt markets. Consequently, as we also employ the hot debt market to capture debt market timing, we concentrate on the corporate bond issuance; however, our sample contains all new bonds, both public and private allocations. Moreover, Datta et al. (2000) posit that even though the balance sheet method is instructive, the incremental approach is better for investigating in the context of debt issuance as this method relies on the crucial event, especially the first bond issuance to public investors, which is turning point of firms. Therefore, firm managers pay more attention to carefully make the decision employing this policy. Accordingly, we use the incremental method with all new corporate bond allocations to examine the relationship in the context of debt market timing.

The data on corporate bond issuance in Thailand are collected from three main sources, including the SET's Fact Books and the SET's and ThaiBMA's official websites. The data contain the details of the issued date, listed date, credit ratings, coupon rate, nominal proceeds, maturity date, the type of coupon payment, the type of issuance and the industry group. The SET's Fact Books and the SET's website provide the data on corporate bonds which were listed in the Bond Electronic Exchange (BEX) from 2001 to 2014, and the data on corporate bonds allocated in the OTC market are available from the ThaiBMA. However, the data on the OTC market collected from the ThaiBMA's website cover the details of corporate bond allocations from 2006 to 2014. We exclude the corporate bonds issued by financial firms and utility firms. Therefore, the initial corporate bonds which are accumulated from the three main sources are 486 observations for industrial companies. Furthermore, multiple allocations within 1 year of issuance are consolidated into 1 allocation for the issuing year. Finally, our sample of corporate bonds contains 189 observations from 2001 to 2014.

Furthermore, the data on macroeconomic factor and debt market condition are obtained from several sources. The 3-month T-bill and BBB corporate bond yields are collected from the official website of the ThaiBMA and BOT. Moreover, interbank, MRR, MLR and MOR rates are obtained from the DataStream database. In addition, the data on the actual monthly consumer price index (CPI) for the inflation rate calculation and 10-year government bond yields are obtained from the BOT's official website.

Additionally, the ownership data are obtained from the SETSMART database and board of directors and managerial characteristics data are collected from Form 56-1, which is available in both the SETSMART database and on the SEC Thailand's website. Likewise, the financial data, including total assets (TA), earnings before interest, taxes, and depreciation (EBITDA), net sales, net plant, property, and equipment (PPE), common dividends (Div), book equity (E), cash and short-term investments (CASH), book debt (D), capital expenditures (CAPEX) and retained earnings (RE), are obtained from the DataStream and Bloomberg databases.

Consistent with Baker and Wurgler (2002), Alti (2006) and Doukas et al. (2011), firm-year observations with D/TA, E/TA, RE/TA, EBITDA/TA, CAPEX/TA, or DIV/E that more than 100% are excluded from our sample. Also, corporate bonds which require more than 30 years to reach maturity are dropped from our observations.

3.4.2 Data Definition

Table 3.2: Definition of dependent, explanatory and control variables

The order	The variables	The notation	The definition	Expected Sign
1. Dependent variables				
1.1 The presence of debt market timing				
1.1.1	Hot debt variable	HOT_{Debt}	- The dummy variable which captures debt market timing = 1 if a firm issues corporate bonds in a hot market estimated by a high volume of quantity of bond issuance and 0 if a firm issues corporate bonds in a cold market (Doukas et al., 2011).	NA
1..1.2	Hot proceeds variable	$HOT_{Proceeds}$	- The dummy variable which detects debt market timing = 1 if a firm issue corporate bonds in a hot market estimated by a high volume of bond proceeds in constant baht and 0 if a firm issues corporate bonds in a cold market (Doukas et al., 2011)	NA
1.1.3	Extreme interest rate variable	IR_{Etreme}	- The dummy variable which detects debt market timing = 1 if a firm issues corporate bonds in a period of extremely low interest rate, and 0 otherwise.	NA
1.1.4	Median interest rate variable	IR_{Median}	- The dummy variable which detects debt market timing = 1 if a firm issues corporate bonds in the period of moderately low interest rate, and 0 otherwise.	NA
1.2 The degree of debt market timing				
1.2.1	Nominal proceeds of debt ratio	*Proceeds(D)/ TA*	- The amount of capital that is raised during corporate bond issuance divided by the year-end assets at time t.	NA
1.2.2	Number of bond issuance	*#Bond Issuance*	-The number of corporate bond allocations in an issuing year.	NA
2. Explanatory variables				
2.1 Current interest rate				
2.1.1	Real short-term interest rate	*IR*	-The 3-month Treasury bill return at time t - actual yearly inflation rate at time t (Baker et al., 2003; Doukas et al., 2011).	-
2.1.2	Interbank rate	*IBR*	-The interbank rate per annum at time t- actual yearly inflation rate at time t	-
2.1.3	MLR rate	*MLR*	-The MLR rate per annum at time t - actual yearly inflation rate at time t	-
2.1.4	MOR rate	*MOR*	-The MOR rate per annum at time t - actual yearly inflation rate at time	-
2.1.5	MRR rate	*MRR*	-The MRR rate per annum at time t - actual yearly inflation rate at time t	-
2.2 Expected interest rate				
2.2.1	Expected real short-term interest rate (Perfect foresight)	*EIR*	-The 3-month Treasury bill returns at time t+1 - actual monthly inflation rate at time t+1 (Baker et al., 2003; Doukas et al., 2011).	+
2.2.2	Expected interbank rate (Perfect foresight)	*EIBR*	-The interbank rate per annum at time t+1- actual yearly inflation rate at time t+1	+
2.2.3	Expected MLR rate (Perfect foresight)	*EMLR*	-The MLR rate per annum at time t+1- actual yearly inflation rate at time t+1	+
2.2.4	Expected MOR rate (Perfect foresight)	*EMOR*	-The MOR rate per annum at time t+1 - actual yearly inflation rate at time t+1	+
2.2.5	Expected MRR rate (Perfect foresight)	*EMRR*	-The MRR rate per annum at time t+1 - actual yearly inflation rate at time t+1	+
2.3 Ownership structure				
2.3.1	Managerial ownership	*%MOWN*	- The proportion of stocks held by managers.	+
2.3.2	Institutional ownership	*%IOWN*	-The proportion of stocks held by institutions (Pruitt & Wei, 1989; Nikolov & Whited, 2014).	-
2.3.3	Foreign ownership	*%FROWN*	-The proportion of stocks held by foreign investors (Gul et al., 2010).	+

2.3.4	Ownership concentration	*HHI3*	- The Herfindahl–Hirschman index of three largest shareholders (Goergen & Renneboog, 2001). The Herfindahl–Hirschman index (HHI) (Baysinger et al., 1991) $\%HHI = \sum_{i=1}^{n} S_i^2$ S_i = the proportion of equity held by the i^{th} shareholder. n = 3 (Goergen & Renneboog, 2001).	-
2.4 Structure of board of directors				
2.4.1	Independent board members	*%IBO*	-The percentage of independent board members (Cotter et al., 1997; Ho & Wong, 2001; Mak & Kusnadi, 2005).	+
2.4.2	Board size	*BOZ*	-The total number of board members at the end of the fiscal year (Mak & Li, 2001; Linck et al., 2008).	+
2.4.3	Women on the board	*%WBO*	-The percentage of women on the board of directors (Carter et al., 2003; Farrell & Hersch, 2005; Adams & Ferreira, 2009; Huang & Kisgen, 2013).	-
2.4.4	The audit committee on the board	*%ACO*	- The percentage of audit committee members on the board of directors.	+
3. Control variables				
3.1	Military experience on the board	*Military*	-The dummy variable which captures the military experience on the board of directors = 1 if there is any member of the board of directors who has a position in the military, such as lieutenant, major, colonel etc., and = 0 otherwise.	
3.2 Managerial characteristics				
3.2.1	Gender of managers	*GM*	-The dummy variable which captures the gender of manager = 1 if the gender of the manager (CEO/CFO) is female, and = 0 otherwise (Huang & Kisgen, 2013). **Note:** CEO is equal to the managing director (Wiwattanakantang, 1999).	
3.2.2	Age of managers	*AM*	-The age of managers (CEO/CFO) (Huang & Kisgen, 2013).	
3.2.3	Financial education of managers	*FEM*	-The dummy variable which captures the financial education of the manager = 1 if a manager (CEO/CFO) graduated in the field of finance, which consists of both undergraduate and graduate degrees in accounting, finance, business, and economics, and = 0 otherwise (Malmendier & Tate, 2005).	
3.3	Private Placement	*PP*	-The dummy variable which captures the types of corporate bond distribution = 1 if the corporate bond is issued with the private placement method, and = 0 if the corporate bond is issued with other types.	
3.4	Credit rating	*Credit_Rating*	-The credit rating of a corporate bond is estimated by the bond agency, including TRIS and Fitch. The figure is AAA=19, AA+ =18, AA=17, AA- =16 and so on according to Paisarn (2012), whereby the detail is shown in table 3.3 below.	
3.5	Corporate bond maturity	*Maturity*	- The time to maturity of corporate bonds at time t.	
3.6	Profitability	*Profit*	- Earnings before interest, taxes and depreciation (EBITDA) over total assets.	
3.7	Firm size	*Size*	- The logarithm of net sales with adjusted inflation rate.	
3.8	Asset tangibility	*Tang*	- Net plant, property and equipment over total assets.	
3.9	Dividends	*Div/E*	- Common dividends divided by book equity (Baker and Wurgler, 2002; Alti, 2006).	
3.10	Cash	*CASH/TA*	- Cash and short-term investments divided by total assets.	
3.11	Nominal GDP growth	*NG*	- Real GDP growth rate plus inflation rate.	
3.12	Term spread	*TS*	-The difference between 10-year government bond returns – 3-month Treasury bill returns.	
3.13	Risk spread	*RS*	-The average of BBB corporate bond yield spreads (the difference between the average BBB corporate bond yields and the 10-year Treasury bond rates).	
3.14	Industry dummies	*Industry*	-The dummy variable control for heterogeneity in industry characteristics.	

Note 1: We also attempt to employ the forecast annually inflation rate at time t+1 to estimate the expected interest rate. **Note 2:** "NA" means that there is no expected sign.

Table 3.3: The detail of corporate bond rating in Thailand comparing with the credit rating of global agency				
TRIS	Fitch	S&P	Moody	Score
AAA	AAA(tha)	AAA	Aaa	19
AA+	AA+(tha)	AA+	Aa1	18
AA	AA(tha)	AA	Aa2	17
AA-	AA-(tha)	AA-	Aa3	16
A+	A+(tha)	A+	A1	15
A	A(tha)	A	A2	14
A-	A-(tha)	A-	A3	13
BBB+	BBB+(tha)	BBB+	Baa1	12
BBB	BBB(tha)	BBB	Baa2	11
BBB-	BBB-(tha)	BBB-	Baa3	10
BB+	BB+(tha)	BB+	Ba1	9
BB	BB(tha)	BB	Ba2	8
BB-	BB-(tha)	BB-	Ba3	7
B+	B+(tha)	B+	B1	6
B	B(tha)	B	B2	5
B-	B-(tha)	B-	B3	4
C+	CCC(tha)	CCC+	Caa1	3
CC	CC(tha)	CCC	Caa2	2
C	C(tha)	CCC-	Caa3	1

Source: Paisarn (2012)

3.4.3 Empirical analysis

3.4.3.1. Regression model

According to the hypothesis development in section 3.3, a cross-sectional data analysis is employed to understand the effect of factors that are crucial to the decision regarding timing the bond market in Thailand. Furthermore, the ordinary least squares (OLS), generalized least squares (GLS), probit and Heckman's two-step estimation regressions are used to investigate the association between the explanatory and dependent variables for 14 years, from 2001 to 2014. The models with the continuously explained variables are conducted with the OLS regression with an industry dummy and White (1980) standard errors are employed to evaluate the coefficient's significance level. Moreover, the GLS regression is produced to account for heteroskedasticity (Gil-Bazo & Ruiz-Verdu, 2009). The probit regression with robust command is used to determine the model which contains the discrete dependent variable consisting of the value of 0 and 1. Heckman (1979) said that samples which are non-randomly selected lead to bias due to the missing data problem, and the Heckman two-stage estimator can solve this issue. Our sample consists only of firms that issue corporate bonds in the bond market whereby it is well-know that corporations that can allocate corporate bonds are large and highly reputable. In addition, there are only some companies that have gained the assessment of credit ratings from a credit agency. Consequently, our sample is a subpopulation and may be self-selected, thus Heckman's sample-selection method[22] is appropriate to treat this bias. Hence, the regression models are produced as per the below equations, which are divided into two main parts. The first part is the regression model of the presence of debt market timing and the second part is the determinants of the presence and level of debt market timing. Moreover, the Stata 14.2 SE software programme is employed to generate the empirical results of this study.

3.4.3.1 The regression model of the existence of debt market timing

To confirm the presence of debt market timing, we test whether timers that are classified as hot firms keep their incremental capital gained from issuing corporate bonds as cash, which is similar to equity market timing (Blanchard et al., 1993; Loughran & Ritter, 1997; DeAngelo et al., 2010). The regression model of Kim and Weisbach (2008) is employed to investigate this issue using the GLS regression and OLS regression with an industry dummy and White (1980) standard errors. Moreover, as this chapter focuses on corporate bonds, some additional control variables for debt characteristics are included, following Julio et al. (2007). The equation of spending money for timers in a debt market is demonstrated as below:

$$\begin{aligned} Y = \ & \beta_1 ln\left[\left(\frac{Debt\ issue}{total\ asset_0}\right) + 1\right] + \ \beta_2 ln\left[\left(\frac{Other\ sources\ of\ fund}{total\ asset_0}\right) + 1\right] \\ & + \beta_3 ln[Total\ assets_0] + + + \sum_{i=2001}^{2014} \theta_i Year \ + \sum_{j=1}^{7} \lambda_j Industry \\ & + \sum_{k=1}^{19} \gamma_k Credit\_Rating + \varepsilon_i \qquad (3.1) \end{aligned}$$

[22] Based on Heckman sample-selection method, as our explanatory variables contain interest rates, ownership structure and the structure of the board of directors, these variables are not the potential variables which are the cause of selection bias. However, we conduct this approach for the dependent variables, which are missing data on corporate bonds in the OTC market, and this may lead to selection bias. However, our results with Heckman sample-selection method report the value of rho = 0. Hence, the null hypothesis, rho =0, is not rejected and this insists that this study does not suffer from selection bias.

There are two groups of explained variables (Y) consisting of the asset-based variables *(Y_1)* and the expenditures *(Y_2)*. The measurement for each group[23] is illustrated in the equation below:

a.) The asset-based variables *(Y_1)*

$$Y_1 = ln\left[\left(\frac{V_t - V_0}{Total\ asset_0}\right) + 1\right] \quad (3.2)$$

Where, V = total assets, cash, cash and short-term investment, inventory and property, plant and equipment

Year t = 1,2,3,4 years after year 0

Year 0 = the fiscal year-end prior to the debt issuance

b.) The expenditures *(Y_2)*

$$Y_2 = ln\left[\left(\sum_{i=1}^{t}\left(\frac{V_i}{Total\ asset_0}\right)\right) + 1\right] \quad (3.3)$$

Where, V = capital expenditures, dividend payment and long-term debt repayment

t = 1,2,3,4 years after year 0

0 = the fiscal year-end prior the debt issuance

$$Other\ sources = ln\left[\left(\sum_{i=1}^{t}\frac{Total\ source\ of\ funds_i - Debt\ issue}{Total\ assets}\right) + 1\right] \quad (3.4)$$

$Debt\ issue$ = The nominal proceeds obtained from corporate bond allocation.

3.4.3.2 The regression model of the determinants of debt market timing

As there are two types of explained variables including the presence of debt market timing which is the discrete variable, and the degree of debt market timing which is the continuous variable, the regression models are divided into the two main models as follows:

[23] The calculation is similar to the one in the second chapter for testing the presence of equity market timing as seen in section 2.4.3.1.

3.4.2.1) The regression model of the determinants of the existence of debt market timing

This model contains the dependent variable, which is the discrete value containing 0 and 1, hence the probit regression analysis with robust command is employed to examine the determinants of the presence of debt market timing as in the equation below (Aldrich & Nelson, 1984):

$$P(Y_t = 1|X) = \Phi(z_i) = \frac{1}{2\pi}\int_{-\infty}^{z_i} e^{-\frac{{z_i}^2}{2}}\,dz \tag{3.5}$$

Where; Y_t = HOT_{Debt}, $HOT_{Proceeds}$, $IR_{Extreme}$ and IR_{Median}

Φ = the probability density function for the standard normal distribution

t = the year of debt allocation

$$z_i = \beta_1 + \beta_2 IR_t + \beta_3\%MOWN_{t-1} + \beta_4\%IOWN_{t-1} + \beta_5\%FOWN_{t-1} + \beta_6 HHI3_{t-1} + \beta_7\%IBO_{t-1} + \beta_8 BOZ_{t-1} + \beta_9\%WBO_{t-1} + \beta_{10}\%ACO_{t-1} + \sum_{i=1}^{13}\Psi i\, Firm\_Control_{t-1} + \sum_{j=1}^{2}\gamma j\, Market\_Control_t + \sum_{k=1}^{7}\delta k\, Industry_i + u_i \tag{3.6}$$

The above regression model produces the fitted likelihood of debt market timing with corporate bond issuance; $P(Y_t = 1|X)$, or Y_t, is equal to 1 when a firm conducts a corporate bond during a favourable period in which the debt market offers a window of opportunity to time the debt market. β is a coefficient variable which estimates the influence of change in the explanatory variable (X) on the unobserved variable (Y). The explanatory variables consist of short-term interest rate (IR)[24], managerial ownership ($\%MOWN$), institutional ownership ($\%IOWN$), foreign ownership ($\%FOWN$), ownership concentration ($HHI3$), bond independence ($\%IBO$), board size (BOZ), women on the board ($\%WBO$) and audit committee on the board ($\%ACO$). Ψ is the

[24] The current interest rate is estimated with five different methods including the short-term interest rate, interbank, MRR, MLR and MLR rates, whereby we separately produce the regression models among them to avoid the multicollinearity issue. Moreover, the expected interest rates are independently generated from the current interest rate.

parameter of the control variables for firm specification consisting of military experience on the board ($Military$), the gender of managers (*GM*)[25], the age of managers (*AM*), the financial education of managers (*FEM*), the private placement mechanism (PP), credit ratings ($Credit\_Rating$), maturity of corporate bond ($Maturity$), profitability (*Profit*), firm size (*Size*), asset tangibility (*Tang*), dividends (*Div/E*), cash (*CASH/TA*) and nominal GDP growth rate (*NG*). γ is the parameter of control variables for bond market containing with term (*TS*) and risk (*RS*) spreads. δ is the parameter of control for industry effects (*Industry*).

3.4.2.2) The regression model of the determinants of the degree of debt market timing

For the degree of debt market timing measured by the nominal bond proceeds ratio and the number of corporate bond allocations, the GLS regression and the OLS regression with industry dummy and White (1980) standard errors are used to investigate the association between the explanatory and explained variables, which are the continuous variables. The regression model is as follows.

$$\begin{aligned} Y_t = {} & \alpha + \beta_1(IR_t) + \beta_2\%MOWN_{t-1} + \beta_3\%IOWN_{t-1} + \beta_4\%FOWN_{t-1} \\ & + \beta_5 HHI3_{t-1} + \beta_6\%IBO_{t-1} + \beta_7 BOZ_{t-1} + \beta_8\%WBO_{t-1} \\ & + \beta_9\%ACO_{t-1} + \sum_{i=1}^{13}\Psi i\ Firm\_Control_{t-1} + \sum_{j=1}^{2}\gamma j\ Market\_Control_t \\ & + \delta k\sum_{k=1}^{7} Industry_i + \varepsilon_t \end{aligned} \tag{3.7}$$

Where, Y_t = Proceeds/total assets (*Proceeds(D)/TA)* and the number of bond issuances (*#Bond Issuance)*

t = the year of corporate bond allocation

This regression provides the effect of the determinants on the level of debt market timing with corporate bond issuance (Y_t), which is valued with the proceeds divided by the total assets (*Proceeds(D)/TA)* and the number of corporate bond allocations (*#Bond Issuance)*. The explanatory variables are similar to those in equation (3.6), and we control

[25] As CEO and CFO variables may have a high correlation, we separately run the regression model between them.

for firm specification, bond market and industry effects with industry dummy variables, which are classified into seven groups.

3.5 Results and findings

3.5.1 Descriptive statistics

Table 3.4 illustrates the descriptive statistics including mean value, standard deviation, and the maximum and minimum values for the determinants of debt market timing with corporate bond issuances with 189 observations from 2001 to 2014. As shown in the table, the average of hot debt (HOT_{Debt}) is 79.37%, indicating that over three quarters of Thai companies which allocate corporate bonds might have the tendency to time the debt market for when the bond market is desirable. Simultaneously, the mean of hot proceeds ($HOT_{Proceeds}$) and median interest rate (IR_{Median}) are 61.90% and 56.38%, respectively. This suggests that more than half of bond-issuing corporations in Thailand tend to time the debt market during a window of opportunity and a moderately low interest rate. On the other hand, the average extreme interest rate ($IR_{Extreme}$) is 18.52%, which is quite low compared to the other strategies. This indicates that there are very few companies employing an extreme strategy with issuing corporate bonds when the interest rate is extremely low. The highest and lowest values of the bond proceeds ratio *(Proceeds (D)/TA*) are 37.10% and 0.04%, respectively, meaning that there is a wide spread between them, approximately 37.06%. Furthermore, the mean of this ratio is 1.25%, which is quite low compared to other research studies in developed countries. For example, Kaya (2013b) reports that the average proceeds ratio for private placement corporations in the US is 12%. However, according to Eichengreen and Luengnaruemitchai (2004) who claim that the Asian bond market has a sluggish growth and a small size, it is likely that the bond market in Thailand is less active than in developed counties, especially in the US. Therefore, Thai firms might prefer to finance with other sources rather than with corporate bonds. Consequently, the average proceeds ratio in Thailand is lower. Moreover, the most and least frequency values of the number of bond allocations in an issuing year (*#Bond Issuance*) is 18 times and 1 time, respectively, with a mean value of 2.5344 times.

In addition, the interest rate variable is estimated in five different ways, including short-term interest rate (*IR*), inter-bank rate (*IBR*), minimum retail rate (*MRR*), minimum loan rate (*MLR*) and minimum overdraft rate (*MOR*) with mean values at -0.12%, -0.19%, 4.80%, 4.05% and 4.43%, respectively. On average, the short-term interest rate and interbank rate provide the negative value, while there are positive values for the MRR, MLR and MOR rates. The negative value of interest rate indicates that firms might be willing to issue their corporate bonds during a low interest rate period, which means that they may prefer to time the debt market to reduce their cost of capital with corporate bond allocation. Additionally, the mean short-term interest rate is relatively low compared to other research studies at 1.65% (Baker et al., 2003) and 5.31% (Bougatef & Chichti, 2011).

Moreover, the average expected interest rate with the perfect foresight approach calculated using five dissimilar methods consisting of short-term interest rate (*EIR*), inter-bank rate (*EIBR*), minimum retail rate (*EMRR*), minimum loan rate (*EMLR*) and minimum overdraft rate (*EMOR*) at time t+1 is 0.36%, 0.80%, 6.01%, 5.13% and 5.58%, respectively, and time t+2 is 0.65%, 1.46%, 6.91%, 5.94% and 6.47%, respectively. By comparing between the mean current and expected interest rates of all approaches, it can be clearly seen that the future interest rate is on average higher than the current interest rate in every method. This implies that managers tend to time the market when they predict that the expected interest rate will increase in future. Moreover, the expected interest rate at time t+2 is on average higher than time t+1, indicating that managers also time the debt market when they predict that the future interest rate will continue to increase in the second year after conducting corporate bonds.

Likewise, the mean of the expected interest rate with forecast inflation rate data estimated by five different approaches, including the short-term interest rate (*EIR*), inter-bank rate (*EIR*), minimum retail rate (*EMRR*), minimum loan rate (*EMLR*) and minimum overdraft rate (*EMOR*) for time t+1 is 0.29%, 0.44%, 5.65%, 4.78% and 5.22%, respectively, and time t+2 is 0.36%, 0.47%, 5.92%, 4.95% and 5.48%, respectively. Therefore, the expected interest rate with forecast data is higher than the current interest rate and these variables are higher at time t+2 than at time t+1, which is similar to the expected interest rate with the perfect foresight method. Consequently, it is likely that managers prefer to time the debt market when they forecast that the interest rate will continue to increase in future.

Regarding the ownership variables, the average managerial ownership (*%MOWN*) is 5.12% with the maximum value at 58.98% and the minimum value at 0%. These figures are inconsistent with those of Kim et al. (2004), who reported the mean, maximum and minimum values of marginal ownership in Thailand at 38.56%, 99% and 0.5%, respectively. However, as the sample of Kim et al. (2004) are IPO firms, whereas our sample comprises firms that issue corporate bonds, it is likely that there is a heterogeneity of mean and maximum values. In addition, the mean of institutional shareholders *(%IOWN*) is 20.59%, while the average of foreign ownership (*%FROWN*) is 14.96%. The proportion of foreign shareholders is nearly equal to that of Thanatawee (2013) at 15.20%; however, the proportion of institutional shareholders is lower than that of Thanatawee (2013) at 43.46% in Thailand. Likewise, the average for ownership concentration estimated by the Herfindahl–Hirschman Index 3 (*HHI3*) is 14.54%, which is relatively low compared to Pholphirul (2009), who showed that this ratio in Thailand is between 25% and 30%. Overall, the average value of ownership structure for the bond allocating companies has a lower ownership for all types of shareholders, including to manager, institution, foreigner, and controller, than those that do not issue bonds.

Moving on to board structure variables, the largest board size (*BOZ*) is 21 directors, while the smallest is 7 directors and the average number of directors on the board is 12.31 directors; these figures are nearly equal to Yammeesri and Kanthi Herath (2010), who reported that the average board size in Thailand is 11.36 directors with maximum and minimum values at 25 and 5 directors, respectively. Furthermore, the average for board independence *(%IBO*) is 40.58%, with the maximum and minimum values at 80% and 0%, respectively, while the mean for audit committee *(%ACO)* is 27.65%, with the highest and lowest values at 57.14% and 0%, respectively, whereby it is clear that the proportion of board independence is higher than the proportion of audit committee members on the board, at roughly 46.76% and 40.01% in terms of mean and maximum values, respectively. This suggests that independent directors who are not on the audit committee, have a quite high proportion, implying that the board of directors of bond-issuing firms have a high independence regarding decision-making. The proportion of board independence is on average higher than the findings from the previous literature. For instance, Yammeesri and Kanthi Herath (2010) found a proportion of board independence of 32% and Connelly et al. (2012) showed the mean of this variable to be 34%. In addition, the mean of woman on the board (*%WBO*) for bond-issuing firms is 9.83%, with the highest and lowest values at 40% and 0%, respectively, which is similar to the prior literature, which demonstrates that the mean for this variable is 9.6% (Carter et al., 2003), 8.57% (Farrell & Hersch, 2005) and 10.2% (Liu et al., 2014).

According to table 3.4, the average of the control variables consisting of military experience on board, female CEO, female CFO, age of CEO, age of CFO, financial education of CEO, financial education of CFO, private placement mechanism, credit rating and board maturity is 33.52%, 4.40%, 38.89%, 55.3799 years old, 48.5314 years old, 71.67%, 94.92%, 50.59%, 14.1561 and 6.1070 years, respectively. Also, the mean of profitability, firm size, asset tangibility, dividends, cash, nominal GDP growth, term spreads and risk spreads are 14.08%, 110 billion bahts, 41.24%, 6.86%, 8.06%, 6.58%, 1.70% and 1.91%, respectively.

Table 3.4: Summary statistics of the determinants of debt market timing

Variable	Number of Observations	Mean Value	Standard Deviation	Minimum Value	Maximum Value
HOT Debt	189	0.7937	0.4058	0	1
HOT Proceed	189	0.6190	0.4869	0	1
Median Interest Rate	188	0.5638	0.4972	0	1
Extreme Interest Rate	189	0.1852	0.3895	0	1
Proceeds/Total Assets	174	0.0125	0.0384	0.0004	0.3710
The Number of Bond Issuance	189	2.5344	1.9827	1	18
Short-term Interest Rate	189	-0.0012	0.0098	-0.0337	0.0199
Inter-Bank Rate	189	-0.0019	0.0418	-0.0927	0.0642
MRR Rate	189	0.0480	0.0447	-0.0506	0.1154
MLR Rate	189	0.0405	0.0431	-0.0556	0.1104
MOR Rate	189	0.0443	0.0438	-0.0531	0.1129
Expected ST Interest Rate t+1 (Perfect)	189	0.0036	0.0157	-0.0337	0.0239
Expected Inter-Bank Rate t+1 (Perfect)	189	0.0080	0.0510	-0.0927	0.0642
Expected MRR Rate t+1 (Perfect)	189	0.0601	0.0566	-0.0506	0.1217
Expected MLR Rate t+1 (Perfect)	189	0.0513	0.0538	-0.0556	0.1104
Expected MOR Rate t+1 (Perfect)	189	0.0558	0.0552	-0.0531	0.1155
Expected ST Interest Rate t+2 (Perfect)	189	0.0065	0.0125	-0.0337	0.0239
Expected Inter-Bank Rate t+2 (Perfect)	189	0.0146	0.0412	-0.0927	0.0642
Expected MRR Rate t+2 (Perfect)	189	0.0691	0.0469	-0.0506	0.0127
Expected MLR Rate t+2 (Perfect)	189	0.0594	0.0444	-0.0556	0.1104
Expected MOR Rate t+2 (Perfect)	189	0.0647	0.0458	-0.0531	0.1155
Expected ST Interest Rate t+1 (Forecast)	189	0.0029	0.0065	-0.0186	0.0193
Expected Inter-Bank Rate t+1 (Forecast)	189	0.0044	0.0079	-0.0135	0.0224
Expected MRR Rate t+1 (Forecast)	189	0.0565	0.0114	0.0341	0.0700
Expected MLR Rate t+1 (Forecast)	189	0.0478	0.0087	0.0286	0.0650
Expected MOR Rate t+1 (Forecast)	189	0.0522	0.0101	0.0314	0.0700
Expected ST Interest Rate t+2 (Forecast)	189	0.0036	0.0073	-0.0186	0.0193
Expected Inter-Bank Rate t+2 (Forecast)	189	0.0047	0.0074	-0.0135	0.0224
Expected MRR Rate t+2 (Forecast)	189	0.0592	0.0120	0.0341	0.0707
Expected MLR Rate t+2 (Forecast)	189	0.0495	0.0088	0.0286	0.0571
Expected MOR Rate t+2 (Forecast)	189	0.0548	0.0108	0.0314	0.0657
Managerial Ownership	182	0.0512	0.1106	0	0.5898
Institutional Ownership	175	0.2059	0.1258	0.0061	0.6981
Foreign Ownership	175	0.1496	0.1444	0	0.4914
Ownership Concentration	175	0.1454	0.1208	0.0054	0.6494
Board Independence	178	0.4058	0.1365	0	0.8
Board Size	182	12.3056	2.6827	7	21
Women on Board	182	0.0983	0.1002	0	0.4
Audit Committee on Board	182	0.2765	0.0788	0	0.5714
Military Experience on Board	182	0.3352	0.4734	0	1
Female CEO	182	0.0440	0.2056	0	1
Female CFO	180	0.3889	0.4889	0	1
Older CEO	179	55.3799	7.3531	37	78
Older CFO	175	48.5314	6.0046	33	75
Financial Education of CEO	180	0.7167	0.4519	0	1
Financial Education of CFO	177	0.9492	0.2203	0	1
Private Placement	184	0.5059	0.5009	0	1
Credit Rating	173	14.1561	2.2004	10	19
Bond Maturity	187	6.1070	3.5271	2	30
Profitability	178	0.1408	0.0760	0.0143	0.4190
Firm Size (in Thousand Baht)	178	110,000,000	260,000,000	16,583.65	1,610,000,000
Asset Tangibility	178	0.4124	0.2436	0.0078	0.9495
Dividends	178	0.0686	0.0693	0	0.5741
Cash	178	0.0806	0.0634	0.0058	0.4883
Nominal GDP growth	189	0.0658	0.0307	-0.0056	0.1117
Term Spread	189	0.0170	0.0078	0.0007	0.0376
Risk Spread	189	0.0191	0.0034	0.0148	0.0300

Table 3.5: Correlation matrix of the determinants of debt market timing

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
HOT Debt	(1)	1.000																		
HOT Proceed	(2)	0.288	1.000																	
Median Interest Rate	(3)	0.141	0.091	1.000																
Extreme Interest Rate	(4)	0.051	0.116	0.088	1.000															
Proceeds/Total Assets	(5)	0.081	0.070	0.000	0.273	1.000														
Log (# Bond Issuance)	(6)	-0.046	0.051	-0.046	0.008	-0.063	1.000													
Short-term Interest Rate	(7)	-0.075	-0.300	0.119	0.003	-0.120	0.019	1.000												
Inter-Bank Rate	(8)	-0.206	-0.328	0.173	-0.196	-0.197	0.019	0.825	1.000											
MRR Rate	(9)	-0.212	-0.336	0.190	-0.179	-0.168	0.028	0.779	0.988	1.000										
MLR Rate	(10)	-0.211	-0.333	0.185	-0.157	-0.172	0.027	0.795	0.991	0.999	1.000									
MOR Rate	(11)	-0.209	-0.335	0.187	-0.165	-0.170	0.028	0.789	0.989	1.000	1.000	1.000								
Expected ST Interest Rate t+1 (Perfect)	(12)	-0.048	-0.095	0.042	-0.263	-0.038	0.089	-0.265	0.035	0.133	0.095	0.117	1.000							
Expected Inter-Bank Rate t+1 (Perfect)	(13)	-0.082	-0.039	0.085	-0.483	-0.083	0.059	-0.310	0.091	0.165	0.126	0.145	0.891	1.000						
Expected MRR Rate t+1 (Perfect)	(14)	-0.097	-0.068	0.108	-0.470	-0.081	0.054	-0.256	0.166	0.247	0.208	0.227	0.887	0.994	1.000					
Expected MLR Rate t+1 (Perfect)	(15)	-0.093	-0.057	0.101	-0.464	-0.080	0.053	-0.282	0.140	0.220	0.181	0.200	0.889	0.996	0.999	1.000				
Expected MOR Rate t+1 (Perfect)	(16)	-0.095	-0.063	0.106	-0.467	-0.081	0.053	-0.267	0.155	0.236	0.197	0.216	0.890	0.995	1.000	1.000	1.000			
Expected ST Interest Rate t+2 (Perfect)	(17)	-0.085	-0.110	0.212	-0.320	-0.066	-0.014	0.327	0.467	0.494	0.480	0.488	-0.045	0.071	0.128	0.101	0.117	1.000		
Expected Inter-Bank Rate t+2 (Perfect)	(18)	-0.069	-0.085	0.207	-0.384	0.014	-0.034	0.356	0.417	0.427	0.415	0.419	-0.183	0.052	0.093	0.067	0.080	0.881	1.000	
Expected MRR Rate t+2(Perfect)	(19)	-0.089	-0.113	0.230	-0.436	0.005	-0.035	0.348	0.479	0.498	0.481	0.487	-0.062	0.184	0.231	0.204	0.218	0.878	0.986	1.000
Expected MLR Rate t+2 (Perfect)	(20)	-0.081	-0.105	0.225	-0.423	0.007	-0.041	0.355	0.464	0.477	0.462	0.467	-0.113	0.134	0.180	0.154	0.167	0.879	0.992	0.998
Expected MOR Rate t+2(Perfect)	(21)	-0.086	-0.114	0.228	-0.434	0.003	-0.037	0.356	0.480	0.497	0.480	0.486	-0.074	0.169	0.217	0.190	0.203	0.881	0.988	1.000
Expected ST Interest Rate t+1 (Forecast)	(22)	0.032	0.074	0.014	-0.032	-0.026	0.134	0.234	0.011	0.016	0.019	0.019	-0.126	-0.193	-0.219	-0.231	-0.224	0.265	0.292	0.198
Expected Inter-Bank Rate t+1 (Forecast)	(23)	-0.006	0.011	0.027	-0.636	-0.258	0.041	0.220	0.255	0.181	0.170	0.174	0.120	0.330	0.289	0.284	0.286	0.214	0.301	0.322
Expected MRR Rate t+1 (Forecast)	(24)	-0.124	-0.158	0.181	-0.630	-0.216	0.034	0.273	0.614	0.633	0.607	0.620	0.521	0.715	0.747	0.731	0.740	0.481	0.451	0.564
Expected MLR Rate t+1 (Forecast)	(25)	-0.108	-0.120	0.161	-0.645	-0.254	0.019	0.269	0.585	0.579	0.558	0.568	0.417	0.637	0.660	0.648	0.656	0.416	0.393	0.496
Expected MOR Rate t+1 (Forecast)	(26)	-0.118	-0.146	0.179	-0.632	-0.231	0.026	0.280	0.611	0.621	0.597	0.609	0.487	0.677	0.708	0.693	0.702	0.465	0.422	0.531
Expected ST Interest Rate t+2 (Forecast)	(27)	-0.057	-0.021	-0.071	0.166	0.026	0.187	-0.208	-0.092	0.016	0.003	0.011	0.528	0.347	0.345	0.345	0.346	-0.148	-0.239	-0.227
Expected Inter-Bank Rate t+2 (Forecast)	(28)	0.027	0.076	-0.014	-0.275	0.023	0.139	-0.054	-0.155	-0.122	-0.141	-0.133	0.262	0.284	0.231	0.224	0.227	0.154	0.309	0.268
Expected MRR Rate t+2 (Forecast)	(29)	-0.096	-0.107	0.183	-0.570	-0.018	0.067	0.107	0.358	0.418	0.382	0.398	0.569	0.741	0.751	0.734	0.742	0.509	0.619	0.698
Expected MLR Rate t+2 (Forecast)	(30)	-0.066	-0.075	0.160	-0.591	-0.013	0.065	0.089	0.280	0.327	0.292	0.308	0.521	0.699	0.695	0.680	0.687	0.460	0.611	0.675
Expected MOR Rate t+2 (Forecast)	(31)	-0.087	-0.113	0.171	-0.581	-0.027	0.070	0.118	0.354	0.411	0.375	0.392	0.583	0.740	0.748	0.731	0.740	0.496	0.601	0.680
Bond Maturity	(32)	-0.114	-0.008	-0.184	0.010	0.242	0.180	-0.141	-0.122	-0.117	-0.118	-0.120	-0.048	0.069	0.058	0.062	0.057	-0.121	0.040	0.037
Managerial Ownership	(33)	-0.107	-0.132	0.040	-0.142	-0.038	-0.129	0.022	0.128	0.150	0.143	0.147	0.170	0.184	0.197	0.194	0.197	0.122	0.098	0.126
Institutional Ownership	(34)	0.140	0.036	0.044	0.000	0.024	0.113	-0.056	-0.065	-0.073	-0.071	-0.073	-0.045	0.004	-0.007	-0.003	-0.006	-0.067	-0.007	-0.017
Foreign Ownership	(35)	-0.020	-0.044	0.184	-0.190	0.034	-0.012	-0.077	0.054	0.086	0.076	0.080	0.121	0.250	0.261	0.259	0.260	0.148	0.235	0.261
Ownership Concentration	(36)	-0.238	0.042	-0.073	0.127	-0.046	0.169	-0.108	-0.086	-0.089	-0.085	-0.085	-0.033	-0.081	-0.080	-0.077	-0.077	-0.041	-0.148	-0.152
Board Independence	(37)	-0.136	0.068	-0.031	-0.070	0.254	0.083	-0.046	-0.018	-0.010	-0.021	-0.018	0.117	0.155	0.146	0.144	0.144	0.051	0.130	0.147
Board Size	(38)	-0.052	0.117	-0.195	0.048	-0.052	0.186	-0.033	-0.124	-0.144	-0.134	-0.138	-0.172	-0.204	-0.214	-0.209	-0.211	-0.093	-0.103	-0.136
Women on Board	(39)	0.089	-0.083	0.088	-0.074	0.091	-0.164	0.036	0.033	0.047	0.041	0.044	0.108	0.088	0.092	0.090	0.091	0.002	0.029	0.048
Audit Committee on Board	(40)	0.146	0.067	0.156	0.045	0.051	-0.131	-0.043	-0.044	-0.034	-0.039	-0.037	0.069	0.035	0.030	0.028	0.029	0.036	0.004	0.002
Military Experience on Board	(41)	0.118	0.240	-0.080	0.144	0.029	0.034	-0.132	-0.235	-0.254	-0.246	-0.249	-0.117	-0.219	-0.246	-0.240	-0.243	-0.175	-0.233	-0.277
Female CEO	(42)	-0.013	-0.103	0.018	-0.083	0.003	-0.092	0.034	0.016	0.012	0.008	0.010	0.101	0.106	0.098	0.098	0.098	-0.048	-0.035	-0.021
Female CFO	(43)	0.023	-0.126	-0.040	0.006	0.048	-0.021	0.040	0.071	0.085	0.081	0.083	0.113	0.085	0.089	0.086	0.088	0.031	0.017	0.031
Older CEO	(44)	0.005	-0.020	-0.099	-0.068	-0.134	0.049	0.114	0.156	0.172	0.169	0.171	0.062	0.060	0.074	0.067	0.071	0.148	0.130	0.137
Older CFO	(45)	-0.101	0.016	-0.028	0.002	-0.033	0.021	0.083	0.117	0.142	0.133	0.139	0.229	0.172	0.183	0.178	0.182	0.070	0.024	0.055
Financial Education of CEO	(46)	-0.005	0.206	0.109	-0.061	-0.045	0.173	-0.103	-0.045	-0.026	-0.029	-0.028	0.071	0.141	0.136	0.137	0.135	0.034	0.067	0.065
Financial Education of CFO	(47)	-0.088	0.103	0.058	-0.020	0.039	0.076	-0.175	-0.053	-0.012	-0.018	-0.016	0.044	0.091	0.106	0.104	0.105	0.220	0.195	0.193
Private Placement	(48)	-0.060	0.009	0.058	-0.286	0.148	0.054	0.030	0.203	0.237	0.220	0.227	0.181	0.324	0.347	0.337	0.342	0.362	0.404	0.446
Credit Rating	(49)	-0.219	0.240	-0.114	0.013	-0.087	0.273	-0.172	-0.219	-0.239	-0.233	-0.236	-0.098	-0.103	-0.126	-0.118	-0.122	-0.175	-0.171	-0.193
Profitability	(50)	-0.052	0.095	-0.066	0.126	0.051	0.201	-0.045	-0.147	-0.188	-0.180	-0.184	-0.150	-0.178	-0.201	-0.194	-0.198	-0.194	-0.209	-0.233
Firm Size	(51)	-0.211	0.145	-0.085	0.070	-0.331	0.238	-0.045	-0.102	-0.130	-0.121	-0.125	-0.121	-0.169	-0.183	-0.178	-0.180	-0.111	-0.182	-0.205
Asset Tangibility	(52)	-0.002	-0.044	-0.164	0.048	-0.011	0.137	-0.036	-0.087	-0.103	-0.101	-0.102	-0.076	-0.091	-0.098	-0.096	-0.098	-0.084	-0.082	-0.089
Dividends	(53)	-0.085	0.147	0.029	0.055	-0.097	0.093	-0.013	-0.048	-0.081	-0.077	-0.080	-0.024	-0.040	-0.059	-0.054	-0.057	-0.185	-0.186	-0.184
Cash	(54)	-0.092	-0.018	0.056	0.093	0.037	0.100	-0.036	-0.029	-0.030	-0.027	-0.030	-0.075	-0.027	-0.030	-0.029	-0.031	-0.041	0.017	0.007
Nominal GDP growth	(55)	0.068	0.163	-0.083	-0.098	-0.304	0.020	0.057	-0.078	-0.166	-0.146	-0.155	-0.394	-0.242	-0.271	-0.266	-0.271	0.091	0.025	-0.043
Term Spread	(56)	-0.041	-0.139	0.049	-0.236	-0.181	-0.107	0.130	0.329	0.293	0.288	0.293	0.205	0.192	0.225	0.227	0.230	0.047	-0.184	-0.091
Risk Spread	(57)	-0.046	0.051	-0.065	0.194	-0.084	-0.044	-0.288	-0.081	-0.059	-0.049	-0.055	0.116	0.198	0.211	0.229	0.217	-0.442	-0.414	-0.360

Table 3.5: Correlation matrix of the determinants of debt market timing (Cont.)

		(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)
Expected MLR Rate t+2 (Perfect)	(20)	1.000																		
Expected MOR Rate t+2(Perfect)	(21)	0.999	1.000																	
Expected ST Interest Rate t+1 (Forecast)	(22)	0.203	0.200	1.000																
Expected Inter-Bank Rate t+1 (Forecast)	(23)	0.318	0.324	0.350	1.000															
Expected MRR Rate t+1 (Forecast)	(24)	0.530	0.558	0.014	0.666	1.000														
Expected MLR Rate t+1 (Forecast)	(25)	0.470	0.493	0.011	0.752	0.979	1.000													
Expected MOR Rate t+1 (Forecast)	(26)	0.500	0.526	0.021	0.698	0.995	0.992	1.000												
Expected ST Interest Rate t+2 (Forecast)	(27)	-0.264	-0.239	0.417	-0.229	0.005	-0.104	-0.038	1.000											
Expected Inter-Bank Rate t+2 (Forecast)	(28)	0.254	0.262	0.796	0.446	0.190	0.135	0.160	0.505	1.000										
Expected MRR Rate t+2 (Forecast)	(29)	0.662	0.688	0.255	0.509	0.795	0.694	0.748	0.253	0.607	1.000									
Expected MLR Rate t+2 (Forecast)	(30)	0.644	0.666	0.327	0.591	0.757	0.674	0.716	0.210	0.684	0.986	1.000								
Expected MOR Rate t+2 (Forecast)	(31)	0.644	0.670	0.273	0.545	0.804	0.709	0.761	0.247	0.620	0.997	0.990	1.000							
Bond Maturity	(32)	0.036	0.033	-0.008	-0.004	-0.027	-0.027	-0.044	0.074	0.119	0.081	0.098	0.070	1.000						
Managerial Ownership	(33)	0.116	0.124	0.000	0.078	0.216	0.201	0.216	0.052	0.041	0.186	0.171	0.188	-0.080	1.000					
Institutional Ownership	(34)	-0.012	-0.016	-0.004	0.053	-0.017	0.006	-0.012	-0.044	0.034	-0.020	0.000	-0.019	0.129	-0.171	1.000				
Foreign Ownership	(35)	0.252	0.257	0.009	0.093	0.251	0.235	0.241	0.050	0.128	0.300	0.293	0.290	0.277	-0.042	0.403	1.000			
Ownership Concentration	(36)	-0.149	-0.150	-0.001	-0.045	-0.070	-0.043	-0.052	0.021	-0.123	-0.166	-0.168	-0.159	0.145	0.041	-0.222	-0.089	1.000		
Board Independence	(37)	0.140	0.143	-0.095	-0.006	0.030	-0.021	0.000	-0.034	0.108	0.199	0.195	0.189	0.180	-0.080	0.126	-0.120	0.058	1.000	
Board Size	(38)	-0.122	-0.131	0.053	-0.016	-0.172	-0.124	-0.147	-0.108	-0.060	-0.224	-0.193	-0.214	0.217	-0.235	-0.028	-0.119	0.297	-0.043	1.000
Women on Board	(39)	0.041	0.046	-0.064	-0.039	0.041	0.009	0.028	0.011	0.018	0.102	0.093	0.100	-0.088	0.101	0.105	0.094	-0.143	0.023	-0.443
Audit Committee on Board	(40)	-0.003	0.000	0.062	-0.026	-0.027	-0.056	-0.041	0.117	0.097	0.052	0.044	0.049	-0.218	0.104	-0.052	-0.126	-0.331	0.199	-0.651
Military Experience on Board	(41)	-0.267	-0.273	0.160	-0.041	-0.281	-0.248	-0.264	0.078	0.051	-0.262	-0.226	-0.247	-0.108	-0.003	-0.004	-0.282	0.123	0.150	0.057
Female CEO	(42)	-0.027	-0.023	0.025	0.123	0.101	0.103	0.101	0.027	0.076	0.087	0.093	0.092	-0.035	0.123	0.046	-0.043	-0.016	-0.061	-0.202
Female CFO	(43)	0.023	0.029	0.072	0.038	0.091	0.071	0.085	0.126	0.085	0.117	0.111	0.121	0.026	0.100	0.154	0.114	-0.018	0.147	-0.275
Older CEO	(44)	0.131	0.136	0.072	0.005	0.108	0.076	0.094	0.107	0.069	0.136	0.116	0.133	-0.006	0.006	0.064	-0.028	-0.220	0.066	0.004
Older CFO	(45)	0.042	0.053	0.000	0.009	0.152	0.107	0.137	0.127	0.054	0.175	0.152	0.178	0.010	0.056	0.010	-0.135	-0.035	0.236	0.108
Financial Education of CEO	(46)	0.059	0.061	0.119	0.051	0.080	0.072	0.070	0.172	0.179	0.135	0.134	0.126	-0.021	-0.104	0.241	0.071	-0.088	0.089	-0.150
Financial Education of CFO	(47)	0.190	0.191	0.026	-0.122	0.035	0.001	0.019	0.118	0.055	0.120	0.099	0.108	0.078	0.080	0.033	0.084	-0.079	0.150	-0.044
Private Placement	(48)	0.430	0.439	0.016	0.140	0.385	0.332	0.359	0.037	0.155	0.462	0.427	0.443	0.159	0.086	0.135	0.503	-0.167	-0.026	-0.192
Credit Rating	(49)	-0.185	-0.191	0.014	0.010	-0.166	-0.124	-0.149	-0.049	-0.017	-0.181	-0.150	-0.175	0.281	-0.168	0.109	0.026	0.530	0.251	0.444
Profitability	(50)	-0.224	-0.231	-0.014	0.027	-0.189	-0.146	-0.173	-0.099	-0.072	-0.242	-0.219	-0.236	0.135	-0.127	0.150	-0.016	0.261	0.103	0.076
Firm Size	(51)	-0.196	-0.202	0.010	-0.014	-0.166	-0.128	-0.147	-0.058	-0.098	-0.241	-0.229	-0.235	0.127	-0.268	-0.037	-0.203	0.449	0.259	0.559
Asset Tangibility	(52)	-0.083	-0.087	-0.103	-0.062	-0.127	-0.120	-0.128	-0.086	-0.099	-0.130	-0.124	-0.128	0.042	-0.254	-0.135	-0.218	0.319	-0.120	0.207
Dividends	(53)	-0.181	-0.183	-0.116	0.056	-0.075	-0.047	-0.065	-0.107	-0.089	-0.137	-0.124	-0.130	0.091	-0.102	0.123	-0.022	0.058	0.198	0.027
Cash	(54)	0.009	0.006	0.004	-0.052	-0.066	-0.069	-0.077	0.045	0.026	-0.015	-0.014	-0.024	0.302	-0.232	0.119	0.180	0.171	0.101	0.022
Nominal GDP growth	(55)	-0.019	-0.037	0.181	0.363	-0.017	0.097	0.017	-0.261	-0.011	-0.270	-0.234	-0.271	-0.010	-0.098	0.083	-0.078	0.032	-0.154	0.105
Term Spread	(56)	-0.097	-0.086	-0.610	0.185	0.395	0.460	0.444	-0.499	-0.662	-0.123	-0.174	-0.103	-0.242	0.103	-0.032	-0.058	0.076	-0.078	0.014
Risk Spread	(57)	-0.367	-0.365	-0.608	-0.362	-0.085	-0.061	-0.093	0.041	-0.493	-0.288	-0.334	-0.306	0.169	0.009	0.119	0.109	0.004	-0.076	0.033

Table 3.5: The correlation matrix of the determinants of debt market timing (Cont.)

		(39)	(40)	(41)	(42)	(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)
Women on Board	(39)	1.000																		
Audit Committee on Board	(40)	0.141	1.000																	
Military Experience on Board	(41)	-0.074	0.282	1.000																
Female CEO	(42)	0.348	0.016	-0.065	1.000															
Female CFO	(43)	0.174	0.110	-0.030	0.006	1.000														
Older CEO	(44)	0.081	0.067	0.135	-0.015	0.113	1.000													
Older CFO	(45)	-0.053	0.013	0.015	-0.023	0.144	0.215	1.000												
Financial Education of CEO	(46)	0.025	0.171	0.058	0.108	-0.051	-0.180	-0.113	1.000											
Financial Education of CFO	(47)	-0.017	0.125	0.065	-0.171	0.072	0.060	-0.123	0.069	1.000										
Private Placement	(48)	0.204	-0.059	-0.251	0.055	0.173	0.079	-0.032	0.063	0.174	1.000									
Credit Rating	(49)	-0.253	-0.290	0.226	-0.068	-0.064	0.070	0.115	0.080	-0.058	-0.045	1.000								
Profitability	(50)	-0.176	-0.027	0.054	0.092	0.024	-0.188	0.006	0.225	-0.213	-0.123	0.495	1.000							
Firm Size	(51)	-0.398	-0.220	0.307	-0.159	-0.142	0.055	0.181	0.033	-0.055	-0.358	0.631	0.224	1.000						
Asset Tangibility	(52)	-0.096	-0.138	0.054	0.146	-0.047	-0.144	-0.184	0.003	-0.155	0.006	0.253	0.254	0.131	1.000					
Dividends	(53)	-0.124	0.057	0.141	0.024	-0.099	-0.043	0.038	0.171	-0.052	-0.117	0.353	0.391	0.284	-0.008	1.000				
Cash	(54)	-0.046	-0.114	0.007	-0.094	0.038	-0.062	0.090	0.055	-0.025	-0.018	0.139	0.173	0.085	-0.102	0.140	1.000			
Nominal GDP growth	(55)	-0.152	-0.025	0.062	0.039	-0.117	-0.038	-0.143	0.115	-0.054	-0.088	0.081	0.159	0.145	0.025	0.062	0.037	1.000		
Term Spread	(56)	0.013	-0.090	-0.115	0.037	-0.035	-0.062	0.042	-0.168	-0.134	-0.021	-0.023	0.043	0.051	0.016	0.124	-0.154	0.049	1.000	
Risk Spread	(57)	-0.042	-0.117	-0.094	-0.048	-0.073	-0.034	-0.081	0.105	0.087	-0.088	0.023	-0.072	-0.022	0.006	0.006	0.105	0.065	0.147	1.000

3.5.2 Correlation matrix

Table 3.5 illustrates the correlation of all variables, both dependent and explanatory variables, used in the regression analysis of the determinants of debt market timing. Overall, the variables which contain a high correlation are the same variables estimated in different ways to cross-check the results of this study. For instance, the highest correlated value of corporate bond firms is 0.999, which is the correlation between the MRR and MLR rates as they are the indicators of interest rate variables using different methods. However, to avoid the problem of multicollinearity, our regression models do not include these variables in the same model. Thus, our regression models are safe from this assumption.

3.5.3 Regression results

3.5.3.1 The existence of debt market timing

3.5.3.1.1 The definition of debt market timing

This chapter detects debt market timing with four approaches. Firstly, we follow the method of Alti (2006) in the context of IPOs, who claims that firms have a tendency to issue equity when the stock market is favourable. Thus, it is likely that debt market timing can be captured by a hot debt market (HOT_{Debt}). Therefore, the first variable of debt market timing is defined as firms which issue debt when the debt market is in a hot period, and the volume of monthly corporate bond allocations in terms of quantity is employed to capture this variable. Secondly, we also categorize debt market timing with the hot proceeds market ($HOT_{Proceeds}$) according to Doukas et al. (2011), who used the monthly volume of debt allocation in terms of money gained from conducting corporate bonds to capture debt market timing. Additionally, a 3-month detrended moving average is used to flatten the seasonal variation for both measurements to classify both hot and cold markets.

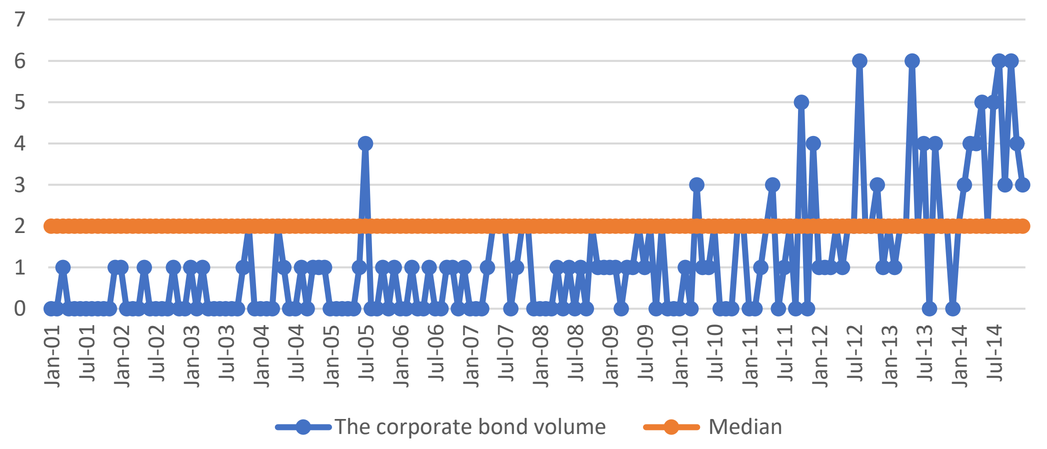
For the third and fourth techniques, we develop the measurements from the posit by Graham and Harvey (2001) that managers tend to time the debt market when they recognise a low interest rate. Hence, it is possible that the firms that issue corporate bonds in a period of low interest rates time the debt market. Therefore, we capture the debt market timing with extreme ($IR_{Extreme}$) and median (IR_{Median}) low interest rates, and the level of interest rate is used to categorize timers and non-timers. Moreover, a 3-month detrended moving average is employed to smooth the seasoned deviation in the median interest rate variable (IR_{Median}).

Consequently, this study contains four strategies of debt market timing, including hot debt market (HOT_{Debt}), hot proceeds market ($HOT_{Proceeds}$), and the extreme ($IR_{Extreme}$) and median (IR_{Median}) interest rates, as follows:

3.5.3.1.1.1 Hot debt market (HOT_{Debt})

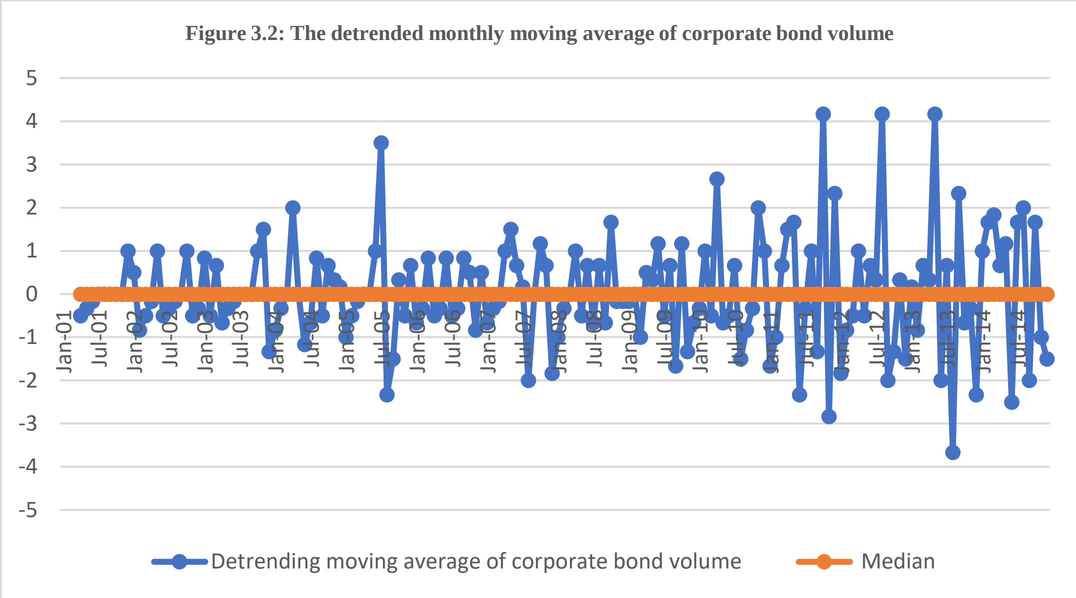
Figure 3.1 demonstrates the monthly number of corporate bond allocations from 1st January 2001 to 31st December 2014, whereby the data are obtained from three main sources, including the SET's Fact Books and the SET's official website for the corporate bond issued in the organizational market and the ThaiBMA's official website for the corporate bonds allocated in the OTC market. As shown in figure 3.1, the highest volume of corporate bond issuance is 6 companies per month in August 2012, May 2013, August 2014 and October 2014, whereas the lowest number of issuances is 0, which is no instance of corporate bond allocation. Additionally, the median value is 2 bonds per month. Then, to smooth the volume of corporate bond allocation, the 3-month detrended moving average[26] is employed to eliminate the seasoned variation of the data, as seen in figure 3.2. Figure 3.2 illustrates the monthly detrended moving average corporate bond allocation from 1st January 2001 to 31st December 2014 with a median value of 0. Thus, a month with a higher value than the median value is categorized as a hot debt month, while otherwise it is a cold debt month. Consequently, our sample comprises 150 hot and 39 cold debt firms.

Figure 3.1: The number of monthly long-term corporate bond issuances 2001-2014



Source: *SET's Fact book, SET's and ThaiBMA's official website.*

[26] The absolute difference of the detrending data is used in this study; actual data – trend, as the trend value estimated with 3-month weighed moving average of some months in our data contains 0. Therefore, we cannot use the proportional different method, the same as with Doukas et al. (2011).



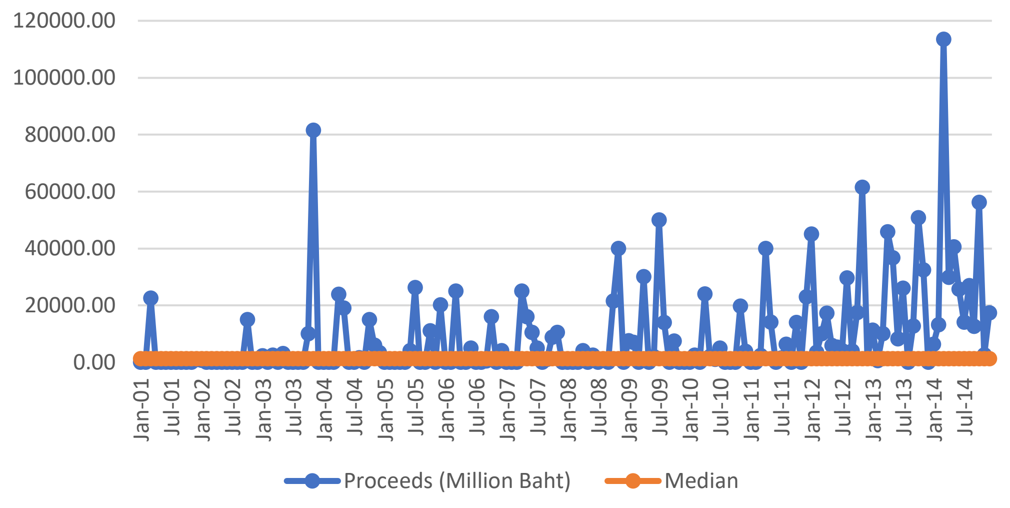
3.5.3.1.1.2 Hot proceeds market ($HOT_{Proceeds}$)

Figure 3.3 shows the monthly amount of money gained from selling corporate bonds from 1st January 2001 to 31st December 2014, whereby the data were obtained from three main sources, namely the SET's Fact Books and the SET's official website for the corporate bonds issued in the organizational market and the ThaiBMA's official website for the corporate bonds allocated in OTC market. The highest value of bond proceeds is 113,462.70 million baht per month in March 2014, while the lowest value is 0 baht, meaning that there was no corporate bond issuance in that month. In addition, the median of bond proceeds is 1,250 million baht. Furthermore, we smooth the volume of bond proceeds with a 3-month detrended moving average approach following Doukas et al. (2011) to avoid the violation of the seasoned variation of data, as shown in figure 3.4. Figure 3.4 provides the monthly detrended moving average of bond proceeds from 1st January 2001 to 31st December 2014 with the absolute difference value and a median value of -1,250 million baht. Hence, a month with a higher value of proceeds than the median value is classified as a hot proceeds month, while otherwise it is a cold proceeds month. Consequently, our sample comprises 117 hot and 72 cold proceeds firms with a classification in terms of constant baht.

3.5.3.1.1.3 Extreme ($IR_{Extreme}$) and median (IR_{Median}) interest rates

Figure 3.6 illustrates the movement of the monthly real short-term interest rate estimated by 3-month T-bill returns minus the actual inflation rate in Thailand from 1st January 2001 to 31st January 2001 to 31st December 2014, whereby we obtain the data for the 3-month T-bill yields from the BOT's and the ThaiBMA's official websites and the data of inflation rate calculated by the customer price index (CPI) from the BOT's official website. According to figure 3.6, the highest level of real short-term interest rate is 6.60%, in August 2008, while the lowest value is -0.03%, in April 2009, whereby these periods occurred within the global financial crisis. The median of this variable is 2.14%. In addition, figure 3.7 demonstrates the result of the 3-month detrended moving average of real short-term interest rate movement to remove the seasoned variation of data. Based on figure 3.7, the median value is 0.02%. We can classify timing and non-timing companies *(IR_{Median})* thus: if a firm issues corporate bonds when the value is less than 0.02%, this is categorized as a timing firm, whereas otherwise it is classified as a non-timing firm. Consequently, our sample contains 106 timing and 82 non-timing firms with the median strategy.

Figure 3.3: The amount of nominal proceeds from bond allocation



Source: *SET's Fact book, SET's and ThaiBMA's official website.*

Figure 3.4: The detrended moving average of nominal proceeds from bond issuance

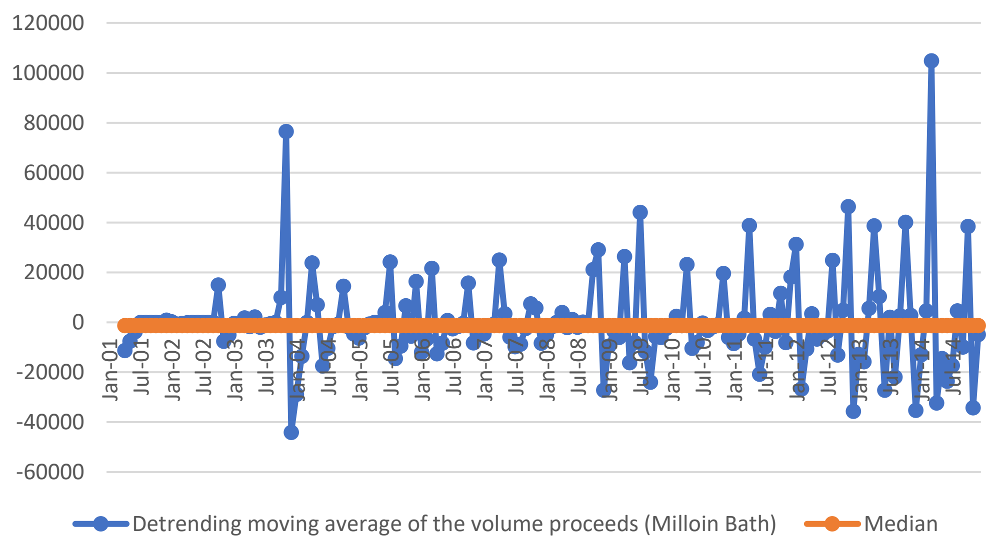


Figure 3.5: The comparing the number of corporate bond volume and the amount of proceeds

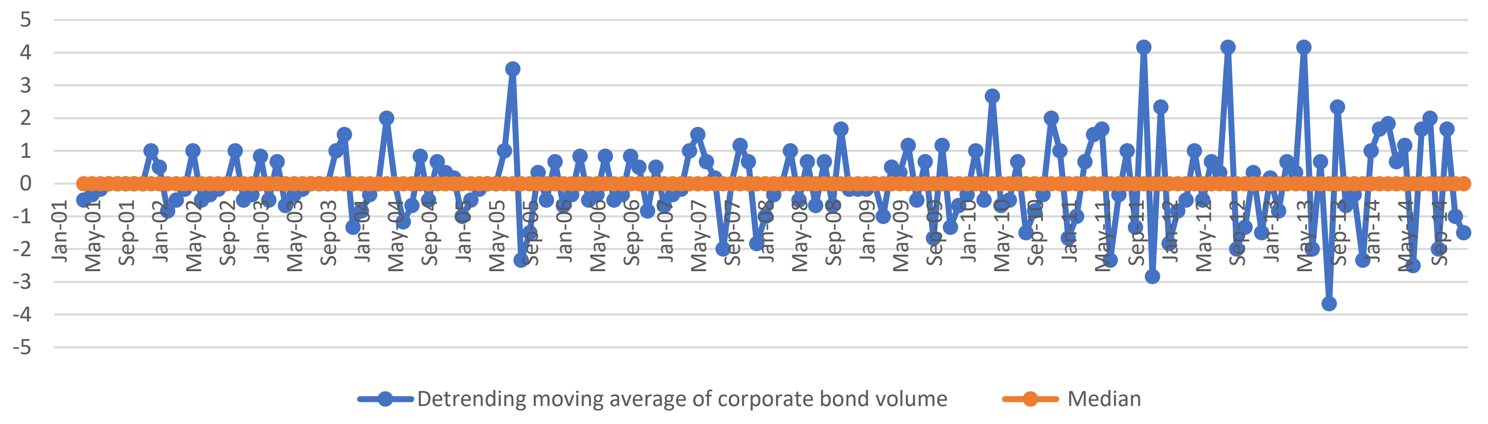
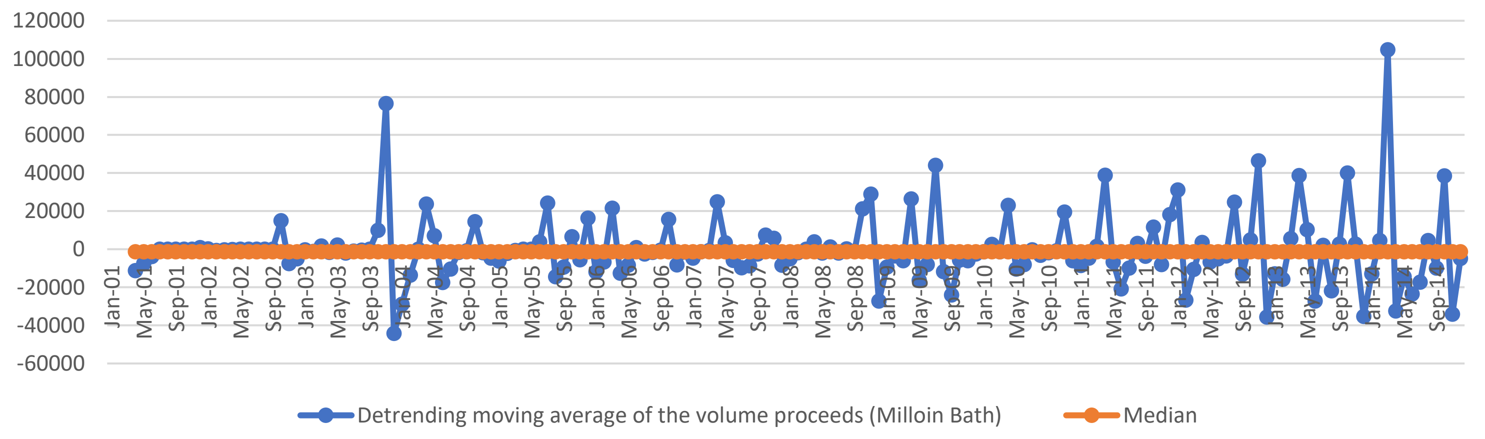


Figure 3.5: The comparing the number of corporate bond volume and the amount of proceeds (Cont.)



Moreover, we attempt to capture the firms that issue corporate bonds with an extremely low interest rate *($IR_{Extreme}$)*. As the median of pure real short-term of interest rate is 2.14%, as shown in figure 3.6, we decide to categorize at 1.5% of this variable that a firm which offers corporate bonds when the pure real short-term interest rate is less than 1.5% is known as a timing corporation, whereas otherwise it is called a non-timing company. Accordingly, our sample consists of 35 timing and 154 non-timing firms with the extreme strategy.

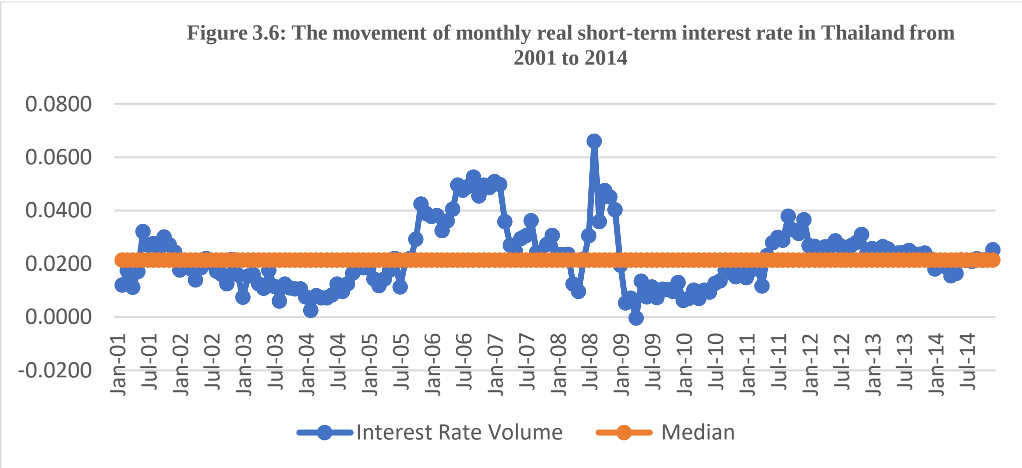


Figure 3.6: The movement of monthly real short-term interest rate in Thailand from 2001 to 2014

Source: *The official website of Bank of Thailand (BOT) and ThaiBMA*

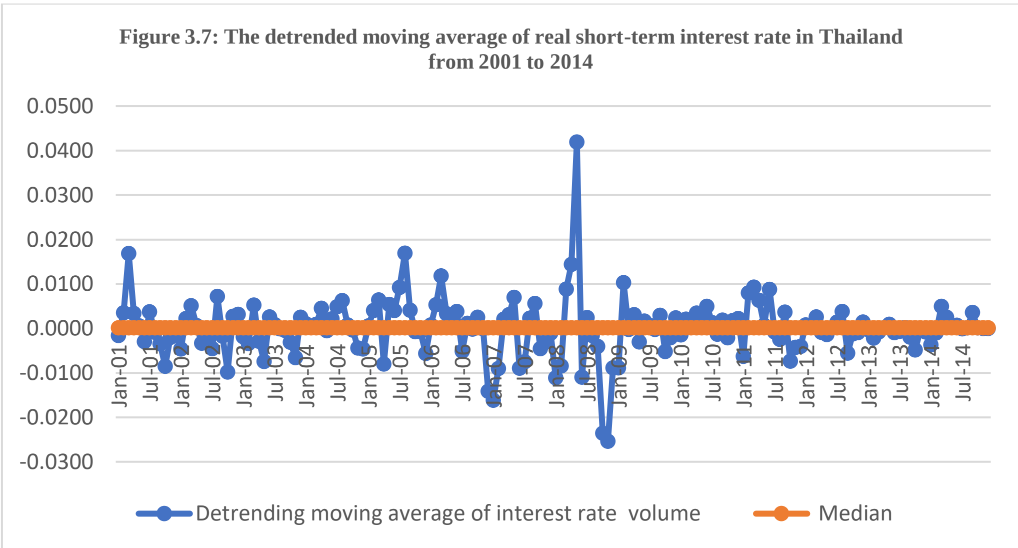


Figure 3.7: The detrended moving average of real short-term interest rate in Thailand from 2001 to 2014

3.5.3.1.2 T-test difference of mean value

3.5.3.1.2.1 Hot debt market (*HOT_{Debt}*)

The capture of equity market timing is done with two indicators, as according to Alti (2006), namely hot and cold markets and the amount of equity proceeds, it is likely that we can measure the debt market timing with the same methods as Doukas et al. (2011), who also tested both aspects. The first indicator is displayed in the above section, whereas table 3.6 presents the second indicator in terms of the proceeds difference between hot and cold companies. The proceeds ratio is estimated in two approaches, which are nominal bond proceeds divided by total assets at time t and t-1. The result of the mean value difference test is reported in table 3.6, whereby the average proceeds ratio at time t for hot debt firms is 1.38%, whereas the mean of this ratio for cold debt firms is 0.69%. This suggests that, on average, hot debt firms obtain more substantial proceeds than cold debt firms from corporate bond issuance at roughly 0.69%, or almost two times that of cold debt firms, with a statistical significance at the 90% confidence level for unequal variance. Likewise, hot debt companies, on average, gain more proceeds at time t-1 than cold debt companies, at approximately 0.58% (Hot: 1.58% vs Cold: 1%) or one-third of the proceeds ratio at time t-1, but the result is statistically insignificant. However, this difference is economically significant between them. Therefore, these results indicate that hot debt firms time the debt market to receive more money from corporate bond issuance, supporting the second indicator of debt market timing.

Furthermore, we develop a new measurement for the second indicator since it is likely that companies time the debt market in forms of several instances of bond allocation during a favourable period in the bond market. Hence, we attempt to assess this behaviour and we expect that hot debt firms may tend to issue corporate bonds several times during a hot debt period. Table 3.6 gives the result of the mean value difference test of hot and cold debt companies in terms of the number of corporate bond issuances. Surprisingly, the results show that hot firms, on average, issue corporate bonds slightly less frequently than cold firms, at approximately 0.1241 times (Hot: 2.4359 vs Cold: 2.56), yet this result is statistically insignificant. Also, as the value of the difference is at a considerably small scale, this result is also economically insignificant. However, this implies that hot debt firms are not willing to time the debt market in terms of several instances of selling corporate bonds during a favourable time.

In addition, in several of the studies in the prior literature on debt market timing (Graham & Harvey, 2001; Baker et al., 2003; Barry et al., 2009), they posit that debt market timing occurs when managers allocate debt during a relatively low interest rate. Hence, it is possible that conducting debt when the current interest rate is lower than the historical rate is the third indicator in the capture of debt market timing, so we also inspect this indicator in terms of the difference in the level of the current interest rate, whereby firms paid for corporate bonds. Table 3.6 reports the results of mean difference test of the level of interest rate between hot and cold debt companies. The level of the current interest rate in the allocating period of timers is averagely less than that of non-timers, at approximately 0.06%, 1.45%, 1.71%, 1.6% and 1.63% for short-term interest rate, interbank, MRR, MLR and MOR rates, respectively. Furthermore, the result is statistically significant at the 90% (equal variance) and the 95% (unequal variance) confidence levels for the interbank rate, the 95% confidence level for the MRR, MOR and MLR rates with both equal and unequal variances. This strongly supports the third indicator of debt market timing.

Table 3.6: Mean value difference test of corporate bond for hot debt strategy (*HOT_{Debt}*)

Variable	HOT	COLD	t-value (difference)	
			Equal variance	Unequal variance
Proceeds/Total Assets$_t$	0.0138	0.0069	(0.9360)	(1.8463*)
Proceeds/Total Assets$_{t-1}$	0.0158	0.0100	(0.7315)	(1.2908)
N	141	33		
Number of Corporate Bond Issuance	2.4359	2.5600	(-0.3474)	(-0.3933)
Log (# Corporate Bond Issuance)	0.3112	0.3010	(0.2026)	(0.2068)
N	150	39		
Short-Term Interest Rate	-0.0013	-0.0007	(-0.2961)	(-0.2822)
Interbank Rate	-0.0049	0.0096	(-1.9476*)	(-2.0370**)
MRR Rate	0.0445	0.0616	(-2.1419**)	(-2.2677**)
MLR Rate	0.0372	0.0532	(-2.0843**)	(-2.1923**)
MOR Rate	0.0410	0.0573	(-2.0916**)	(-2.2065**)
N	150	39		

3.5.3.1.2.2 Hot proceeds market (*$HOT_{Proceeds}$*)

Doukas et al. (2011) claim that the measurement of debt market timing can be conducted in two patterns, consisting of the volume of the number of corporate bond issuances and the amount of bond proceeds, and they also found that there is similarity between the two methods. The outcomes of the mean difference test of hot and cold debt firms classified in terms of the number of corporate bond allocations is presented in the above section, while this section provides the mean difference test of the hot and cold proceeds companies categorized by the amount of bond proceeds to investigate the second indicator by Alti (2006). Moreover, as there are several previous studies (Graham & Harvey, 2001; Baker et al., 2003; Barry et al., 2009) which claim that debt market timing is when managers issue debt when they perceive that the interest rate is relatively low to reduce their cost of capital, it is possible that the third indicator of debt market timing is that the timing firms tend to allocate debt securities when the current interest rate is comparatively low. Furthermore, this section reports the outcome of the mean difference test for the third indicator in table 3.7.

Based on the second indicator regarding Alti (2006), table 3.7 displays the result of the difference in the mean of bond proceeds between hot and cold firms. The proceeds ratio is estimated by the amount of nominal bond proceeds over total assets at time t and t-1. The results exhibit that the average bond proceeds for hot companies is higher than that for cold corporations, at approximately 0.52% (Hot: 1.44% vs Cold: 0.92%) based on the proceeds ratio at time t, and 0.59% (Hot: 1.68% vs Cold: 1.09%) at time t-1, but these results are statistically insignificant. This is consistent with Doukas et al. (2011), who found that, on average, hot companies have a tendency to gain higher bond proceeds than cold corporations, at roughly 0.63% and 1.97% for the proceeds ratio at time t and t-1, respectively, while our result is inconsistent with their study in terms of statistical significance since Doukas et al. (2011) found statistically significant results in both two measurements. However the economic significance of our results support the second indicator of Alti (2006) that hot firms issue more debt than cold firms.

In addition, we develop a novel estimation for the second implication with the number of corporate bond issuances during the allocating year. Table 3.7 illustrates the outcome that hot firms on average issue corporate bonds more frequent than cold firms, at roughly 0.2799 (Hot: 2.6410 vs Cold: 2.3611) and 0.0414 (Hot: 0.3249 vs Cold: 0.2835) in terms of the number of corporate bond issuances per year and the log of the quantity of corporate bond allocations per year, respectively. However, as this result is statistically and economically insignificant, this finding does not support the finding based on the second indicator of debt market timing.

Table 3.7: Mean value difference test of corporate bond for hot proceeds strategy ($HOT_{Proceeds}$)

Variable	HOT	COLD	t-value (difference)	
			Equal variance	Unequal variance
Proceeds/Total Assets$_t$	0.0144	0.0092	(0.8619)	(1.1129)
Proceeds/Total Assets$_{t-1}$	0.0168	0.0109	(0.9112)	(1.1658)
N	111	63		
Number of Corporate Bond Issuance	2.6410	2.3611	(0.9423)	(1.0027)
Log (# Corporate Bond Issuance)	0.3249	0.2835	(0.9943)	(0.9999)
N	117	72		
Short-Term Interest Rate	-0.0029	0.0017	(-3.2445**)	(-3.2636**)
Interbank Rate	-0.0102	0.0115	(-3.5622***)	(-3.6574***)
MRR Rate	0.0387	0.0631	(-3.7599***)	(-3.8813***)
MLR Rate	0.0317	0.0549	(-3.7261***)	(-3.8318***)
MOR Rate	0.0353	0.0590	(-3.7464***)	(-3.8585***)
N	117	72		

Regarding the third indicator of debt market timing, based on the low level of current interest rate, table 3.7 reports the outcome of the mean difference test of the level of the current interest rate between hot and cold firms. The results present that hot firms, on average, issue debt when the level of the current interest rate is lower than cold corporations do, at approximately 0.46%, 2.17%, 2.44%, 2.32% and 2.37% for short-term interest rate, interbank, MRR, MLR and MOR rates, with statistical significance at least at the 95% confidence levels with both equal and unequal variances. This is strong evidence supporting the third indicator that hot firms issue debt with a lower level of current interest rate than cold firms do, on average.

3.5.3.1.2.3 Median and extreme interest rates *(IR_{Median}) and ($IR_{Extreme}$)*

According to the previous literature on debt market timing (Graham & Harvey, 2001; Baker et al., 2003; Barry et al., 2009), managers tend to allocate debt when they perceive that the level of interest rate is relatively low. Hence, we develop a new measurement of debt market timing in terms of issuing corporate bonds when the interest rate is relatively low, and the results of the first indicator regarding Alti (2006) and Doukas et al. (2011) are shown in above section. Therefore, to confirm their second indicator for a classification with new calculations, table 3.8 provides the mean difference test of the bond proceeds ratio between timers and non-timers, where the average bond proceeds ratio at time t of timers is significantly higher than that of non-timers, at roughly 2.37% (Timers: 3.18% vs Non-timers: 0.81%) for the extreme strategy at the 99% confidence level with both equal and unequal variances. Also, timing firms gain more proceeds from bond issuance at time t-1 than non-timing firms, at approximately 2.45% (Timers: 3.47% vs Non-timers: 1.02%), with a statistical significance at the 99% confidence level for equal variance. This indicates that timers, during an extremely low interest rate, gain more proceeds than non-timers, supporting the second indicator of debt market timing. Simultaneously, based on the median strategy, the timing firms obtain slightly more proceeds than non-timing firms, at 0.1% (Timers: 1.29% vs Non-timers: 1.19%) and 0.25% (Timers: 1.57% vs Non-timers: 1.32%) for the bond proceeds ratio at time t and t-1, respectively, yet the results are statistically insignificant. On the other hand, the result of the number of corporate bond issuances for two strategies are conflicting that the quantity of corporate bond issuances of timers during extremely low interest rate is less than that of non-timers, at approximately 0.1649, while timers during a median low interest rate allocate slightly more corporate bond issuances than non-timers, at roughly 0.0566. However, these outcomes suffer from statistical insignificance. This implies that timing and non-timing firms offer corporate bonds almost in the same quantity.

Table 3.8: Mean value difference test of corporate bond issuance during low interest rate period				
Variable	Timers	Non-timers	t-value (difference)	
			Equal variance	Unequal variance
The classification of issuing debt in extremely low interest rate period (*$IR_{Extreme}$*)				
Proceeds/Total $Assets_t$	0.0318	0.0081	(3.2338***)	(3.2338***)
Proceeds/Total $Assets_{t-1}$	0.0347	0.0102	(3.1149***)	(1.5193)
N	32	142		
Number of Corporate Bond Issuance	2.4000	2.5649	(-0.4433)	(-0.5908)
Log (# Corporate Bond Issuance)	0.3168	0.3074	(0.1807)	(0.2011)
N	35	154		
The classification of issuing debt in medially low interest rate period (*IR_{Median}*)				
Proceeds/Total $Assets_t$	0.0129	0.0119	(0.1736)	(0.1728)
Proceeds/Total $Assets_{t-1}$	0.0157	0.0132	(0.3972)	(0.3990)
N	95	78		
Number of Corporate Bond Issuance	2.5566	2.5000	(0.1931)	(0.2012)
Log (# Corporate Bond Issuance)	0.3037	0.3141	(-0.2535)	(-0.2551)
N	106	82		

3.5.3.1.3 Motivation of spending money of debt timers

Debt financing is another major source of capital for a company; however, the previous studies have been less concerned with issue in this context, even though this source is as important as equity financing, including the motivation after debt issuance. Hence, to determine the presence of debt market timing, we also assess the motivation of spending money gained from corporate bond allocation, which is similar to the motivation of spending money obtained from equity offering, as according to Kim and Weisbach (2008). As the previous literature in equity market timing (Blanchard et al., 1993; Loughran & Ritter, 1997; DeAngelo et al., 2010) claims that if firms keep the proceeds as cash, it is more likely that they time the market from selling stock, another source of financing is debt security, which is a crucial source of funds that is the same as equity. Thus, it is possible that timers keep the money gained from debt financing as cash after allocation. Consequently, we also test the motivation of spending money of hot firms (timers) after they have issued corporate bonds in the bond market. In addition, as debt security has a different nature from equity security, the additional variables of the control variables are employed, following Julio et al. (2007).

3.5.3.1.3.1 OLS regression

Table 3.9[27] illustrates the results of the motivation for spending the proceeds after corporate bond issuance. We focus on eight sources that are major sources of investment for company and are separated into two groups, namely asset-based (total assets, cash, cash and short-term investment, inventory and property, plant and equipment) and expenditure (capital expenditure, dividend payment and repayment long-term debt)

[27] VIF value: mean = 6.74, max = 7.74 and min = 5.44.

groups, over four years after corporate bond allocation. Furthermore, we exclude the coefficients of year, industry and credit rating fixed effects from table 3.9.

Overall, almost all coefficients of the proceeds ratio have a positive sign, except the change in total assets over year 3 and 4 and the shift in inventory over year 1, 2 and 3; however, the coefficient estimates are mostly insignificant in several models, except the models of total assets over year 1 and 2, cash over year 1, 2 and 3, capital expenditures over year 1, 2 and 3 and repayment long-term debt over year 1, 2, 3 and 4. This suggests that hot firms increase the amount of spending money gained from corporate bond issuance in total assets, cash, capital expenditures and long-term debt repayment with statistical significance. This result is similar to that of Julio et al. (2007) in terms of cash and capital expenditures for year 1 and 4, as they examined only major three variables including cash, capital expenditures and R&D expense.[28] However, hot firms decrease the storing inventory over 3 years after selling corporate bonds, yet the results are insignificant. Moreover, the magnitude of most coefficients for the bond proceeds ratio is greater than other sources of funds, except ∆ total assets 3 and 4, ∆ cash and short-term investment 3 and 4, ∆ inventory 4 and ∑ dividend payment 3 and 4. This implies that timers spend the bond proceeds for investment and cash holding immediately, as the magnitude of the effect on bond proceeds is mostly higher than that of the other sources of funds in the short term, and in the following year timers switch to use the money obtained by other sources of funds in future.

Based on the statistically significant models, there are only some coefficients with statistical significance in spending the proceeds after selling corporate bonds, including ∆ total assets 1 and 2, ∆ cash 1, 2 and 3, ∑ CAPEX 1, 2 and 3 and ∑ long-term debt repayment 1, 2, 3 and 4. To start with, total assets over year 1 and 2, the coefficients are significantly positive at the 99% confidence level. Simultaneously, the estimators of capital expenditures over 1, 2 and 3 years are significantly positive at the 95%, 99% and 90% confidence levels, respectively. These outcomes denote that one of the motivations for corporate bond issuance is the investment by the company for growth opportunities in the future. Furthermore, there is a significantly positive sign in the coefficients of the new capital raised from corporate bond issuance for the long-term debt repayment over time until 4 years at the 99% confidence level. This indicates that timers restructure their

[28] This study excludes R&D expense from our equation model due to the limitation of the data on R&D expense, of which more than 95% are unavailable from various databases, consisting of DataStream, Bloomberg, Thomson One, SETSMART, SET's and SEC, Thailand's official website.

debt maturity, which is the process of using new debt to replace old debt for several reasons, including an improvement in firm liquidity and the reduction of cost of capital because of a low interest rate, as the result demonstrates that they use the new capital raised from selling long-term corporate bonds to repay previous long-term debt. Moreover, Ehlers et al. (2014) claim that the allocation of bonds is generally used to refinance in Asia. Hence, it is more likely that one of the purposes for the corporate bond issuance of hot firms is refinancing. In addition, the coefficients of cash over year 1, 2 and 3 are significantly positive at the 95%, 95% and 99% confidence levels, respectively, which is consistent with Julio et al. (2007). This suggests that timers are willing to time the debt market as they keep the new capital gained from corporate bond allocation as cash, whereby this supports the assertion by Blanchard et al. (1993), Loughran and Ritter (1997) and Kim and Weisbach (2008). Thus, regarding the empirical results of the increase in cash holding over time after selling corporate bonds, this study confirms that there is debt market timing in the Thai bond market.

3.5.3.1.3.2 GLS regression

Table 3.10 provides the empirical results with the GLS regression model for the motivation of spending the proceeds after selling corporate bonds. Overall, the outcome of coefficients is identical with the result of the OLS regression; however, the level of statistical significance is higher than the OLS regression. For example, the coefficient of proceeds ratio of cash in year 2 is significantly positive at the 95% confidence level in the OLS regression, whereas this estimator is significantly positive at the 99% confidence level in the GLS regression. Therefore, this asserts the result of the OLS regression. Furthermore, there are some coefficients that are statistically significant in the GLS model, while the result of the OLS regression is insignificant. For instance, the coefficient of the proceeds ratio on cash and short-term investment over 2 years is statistically significant at the 95% confidence level. This indicates that firms have the motivation to spend the bond proceeds on cash and short-term investment over 2 years, which supports hypothesis 1 that there is debt market timing with selling corporate bonds in Thailand as companies tend to keep the proceeds as cash. In addition, the coefficients of the proceeds ratio on the property, plant and equipment in year 1 and 2 are significantly positive at the 90% confidence level in the GLS regression model. This suggests that not only do corporations maintain the money gained from selling corporate bonds as cash, but they also consume these proceeds as investment in fixed assets.

Table 3.9: The OLS regression for spending money after corporate bond allocation							
V	*t*	*N*	*Proceeds/TA₀*	*Other sources of fund*	*Total Assets₀*	*F*	R^2
		OLS	*OLS*	*OLS*	*OLS*	*OLS*	*OLS*
Δ Total Asset 1	1	134	1.192***	0.914***	-0.00466	4.3***	0.556
			(4.10)	(6.18)	(-0.39)		
Δ Total Asset 2	2	134	1.617***	1.255***	-0.0180	2.9***	0.458
			(2.80)	(3.48)	(-0.98)		
Δ Total Asset 3	3	104	-0.212	1.283***	-0.0600**	2.6***	0.492
			(-0.28)	(3.04)	(-2.27)		
Δ Total Asset 4	4	86	-0.902	1.139***	-0.0830**	2.73***	0.560
			(-1.09)	(3.06)	(-2.43)		
Δ Cash1	1	134	0.169**	0.0958**	-0.00150	1.18	0.256
			(2.06)	(2.07)	(-0.35)		
Δ Cash 2	2	134	0.307**	0.109	0.00152	1.35	0.283
			(2.33)	(1.40)	(0.32)		
Δ Cash 3	3	105	0.462***	0.170**	0.00607	2.31***	0.460
			(3.14)	(2.23)	(1.07)		
Δ Cash 4	4	87	0.242	0.147	-0.00942	2.28***	0.510
			(1.11)	(1.00)	(-0.92)		
Δ Cash and Short-Term Investment 1	1	134	0.0916	0.0819	-0.00485	0.86	0.200
			(0.68)	(1.20)	(-0.72)		
Δ Cash and Short-Term Investment 2	2	134	0.239	0.129	-0.00798	1.73**	0.335
			(1.64)	(1.66)	(-1.16)		
Δ Cash and Short-Term Investment 3	3	134	0.0951	0.111	-0.0129	2.22***	0.392
			(0.53)	(1.03)	(-1.43)		
Δ Cash and Short-Term Investment 4	4	134	0.0253	0.0672	-0.0109	2.71***	0.441
			(0.13)	(0.58)	(-1.09)		
Δ Inventory 1	1	134	-0.157	-0.00393	-0.0277	0.59	0.147
			(-0.49)	(-0.03)	(-1.35)		
Δ Inventory 2	2	134	-0.186	0.0204	-0.0325	0.5	0.126
			(-0.50)	(0.12)	(-1.41)		
Δ Inventory 3	3	105	-0.139	0.322	-0.0403	0.77	0.222
			(-0.16)	(1.10)	(-1.37)		
Δ Inventory 4	4	87	0.553	0.838**	-0.00388	0.77	0.260
			(0.79)	(2.43)	(-0.20)		
Δ PPE 1	1	134	0.336	0.281**	0.00118	21.21***	0.250
			(1.56)	(2.40)	(0.12)		
Δ PPE 2	2	134	0.504	0.455**	0.000525	13.59***	0.357
			(1.57)	(2.40)	(0.04)		
Δ PPE 3	3	104	0.613	0.138	0.0176	21.5***	0.359
			(1.19)	(0.41)	(0.76)		
Δ PPE 4	4	86	0.538	-0.0932	0.0239	43.66***	0.433
			(0.86)	(-0.26)	(0.73)		
∑ CAPEX 1	1	134	0.442**	0.339***	-0.00177	2.86***	0.339
			(2.37)	(2.99)	(-0.25)		
∑ CAPEX 2	2	134	0.714***	0.496***	0.00353	2.91***	0.365
			(2.67)	(3.09)	(0.33)		
∑ CAPEX 3	3	105	0.707*	0.598**	-0.0116	2.6***	0.390
			(1.88)	(2.41)	(-0.69)		
∑ CAPEX 4	4	87	0.498	0.345*	-0.0163	2.27***	0.526
			(1.16)	(1.78)	(-0.65)		
∑ Dividend Payment 1	1	134	0.0757	0.0565*	-0.00315	2.43***	0.398
			(1.33)	(1.77)	(-1.14)		
∑ Dividend Payment 2	2	134	0.158	0.119**	-0.00540	1.73**	0.431
			(1.58)	(2.13)	(-1.11)		
∑ Dividend Payment 3	3	105	0.166	0.275**	-0.0145*	1.97***	0.517
			(0.72)	(2.60)	(-1.72)		
∑ Dividend Payment 4	4	87	0.146	0.318*	-0.0237*	1.76**	0.567
			(0.44)	(2.00)	(-1.79)		
∑ Repayment of Long-Term Debt 1	1	134	3.831***	-0.167	-0.0208*	1.64*	0.927
			(11.82)	(-1.59)	(-1.70)		
∑ Repayment of Long-Term Debt 2	2	134	4.402***	0.0213	-0.0451**	1.5*	0.862
			(7.55)	(0.10)	(-2.13)		
∑ Repayment of Long-Term Debt 3	3	105	7.934***	-0.572	-0.0254	1.91***	0.834
			(11.70)	(-1.64)	(-0.90)		
∑ Repayment of Long-Term Debt 4	4	87	8.700***	-0.618*	-0.0237	1.15	0.907
			(14.59)	(-1.69)	(-1.03)		

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 3.10: The GLS regression for spending money after corporate bond allocation

V	*t*	*N*	*Proceeds/TA₀*	*Other sources of fund*	*Total Assets₀*	Wald chi2
		GLS	*GLS*	*GLS*	*GLS*	*GLS*
Δ Total Asset 1	1	134	1.192*** (5.81)	0.914*** (9.08)	-0.00466 (-0.46)	167.9***
Δ Total Asset 2	2	134	1.617*** (3.79)	1.255*** (6.00)	-0.0180 (-0.86)	113.2***
Δ Total Asset 3	3	104	-0.212 (-0.26)	1.283*** (3.90)	-0.0600** (-2.03)	100.9***
Δ Total Asset 4	4	86	-0.902 (-1.08)	1.139*** (3.24)	-0.0830*** (-2.59)	109.5***
Δ Cash1	1	134	0.169** (2.01)	0.0958** (2.32)	-0.00150 (-0.36)	46.22**
Δ Cash 2	2	134	0.307*** (3.11)	0.109** (2.25)	0.00152 (0.31)	52.80***
Δ Cash 3	3	105	0.462*** (2.96)	0.170*** (2.76)	0.00607 (1.09)	89.47***
Δ Cash 4	4	87	0.242 (1.15)	0.147* (1.68)	-0.00942 (-1.17)	90.60***
Δ Cash and Short-Term Investment 1	1	134	0.0916 (0.80)	0.0819 (1.46)	-0.00485 (-0.86)	33.49
Δ Cash and Short-Term Investment 2	2	134	0.239** (2.00)	0.129** (2.20)	-0.00798 (-1.36)	67.41***
Δ Cash and Short-Term Investment 3	3	134	0.0951 (0.62)	0.111 (1.46)	-0.0129* (-1.71)	86.55***
Δ Cash and Short-Term Investment 4	4	134	0.0253 (0.15)	0.0672 (0.84)	-0.0109 (-1.36)	105.8***
Δ Inventory 1	1	134	-0.157 (-0.56)	-0.00393 (-0.03)	-0.0277** (-1.99)	23.12
Δ Inventory 2	2	134	-0.186 (-0.55)	0.0204 (0.12)	-0.0325** (-1.97)	19.40
Δ Inventory 3	3	105	-0.139 (-0.20)	0.322 (1.15)	-0.0403 (-1.59)	33.05
Δ Inventory 4	4	87	0.553 (0.84)	0.838*** (3.07)	-0.00388 (-0.15)	39.16*
Δ PPE 1	1	134	0.336* (1.70)	0.281*** (2.90)	0.00118 (0.12)	44.74**
Δ PPE 2	2	134	0.504* (1.90)	0.455*** (3.49)	0.000525 (0.04)	74.37***
Δ PPE 3	3	104	0.613 (0.83)	0.138 (0.47)	0.0176 (0.67)	91.99***
Δ PPE 4	4	86	0.538 (0.67)	-0.0932 (-0.27)	0.0239 (0.77)	65.56***
∑ CAPEX 1	1	134	0.442*** (2.70)	0.339*** (4.21)	-0.00177 (-0.22)	68.60***
∑ CAPEX 2	2	134	0.714*** (2.91)	0.496*** (4.11)	0.00353 (0.29)	77.03***
∑ CAPEX 3	3	105	0.707 (1.37)	0.598*** (2.93)	-0.0116 (-0.63)	67.05***
∑ CAPEX 4	4	87	0.498 (0.96)	0.345 (1.60)	-0.0163 (-0.82)	501.1***
∑ Dividend Payment 1	1	134	0.0757 (1.45)	0.0565** (2.20)	-0.00315 (-1.23)	88.48***
∑ Dividend Payment 2	2	134	0.158* (1.76)	0.119*** (2.70)	-0.00540 (-1.22)	101.3***
∑ Dividend Payment 3	3	105	0.166 (0.79)	0.275*** (3.31)	-0.0145* (-1.93)	459.5***
∑ Dividend Payment 4	4	87	0.146 (0.50)	0.318*** (2.61)	-0.0237** (-2.12)	113.9***
∑ Repayment of Long-Term Debt 1	1	134	3.831*** (16.57)	-0.167 (-1.47)	-0.0208* (-1.83)	1703.8***
∑ Repayment of Long-Term Debt 2	2	134	4.402*** (11.49)	0.0213 (0.11)	-0.0451** (-2.40)	839.3***
∑ Repayment of Long-Term Debt 3	3	105	7.934*** (12.16)	-0.572** (-2.22)	-0.0254 (-1.09)	525.6***
∑ Repayment of Long-Term Debt 4	4	87	8.700*** (14.36)	-0.618** (-2.45)	-0.0237 (-1.03)	844.3***

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

3.5.3.2 The determinants of debt market timing

3.5.3.2.1. The determinants of the existence of debt market timing

3.5.3.2.1.1 Hot debt market (HOT_{Debt})

Tables 3.11[29] and 3.12 illustrate the empirical results for the marginal effects of probit regression models with robust command of the determinants of debt market timing,

[29] As the marginal effect results exceed 1 for some variables, we contacted the Stata team to ask about this problem and they informed us that the Stata progamme reports the real number of marginal effect result,

whereby the explained variable is the existence of debt market timing captured by the hot debt market (HOT_{Debt}) in corporate bond allocation. Hereby, the explanatory variables consist of current interest rate[30] and expected interest rate at time t. Moreover, there are the ownership structure and board composition at time t-1 to avoid the endogeneity problem. In addition, the outcomes are separately produced between the CEO and CFO variables (current and expected interest rates) to mitigate any violation due to the multicollinearity issue. Table 3.11 reports the results of the current interest rate, whereas the expected interest rate outcomes are shown in table 3.12.

Regarding table 3.11, all parameters of the interest rate as estimated in different ways, including interbank, MLR, MRR and MOR rates, on hot debt variable have a significantly negative sign at least at the 95% confidence level. Therefore, hypothesis 2.1 is supported, suggesting that the probability of debt market timing increases with lower interest rates. However, our result is dissimilar to that of Doukas et al. (2011), who found that there is a positive relationship between the natural log of the number of deals for debt issuance and the real short-term rate. On the other hand, they found that there is a negative influence of the monthly volume of deals for debt issuance and the short-term interest rate, implying that firms issue more debt when the current interest rate is low. Moreover, this is consistent with Barry et al. (2008), who found that lager debt is allocated when the current interest rate is relatively low. In addition, this result was also documented by Graham and Harvey (2001), claim that managers time the debt market when they acknowledge that the interest rate is particularly low. Therefore, our result suggests that firms tend to time the debt market with corporate bond issuance when the current interest rate is low.

According to table 3.12, the parameters of the expected interest rate have a significantly positive sign for hot debt variable at least at the 90% confidence level, which partially supports hypothesis 2.2 (2 out of 10 significant models). This suggests that the propensity of debt market timing increases with a higher expected interest rate estimated by a perfect foresight approach. Our findings are inconsistent with the posit of Barry et al. (2009) that managers are unsuccessful in debt market timing as they are unable to

since the progamme is not restricted to lying between 0 and 1. Therefore, the marginal effect result can show more than 1 when using the Stata programme.

[30] In the prior literature, including to Baker et al. (2003), Song (2009) and Doukas et al. (2011), they also employ the interest rate at time t to test the debt market timing as they concentrate on timing the debt market from the perspective of a relatively low current interest rate. Hence, the interest rate at the same time of bond allocation is appropriate to examine this context rather than the lagged value.

correctly predict the future interest rate. However, our finding puts forward the idea that managers know more information than others about the future interest rate, which confirms the presence of debt market timing when the current interest rate is low and the future interest rate increases. This indicates that firms are successful in debt market timing with corporate bond issuance.

In addition, there are interesting outcomes regarding the ownership structure. Beginning with managerial ownership, there is a significantly negative sign of parameters for managerial shareholders for hot debt at least at the 90% confidence level. This provides some rejection for hypothesis 3.1 (30% significant models),[31] meaning that the chance of debt market timing declines with higher managerial ownership. Thus, our finding contradicts the idea that managers are willing to expand their voting power using new debt allocation (Stulz, 1988). However, our finding supports the claim of Jensen and Meckling (1976) that the companies with a high proportion of managerial ownership tend to finance with less debt since these firms have low agency problems, whereby managers and outside investors have the same attentiveness in firm management. Therefore, they prefer not to gain more pressure from creditors. Moreover, our outcome is similar to that of Friend and Lang (1988), who found that there is a negative association between the percentage of managerial shareholders and the financial leverage ratio.

In contrast, the parameters of institutional ownership have a significantly positive direction for hot debt at the 99% confidence level in all models. Hence, this clearly rejects hypothesis 3.2, meaning that firms with higher institutional ownership have a high probability of timing the debt market with selling corporate bonds. This is inconsistent with Bathala et al. (1994), Pushner (1995) and Dahlquist and Robertsson (2001), who found a negative relationship between the proportion of institutional ownership and the debt ratio. However, our finding offers the new perspective that firms with a higher institutional ownership have a high propensity towards debt market timing. This implies that institutional shareholders in Thai firms who allocate corporate bonds desire to prevent their wealth's dilution by new shareholders as they act as monitors in firm operations. Consequently, they prefer to use debt rather than other sources for their capital financing.

On the other hand, there is a significantly negative influence of foreign ownership on hot debt at the 90% confidence level in table 3.11. This lends some support for

[31] This means 6 out of 20 significant models in tables 3.11 and 3.12.

hypothesis 3.3 (25% significant models), indicating that the probability of debt market timing decreases with higher foreign ownership. Moreover, our finding supports the claim of Dahlquist and Robertsson (2001) and Li et al. (2009) that the proportion of foreign ownership inversely relates to the financial leverage ratio. Furthermore, this finding is explained by Bokpin and Arko (2009) in that foreign shareholders prefer not to use debt since leverage leads to a high risk in several forms, such as bankruptcy risk and financial distress.

Simultaneously, the estimators of ownership concentration have a significantly negative sign for hot debt at the 90% confidence level in table 3.11. This provides partial support for hypothesis 3.4 (25% significant models), indicating that the likelihood of debt market timing declines with higher controlling shareholders. This finding contradicts the assertion of Stulz (1988) that companies with higher ownership concentration prefer to use more debt for capital financing since they prefer to avoid the loss of their control power. Also, our result is different from that of Doukas et al. (2011), who posited that debt is used more in corporations with a higher ownership concentration as they desire to maintain their control in companies. However, our finding is consistent with that by Jensen and Meckling (1976), who claim that firms with higher controlling shareholders are not willing to use more debt as they prefer to escape the pressure of bondholders. Moreover, Wiwattanakantang (1999) found that Thai listed companies with a higher ownership concentration have the tendency to use less debt as they prefer to avoid being monitored in their management by creditors. Therefore, this implies that major shareholders persuade corporate managers to finance with less debt.

Based on the structure of the board of directors, the parameters of board independence have a significantly negative direction for hot debt at the 99% confidence level in all models. Therefore, hypothesis 4.1 is rejected, suggesting that the probability of debt market timing reduces with higher board independence. Besides, this finding is inconsistent with that by Lim et al. (2007), who posits that the proportion of independent directors on the board positively associates with debt financing. However, as there is no study focusing on this issue, our finding proposes a new perspective on debt market timing, namely that corporations with a high number of independent directors on the board have less likelihood to time the debt market. This implies that corporate governance may be involved with this finding due to several research studies employing board independence as a variable for corporate governance (Core et al., 1999; Gillan & Starks, 2000). Consequently, it is likely that companies with a high corporate governance prefer not to take advantage when debt market is favourable.

In contrast, the sign of the parameters for the size of the board is significantly positive for hot debt at the 99% confidence level in all models. This verifies hypothesis 4.2, meaning that the chance of debt market timing increases with a larger size of board. This is indistinguishable from the results of Lim et al. (2007), Wang (2012) and Upadhyay (2015), who found that the quantity of directors on the board positively relates with debt ratio. Therefore, this implies that a larger size of board effects a reduction in the domination of managers as the directors act as monitors to protect shareholder wealth (Berger et al., 1997). So, when the debt market is a good condition, firms with a large board size are eager to take this opportunity to reduce their cost of capital.

Besides, the proportion of women on the board has a significantly positive effect on hot debt at least at the 95% confidence level in all models. This is against hypothesis 4.3, suggesting that the probability of debt market timing with selling corporate bonds increases with more women on the board. Therefore, this result argues against the claim by Coleman and Cohn (1999) and Verheul and Thurik (2001) that a female manager decides to finance capital in the same way as a male manager. However, our finding implies that the increase in the proportion of females on the board leads to the diversification of the board, which is able to improve the efficiency in the monitoring of corporate management (Carter et al., 2003; Carter et al., 2010). Thus, they are willing to finance with debt to abstain from the dilution of shareholder wealth.

Additionally, the proportion of audit committee members on the board has a strongly positive influence on the probability of debt market timing that is statistically significant at 99% in all models. Our results support hypothesis 4.4, indicating that corporations with a higher proportion of audit committee members on the board tend to time the debt market during a hot period. Moreover, our finding is explained by Adams (1997), who found that the audit committee attempts to control the other directors on the board to make the decisions regarding the mitigation of wealth dilution. Furthermore, Mansi et al. (2004) find that a high quality of audit committee leads to the lower cost of debt as they support an enhancement of the creditability of the revelation of a firm's financial information. Thus, the increase of the number of audit committee members on the board affects debt market timing as they prefer not to conduct equity financing.

Table 3.11: The marginal effects of probit regression for the determinants of the probability of debt market timing with hot debt (Current interest rate)

Y / X	(1) HOT_Debt	(2) HOT_Debt	(3) HOT_Debt	(4) HOT_Debt	(5) HOT_Debt	(6) HOT_Debt	(7) HOT_Debt	(8) HOT_Debt	(9) HOT_Debt	(10) HOT_Debt
Short-Term Interest Rate	-3.446					-3.849				
	(-1.32)					(-1.59)				
Interbank Rate		-1.768**					-1.802***			
		(-2.49)					(-2.64)			
MRR rate			-1.647**					-1.639***		
			(-2.49)					(-2.62)		
MLR rate				-1.673**					-1.681***	
				(-2.49)					(-2.63)	
MOR rate					-1.641**					-1.639***
					(-2.46)					(-2.59)
Managerial Ownership	-0.262	-0.235	-0.237	-0.241	-0.240	-0.322	-0.359*	-0.316	-0.321	-0.320
	(-1.02)	(-0.95)	(-0.97)	(-0.98)	(-0.98)	(-1.61)	(-1.80)	(-1.57)	(-1.60)	(-1.60)
Institutional Ownership	0.971***	0.985***	0.980***	0.978***	0.978***	1.019***	1.030***	1.013***	1.013***	1.012***
	(2.71)	(2.86)	(2.84)	(2.83)	(2.83)	(2.97)	(2.89)	(2.96)	(2.96)	(2.95)
Foreign Ownership	-0.274	-0.328	-0.330	-0.330	-0.329	-0.405*	-0.422*	-0.401*	-0.403*	-0.403*
	(-1.08)	(-1.44)	(-1.46)	(-1.45)	(-1.45)	(-1.69)	(-1.65)	(-1.68)	(-1.69)	(-1.68)
Ownership Concentration	-0.535	-0.515*	-0.515*	-0.510*	-0.512*	-0.580	-0.670*	-0.572	-0.569	-0.572
	(-1.59)	(-1.67)	(-1.67)	(-1.65)	(-1.65)	(-1.62)	(-1.75)	(-1.59)	(-1.59)	(-1.59)
Board Independence	-0.861***	-0.820***	-0.839***	-0.842***	-0.844***	-0.865***	-0.929***	-0.882***	-0.887***	-0.888***
	(-3.00)	(-2.94)	(-3.02)	(-3.03)	(-3.03)	(-3.32)	(-3.50)	(-3.38)	(-3.41)	(-3.41)
Board Size	1.790***	1.652***	1.650***	1.655***	1.655***	1.570***	1.655***	1.578***	1.580***	1.581***
	(3.57)	(3.49)	(3.49)	(3.51)	(3.50)	(3.69)	(3.75)	(3.68)	(3.71)	(3.70)
Women on Board	0.861**	0.733**	0.732**	0.738**	0.738**	0.947**	1.074***	0.945**	0.952**	0.952**
	(2.38)	(2.17)	(2.16)	(2.18)	(2.17)	(2.46)	(2.65)	(2.45)	(2.47)	(2.47)
Audit Committee on Board	2.004***	1.847***	1.872***	1.872***	1.876***	1.920***	2.000***	1.945***	1.946***	1.949***
	(3.09)	(2.99)	(3.01)	(3.01)	(3.02)	(3.21)	(3.23)	(3.24)	(3.24)	(3.24)
Military Experience on Board	0.103*	0.0898*	0.0894*	0.0903*	0.0903*	0.109**	0.119**	0.108*	0.109**	0.109*
	(1.85)	(1.73)	(1.70)	(1.72)	(1.71)	(1.97)	(2.04)	(1.95)	(1.96)	(1.96)
Female CFO	0.00499	0.0111	0.0109	0.0113	0.0111					
	(0.08)	(0.19)	(0.19)	(0.19)	(0.19)					
Older CFO	-0.0000684	0.000146	0.000571	0.000475	0.000554					
	(-0.02)	(0.04)	(0.15)	(0.12)	(0.14)					
Female CEO						-0.186	-0.185	-0.184	-0.186	-0.185
						(-1.27)	(-1.19)	(-1.25)	(-1.26)	(-1.25)
Older CEO						0.0000658	-0.00203	0.000210	0.000213	0.000172
						(0.01)	(-0.45)	(0.05)	(0.05)	(0.04)
Financial Education of CEO						-0.0984	-0.114	-0.0926	-0.0947	-0.0939
						(-1.19)	(-1.38)	(-1.11)	(-1.14)	(-1.12)
Private Placement	-0.0784	-0.0528	-0.0478	-0.0495	-0.0491	-0.0300	-0.0514	-0.0274	-0.0283	-0.0284
	(-0.98)	(-0.72)	(-0.64)	(-0.67)	(-0.66)	(-0.44)	(-0.71)	(-0.40)	(-0.41)	(-0.41)
Credit Rating	-0.0180	-0.0207	-0.0202	-0.0202	-0.0201	-0.0187	-0.0126	-0.0184	-0.0183	-0.0181
	(-0.81)	(-1.00)	(-0.97)	(-0.97)	(-0.96)	(-0.81)	(-0.52)	(-0.79)	(-0.78)	(-0.78)
Bond Maturity	-0.00532	-0.00480	-0.00494	-0.00497	-0.00496	-0.00503	-0.00535	-0.00513	-0.00518	-0.00515
	(-0.80)	(-0.77)	(-0.79)	(-0.79)	(-0.79)	(-0.78)	(-0.79)	(-0.79)	(-0.80)	(-0.80)
Profitability	0.251	0.176	0.143	0.153	0.148	0.245	0.343	0.193	0.207	0.200
	(0.52)	(0.39)	(0.32)	(0.34)	(0.33)	(0.56)	(0.73)	(0.44)	(0.48)	(0.46)
Firm Size	-0.111**	-0.105**	-0.102**	-0.102**	-0.102**	-0.104**	-0.105*	-0.100*	-0.101*	-0.100*
	(-2.09)	(-2.05)	(-2.00)	(-2.01)	(-2.00)	(-1.96)	(-1.95)	(-1.89)	(-1.90)	(-1.89)
Asset Tangibility	-0.0799	-0.0926	-0.0958	-0.0971	-0.0965	-0.0790	-0.0793	-0.0846	-0.0853	-0.0856
	(-0.51)	(-0.63)	(-0.66)	(-0.66)	(-0.66)	(-0.57)	(-0.55)	(-0.61)	(-0.61)	(-0.61)
Dividends	-0.458	-0.485	-0.511	-0.503	-0.507	-0.481	-0.526	-0.500	-0.494	-0.500
	(-1.18)	(-1.31)	(-1.36)	(-1.34)	(-1.35)	(-1.31)	(-1.36)	(-1.35)	(-1.34)	(-1.35)
Cash	-0.299	-0.215	-0.203	-0.209	-0.208	-0.261	-0.315	-0.246	-0.252	-0.251
	(-0.60)	(-0.46)	(-0.43)	(-0.45)	(-0.44)	(-0.57)	(-0.64)	(-0.53)	(-0.55)	(-0.54)
Nominal GDP growth	1.060	0.700	0.524	0.574	0.558	0.874	1.262	0.708	0.758	0.742
	(1.28)	(0.83)	(0.61)	(0.67)	(0.65)	(0.92)	(1.37)	(0.72)	(0.78)	(0.76)
Term Spreads	-0.987	0.775	0.615	0.442	0.553	-1.315	-2.763	-1.302	-1.515	-1.365
	(-0.24)	(0.17)	(0.14)	(0.10)	(0.12)	(-0.29)	(-0.65)	(-0.28)	(-0.33)	(-0.30)
Risk Spreads	-14.61*	-15.09*	-14.54*	-14.15*	-14.31*	-16.47*	-15.97*	-15.89*	-15.50*	-15.67*
	(-1.80)	(-1.83)	(-1.75)	(-1.70)	(-1.73)	(-1.89)	(-1.85)	(-1.81)	(-1.77)	(-1.78)
N	145	145	145	145	145	148	148	148	148	148
Wald chi2	66.69***	66.86***	66.57***	52.67***	66.57***	57.45***	52.67***	56.74***	56.95***	56.61***
Pseudo R2	0.3733	0.3735	0.3723	0.3777	0.3723	0.4061	0.3777	0.402	0.4029	0.4013

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 3.12: The marginal effects of probit regression for the determinants of the probability of debt market timing with hot debt (Expected interest rate with perfect foresight method)

Y / X	(1) HOT_Debt	(2) HOT_Debt	(3) HOT_Debt	(4) HOT_Debt	(5) HOT_Debt	(6) HOT_Debt	(7) HOT_Debt	(8) HOT_Debt	(9) HOT_Debt	(10) HOT_Debt
Expected ST Interest Rate t+1	2.411					4.075**				
	(1.20)					(2.13)				
Expected Interbank Rate t+1		0.396					0.965*			
		(0.64)					(1.72)			
Expected MRR rate t+1			0.310					0.852		
			(0.52)					(1.58)		
Expected MLR rate t+1				0.351					0.915	
				(0.57)					(1.64)	
Expected MOR rate t+1					0.328					0.883
					(0.54)					(1.60)
Managerial Ownership	-0.296	-0.291	-0.286	-0.288	-0.287	-0.468**	-0.460**	-0.457**	-0.458**	-0.457**
	(-1.06)	(-1.05)	(-1.04)	(-1.04)	(-1.04)	(-2.16)	(-2.15)	(-2.12)	(-2.13)	(-2.13)
Institutional Ownership	0.969***	0.961***	0.963***	0.962***	0.962***	1.050***	1.027***	1.032***	1.031***	1.031***
	(2.74)	(2.68)	(2.68)	(2.68)	(2.68)	(2.90)	(2.81)	(2.82)	(2.82)	(2.82)
Foreign Ownership	-0.225	-0.224	-0.221	-0.222	-0.221	-0.425	-0.424	-0.424	-0.424	-0.424
	(-0.84)	(-0.84)	(-0.83)	(-0.84)	(-0.83)	(-1.50)	(-1.53)	(-1.52)	(-1.53)	(-1.52)
Ownership Concentration	-0.477	-0.497	-0.504	-0.502	-0.504	-0.610	-0.626	-0.639	-0.637	-0.638
	(-1.36)	(-1.38)	(-1.40)	(-1.39)	(-1.40)	(-1.60)	(-1.61)	(-1.64)	(-1.64)	(-1.64)
Board Independence	-0.867***	-0.895***	-0.891***	-0.892***	-0.891***	-0.959***	-1.008***	-1.003***	-1.003***	-1.002***
	(-3.12)	(-3.14)	(-3.13)	(-3.13)	(-3.13)	(-3.69)	(-3.82)	(-3.79)	(-3.80)	(-3.79)
Board Size	1.975***	1.940***	1.937***	1.939***	1.938***	1.846***	1.813***	1.807***	1.808***	1.807***
	(3.71)	(3.66)	(3.64)	(3.64)	(3.64)	(3.95)	(3.97)	(3.93)	(3.95)	(3.94)
Women on Board	0.935**	0.924**	0.920**	0.922**	0.921**	1.246***	1.234***	1.224***	1.227***	1.225***
	(2.54)	(2.53)	(2.52)	(2.52)	(2.52)	(3.30)	(3.22)	(3.20)	(3.21)	(3.20)
Audit Committee on Board	2.143***	2.176***	2.177***	2.176***	2.176***	2.120***	2.176***	2.171***	2.169***	2.169***
	(3.19)	(3.21)	(3.21)	(3.21)	(3.21)	(3.37)	(3.44)	(3.43)	(3.43)	(3.42)
Military Experience on Board	0.111*	0.113**	0.113*	0.113**	0.113**	0.127**	0.135**	0.136**	0.136**	0.136**
	(1.95)	(1.96)	(1.96)	(1.96)	(1.96)	(2.08)	(2.18)	(2.20)	(2.20)	(2.20)
Female CFO	0.00773	0.00910	0.00924	0.00920	0.00920					
	(0.13)	(0.15)	(0.15)	(0.15)	(0.15)					
Older CFO	-0.00218	-0.00109	-0.00107	-0.00108	-0.00108					
	(-0.52)	(-0.26)	(-0.25)	(-0.26)	(-0.26)					
Female CEO						-0.248*	-0.224	-0.217	-0.220	-0.219
						(-1.72)	(-1.51)	(-1.46)	(-1.48)	(-1.47)
Older CEO						-0.00306	-0.00312	-0.00343	-0.00333	-0.00339
						(-0.66)	(-0.67)	(-0.73)	(-0.71)	(-0.72)
Financial Education of CEO						-0.142*	-0.139*	-0.139*	-0.140*	-0.140*
						(-1.80)	(-1.72)	(-1.72)	(-1.73)	(-1.72)
Private Placement	-0.0980	-0.0934	-0.0934	-0.0937	-0.0936	-0.0715	-0.0693	-0.0711	-0.0709	-0.0711
	(-1.21)	(-1.15)	(-1.15)	(-1.15)	(-1.15)	(-0.96)	(-0.93)	(-0.94)	(-0.94)	(-0.94)
Credit Rating	-0.0169	-0.0156	-0.0154	-0.0155	-0.0154	-0.0137	-0.0105	-0.00979	-0.0101	-0.00994
	(-0.75)	(-0.69)	(-0.68)	(-0.68)	(-0.68)	(-0.55)	(-0.42)	(-0.39)	(-0.40)	(-0.40)
Bond Maturity	-0.00611	-0.00600	-0.00592	-0.00595	-0.00593	-0.00783	-0.00725	-0.00711	-0.00717	-0.00713
	(-0.90)	(-0.87)	(-0.86)	(-0.87)	(-0.86)	(-1.15)	(-1.04)	(-1.02)	(-1.03)	(-1.02)
Profitability	0.307	0.276	0.268	0.272	0.270	0.543	0.515	0.518	0.520	0.520
	(0.65)	(0.58)	(0.56)	(0.57)	(0.57)	(1.18)	(1.10)	(1.10)	(1.11)	(1.11)
Firm Size	-0.123**	-0.118**	-0.118**	-0.118**	-0.118**	-0.128**	-0.118**	-0.118**	-0.118**	-0.118**
	(-2.22)	(-2.17)	(-2.16)	(-2.16)	(-2.16)	(-2.36)	(-2.15)	(-2.14)	(-2.15)	(-2.15)
Asset Tangibility	-0.0884	-0.0893	-0.0870	-0.0875	-0.0871	-0.0757	-0.0963	-0.0946	-0.0943	-0.0941
	(-0.56)	(-0.56)	(-0.55)	(-0.55)	(-0.55)	(-0.54)	(-0.68)	(-0.67)	(-0.66)	(-0.66)
Dividends	-0.405	-0.448	-0.455	-0.451	-0.454	-0.403	-0.465	-0.476	-0.470	-0.472
	(-1.05)	(-1.13)	(-1.14)	(-1.14)	(-1.14)	(-1.01)	(-1.18)	(-1.20)	(-1.19)	(-1.19)
Cash	-0.327	-0.321	-0.317	-0.319	-0.318	-0.400	-0.393	-0.389	-0.391	-0.390
	(-0.66)	(-0.64)	(-0.64)	(-0.64)	(-0.64)	(-0.86)	(-0.82)	(-0.81)	(-0.81)	(-0.81)
Nominal GDP growth	1.411	1.065	1.061	1.071	1.067	2.138**	1.560*	1.574*	1.587*	1.585*
	(1.60)	(1.29)	(1.27)	(1.29)	(1.28)	(2.39)	(1.80)	(1.80)	(1.82)	(1.82)
Term Spreads	-2.125	-1.166	-1.076	-1.154	-1.120	-6.030	-4.707	-4.699	-4.806	-4.783
	(-0.48)	(-0.27)	(-0.25)	(-0.26)	(-0.26)	(-1.41)	(-1.11)	(-1.10)	(-1.13)	(-1.12)
Risk Spreads	-12.30	-11.31	-11.18	-11.37	-11.24	-13.72*	-12.96	-12.91	-13.28	-13.04
	(-1.51)	(-1.39)	(-1.36)	(-1.38)	(-1.37)	(-1.70)	(-1.61)	(-1.59)	(-1.64)	(-1.61)
N	145	145	145	145	145	148	148	148	148	148
Wald chi2	55.08***	55.25***	55.18***	55.23***	55.19***	55.69***	52.06***	52.56***	52.54***	52.59***
Pseudo R2	0.3423	0.3362	0.3355	0.3358	0.3356	0.387	0.3767	0.3749	0.3757	0.3753

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Interestingly, by comparing between the results for audit committee and board independence, it becomes clear that there are different signs for these variables, whereby audit committee reports a positive sign and independent directors on the board provides a negative sign, albeit audit committee members are also independent directors on the board with the regulation from the SEC that it is necessary that the audit committee must be independent. Thus, the conflicting outcomes between them implies that other independent directors who are not on the audit committee prefer not to use debt, hence they are not willing to time the debt market with selling corporate bonds.

Regarding the control variables, the results show that military experience on the board, financial education of CEO, firm size and risk spreads have a significant effect on hot debt. Moreover, nominal GDP growth and female CEO some significantly impact hot debt. However, the results of other remaining control variables are insignificant.

3.5.3.2.1.2 Hot proceeds market ($HOT_{Proceeds}$)

Tables 3.13 and 3.14 provide the empirical results for the marginal effects of the probit regression for the determinants of the existence of debt market timing, whereby the dependent variable is the dummy variable capturing the presence of debt market timing estimated with the volume of bond proceeds ($HOT_{Proceeds}$). The explanatory variables are similar to the hot debt model. Table 3.13 reports the outcome of the current interest rate, while table 3.14 illustrates the results of the expected interest rate.

Overall, most of the parameters for the presence of debt market timing as evaluated by the hot proceeds are identical to the parameters of this variable estimated by hot debt. For instance, in table 3.13, the result shows that the parameters of the current interest rate measured by five different methods have a significantly negative direction on the hot proceeds at the 99% confidence level in all models, confirming hypothesis 2.1, which is similar to the outcome of hot debt model. However, based on table 3.14, the outcome presents that the results of the expected interest rate suffer from insignificance. Thus, this does not support hypothesis 2.2, indicating that this variable does not relate to the hot proceeds.

According to ownership structure, the results illustrate that the sign of the parameters for managerial ownership are significantly negative on the hot proceeds at least at the 90% confidence level in all models. This is identical to the outcome of the hot debt model, strongly rejecting hypothesis 3.1. This contradicts also with Stulz (1988) but supports the notion of Jensen and Meckling (1976). In contrast, the results of institutional ownership, foreign ownership and ownership concentration suffer from insignificance. This contradicts the result of the hot debt model and does not support hypothesis 3.2, 3.3 and 3.4. However, this suggests that these variables are not the determinants of probability of debt market timing during a hot proceeds market.

Regarding the variables of board structure, all signs of the parameters for board composition are indistinguishable from the results of the hot debt model, confirming the results of the hot debt model. Furthermore, the significantly positive sign for board size at least at the 99% confidence level and audit committee on the board at least at the 95% confidence in all models on hot proceeds affirm the hypotheses 4.2, and 4.4 that the probability of debt market timing increases with a greater size of the board and a larger proportion of the audit committee on the board. This indicates that firms with a larger size of board prefer to use more financial leverage (Lim et al., 2007; Wang, 2012; Upadhyay, 2015) as the huge size of the board leads to a diversification of opinion with various perspectives and experiences. Also, this supports the minimization of the dominance of managers in the boardroom and avoids policies which may cause the dilution of shareholder wealth (Berger et al., 1997). Simultaneously, audit committee members on the board seems to be the instrument for monitoring the operations of managers to protect them from damaging shareholder wealth, thus they attempt to convince other directors to finance with debt instead of external equity (Adams, 1997).

The significantly positive direction of women on the board on hot proceeds provides some rejection for hypothesis 4.3 (30% significant models), meaning that the prospect of debt market timing increases with a higher percentage of female directors on the board. However, this is consistent with Carter et al. (2003) and Carter et al. (2010), namely that the diversification of genders on the board results in the enhancement of efficient monitoring of executive operations to prevent the reduction in the wealth of corporate owners. In contrast, there is a significantly negative sign of parameters for board independence on hot proceeds at least at the 90% confidence level in table 3.14. This is consistent with the outcome of the hot debt model, providing some rejection for hypothesis 4.1 (45% significant models). Moreover, this result is inconsistent with that of Lim et al. (2007), who found that companies with a higher proportion of independent directors on the board tend to finance with debt. However, our result suggests that independent directors are willing to use less leverage in financing their capital.

For the control variables, the results exhibit that military experience on the board, female CFO, private placement mechanism, bond maturity, credit rating, asset tangibility

Table 3.13: The marginal effects of probit regression for the determinants of debt market timing with hot proceed (Current interest rate)

Y / X	(1) HOT_ Proceeds	(2) HOT_ Proceeds	(3) HOT_ Proceeds	(4) HOT_ Proceeds	(5) HOT_ Proceeds	(6) HOT_ Proceeds	(7) HOT_ Proceeds	(8) HOT_ Proceeds	(9) HOT_ Proceeds	(10) HOT_ Proceeds
Short-Term Interest Rate	-19.71***					-19.45***				
	(-3.02)					(-3.03)				
Interbank Rate		-3.475***					-3.285***			
		(-3.80)					(-3.50)			
MRR rate			-3.424***					-3.228***		
			(-3.95)					(-3.63)		
MLR rate				-3.565***					-3.354***	
				(-3.91)					(-3.66)	
MOR rate					-3.550***					-3.336***
					(-3.92)					(-3.65)
Managerial Ownership	-0.778**	-0.750**	-0.745**	-0.752**	-0.749**	-0.689**	-0.625**	-0.612*	-0.617*	-0.614*
	(-2.55)	(-2.26)	(-2.22)	(-2.25)	(-2.24)	(-2.23)	(-1.98)	(-1.93)	(-1.96)	(-1.95)
Institutional Ownership	-0.435	-0.489	-0.502	-0.498	-0.500	-0.465	-0.546	-0.569	-0.561	-0.565
	(-1.20)	(-1.37)	(-1.41)	(-1.40)	(-1.41)	(-1.30)	(-1.55)	(-1.62)	(-1.60)	(-1.61)
Foreign Ownership	-0.251	-0.159	-0.138	-0.150	-0.145	-0.366	-0.223	-0.200	-0.209	-0.204
	(-0.66)	(-0.44)	(-0.39)	(-0.42)	(-0.41)	(-0.97)	(-0.63)	(-0.57)	(-0.59)	(-0.58)
Ownership Concentration	-0.402	-0.322	-0.297	-0.296	-0.294	-0.423	-0.268	-0.222	-0.228	-0.221
	(-0.99)	(-0.79)	(-0.72)	(-0.72)	(-0.72)	(-0.96)	(-0.60)	(-0.49)	(-0.51)	(-0.49)
Board Independence	-0.534	-0.454	-0.446	-0.459	-0.453	-0.550	-0.477	-0.464	-0.478	-0.471
	(-1.49)	(-1.32)	(-1.30)	(-1.34)	(-1.32)	(-1.62)	(-1.42)	(-1.38)	(-1.43)	(-1.41)
Board Size	1.197*	1.051	1.049	1.057	1.055	1.505**	1.476**	1.492**	1.497**	1.497**
	(1.86)	(1.57)	(1.56)	(1.58)	(1.57)	(2.47)	(2.33)	(2.35)	(2.36)	(2.36)
Women on Board	0.607	0.393	0.378	0.386	0.382	0.890*	0.706	0.696	0.708	0.702
	(1.41)	(0.89)	(0.86)	(0.87)	(0.86)	(1.93)	(1.51)	(1.50)	(1.52)	(1.51)
Audit Committee on Board	2.433***	2.455***	2.489***	2.488***	2.491***	2.158**	2.132**	2.158**	2.155**	2.158**
	(2.66)	(2.68)	(2.71)	(2.71)	(2.71)	(2.50)	(2.47)	(2.50)	(2.50)	(2.51)
Military Experience on Board	0.126	0.127	0.126	0.128	0.127	0.128*	0.133*	0.130*	0.132*	0.131*
	(1.59)	(1.61)	(1.60)	(1.62)	(1.61)	(1.76)	(1.82)	(1.78)	(1.81)	(1.79)
Female CFO	-0.115*	-0.121*	-0.125*	-0.124*	-0.125*					
	(-1.75)	(-1.82)	(-1.87)	(-1.86)	(-1.86)					
Older CFO	0.668	0.784	0.874	0.847	0.869					
	(0.90)	(1.04)	(1.15)	(1.11)	(1.14)					
Financial Education of CFO	0.163	0.198	0.219	0.219	0.221					
	(0.97)	(1.17)	(1.27)	(1.27)	(1.28)					
Female CEO						-0.208	-0.165	-0.166	-0.168	-0.167
						(-1.22)	(-0.96)	(-0.97)	(-0.98)	(-0.98)
Older CEO						-0.289	0.00715	0.113	0.107	0.121
						(-0.36)	(0.01)	(0.13)	(0.13)	(0.14)
Financial Education of CEO						0.0704	0.125	0.137*	0.134	0.136*
						(0.85)	(1.53)	(1.66)	(1.63)	(1.65)
Private Placement	0.188**	0.238***	0.249***	0.247***	0.248***	0.178**	0.215***	0.224***	0.221***	0.223***
	(2.42)	(2.88)	(2.96)	(2.95)	(2.96)	(2.39)	(2.76)	(2.85)	(2.82)	(2.83)
Credit Rating	0.0651**	0.0656**	0.0637**	0.0639**	0.0636**	0.0661**	0.0618**	0.0589**	0.0593**	0.0588**
	(2.19)	(2.26)	(2.17)	(2.18)	(2.17)	(2.26)	(2.09)	(1.98)	(2.00)	(1.98)
Bond Maturity	-0.0185**	-0.0171*	-0.0177*	-0.0178*	-0.0178*	-0.0173*	-0.0156	-0.0160*	-0.0161*	-0.0161*
	(-2.03)	(-1.84)	(-1.90)	(-1.91)	(-1.91)	(-1.85)	(-1.64)	(-1.68)	(-1.69)	(-1.69)
Profitability	0.624	0.558	0.576	0.583	0.582	0.363	0.206	0.196	0.201	0.199
	(1.15)	(1.03)	(1.05)	(1.07)	(1.06)	(0.66)	(0.37)	(0.35)	(0.36)	(0.36)
Firm Size	-0.0510	-0.0472	-0.0435	-0.0441	-0.0436	-0.0405	-0.0428	-0.0402	-0.0407	-0.0404
	(-0.90)	(-0.83)	(-0.77)	(-0.78)	(-0.77)	(-0.71)	(-0.72)	(-0.67)	(-0.68)	(-0.67)
Asset Tangibility	-0.714***	-0.724***	-0.728***	-0.733***	-0.731***	-0.681***	-0.694***	-0.702***	-0.702***	-0.703***
	(-4.37)	(-4.16)	(-4.14)	(-4.18)	(-4.16)	(-3.99)	(-3.96)	(-4.02)	(-4.03)	(-4.03)
Dividends	0.625	0.359	0.307	0.322	0.312	0.720	0.528	0.495	0.508	0.501
	(0.94)	(0.59)	(0.51)	(0.53)	(0.52)	(1.08)	(0.90)	(0.88)	(0.89)	(0.88)
Cash	-1.390**	-1.322**	-1.339**	-1.343**	-1.342**	-1.230**	-1.171**	-1.183**	-1.187**	-1.186**
	(-2.52)	(-2.40)	(-2.42)	(-2.43)	(-2.43)	(-2.38)	(-2.25)	(-2.27)	(-2.28)	(-2.28)
Nominal GDP growth	2.329**	1.661	1.250	1.321	1.274	2.177**	1.559	1.172	1.250	1.201
	(2.13)	(1.48)	(1.09)	(1.15)	(1.11)	(1.98)	(1.38)	(1.01)	(1.08)	(1.03)
Term Spreads	1.717	-0.978	-1.163	-1.148	-0.860	1.865	-0.908	-1.105	-1.198	-0.917
	(0.22)	(-0.17)	(-0.20)	(-0.20)	(-0.15)	(0.26)	(-0.17)	(-0.20)	(-0.22)	(-0.17)
Risk Spreads	12.95	15.14	17.03	17.76	17.58	13.19	14.04	15.46	16.16	15.92
	(1.10)	(1.44)	(1.60)	(1.64)	(1.63)	(1.10)	(1.31)	(1.46)	(1.51)	(1.49)
N	145	145	145	145	145	148	148	148	148	148
Wald chi2	58.94***	53.36***	53.25***	52.73***	52.85***	54.16***	50.30***	50.46***	50.60***	50.58***
Pseudo R2	0.3172	0.3112	0.3142	0.3153	0.3154	0.3163	0.3044	0.3064	0.3075	0.3074

t statistics in parentheses: * $p<0.1$, ** $p<0.05$, *** $p<0.01$

Table 3.14: The marginal effects of probit regression for the determinants of debt market timing with hot proceed (Expected interest rate with perfect foresight method)

Y / X	(1) HOT_ Proceeds	(2) HOT_ Proceeds	(3) HOT_ Proceeds	(4) HOT_ Proceeds	(5) HOT_ Proceeds	(6) HOT_ Proceeds	(7) HOT_ Proceeds	(8) HOT_ Proceeds	(9) HOT_ Proceeds	(10) HOT_ Proceeds
Expected ST Interest Rate t+1	0.858					0.953				
	(0.36)					(0.40)				
Expected Interbank Rate t+1		1.060					1.097			
		(1.41)					(1.48)			
Expected MRR rate t+1			0.809					0.905		
			(1.12)					(1.27)		
Expected MLR rate t+1				0.927					1.015	
				(1.24)					(1.37)	
Expected MOR rate t+1					0.866					0.959
					(1.18)					(1.32)
Managerial Ownership	-0.796**	-0.837***	-0.829***	-0.832***	-0.831***	-0.721**	-0.750**	-0.750**	-0.750**	-0.750**
	(-2.50)	(-2.67)	(-2.64)	(-2.65)	(-2.65)	(-2.33)	(-2.44)	(-2.43)	(-2.44)	(-2.43)
Institutional Ownership	-0.489	-0.473	-0.475	-0.473	-0.474	-0.512	-0.477	-0.478	-0.476	-0.476
	(-1.29)	(-1.26)	(-1.26)	(-1.26)	(-1.26)	(-1.37)	(-1.28)	(-1.28)	(-1.28)	(-1.28)
Foreign Ownership	-0.0457	-0.0915	-0.0835	-0.0876	-0.0857	-0.188	-0.230	-0.230	-0.232	-0.232
	(-0.12)	(-0.24)	(-0.22)	(-0.23)	(-0.22)	(-0.50)	(-0.61)	(-0.61)	(-0.62)	(-0.61)
Ownership Concentration	-0.290	-0.285	-0.291	-0.291	-0.291	-0.405	-0.446	-0.452	-0.454	-0.453
	(-0.66)	(-0.66)	(-0.67)	(-0.67)	(-0.67)	(-0.85)	(-0.96)	(-0.97)	(-0.97)	(-0.97)
Board Independence	-0.574	-0.665*	-0.648*	-0.655*	-0.651*	-0.652*	-0.753**	-0.743**	-0.748**	-0.744**
	(-1.54)	(-1.79)	(-1.74)	(-1.76)	(-1.75)	(-1.81)	(-2.09)	(-2.06)	(-2.08)	(-2.06)
Board Size	1.276*	1.389**	1.371**	1.379**	1.374**	1.640***	1.729***	1.714***	1.720***	1.716***
	(1.89)	(2.06)	(2.02)	(2.04)	(2.03)	(2.65)	(2.82)	(2.80)	(2.81)	(2.80)
Women on Board	0.642	0.710	0.704	0.707	0.705	0.896**	0.993**	0.985**	0.991**	0.988**
	(1.48)	(1.64)	(1.62)	(1.63)	(1.63)	(1.96)	(2.20)	(2.18)	(2.19)	(2.18)
Audit Committee on Board	2.563***	2.604***	2.593***	2.596***	2.594***	2.350**	2.377***	2.371**	2.371***	2.370**
	(2.65)	(2.70)	(2.69)	(2.69)	(2.69)	(2.55)	(2.58)	(2.57)	(2.58)	(2.57)
Military Experience on Board	0.143*	0.149*	0.149*	0.149*	0.149*	0.156**	0.167**	0.167**	0.167**	0.167**
	(1.75)	(1.82)	(1.81)	(1.82)	(1.81)	(2.02)	(2.16)	(2.15)	(2.15)	(2.15)
Female CFO	-0.130*	-0.129*	-0.128*	-0.128*	-0.128*					
	(-1.87)	(-1.87)	(-1.85)	(-1.85)	(-1.85)					
Older CFO	0.458	0.309	0.329	0.318	0.323					
	(0.57)	(0.39)	(0.41)	(0.40)	(0.41)					
Financial Education of CFO	0.185	0.188	0.182	0.183	0.182					
	(1.07)	(1.10)	(1.06)	(1.07)	(1.06)					
Female CEO						-0.139	-0.166	-0.160	-0.163	-0.162
						(-0.81)	(-0.94)	(-0.92)	(-0.93)	(-0.93)
Older CEO						-0.833	-0.869	-0.903	-0.896	-0.900
						(-1.06)	(-1.11)	(-1.15)	(-1.14)	(-1.14)
Financial Education of CEO						0.0890	0.0683	0.0686	0.0675	0.0679
						(1.05)	(0.80)	(0.80)	(0.79)	(0.79)
Private Placement	0.168*	0.151*	0.152*	0.151*	0.151*	0.157*	0.137*	0.138	0.137	0.137
	(1.94)	(1.74)	(1.73)	(1.72)	(1.73)	(1.89)	(1.65)	(1.64)	(1.64)	(1.64)
Credit Rating	0.0772**	0.0755**	0.0765**	0.0762**	0.0764**	0.0837***	0.0837***	0.0848***	0.0845***	0.0847***
	(2.42)	(2.38)	(2.41)	(2.41)	(2.41)	(2.67)	(2.66)	(2.69)	(2.69)	(2.69)
Bond Maturity	-0.0154	-0.0161*	-0.0158*	-0.0159*	-0.0158*	-0.0141	-0.0147	-0.0146	-0.0146	-0.0146
	(-1.64)	(-1.73)	(-1.70)	(-1.71)	(-1.70)	(-1.48)	(-1.58)	(-1.55)	(-1.56)	(-1.56)
Profitability	0.520	0.592	0.575	0.581	0.578	0.204	0.274	0.267	0.272	0.270
	(0.87)	(1.00)	(0.97)	(0.98)	(0.98)	(0.34)	(0.45)	(0.44)	(0.44)	(0.44)
Firm Size	-0.0649	-0.0685	-0.0685	-0.0688	-0.0686	-0.0562	-0.0602	-0.0602	-0.0604	-0.0603
	(-1.05)	(-1.11)	(-1.10)	(-1.11)	(-1.11)	(-0.92)	(-0.99)	(-0.99)	(-1.00)	(-0.99)
Asset Tangibility	-0.737***	-0.767***	-0.761***	-0.763***	-0.761***	-0.703***	-0.705***	-0.705***	-0.705***	-0.705***
	(-4.04)	(-4.26)	(-4.20)	(-4.22)	(-4.21)	(-3.83)	(-3.98)	(-3.95)	(-3.96)	(-3.95)
Dividends	0.520	0.628	0.609	0.619	0.615	0.586	0.697	0.685	0.694	0.690
	(0.85)	(1.00)	(0.97)	(0.98)	(0.98)	(0.94)	(1.05)	(1.03)	(1.04)	(1.04)
Cash	-1.537**	-1.602**	-1.589**	-1.592**	-1.590**	-1.362**	-1.431**	-1.422**	-1.425**	-1.423**
	(-2.49)	(-2.57)	(-2.56)	(-2.56)	(-2.56)	(-2.37)	(-2.48)	(-2.46)	(-2.47)	(-2.46)
Nominal GDP growth	2.084*	2.170*	2.172*	2.192*	2.187*	1.872	2.034*	2.038*	2.062*	2.055*
	(1.68)	(1.87)	(1.85)	(1.87)	(1.86)	(1.49)	(1.74)	(1.72)	(1.75)	(1.74)
Term Spreads	-10.29**	-11.40**	-11.30**	-11.43**	-11.40**	-9.672*	-11.19**	-11.16**	-11.29**	-11.26**
	(-2.08)	(-2.29)	(-2.26)	(-2.28)	(-2.28)	(-1.90)	(-2.21)	(-2.19)	(-2.22)	(-2.21)
Risk Spreads	13.11	10.59	10.94	10.42	10.74	13.74	11.44	11.60	11.10	11.41
	(1.23)	(1.03)	(1.05)	(1.00)	(1.03)	(1.27)	(1.09)	(1.10)	(1.05)	(1.08)
N	145	145	145	145	145	148	148	148	148	148
Wald chi2	47.60**	49.12**	48.76**	49.00**	48.92**	47.00**	48.62**	48.40**	48.55**	48.48**
Pseudo R2	0.256	0.264	0.261	0.2622	0.2616	0.2576	0.2657	0.2636	0.2646	0.2641

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

and cash significantly associate with hot proceeds. Moreover, financial education of CEO, nominal GDP growth and term spreads have some impact on the hot proceeds. In contrast, other control variables do not relate to the hot proceeds.

3.5.3.2.1.3 Extreme ($IR_{Extreme}$) and median (IR_{Median}) interest rates

Table 3.15 provides the empirical results for the marginal effects of the probit regression models with robust command of the determinants of debt market timing, which is classified as issuing corporate bonds when the current interest rate is relatively low in terms of extreme ($IR_{Extreme}$) and median (IR_{Median}) interest rates. All explanatory variables are similar to those of the hot debt model. The models are separated between CFO and CEO characteristics to avoid the multicollinearity issue.

a) Extremely low interest rate ($IR_{Extreme}$)

Regarding the extreme interest rate model as estimated by allocating corporate bonds during an extremely low interest rate, the empirical results are illustrated in models 1 and 2 of table 3.15. Overall, managerial ownership, controlling shareholders, board independence, women and audit committee directors on the board seem to be crucial factors in the propensity of debt market timing with conducting corporate bonds when the current interest rate is extremely low.

Firstly, the parameters of managerial ownership are in a significantly negative direction for extreme interest rate at the 99% confidence level, rejecting hypothesis 3.1. This indicates that the propensity of debt market timing with corporate bond issuance during a period of tremendously low interest rate declines with higher managerial investors. This is similar to Jensen and Meckling (1976), who posit that companies with higher managerial ownership avoid debt financing since they are not willing to gain more stress from lenders, and this implies that these firms have less of an agency problem.

Secondly, there is a significantly positive impact of controlling shareholders on the extreme interest rate at least at the 90% confidence level. This rejects hypothesis 3.4, meaning that the probability of debt market timing increases with a higher ownership concentration. This is identical to Doukas et al. (2011), who mentioned that companies with higher ownership concentration tend to finance with more leverage as major shareholders persuade firm managers to use debt rather than equity since they desire to retain their voting power.

Thirdly, independent directors on the board has a significantly negative influence on the propensity of debt market timing at the 99% confidence level, opposing hypothesis 4.1. This indicates that independent directors are representative of a firm's corporate governance (Core et al., 1999; Gillan & Starks, 2000). Hence, firms with a higher corporate governance tend to take less advantage of the debt market, although they acknowledge that the current interest rate is extremely low.

Fourthly, there is a significantly positive effect of women on the board on the probability of debt market timing during a period of extremely low interest rate at the 90% confidence level, providing some rejection for hypothesis 4.3 (50% significant models). This indicates that the increase in the diversity of genders on the board supports an increase in the potential in executive management to reduce the violation of equity financing that may lead to wealth dilution from new shareholders (Carter et al., 2003; Carter et al., 2010); hence, they prefer to time the debt market when the current interest rate is extremely low.

Finally, the direction of the estimators for audit committee members on the board is significantly positive for the extreme interest rate at the 95% confidence level, providing some support for hypothesis 4.4 (50% significant models). This suggests that the possibility of debt market timing increases with a higher proportion of audit committee members on the board. Our result is consistent with that of Adams (1997), who showed that the audit committee is a potential instrument in monitoring the manager's operations to prevent the use of a policy that may lead to the dilution of firm value, thus they prefer to finance with debt.

In contrast, our outcome illustrates that institutional and foreign shareholders and the size of the board do not have an impact on the chance of debt market timing with the extreme strategy because the results are insignificant.

Based on the control variables, the results report that financial education of managers, private placement mechanism, bond maturity, asset tangibility, dividends, cash, nominal GDP growth rate and term and risk spreads have significant effects on extreme interest rates. Also, military experience on the board has some significantly impacts an extreme interest rate. However, the results of other control variables are statistically insignificant.

b) Median low interest rate (IR_{Median})

With respect to the median interest rate model, as calculated by conducting corporate bonds when the current interest rate is moderately low, the empirical results are displayed in models 3 and 4 of table 3.15. Overall, foreign shareholders and audit committee on the board seem to be the crucial determinants of the propensity of debt market timing during a comparably low interest rate.

Table 3.15: The marginal effects of probit regression for the determinants of timing debt market with extreme and median interest rates

Y / X	(1) Extreme interest rate (CFO)	(2) Extreme interest rate (CEO)	(3) Median interest rate (CFO)	(4) Median interest rate (CFO)
Managerial Ownership	-1.181***	-1.375***	0.0390	0.165
	(-3.10)	(-4.60)	(0.10)	(0.43)
Institutional Ownership	0.227	0.345	-0.120	-0.198
	(0.50)	(0.81)	(-0.29)	(-0.48)
Foreign Ownership	-0.229	-0.0837	1.145**	1.255***
	(-0.63)	(-0.28)	(2.52)	(2.97)
Ownership Concentration	0.804**	0.646*	0.359	0.399
	(2.13)	(1.90)	(0.71)	(0.78)
Board Independence	-0.914***	-0.962***	-0.00191	-0.0388
	(-3.31)	(-3.17)	(-0.01)	(-0.11)
Board Size	0.828	0.761	0.189	0.718
	(1.25)	(1.17)	(0.26)	(1.03)
Women on Board	0.389	0.812*	0.281	0.324
	(0.89)	(1.83)	(0.57)	(0.64)
Audit Committee on Board	1.360	1.262**	2.309**	2.232**
	(1.57)	(2.47)	(2.51)	(2.53)
Military Experience on Board	0.0802	0.108**	-0.0235	0.0164
	(1.44)	(2.43)	(-0.25)	(0.18)
Female CFO	-0.0351	-	-0.0761	-
	(-0.43)	-	(-0.92)	-
Older CFO	0.263	-	-0.0875	-
	(0.43)	-	(-0.11)	-
Financial Education of CFO	-0.188*	-	0.199	-
	(-1.70)	-	(1.07)	-
Female CEO	-	-0.122	-	0.0557
	-	(-0.90)	-	(0.26)
Older CEO	-	0.0534	-	0.663
	-	(0.11)	-	(0.79)
Financial Education of CEO	-	-0.200***	-	0.123
	-	(-2.59)	-	(1.15)
Private Placement	-0.325***	-0.423***	-0.00221	-0.00765
	(-2.82)	(-4.04)	(-0.02)	(-0.07)
Credit Rating	-0.0425	-0.0352	0.0207	0.00439
	(-1.39)	(-1.23)	(0.61)	(0.13)
Bond Maturity	0.0338***	0.0356***	-0.0338**	-0.0328**
	(2.70)	(2.82)	(-2.23)	(-2.14)
Profitability	0.783	1.202	-1.260*	-1.425**
	(1.31)	(1.45)	(-1.84)	(-2.12)
Firm Size	-0.0283	-0.0115	-0.0681	-0.0756
	(-0.63)	(-0.28)	(-1.00)	(-1.15)
Asset Tangibility	-0.543**	-0.509**	-0.290	-0.230
	(-2.43)	(-2.09)	(-1.22)	(-1.04)
Dividends	1.569**	1.482**	0.505	0.674
	(2.36)	(2.43)	(0.85)	(1.11)
Cash	-2.222**	-2.104***	0.735	0.594
	(-2.30)	(-2.98)	(1.03)	(0.82)
Nominal GDP growth	-3.490***	-3.442**	-0.173	-0.0297
	(-2.81)	(-2.25)	(-0.13)	(-0.02)
Term Spreads	-23.66***	-22.77***	1.731	1.114
	(-3.67)	(-5.32)	(0.30)	(0.19)
Risk Spreads	46.56***	42.97***	-14.04	-12.06
	(3.89)	(3.93)	(-1.25)	(-1.05)
N	125	128	145	148
Wald chi2	35.20	23.23	37.33	40.11*
Pseudo R2	0.6238	0.620	0.1806	0.1748

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Firstly, the sign of the parameters for foreign ownership for the median interest rate are significantly positive at least at the 95% confidence level, rejecting hypothesis 3.3. This indicates that the probability of debt market timing increases with higher foreign ownership. This finding affirms the statement of Kang (1997), who found that there is a positive association between the proportion of foreign ownership and financial leverage, implying that foreign investors act as monitors by observing the operations of managers to prevent the use of policies that may damage the shareholder wealth of current investors.

Finally, there is a significantly positive direction of the parameters for audit committee members on the board for the median interest rate at the 95% confidence level, supporting hypothesis 4.4. This suggests that the probability of debt market timing increases with a higher proportion of audit committee members on the board. This is consistent with Adams (1997) who states that the audit committee can be a potential monitor of the management by executives to prevent them from employing an inappropriate policy that would cause a reduction in firm value. Moreover, Anderson et al. (2004) claim that the audit committee has a positive effect on lowering cost of debt financing. Therefore, the corporations with a higher percentage of audit committee members on the board prefer to time the debt market via issuing corporate bonds during relatively low interest rates.

On the other hand, the results report that other factors, including the proportion of managerial, institutional and controlling shareholders, board size, the percentage of independent and women directors on the board do not impact on the probability of debt market timing with the median strategy due to the insignificant outcomes.

According to the control variables, the results show that bond maturity and profitability have significantly negative effects on the median interest rate at least at the 90% confidence level. However, other control factors do not have any meaningful effect on the median interest rate as they show insignificant results.

3.5.3.2.2 The determinants of the degree of debt market timing

3.5.3.2.2.1 Proceeds ratio

3.5.3.2.2.1.1 OLS regression

Tables 3.16[32], 3.17[33] and 3.18[34] illustrate the empirical results for the OLS regression analysis with robust command for the determinants of the degree of debt market timing with corporate bond issuance in Thailand, whereby the dependent variable is the bond proceeds ratio as estimated by nominal bond proceeds divided by total assets at time t. The explanatory variables are identical to the model of the presence of debt market timing. Moreover, as the managerial characteristics between CEO and CFO (current and expected interest rates) may have high correlation, the regression models are separately produced to mitigate the multicollinearity issue.

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[32] VIF values: mean = 2.47, max = 2.52 and min =2.42.
[33] VIF values: mean = 2.47, max = 2.52 and min =2.42.
[34] VIF values: mean = 2.56, max = 2.76 and min =2.47.

Beginning with the interest rate factors, the coefficients of the current interest rate as estimated by the interbank rate have a significantly negative sign on the bond proceeds ratio at the 90% confidence interval in table 3.16. This provides partial support for hypothesis 2.1 (20% significant models), meaning that the level of debt market timing increases with a lower current interest rate. Our finding is homogenous with that by Kaya (2013b), who found that the current interest rate negatively impacts on the amount of proceeds scaled by total assets at time t. This implies that managers can intensify the level of debt market timing with larger proceeds during a low current interest rate.

Surprisingly, there is a significantly negative sign of the parameters for the expected interest rate at time t+1 on the bond proceeds ratio at least at the 90% confidence level in table 3.17 for the perfect foresight method and table 3.18 for the forecast inflation rate data. This goes against hypothesis 2.2, meaning that the degree of debt market timing with larger proceeds increases with a lower expected interest rate. However, this is consistent with Barry et al. (2009), who assert that managers cannot precisely predict the future interest rate, hence they are unable to achieve debt market timing, whereby they found evidence that the future interest rate is no greater during a huge quantity of debt allocation. This implies that managers may be unsuccessful at timing the debt market with larger proceeds.

Additionally, the coefficients of the expected interest rate at time t+2 as estimated by forecast inflation rate data (table 3.20) have a significantly negative direction at the 95% confidence level. This insists that managers cannot succeed in timing the debt market to gain larger proceeds from corporate bond issuance, although they use the information of the expected interest rate at time t+2. Interestingly, the results for the estimators of the expected interest rate with forecast data are significant until time t+2, while the results for the coefficients of this variable with the perfect foresight method are significant until only time t+1. This implies that firm managers use the information of the forecasted interest rate from time t+1 until t+2; however, the prediction of the expected interest rate affects firms in only time t+1.

Furthermore, the outcomes demonstrate that managerial and large shareholders are crucial determinants of the level of debt market timing. The signs for managerial ownership for the bond proceeds ratio are significantly negative at the 95% confidence level in all models. This rejects hypothesis 3.1, indicating that the level of debt market timing with larger proceeds declines with a higher proportion of managerial shareholders. This is homogenous with Friend and Lang (1988), who found that there is a negative association between the proportion of managerial shareholders and the debt ratio. This indicates that managers prefer not to obtain more pressure from the monitoring of bondholders, which implies that there are less conflicts in such firms (Jensen & Meckling, 1976). Conversely, there is a significantly positive direction for the parameters for ownership concentration for the bond proceeds ratio at the 90% confidence level. This provides some rejection for hypothesis 3.4 (46.67% significant models), suggesting that the level of debt market timing increases with a higher proportion of controlling shareholders. Our finding is consistent with that of Doukas et al. (2011), who found that controlling shareholders control the companies via manager operations in an attempt to finance with debt to maintain their voting power. However, due to the insignificant results on institutional and foreign ownerships, hypotheses 3.2 and 3.3 are not verified. This implies that institutional and foreign shareholders do not impact on the level of debt market timing to gain more proceeds.

In addition, the results illustrate that board independence and board size appear to be crucial determinants of the level of debt market timing. The results show that the coefficients of independent directors on the board and board size have a significantly positive direction for the bond proceeds ratio at the 90% confidence level. Hence, this supports hypothesis 4.1 but partially confirms hypothesis 4.2 due to only 26.67% significant models. This suggests that companies with a higher board independence and a greater board size tend to have a high degree of debt market timing with lager capital from selling corporate bonds. This indicates that when the board of directors is more diversified, both in aspects of independent decision-making and less domination from major shareholders and managers, they are willing to finance with debt to ensure less dispersed shareholder wealth of the existing investors. This also implies that when the diversification of the board of directors increases, the efficiency of decision-making on crucial policy is enhanced since they focus on those projects that lead to the creation of firm value. Thus, firms time the debt market to gain huge amounts of money to minimize the cost of capital and increase firm value. This is consistent with Lim et al. (2007), who found that there is a positive association between the proportion of board independence and debt financing. Also, Berger et al. (1997), Wang (2012) and Upadhyay (2015) claim that a higher level of board independence and greater board size leads to a high leverage ratio.

Regarding the control variables, the results report that bond maturity, profitability, firm size, asset tangibility and nominal GDP growth have strongly significant effects on

Table 3.16: The OLS regression for the determinants of the degree of debt market timing (Current interest rate)

X \ Y	(1) Proceeds/TA	(2) Proceeds/TA	(3) Proceeds/TA	(4) Proceeds/TA	(5) Proceeds/TA	(6) Proceeds/TA	(7) Proceeds/TA	(8) Proceeds/TA	(9) Proceeds/TA	(10) Proceeds/TA
Short-Term Interest Rate	-0.243					-0.200				
	(-1.05)					(-0.89)				
Interbank Rate		-0.158*					-0.157*			
		(-1.68)					(-1.67)			
MRR rate			-0.145					-0.147		
			(-1.62)					(-1.62)		
MLR rate				-0.142					-0.143	
				(-1.60)					(-1.59)	
MOR rate					-0.143					-0.144
					(-1.60)					(-1.59)
Managerial Ownership	-0.0818**	-0.0770**	-0.0768**	-0.0774**	-0.0772**	-0.0891**	-0.0827**	-0.0821**	-0.0829**	-0.0826**
	(-2.23)	(-2.28)	(-2.28)	(-2.28)	(-2.28)	(-2.25)	(-2.31)	(-2.30)	(-2.30)	(-2.30)
Institutional Ownership	-0.0205	-0.0214	-0.0217	-0.0216	-0.0216	-0.0210	-0.0236	-0.0245	-0.0241	-0.0243
	(-0.80)	(-0.84)	(-0.85)	(-0.84)	(-0.85)	(-0.79)	(-0.88)	(-0.91)	(-0.89)	(-0.90)
Foreign Ownership	-0.0111	-0.0120	-0.0112	-0.0115	-0.0113	-0.0134	-0.0116	-0.0105	-0.0110	-0.0108
	(-0.36)	(-0.39)	(-0.37)	(-0.37)	(-0.37)	(-0.42)	(-0.37)	(-0.34)	(-0.35)	(-0.34)
Ownership Concentration	0.0725*	0.0690*	0.0700*	0.0703*	0.0703*	0.0553	0.0576	0.0589	0.0587	0.0589
	(1.68)	(1.67)	(1.69)	(1.69)	(1.69)	(1.12)	(1.19)	(1.21)	(1.20)	(1.21)
Board Independence	0.112*	0.112*	0.111*	0.111*	0.111*	0.0993*	0.102*	0.102*	0.101*	0.101*
	(1.82)	(1.87)	(1.87)	(1.86)	(1.86)	(1.72)	(1.77)	(1.77)	(1.76)	(1.77)
Board Size	0.141*	0.129*	0.129*	0.131*	0.130*	0.133	0.126	0.127	0.128	0.128
	(1.74)	(1.67)	(1.66)	(1.68)	(1.67)	(1.56)	(1.55)	(1.56)	(1.56)	(1.56)
Women on Board	-0.0179	-0.0233	-0.0232	-0.0227	-0.0228	-0.0153	-0.0219	-0.0223	-0.0214	-0.0217
	(-0.55)	(-0.71)	(-0.71)	(-0.70)	(-0.70)	(-0.40)	(-0.57)	(-0.58)	(-0.56)	(-0.57)
Audit Committee on Board	0.0820	0.0735	0.0747	0.0757	0.0755	0.0686	0.0622	0.0641	0.0648	0.0647
	(0.96)	(0.88)	(0.90)	(0.91)	(0.90)	(0.74)	(0.70)	(0.72)	(0.72)	(0.72)
Military Experience on Board	0.0158	0.0148	0.0147	0.0148	0.0148	0.0162*	0.0153*	0.0151	0.0153*	0.0152*
	(1.64)	(1.60)	(1.58)	(1.59)	(1.59)	(1.68)	(1.67)	(1.65)	(1.66)	(1.66)
Female CFO	-0.00765	-0.00726	-0.00734	-0.00733	-0.00733					
	(-1.36)	(-1.31)	(-1.32)	(-1.31)	(-1.31)					
Older CFO	-0.000696	-0.000599	-0.000567	-0.000585	-0.000575					
	(-1.56)	(-1.45)	(-1.39)	(-1.42)	(-1.40)					
Financial Education of CFO	-0.0133	-0.0130	-0.0120	-0.0121	-0.0120					
	(-1.03)	(-1.00)	(-0.93)	(-0.94)	(-0.94)					
Female CEO						0.00581	0.00473	0.00486	0.00488	0.00491
						(0.67)	(0.55)	(0.57)	(0.57)	(0.57)
Older CEO						-0.000630	-0.000372	-0.000349	-0.000373	-0.000363
						(-0.92)	(-0.57)	(-0.54)	(-0.57)	(-0.56)
Financial Education of CEO						-0.00286	-0.000963	-0.000448	-0.000726	-0.000601
						(-0.42)	(-0.15)	(-0.07)	(-0.11)	(-0.09)
Private Placement	0.00500	0.00773	0.00797	0.00771	0.00779	0.00237	0.00494	0.00521	0.00492	0.00501
	(0.69)	(1.08)	(1.10)	(1.06)	(1.07)	(0.32)	(0.68)	(0.71)	(0.67)	(0.68)
Credit Rating	-0.00191	-0.00220	-0.00220	-0.00217	-0.00218	-0.000433	-0.00113	-0.00115	-0.00109	-0.00111
	(-0.73)	(-0.85)	(-0.85)	(-0.84)	(-0.84)	(-0.18)	(-0.48)	(-0.49)	(-0.46)	(-0.47)
Bond Maturity	0.00252*	0.00251*	0.00248*	0.00248*	0.00248*	0.00255*	0.00254*	0.00252*	0.00252*	0.00252*
	(1.73)	(1.82)	(1.81)	(1.80)	(1.81)	(1.70)	(1.77)	(1.76)	(1.75)	(1.76)
Profitability	0.0973*	0.0913*	0.0911*	0.0919*	0.0916*	0.0913*	0.0848*	0.0836*	0.0847*	0.0842*
	(1.89)	(1.89)	(1.89)	(1.89)	(1.89)	(1.86)	(1.83)	(1.82)	(1.83)	(1.82)
Firm Size	-0.0395**	-0.0380**	-0.0380**	-0.0381**	-0.0381**	-0.0396**	-0.0387**	-0.0387**	-0.0387**	-0.0387**
	(-2.38)	(-2.41)	(-2.41)	(-2.41)	(-2.41)	(-2.24)	(-2.30)	(-2.30)	(-2.29)	(-2.29)
Asset Tangibility	-0.0468*	-0.0459*	-0.0461*	-0.0464*	-0.0463*	-0.0425*	-0.0416*	-0.0419*	-0.0421*	-0.0421*
	(-1.95)	(-1.96)	(-1.97)	(-1.97)	(-1.97)	(-1.83)	(-1.85)	(-1.85)	(-1.85)	(-1.85)
Dividends	-0.00272	-0.00836	-0.00998	-0.00935	-0.00963	-0.0149	-0.0153	-0.0166	-0.0164	-0.0166
	(-0.08)	(-0.24)	(-0.28)	(-0.27)	(-0.27)	(-0.38)	(-0.41)	(-0.44)	(-0.43)	(-0.43)
Cash	-0.0972	-0.0886	-0.0892	-0.0900	-0.0899	-0.0879	-0.0819	-0.0822	-0.0829	-0.0827
	(-1.59)	(-1.56)	(-1.56)	(-1.56)	(-1.56)	(-1.50)	(-1.49)	(-1.48)	(-1.49)	(-1.49)
Nominal GDP growth	-0.298**	-0.314**	-0.330**	-0.326**	-0.328**	-0.286**	-0.297**	-0.315**	-0.310**	-0.312**
	(-2.53)	(-2.53)	(-2.51)	(-2.52)	(-2.51)	(-2.45)	(-2.45)	(-2.44)	(-2.44)	(-2.44)
Term Spread	-0.153	0.0817	0.0446	0.0241	0.0341	-0.107	0.137	0.109	0.0839	0.0965
	(-0.48)	(0.25)	(0.14)	(0.07)	(0.10)	(-0.33)	(0.40)	(0.32)	(0.25)	(0.29)
Risk Spread	-0.737	-0.753	-0.685	-0.657	-0.671	-0.720	-0.806	-0.748	-0.712	-0.730
	(-1.06)	(-1.10)	(-1.03)	(-1.00)	(-1.02)	(-1.03)	(-1.15)	(-1.10)	(-1.06)	(-1.08)
Constant	0.190**	0.190**	0.194**	0.193**	0.193**	0.178*	0.169*	0.174*	0.173*	0.173*
	(1.98)	(2.07)	(2.08)	(2.07)	(2.07)	(1.68)	(1.69)	(1.72)	(1.71)	(1.71)
N	143	143	143	143	143	146	146	146	146	146
F	0.499	0.516	0.520	0.515	0.517	0.678	0.638	0.634	0.634	0.634
R2	0.530	0.545	0.544	0.542	0.543	0.519	0.533	0.532	0.531	0.531

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 3.17: The OLS regression for the determinants of the degree of debt market timing (Expected interest rate with perfect foresight method)

Y / X	(1) Proceeds/TA	(2) Proceeds/TA	(3) Proceeds/TA	(4) Proceeds/TA	(5) Proceeds/TA	(6) Proceeds/TA	(7) Proceeds/TA	(8) Proceeds/TA	(9) Proceeds/TA	(10) Proceeds/TA
Expected ST Interest Rate t+1	-0.331					-0.399*				
	(-1.60)					(-1.80)				
Expected Interbank Rate t+1		-0.153*					-0.177**			
		(-1.94)					(-2.09)			
Expected MRR rate t+1			-0.147*					-0.169**		
			(-1.90)					(-2.06)		
Expected MLR rate t+1				-0.149*					-0.173**	
				(-1.90)					(-2.05)	
Expected MOR rate t+1					-0.147*					-0.170**
					(-1.90)					(-2.05)
Managerial Ownership	-0.0805**	-0.0752**	-0.0746**	-0.0751**	-0.0749**	-0.0863**	-0.0796**	-0.0785**	-0.0791**	-0.0788**
	(-2.23)	(-2.20)	(-2.20)	(-2.20)	(-2.20)	(-2.25)	(-2.20)	(-2.19)	(-2.20)	(-2.20)
Institutional Ownership	-0.0226	-0.0236	-0.0240	-0.0239	-0.0239	-0.0255	-0.0285	-0.0296	-0.0292	-0.0294
	(-0.87)	(-0.92)	(-0.93)	(-0.92)	(-0.93)	(-0.93)	(-1.04)	(-1.07)	(-1.06)	(-1.06)
Foreign Ownership	-0.00575	-0.000508	-0.000186	-0.000475	-0.000340	-0.00837	-0.00258	-0.00154	-0.00200	-0.00175
	(-0.18)	(-0.02)	(-0.01)	(-0.02)	(-0.01)	(-0.26)	(-0.08)	(-0.05)	(-0.06)	(-0.05)
Ownership Concentration	0.0772*	0.0746*	0.0750*	0.0751*	0.0751*	0.0606	0.0584	0.0601	0.0598	0.0600
	(1.76)	(1.71)	(1.72)	(1.72)	(1.72)	(1.21)	(1.17)	(1.21)	(1.20)	(1.21)
Board Independence	0.115*	0.125*	0.125*	0.125*	0.125*	0.106*	0.119*	0.119*	0.118*	0.118*
	(1.87)	(1.96)	(1.96)	(1.95)	(1.95)	(1.82)	(1.94)	(1.93)	(1.93)	(1.93)
Board Size	0.134*	0.120	0.118	0.119	0.119	0.129	0.118	0.117	0.118	0.118
	(1.71)	(1.57)	(1.53)	(1.55)	(1.54)	(1.56)	(1.44)	(1.44)	(1.44)	(1.44)
Women on Board	-0.0188	-0.0251	-0.0260	-0.0256	-0.0257	-0.0204	-0.0291	-0.0305	-0.0298	-0.0300
	(-0.59)	(-0.79)	(-0.81)	(-0.80)	(-0.80)	(-0.55)	(-0.79)	(-0.82)	(-0.80)	(-0.81)
Audit Committee on Board	0.0830	0.0721	0.0715	0.0723	0.0722	0.0713	0.0596	0.0602	0.0606	0.0606
	(0.99)	(0.87)	(0.86)	(0.87)	(0.87)	(0.79)	(0.67)	(0.68)	(0.68)	(0.68)
Military Experience on Board	0.0160	0.0148	0.0145	0.0146	0.0145	0.0157*	0.0144	0.0140	0.0142	0.0141
	(1.66)	(1.59)	(1.56)	(1.57)	(1.56)	(1.67)	(1.57)	(1.53)	(1.55)	(1.54)
Female CFO	-0.00749	-0.00803	-0.00811	-0.00810	-0.00809					
	(-1.33)	(-1.39)	(-1.40)	(-1.39)	(-1.39)					
Older CFO	-0.000504	-0.000431	-0.000393	-0.000411	-0.000403					
	(-1.27)	(-1.12)	(-1.03)	(-1.08)	(-1.06)					
Financial Education of CFO	-0.0108	-0.0100	-0.00920	-0.00939	-0.00928					
	(-0.89)	(-0.85)	(-0.81)	(-0.82)	(-0.81)					
Female CEO						0.00963	0.0107	0.0106	0.0106	0.0106
						(1.01)	(1.10)	(1.10)	(1.10)	(1.10)
Older CEO						-0.000634	-0.000625	-0.000566	-0.000586	-0.000576
						(-0.96)	(-0.99)	(-0.92)	(-0.95)	(-0.93)
Financial Education of CEO						-0.000750	0.00125	0.00190	0.00167	0.00180
						(-0.11)	(0.18)	(0.28)	(0.24)	(0.26)
Private Placement	0.00581	0.00753	0.00818	0.00795	0.00805	0.00357	0.00560	0.00626	0.00603	0.00613
	(0.79)	(1.04)	(1.11)	(1.09)	(1.10)	(0.48)	(0.77)	(0.85)	(0.82)	(0.83)
Credit Rating	-0.00170	-0.00165	-0.00174	-0.00171	-0.00172	-0.000288	-0.000367	-0.000521	-0.000462	-0.000485
	(-0.68)	(-0.67)	(-0.70)	(-0.69)	(-0.69)	(-0.13)	(-0.16)	(-0.23)	(-0.20)	(-0.21)
Bond Maturity	0.00250*	0.00260*	0.00259*	0.00259*	0.00259*	0.00252*	0.00265*	0.00263*	0.00264*	0.00263*
	(1.77)	(1.85)	(1.86)	(1.86)	(1.86)	(1.77)	(1.89)	(1.89)	(1.88)	(1.89)
Profitability	0.0941*	0.0863*	0.0855*	0.0863*	0.0860*	0.0839*	0.0729*	0.0712*	0.0722*	0.0717*
	(1.92)	(1.85)	(1.85)	(1.85)	(1.85)	(1.88)	(1.73)	(1.70)	(1.71)	(1.71)
Firm Size	-0.0395**	-0.0393**	-0.0390**	-0.0391**	-0.0391**	-0.0394**	-0.0393**	-0.0391**	-0.0392**	-0.0392**
	(-2.43)	(-2.45)	(-2.45)	(-2.44)	(-2.44)	(-2.29)	(-2.31)	(-2.31)	(-2.30)	(-2.30)
Asset Tangibility	-0.0455*	-0.0421*	-0.0419*	-0.0422*	-0.0422*	-0.0429*	-0.0396*	-0.0396*	-0.0398*	-0.0398*
	(-1.94)	(-1.85)	(-1.85)	(-1.85)	(-1.85)	(-1.84)	(-1.76)	(-1.75)	(-1.76)	(-1.76)
Dividends	-0.00458	-0.00851	-0.0105	-0.00998	-0.0103	-0.0172	-0.0204	-0.0215	-0.0213	-0.0215
	(-0.13)	(-0.23)	(-0.28)	(-0.27)	(-0.28)	(-0.43)	(-0.51)	(-0.53)	(-0.53)	(-0.53)
Cash	-0.102	-0.0959	-0.0949	-0.0955	-0.0953	-0.0893	-0.0819	-0.0811	-0.0817	-0.0815
	(-1.62)	(-1.61)	(-1.60)	(-1.60)	(-1.60)	(-1.52)	(-1.48)	(-1.47)	(-1.48)	(-1.47)
Nominal GDP Growth	-0.362**	-0.344**	-0.354**	-0.352**	-0.354**	-0.372**	-0.351**	-0.361**	-0.360**	-0.361**
	(-2.47)	(-2.59)	(-2.58)	(-2.58)	(-2.57)	(-2.43)	(-2.56)	(-2.55)	(-2.55)	(-2.55)
Term Spread	-0.0608	0.0131	0.0596	0.0516	0.0593	0.0581	0.159	0.215	0.206	0.215
	(-0.21)	(0.04)	(0.20)	(0.17)	(0.19)	(0.19)	(0.49)	(0.65)	(0.62)	(0.65)
Risk Spread	-0.319	-0.125	-0.0674	-0.0395	-0.0639	-0.341	-0.151	-0.0958	-0.0564	-0.0876
	(-0.55)	(-0.22)	(-0.12)	(-0.07)	(-0.11)	(-0.59)	(-0.27)	(-0.17)	(-0.10)	(-0.16)
Constant	0.177**	0.178**	0.184**	0.182**	0.183**	0.174*	0.176*	0.181*	0.179*	0.180*
	(1.98)	(2.04)	(2.07)	(2.05)	(2.06)	(1.72)	(1.79)	(1.82)	(1.80)	(1.81)
N	143	143	143	143	143	146	146	146	146	146
F	0.526	0.534	0.542	0.536	0.539	0.652	0.644	0.644	0.642	0.643
R2	0.538	0.548	0.548	0.547	0.548	0.532	0.544	0.544	0.543	0.544

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 3.18: The OLS regression for the determinants of the level of debt market timing (Expected interest rate with forecast inflation rate)

X \ Y	(1) Proceeds/TA	(2) Proceeds/TA	(3) Proceeds/TA	(4) Proceeds/TA	(5) Proceeds/TA	(6) Proceeds/TA	(7) Proceeds/TA	(8) Proceeds/TA	(9) Proceeds/TA	(10) Proceeds/TA
Expected ST Interest Rate t+1	-1.240					-1.483				
	(-1.13)					(-1.30)				
Expected Interbank Rate t + 1		-1.355**					-1.470**			
		(-2.29)					(-2.44)			
Expected MRR Rate t + 1			-1.053**					-1.178**		
			(-2.04)					(-2.17)		
Expected MLR Rate t + 1				-1.323**					-1.490**	
				(-2.05)					(-2.18)	
Expected MOR Rate t + 1					-1.168**					-1.320**
					(-2.03)					(-2.16)
Managerial Ownership	-0.0809**	-0.0723**	-0.0680**	-0.0698**	-0.0689**	-0.0855**	-0.0779**	-0.0692**	-0.0717**	-0.0702**
	(-2.27)	(-2.26)	(-2.19)	(-2.23)	(-2.21)	(-2.28)	(-2.28)	(-2.17)	(-2.20)	(-2.18)
Institutional Ownership	-0.0200	-0.0188	-0.0227	-0.0217	-0.0224	-0.0207	-0.0190	-0.0297	-0.0272	-0.0289
	(-0.79)	(-0.78)	(-0.91)	(-0.88)	(-0.90)	(-0.77)	(-0.74)	(-1.08)	(-1.01)	(-1.06)
Foreign Ownership	-0.00645	0.000693	0.00364	0.00293	0.00346	-0.00831	-0.00406	0.00480	0.00342	0.00463
	(-0.21)	(0.02)	(0.12)	(0.09)	(0.11)	(-0.25)	(-0.13)	(0.15)	(0.10)	(0.14)
Ownership Concentration	0.0754*	0.0658	0.0707*	0.0707*	0.0711*	0.0583	0.0472	0.0611	0.0590	0.0606
	(1.77)	(1.62)	(1.71)	(1.72)	(1.72)	(1.19)	(1.03)	(1.30)	(1.26)	(1.29)
Board Independence	0.0982*	0.120*	0.122*	0.118*	0.119*	0.0852	0.110*	0.118*	0.112*	0.114*
	(1.69)	(1.93)	(1.95)	(1.89)	(1.91)	(1.59)	(1.89)	(1.92)	(1.85)	(1.88)
Board Size	0.149*	0.126*	0.107	0.113	0.111	0.146	0.118	0.113	0.116	0.116
	(1.78)	(1.67)	(1.44)	(1.50)	(1.49)	(1.64)	(1.47)	(1.42)	(1.45)	(1.46)
Women on Board	-0.0175	-0.0290	-0.0349	-0.0339	-0.0339	-0.0166	-0.0318	-0.0417	-0.0395	-0.0402
	(-0.56)	(-0.90)	(-1.08)	(-1.04)	(-1.05)	(-0.46)	(-0.88)	(-1.10)	(-1.05)	(-1.06)
Audit Committee on Board	0.0862	0.0571	0.0555	0.0571	0.0577	0.0725	0.0380	0.0447	0.0435	0.0456
	(1.02)	(0.70)	(0.67)	(0.69)	(0.70)	(0.80)	(0.43)	(0.51)	(0.49)	(0.52)
Military Experience on Board	0.0176*	0.0167*	0.0137	0.0146	0.0142	0.0184*	0.0170*	0.0135	0.0147	0.0142
	(1.73)	(1.81)	(1.54)	(1.62)	(1.58)	(1.78)	(1.84)	(1.55)	(1.66)	(1.61)
Female CFO	-0.00614	-0.00616	-0.00727	-0.00690	-0.00704					
	(-1.16)	(-1.15)	(-1.29)	(-1.25)	(-1.26)					
Older CFO	-0.0699	-0.0673	-0.0283	-0.0397	-0.0335					
	(-1.43)	(-1.46)	(-0.70)	(-0.96)	(-0.82)					
Financial Education of CFO	-0.0109	-0.0157	-0.00865	-0.0100	-0.00903					
	(-0.89)	(-1.27)	(-0.89)	(-0.99)	(-0.91)					
Female CEO						0.00843	0.0107	0.0109	0.0113	0.0112
						(0.89)	(1.12)	(1.13)	(1.16)	(1.15)
Older CEO						-0.0864	-0.104	-0.0476	-0.0600	-0.0524
						(-0.94)	(-1.22)	(-0.64)	(-0.78)	(-0.69)
Financial Education of CEO						-0.000363	-0.000203	0.00501	0.00419	0.00483
						(-0.06)	(-0.03)	(0.74)	(0.63)	(0.72)
Private Placement	0.00396	0.00423	0.00983	0.00858	0.00922	0.00140	0.00231	0.00788	0.00655	0.00723
	(0.56)	(0.63)	(1.35)	(1.21)	(1.28)	(0.19)	(0.34)	(1.10)	(0.94)	(1.02)
Credit Rating	-0.00109	-0.000950	-0.00171	-0.00144	-0.00155	0.000363	0.000356	-0.000878	-0.000504	-0.000665
	(-0.42)	(-0.39)	(-0.70)	(-0.60)	(-0.64)	(0.15)	(0.16)	(-0.39)	(-0.22)	(-0.30)
Bond Maturity	0.00257*	0.00294*	0.00276**	0.00284*	0.00278*	0.00260*	0.00296**	0.00283**	0.00291**	0.00285**
	(1.73)	(1.95)	(2.00)	(1.98)	(1.98)	(1.73)	(2.00)	(2.05)	(2.03)	(2.03)
Profitability	0.0913*	0.0751	0.0712	0.0725	0.0719	0.0814*	0.0664	0.0539	0.0564	0.0547
	(1.83)	(1.64)	(1.65)	(1.64)	(1.65)	(1.79)	(1.59)	(1.34)	(1.38)	(1.35)
Firm Size	-0.0398**	-0.0404**	-0.0384**	-0.0388**	-0.0386**	-0.0400**	-0.0401**	-0.0389**	-0.0393**	-0.0391**
	(-2.43)	(-2.53)	(-2.49)	(-2.49)	(-2.49)	(-2.31)	(-2.39)	(-2.38)	(-2.38)	(-2.38)
Asset Tangibility	-0.0510**	-0.0416*	-0.0401*	-0.0417*	-0.0414*	-0.0481*	-0.0385*	-0.0380*	-0.0391*	-0.0391*
	(-2.01)	(-1.89)	(-1.81)	(-1.86)	(-1.86)	(-1.91)	(-1.77)	(-1.74)	(-1.77)	(-1.77)
Dividends	-0.00985	-0.00436	-0.0204	-0.0187	-0.0204	-0.0252	-0.0198	-0.0283	-0.0287	-0.0294
	(-0.28)	(-0.13)	(-0.55)	(-0.52)	(-0.56)	(-0.65)	(-0.53)	(-0.72)	(-0.74)	(-0.75)
Cash	-0.105	-0.0938	-0.0864	-0.0893	-0.0885	-0.0950	-0.0803	-0.0736	-0.0766	-0.0758
	(-1.63)	(-1.65)	(-1.57)	(-1.58)	(-1.58)	(-1.56)	(-1.55)	(-1.43)	(-1.47)	(-1.45)
Nominal GDP Growth	-0.248**	-0.160*	-0.274**	-0.244**	-0.267**	-0.232**	-0.149	-0.273**	-0.238**	-0.265**
	(-2.22)	(-1.69)	(-2.47)	(-2.34)	(-2.45)	(-2.07)	(-1.60)	(-2.42)	(-2.26)	(-2.38)
Term Spread	-0.797	0.185	0.492	0.559	0.555	-0.833	0.317	0.712	0.784	0.789
	(-1.03)	(0.59)	(1.26)	(1.34)	(1.35)	(-1.05)	(0.96)	(1.58)	(1.65)	(1.65)
Risk Spread	-1.835	-2.007*	-1.144	-1.127	-1.202	-2.145	-2.198**	-1.362*	-1.329	-1.429*
	(-1.28)	(-1.92)	(-1.52)	(-1.47)	(-1.53)	(-1.46)	(-2.10)	(-1.70)	(-1.66)	(-1.72)
Constant	0.289**	0.299**	0.282**	0.297**	0.287**	0.315	0.356*	0.308*	0.327*	0.314*
	(2.01)	(2.17)	(2.17)	(2.17)	(2.16)	(1.52)	(1.77)	(1.67)	(1.70)	(1.67)
N	143	143	143	143	143	146	146	146	146	146
F	0.495	0.537	0.589	0.566	0.578	0.643	0.655	0.661	0.641	0.653
R2	0.534	0.560	0.563	0.560	0.561	0.529	0.559	0.562	0.559	0.560

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 3.19: The OLS regression for the determinants of the level of debt market timing (Expected interest rate with perfect foresight method)

Y / X	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Proceeds/ TA	Proceeds/ TA	Proceeds/ TA	Proceeds/ TA	Proceeds/ TA	Proceeds/ TA	Proceeds/ TA	Proceeds/ TA	Proceeds/ TA	Proceeds/ TA
	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model
Expected Short-term Interest Rate t+2	-0.232					-0.151				
	(-1.02)					(-0.72)				
Expected Interbank Rate t+2		-0.101					-0.0769			
		(-1.22)					(-0.97)			
Expected MRR Rate t+2			-0.110					-0.0923		
			(-1.33)					(-1.14)		
Expected MLR Rate t+2				-0.101					-0.0809	
				(-1.26)					(-1.05)	
Expected MOR Rate t+2					-0.109					-0.0909
					(-1.33)					(-1.13)
Other Core Explanatory Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Industry Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.270*	0.282**	0.285**	0.285**	0.284**	0.290	0.297	0.297	0.298	0.297
	(1.97)	(2.01)	(2.04)	(2.02)	(2.03)	(1.43)	(1.48)	(1.49)	(1.49)	(1.49)
N	143	143	143	143	143	146	146	146	146	146
F	0.485	0.480	0.484	0.481	0.483	0.703	0.720	0.702	0.711	0.704
R2	0.529	0.531	0.533	0.532	0.533	0.519	0.521	0.523	0.522	0.523

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 3.20: The OLS regression for the determinants of the level of debt market timing (Expected interest rate with forecast inflation rate)

Y / X	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Proceeds/ TA	Proceeds/ TA	Proceeds/ TA	Proceeds/ TA	Proceeds/ TA	Proceeds/ TA	Proceeds/ TA	Proceeds/ TA	Proceeds/ TA	Proceeds/ TA
	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model
Expected Short-term Interest Rate t+2	-0.506					-0.596				
	(-1.21)					(-1.33)				
Expected Interbank Rate t+2		-1.719**					-1.957**			
		(-2.09)					(-2.28)			
Expected MRR Rate t+2			-1.044**					-1.135**		
			(-2.06)					(-2.21)		
Expected MLR Rate t+2				-1.358**					-1.486**	
				(-2.10)					(-2.25)	
Expected MOR Rate t+2					-1.147**					-1.253**
					(-2.09)					(-2.24)
Other Core Explanatory Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Industry Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.258*	0.301**	0.311**	0.330**	0.312**	0.286	0.387*	0.362*	0.394*	0.367*
	(1.92)	(2.17)	(2.26)	(2.28)	(2.26)	(1.41)	(1.83)	(1.83)	(1.89)	(1.85)
N	143	143	143	143	143	146	146	146	146	146
F	0.490	0.548	0.585	0.575	0.593	0.622	0.677	0.656	0.648	0.662
R2	0.531	0.555	0.563	0.561	0.564	0.525	0.556	0.561	0.560	0.562

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 3.21: The GLS regression for the determinants of the degree of debt market timing (Current interest rate)

Y	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
X	Proceeds/TA	Proceeds/TA	Proceeds/TA	Proceeds/TA	Proceeds/TA	Proceeds/TA	Proceeds/TA	Proceeds/TA	Proceeds/TA	Proceeds/TA
Short-Term Interest Rate	-0.242					-0.195				
	(-0.87)					(-0.69)				
Interbank Rate		-0.158**					-0.154**			
		(-2.31)					(-2.18)			
MRR rate			-0.146**					-0.144**		
			(-2.25)					(-2.14)		
MLR rate				-0.143**					-0.140**	
				(-2.15)					(-2.03)	
MOR rate					-0.144**					-0.141**
					(-2.18)					(-2.06)
Managerial Ownership	-0.0827***	-0.0778***	-0.0775***	-0.0781***	-0.0779***	-0.0889***	-0.0827***	-0.0821***	-0.0829***	-0.0827***
	(-2.99)	(-2.84)	(-2.83)	(-2.85)	(-2.84)	(-3.30)	(-3.10)	(-3.07)	(-3.10)	(-3.09)
Institutional Ownership	-0.0199	-0.0209	-0.0212	-0.0211	-0.0212	-0.0199	-0.0227	-0.0236	-0.0231	-0.0233
	(-0.71)	(-0.76)	(-0.77)	(-0.76)	(-0.76)	(-0.71)	(-0.82)	(-0.85)	(-0.83)	(-0.84)
Foreign Ownership	-0.0115	-0.0123	-0.0115	-0.0118	-0.0116	-0.0148	-0.0129	-0.0118	-0.0123	-0.0121
	(-0.40)	(-0.44)	(-0.41)	(-0.42)	(-0.41)	(-0.52)	(-0.45)	(-0.42)	(-0.43)	(-0.42)
Ownership Concentration	0.0723**	0.0688*	0.0698**	0.0701**	0.0701**	0.0545	0.0562	0.0576	0.0574	0.0576
	(2.01)	(1.95)	(1.97)	(1.98)	(1.98)	(1.46)	(1.53)	(1.56)	(1.55)	(1.56)
Board Independence	0.111***	0.111***	0.111***	0.110***	0.110***	0.0996***	0.102***	0.102***	0.101***	0.101***
	(4.34)	(4.42)	(4.40)	(4.37)	(4.38)	(3.94)	(4.07)	(4.07)	(4.03)	(4.04)
Board Size	0.138***	0.127**	0.127**	0.128**	0.128**	0.132***	0.125**	0.126**	0.127**	0.127**
	(2.63)	(2.44)	(2.43)	(2.46)	(2.45)	(2.59)	(2.49)	(2.51)	(2.53)	(2.53)
Women on Board	-0.0178	-0.0233	-0.0232	-0.0226	-0.0228	-0.0159	-0.0219	-0.0222	-0.0214	-0.0217
	(-0.51)	(-0.67)	(-0.67)	(-0.65)	(-0.66)	(-0.44)	(-0.62)	(-0.63)	(-0.60)	(-0.61)
Audit Committee on Board	0.0802	0.0717	0.0730	0.0740	0.0738	0.0683	0.0618	0.0637	0.0644	0.0643
	(1.30)	(1.18)	(1.20)	(1.22)	(1.21)	(1.11)	(1.02)	(1.05)	(1.06)	(1.06)
Military Experience on Board	0.0159**	0.0149**	0.0148**	0.0149**	0.0149**	0.0163**	0.0154**	0.0152**	0.0154**	0.0153**
	(2.41)	(2.30)	(2.28)	(2.30)	(2.29)	(2.57)	(2.46)	(2.42)	(2.45)	(2.44)
Female CFO	-0.00760	-0.00724	-0.00732	-0.00731	-0.00731					
	(-1.30)	(-1.26)	(-1.27)	(-1.27)	(-1.27)					
Older CFO	-0.0709	-0.0590	-0.0555	-0.0576	-0.0565					
	(-1.30)	(-1.10)	(-1.03)	(-1.06)	(-1.04)					
Financial Education of CFO	-0.0122	-0.0120	-0.0110	-0.0111	-0.0110					
	(-0.81)	(-0.81)	(-0.74)	(-0.75)	(-0.75)					
Female CEO						0.00581	0.00488	0.00501	0.00503	0.00506
						(0.41)	(0.35)	(0.36)	(0.36)	(0.36)
Older CEO						-0.0885	-0.0569	-0.0540	-0.0570	-0.0558
						(-1.43)	(-0.91)	(-0.86)	(-0.90)	(-0.88)
Financial Education of CEO						-0.00305	-0.00123	-0.000734	-0.00100	-0.000883
						(-0.44)	(-0.18)	(-0.11)	(-0.14)	(-0.13)
Private Placement	0.00488	0.00762	0.00788	0.00761	0.00769	0.00258	0.00505	0.00530	0.00502	0.00511
	(0.70)	(1.09)	(1.12)	(1.08)	(1.09)	(0.38)	(0.74)	(0.78)	(0.73)	(0.75)
Credit Rating	-0.00187	-0.00217	-0.00218	-0.00215	-0.00216	-0.000318	-0.00101	-0.00103	-0.000966	-0.000989
	(-0.81)	(-0.96)	(-0.96)	(-0.95)	(-0.95)	(-0.14)	(-0.44)	(-0.45)	(-0.42)	(-0.43)
Bond Maturity	0.00252***	0.00251***	0.00248***	0.00249***	0.00249***	0.00253***	0.00253***	0.00251***	0.00251***	0.00251***
	(2.91)	(2.94)	(2.91)	(2.91)	(2.90)	(2.90)	(2.94)	(2.92)	(2.92)	(2.91)
Profitability	0.0975**	0.0914*	0.0912*	0.0920*	0.0917*	0.0910*	0.0848*	0.0836*	0.0847*	0.0842*
	(2.00)	(1.90)	(1.89)	(1.91)	(1.90)	(1.88)	(1.77)	(1.75)	(1.77)	(1.76)
Firm Size	-0.0395***	-0.0381***	-0.0380***	-0.0381***	-0.0381***	-0.0395***	-0.0386***	-0.0386***	-0.0386***	-0.0386***
	(-7.23)	(-7.03)	(-7.00)	(-7.01)	(-7.01)	(-7.13)	(-7.03)	(-7.03)	(-7.03)	(-7.03)
Asset Tangibility	-0.0466***	-0.0457***	-0.0459***	-0.0462***	-0.0461***	-0.0427***	-0.0418***	-0.0421***	-0.0423***	-0.0423***
	(-3.08)	(-3.06)	(-3.07)	(-3.09)	(-3.08)	(-2.88)	(-2.85)	(-2.87)	(-2.88)	(-2.88)
Dividends	-0.00251	-0.00824	-0.00990	-0.00925	-0.00955	-0.0162	-0.0167	-0.0179	-0.0177	-0.0178
	(-0.06)	(-0.19)	(-0.23)	(-0.21)	(-0.22)	(-0.37)	(-0.38)	(-0.41)	(-0.41)	(-0.41)
Cash	-0.0980**	-0.0894*	-0.0900*	-0.0908*	-0.0906*	-0.0868*	-0.0809*	-0.0812*	-0.0820*	-0.0818*
	(-2.00)	(-1.85)	(-1.86)	(-1.87)	(-1.87)	(-1.77)	(-1.67)	(-1.68)	(-1.69)	(-1.69)
Nominal GDP Growth	-0.296***	-0.311***	-0.328***	-0.323***	-0.325***	-0.288***	-0.298***	-0.316***	-0.311***	-0.313***
	(-3.34)	(-3.58)	(-3.75)	(-3.70)	(-3.72)	(-3.27)	(-3.46)	(-3.64)	(-3.59)	(-3.61)
Term Spread	-0.155	0.0811	0.0447	0.0238	0.0340	-0.111	0.130	0.103	0.0776	0.0900
	(-0.41)	(0.21)	(0.12)	(0.06)	(0.09)	(-0.29)	(0.33)	(0.26)	(0.20)	(0.23)
Risk Spread	-0.737	-0.755	-0.687	-0.658	-0.672	-0.704	-0.792	-0.735	-0.700	-0.717
	(-0.89)	(-0.97)	(-0.88)	(-0.84)	(-0.86)	(-0.85)	(-1.01)	(-0.94)	(-0.89)	(-0.91)
Constant	0.277**	0.262**	0.263**	0.263**	0.263**	0.297**	0.247**	0.248**	0.251**	0.250**
	(2.52)	(2.42)	(2.42)	(2.42)	(2.42)	(2.37)	(1.96)	(1.97)	(1.99)	(1.98)
N	143	143	143	143	143	146	146	146	146	146
Wald chi2	160.4***	170.1***	169.6***	168.6***	168.9***	158.1***	167.0***	166.6***	165.6***	165.9***

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 3.22: The GLS regression for the determinants of the degree of debt market timing (Expected interest rate with perfect foresight method)

Y / X	(1) Proceeds/TA	(2) Proceeds/TA	(3) Proceeds/TA	(4) Proceeds/TA	(5) Proceeds/TA	(6) Proceeds/TA	(7) Proceeds/TA	(8) Proceeds/TA	(9) Proceeds/TA	(10) Proceeds/TA
Expected ST Interest Rate t+1	-0.340*					-0.396**				
	(-1.82)					(-2.15)				
Expected Interbank Rate t+1		-0.155***					-0.176***			
		(-2.58)					(-2.94)			
Expected MRR rate t+1			-0.149***					-0.168***		
			(-2.61)					(-2.96)		
Expected MLR rate t+1				-0.151**					-0.172***	
				(-2.55)					(-2.90)	
Expected MOR rate t+1					-0.150**					-0.169***
					(-2.57)					(-2.92)
Managerial Ownership	-0.0811***	-0.0757***	-0.0750***	-0.0755***	-0.0753***	-0.0861***	-0.0794***	-0.0783***	-0.0789***	-0.0786***
	(-2.95)	(-2.77)	(-2.75)	(-2.77)	(-2.76)	(-3.24)	(-3.01)	(-2.96)	(-2.99)	(-2.97)
Institutional Ownership	-0.0223	-0.0233	-0.0237	-0.0236	-0.0237	-0.0244	-0.0273	-0.0285	-0.0281	-0.0283
	(-0.80)	(-0.85)	(-0.86)	(-0.85)	(-0.86)	(-0.88)	(-0.99)	(-1.03)	(-1.02)	(-1.03)
Foreign Ownership	-0.00596	-0.000602	-0.000215	-0.000527	-0.000380	-0.00978	-0.00399	-0.00292	-0.00339	-0.00313
	(-0.21)	(-0.02)	(-0.01)	(-0.02)	(-0.01)	(-0.34)	(-0.14)	(-0.10)	(-0.12)	(-0.11)
Ownership Concentration	0.0770**	0.0744**	0.0748**	0.0750**	0.0749**	0.0599	0.0577	0.0594	0.0591	0.0593
	(2.17)	(2.12)	(2.14)	(2.14)	(2.14)	(1.62)	(1.59)	(1.63)	(1.62)	(1.63)
Board Independence	0.115***	0.125***	0.125***	0.124***	0.125***	0.107***	0.119***	0.119***	0.118***	0.119***
	(4.53)	(4.88)	(4.89)	(4.87)	(4.87)	(4.24)	(4.66)	(4.68)	(4.65)	(4.66)
Board Size	0.132**	0.118**	0.116**	0.117**	0.117**	0.128**	0.117**	0.116**	0.117**	0.117**
	(2.52)	(2.26)	(2.22)	(2.24)	(2.23)	(2.54)	(2.35)	(2.34)	(2.35)	(2.35)
Women on Board	-0.0187	-0.0252	-0.0261	-0.0256	-0.0258	-0.0210	-0.0298	-0.0310	-0.0303	-0.0305
	(-0.54)	(-0.73)	(-0.75)	(-0.74)	(-0.74)	(-0.59)	(-0.85)	(-0.88)	(-0.86)	(-0.87)
Audit Committee on Board	0.0815	0.0707	0.0702	0.0710	0.0708	0.0710	0.0594	0.0599	0.0603	0.0604
	(1.34)	(1.17)	(1.16)	(1.17)	(1.17)	(1.17)	(0.99)	(1.00)	(1.01)	(1.01)
Military Experience on Board	0.0160**	0.0148**	0.0145**	0.0146**	0.0146**	0.0158**	0.0145**	0.0141**	0.0143**	0.0142**
	(2.47)	(2.30)	(2.24)	(2.26)	(2.26)	(2.54)	(2.34)	(2.27)	(2.30)	(2.29)
Female CFO	-0.00744	-0.00801	-0.00810	-0.00808	-0.00808					
	(-1.29)	(-1.40)	(-1.42)	(-1.42)	(-1.42)					
Older CFO	-0.0505	-0.0426	-0.0381	-0.0401	-0.0392					
	(-0.91)	(-0.78)	(-0.69)	(-0.73)	(-0.71)					
Financial Education of CFO	-0.0100	-0.00928	-0.00849	-0.00867	-0.00856					
	(-0.68)	(-0.63)	(-0.58)	(-0.59)	(-0.58)					
Female CEO						0.00956	0.0106	0.0106	0.0106	0.0106
						(0.69)	(0.77)	(0.77)	(0.77)	(0.77)
Older CEO						-0.0879	-0.0865	-0.0792	-0.0817	-0.0804
						(-1.46)	(-1.46)	(-1.33)	(-1.38)	(-1.35)
Financial Education of CEO						-0.000923	0.00108	0.00171	0.00148	0.00161
						(-0.13)	(0.16)	(0.25)	(0.21)	(0.23)
Private Placement	0.00575	0.00749	0.00816	0.00793	0.00803	0.00378	0.00580	0.00643	0.00621	0.00630
	(0.83)	(1.08)	(1.17)	(1.14)	(1.15)	(0.56)	(0.86)	(0.95)	(0.92)	(0.93)
Credit Rating	-0.00167	-0.00163	-0.00172	-0.00169	-0.00170	-0.000187	-0.000268	-0.000423	-0.000364	-0.000387
	(-0.74)	(-0.73)	(-0.77)	(-0.75)	(-0.76)	(-0.08)	(-0.12)	(-0.19)	(-0.16)	(-0.17)
Bond Maturity	0.00251***	0.00261***	0.00259***	0.00260***	0.00259***	0.00250***	0.00263***	0.00262***	0.00262***	0.00262***
	(2.91)	(3.07)	(3.05)	(3.05)	(3.05)	(2.91)	(3.10)	(3.09)	(3.09)	(3.08)
Profitability	0.0941*	0.0863*	0.0855*	0.0862*	0.0859*	0.0836*	0.0726	0.0710	0.0720	0.0715
	(1.94)	(1.80)	(1.78)	(1.79)	(1.79)	(1.75)	(1.53)	(1.49)	(1.51)	(1.50)
Firm Size	-0.0395***	-0.0393***	-0.0391***	-0.0391***	-0.0391***	-0.0393***	-0.0392***	-0.0390***	-0.0391***	-0.0391***
	(-7.31)	(-7.35)	(-7.30)	(-7.31)	(-7.31)	(-7.20)	(-7.27)	(-7.24)	(-7.25)	(-7.24)
Asset Tangibility	-0.0453***	-0.0419***	-0.0417***	-0.0420***	-0.0419***	-0.0431***	-0.0398***	-0.0398***	-0.0400***	-0.0400***
	(-3.01)	(-2.79)	(-2.78)	(-2.80)	(-2.80)	(-2.94)	(-2.75)	(-2.75)	(-2.76)	(-2.76)
Dividends	-0.00448	-0.00849	-0.0106	-0.0100	-0.0104	-0.0184	-0.0215	-0.0226	-0.0224	-0.0226
	(-0.10)	(-0.20)	(-0.25)	(-0.23)	(-0.24)	(-0.42)	(-0.50)	(-0.52)	(-0.52)	(-0.52)
Cash	-0.103**	-0.0965**	-0.0954**	-0.0960**	-0.0958**	-0.0883*	-0.0810*	-0.0801*	-0.0807*	-0.0806*
	(-2.11)	(-2.01)	(-1.99)	(-2.00)	(-2.00)	(-1.83)	(-1.70)	(-1.68)	(-1.69)	(-1.69)
Nominal GDP Growth	-0.362***	-0.342***	-0.353***	-0.351***	-0.352***	-0.372***	-0.351***	-0.362***	-0.360***	-0.362***
	(-3.89)	(-3.91)	(-3.99)	(-3.97)	(-3.98)	(-3.98)	(-4.03)	(-4.11)	(-4.09)	(-4.10)
Term Spread	-0.0584	0.0152	0.0624	0.0544	0.0622	0.0531	0.154	0.210	0.201	0.210
	(-0.15)	(0.04)	(0.16)	(0.14)	(0.16)	(0.14)	(0.40)	(0.53)	(0.51)	(0.53)
Risk Spread	-0.314	-0.120	-0.0605	-0.0322	-0.0569	-0.332	-0.143	-0.0888	-0.0493	-0.0805
	(-0.40)	(-0.15)	(-0.08)	(-0.04)	(-0.07)	(-0.42)	(-0.18)	(-0.11)	(-0.06)	(-0.10)
Constant	0.239**	0.231**	0.231**	0.232**	0.231**	0.291**	0.292**	0.287**	0.289**	0.288**
	(2.16)	(2.11)	(2.12)	(2.12)	(2.12)	(2.36)	(2.40)	(2.36)	(2.37)	(2.36)
N	143	143	143	143	143	146	146	146	146	146
Wald chi2	165.8***	172.9***	173.3***	172.6***	172.8***	166.7***	175.1***	175.2***	174.5***	174.8***

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 3.23: The GLS regression for the determinants of the level of debt market timing (Expected interest rate with forecast inflation rate)										
Y / X	(1) Proceeds/TA	(2) Proceeds/TA	(3) Proceeds/TA	(4) Proceeds/TA	(5) Proceeds/TA	(6) Proceeds/TA	(7) Proceeds/TA	(8) Proceeds/TA	(9) Proceeds/TA	(10) Proceeds/TA
Expected ST Interest Rate t+1	-1.240					-1.483*				
	(-1.51)					(-1.82)				
Expected Interbank Rate t+1		-1.355***					-1.470***			
		(-3.33)					(-3.69)			
Expected MRR Rate t+1			-1.053***					-1.178***		
			(-3.45)					(-3.80)		
Expected MLR Rate t+1				-1.323***					-1.490***	
				(-3.31)					(-3.67)	
Expected MOR Rate t+1					-1.168***					-1.320***
					(-3.34)					(-3.71)
Managerial Ownership	-0.0809***	-0.0723***	-0.0680**	-0.0698***	-0.0689**	-0.0855***	-0.0779***	-0.0692***	-0.0717***	-0.0702***
	(-2.93)	(-2.69)	(-2.51)	(-2.58)	(-2.54)	(-3.20)	(-3.00)	(-2.63)	(-2.73)	(-2.67)
Institutional Ownership	-0.0200	-0.0188	-0.0227	-0.0217	-0.0224	-0.0207	-0.0190	-0.0297	-0.0272	-0.0289
	(-0.71)	(-0.69)	(-0.84)	(-0.80)	(-0.82)	(-0.74)	(-0.71)	(-1.10)	(-1.01)	(-1.07)
Foreign Ownership	-0.00645	0.000693	0.00364	0.00293	0.00346	-0.00831	-0.00406	0.00480	0.00342	0.00463
	(-0.23)	(0.03)	(0.13)	(0.11)	(0.12)	(-0.29)	(-0.15)	(0.17)	(0.12)	(0.17)
Ownership Concentration	0.0754**	0.0658*	0.0707**	0.0707**	0.0711**	0.0583	0.0472	0.0611*	0.0590*	0.0606*
	(2.12)	(1.90)	(2.05)	(2.05)	(2.06)	(1.57)	(1.31)	(1.71)	(1.65)	(1.69)
Board Independence	0.0982***	0.120***	0.122***	0.118***	0.119***	0.0852***	0.110***	0.118***	0.112***	0.114***
	(3.65)	(4.82)	(4.91)	(4.75)	(4.79)	(3.24)	(4.52)	(4.78)	(4.57)	(4.64)
Board Size	0.149***	0.126**	0.107**	0.113**	0.111**	0.146***	0.118**	0.113**	0.116**	0.116**
	(2.83)	(2.47)	(2.07)	(2.19)	(2.16)	(2.87)	(2.41)	(2.30)	(2.36)	(2.37)
Women on Board	-0.0175	-0.0290	-0.0349	-0.0339	-0.0339	-0.0166	-0.0318	-0.0417	-0.0395	-0.0402
	(-0.50)	(-0.85)	(-1.02)	(-0.99)	(-0.99)	(-0.47)	(-0.92)	(-1.19)	(-1.13)	(-1.15)
Audit Committee on Board	0.0862	0.0571	0.0555	0.0571	0.0577	0.0725	0.0380	0.0447	0.0435	0.0456
	(1.41)	(0.95)	(0.93)	(0.95)	(0.96)	(1.19)	(0.64)	(0.76)	(0.73)	(0.77)
Military Experience on Board	0.0176***	0.0167***	0.0137**	0.0146**	0.0142**	0.0184***	0.0170***	0.0135**	0.0147**	0.0142**
	(2.67)	(2.63)	(2.16)	(2.30)	(2.23)	(2.91)	(2.81)	(2.22)	(2.42)	(2.33)
Female CFO	-0.00614	-0.00616	-0.00727	-0.00690	-0.00704					
	(-1.04)	(-1.09)	(-1.30)	(-1.22)	(-1.25)					
Older CFO	-0.0699	-0.0673	-0.0283	-0.0397	-0.0335					
	(-1.29)	(-1.28)	(-0.53)	(-0.74)	(-0.62)					
Financial Education of CFO	-0.0109	-0.0157	-0.00865	-0.0100	-0.00903					
	(-0.73)	(-1.08)	(-0.60)	(-0.69)	(-0.62)					
Female CEO						0.00843	0.0107	0.0109	0.0113	0.0112
						(0.60)	(0.79)	(0.81)	(0.84)	(0.83)
Older CEO						-0.0864	-0.104*	-0.0476	-0.0600	-0.0524
						(-1.43)	(-1.78)	(-0.80)	(-1.02)	(-0.88)
Financial Education of CEO						-0.000363	-0.000203	0.00501	0.00419	0.00483
						(-0.05)	(-0.03)	(0.72)	(0.60)	(0.69)
Private Placement	0.00396	0.00423	0.00983	0.00858	0.00922	0.00140	0.00231	0.00788	0.00655	0.00723
	(0.57)	(0.63)	(1.42)	(1.25)	(1.34)	(0.21)	(0.35)	(1.18)	(0.99)	(1.09)
Credit Rating	-0.00109	-0.000950	-0.00171	-0.00144	-0.00155	0.000363	0.000356	-0.000878	-0.000504	-0.000665
	(-0.47)	(-0.43)	(-0.78)	(-0.65)	(-0.70)	(0.16)	(0.16)	(-0.40)	(-0.23)	(-0.30)
Bond Maturity	0.00257***	0.00294***	0.00276***	0.00284***	0.00278***	0.00260***	0.00296***	0.00283***	0.00291***	0.00285***
	(2.98)	(3.48)	(3.29)	(3.37)	(3.30)	(3.01)	(3.51)	(3.38)	(3.46)	(3.40)
Profitability	0.0913*	0.0751	0.0712	0.0725	0.0719	0.0814*	0.0664	0.0539	0.0564	0.0547
	(1.87)	(1.58)	(1.50)	(1.52)	(1.51)	(1.69)	(1.42)	(1.14)	(1.19)	(1.15)
Firm Size	-0.0398***	-0.0404***	-0.0384***	-0.0388***	-0.0386***	-0.0400***	-0.0401***	-0.0389***	-0.0393***	-0.0391***
	(-7.35)	(-7.67)	(-7.28)	(-7.36)	(-7.31)	(-7.30)	(-7.56)	(-7.35)	(-7.40)	(-7.38)
Asset Tangibility	-0.0510***	-0.0416***	-0.0401***	-0.0417***	-0.0414***	-0.0481***	-0.0385***	-0.0380***	-0.0391***	-0.0391***
	(-3.34)	(-2.83)	(-2.72)	(-2.83)	(-2.81)	(-3.22)	(-2.69)	(-2.66)	(-2.74)	(-2.74)
Dividends	-0.00985	-0.00436	-0.0204	-0.0187	-0.0204	-0.0252	-0.0198	-0.0283	-0.0287	-0.0294
	(-0.23)	(-0.10)	(-0.48)	(-0.44)	(-0.48)	(-0.57)	(-0.47)	(-0.67)	(-0.68)	(-0.69)
Cash	-0.105**	-0.0938**	-0.0864*	-0.0893*	-0.0885*	-0.0950*	-0.0803*	-0.0736	-0.0766	-0.0758
	(-2.16)	(-1.99)	(-1.83)	(-1.89)	(-1.87)	(-1.95)	(-1.71)	(-1.57)	(-1.63)	(-1.61)
Nominal GDP Growth	-0.248***	-0.160*	-0.274***	-0.244***	-0.267***	-0.232**	-0.149	-0.273***	-0.238***	-0.265***
	(-2.61)	(-1.67)	(-3.22)	(-2.80)	(-3.12)	(-2.49)	(-1.61)	(-3.26)	(-2.80)	(-3.15)
Term Spread	-0.797	0.185	0.492	0.559	0.555	-0.833	0.317	0.712*	0.784*	0.789*
	(-1.45)	(0.48)	(1.18)	(1.30)	(1.29)	(-1.54)	(0.81)	(1.65)	(1.75)	(1.77)
Risk Spread	-1.835	-2.007**	-1.144	-1.127	-1.202	-2.145*	-2.198**	-1.362*	-1.329*	-1.429*
	(-1.57)	(-2.28)	(-1.47)	(-1.44)	(-1.53)	(-1.81)	(-2.49)	(-1.73)	(-1.69)	(-1.80)
Constant	0.289***	0.299***	0.282***	0.297***	0.287***	0.315**	0.356***	0.308***	0.327***	0.314***
	(2.63)	(2.81)	(2.66)	(2.79)	(2.70)	(2.55)	(2.96)	(2.58)	(2.73)	(2.62)
N	143	143	143	143	143	146	146	146	146	146
Wald chi2	163.7***	182.3***	184.0***	181.9***	182.4***	163.9***	185.4***	187.1***	185.1***	185.6***

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 3.24: The GLS regression for the determinants of the degree of debt market timing (Expected interest rate with perfect foresight method)

Y / X	(1) Proceeds/ TA CFO Model	(2) Proceeds/ TA CEO Model	(3) Proceeds/ TA CFO Model	(4) Proceeds/ TA CEO Model	(5) Proceeds/ TA CFO Model	(6) Proceeds/ TA CEO Model	(7) Proceeds/ TA CFO Model	(8) Proceeds/ TA CEO Model	(9) Proceeds/ TA CFO Model	(10) Proceeds/ TA CEO Model
Expected Short-term Interest Rate t+2	-0.232					-0.151				
	(-0.86)					(-0.55)				
Expected Interbank Rate t+2		-0.101					-0.0769			
		(-1.19)					(-0.91)			
Expected MRR Rate t+2			-0.110					-0.0923		
			(-1.48)					(-1.23)		
Expected MLR Rate t+2				-0.101					-0.0809	
				(-1.31)					(-1.04)	
Expected MOR Rate t+2					-0.109					-0.0909
					(-1.44)					(-1.19)
Other Core Explanatory Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Industry Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.270**	0.282**	0.285***	0.285***	0.284***	0.290**	0.297**	0.297**	0.298**	0.297**
	(2.45)	(2.57)	(2.60)	(2.59)	(2.60)	(2.27)	(2.38)	(2.38)	(2.39)	(2.38)
N	143	143	143	143	143	146	146	146	146	146
Wald Chi2	160.4***	161.8***	163.5***	162.5***	163.2***	157.7***	158.8***	160.2***	159.3***	160.0***

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 3.25: The GLS regression for the determinants of the degree of debt market timing (Expected interest rate with forecast inflation rate)

Y / X	(1) Proceeds/ TA CFO Model	(2) Proceeds/ TA CEO Model	(3) Proceeds/ TA CFO Model	(4) Proceeds/ TA CEO Model	(5) Proceeds/ TA CFO Model	(6) Proceeds/ TA CEO Model	(7) Proceeds/ TA CFO Model	(8) Proceeds/ TA CEO Model	(9) Proceeds/ TA CFO Model	(10) Proceeds/ TA CEO Model
Expected Short-term Interest Rate t+2	-0.506					-0.596				
	(-1.22)					(-1.46)				
Expected Interbank Rate t+2		-1.719***					-1.957***			
		(-3.02)					(-3.50)			
Expected MRR Rate t+2			-1.044***					-1.135***		
			(-3.46)					(-3.75)		
Expected MLR Rate t+2				-1.358***					-1.486***	
				(-3.39)					(-3.72)	
Expected MOR Rate t+2					-1.147***					-1.253***
					(-3.51)					(-3.83)
Other Core Explanatory Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Industry Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.258**	0.301***	0.311***	0.330***	0.312***	0.286**	0.387***	0.362***	0.394***	0.367***
	(2.33)	(2.81)	(2.93)	(3.08)	(2.94)	(2.29)	(3.16)	(3.01)	(3.23)	(3.05)
N	143	143	143	143	143	146	146	146	146	146
Wald chi2	162.0***	178.1***	184.1***	183.1***	184.8***	161.5***	182.6***	186.3***	185.8***	187.5***

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

the bond proceeds ratio. Furthermore, military experience and risk spreads significantly associate with the bond proceeds ratio. However, other control variables do not have a relationship with the bond proceeds ratio as the results lack significance.

3.5.3.2.2.1.2 GLS regression

Tables 3.21, 3.22 and 3.23 report the results of the GLS regression models for the determinants of the level of debt market timing as estimated by the bond proceeds ratio. The result for the current interest rate is illustrated in table 3.21, whereas the expected interest rate at time t+1 is shown in tables 3.22 and 3.23 and time t+2 in tables 3.24 and 3.25. Overall, the outcomes of the coefficients for each variable are similar to the OLS regression, while the level of statistical significance of the coefficients with the GLS regression is higher than with the OLS regression in some variables. For example, the parameters of ownership concentration for the proceeds ratio is significantly positive at the 95% confidence level in the GLS model, but there is a significantly positive sign of estimators for the same variable at the 90% confidence level in the OLS model. This supports the findings of the OLS model.

3.5.3.2.2.2 The number of bond allocation

3.5.3.2.2.2.1 OLS regression

Tables 3.26[35], 3.27[36] and 3.28[37] provide the empirical results of the OLS regression analysis with robust command whereby the dependent variable is the number of new corporate bond issuances in an offering year. The explanatory variables are the same as the model of the proceeds ratio. Moreover, it is likely that CEO and CFO have a high correlation since some companies are operated by a CEO who is also the CFO, while current and expected interest rates may have a high association as well, so this may lead to the multicollinearity problem. Thus, our models are separately produced for these variables.

Regarding the results for the interest rates, the sign of the coefficients for the current interest rates are insignificant in table 3.26. Hence, hypothesis 2.1 is not supported, meaning that the current interest rate does not alter the degree of debt market timing with selling bonds several times. However, the parameters for the expected interest rate as calculated by the perfect foresight method have a significantly positive direction

[35] VIF values: mean = 2.44, max = 2.48 and min =2.40.
[36] VIF values: mean = 2.45, max = 2.49 and min =2.41.
[37] VIF values: mean = 2.53, max = 2.72 and min =2.45.

at the 95% confidence level in table 3.27. This provides partial support for hypothesis 2.2 (20% significant models), indicating that the degree of debt market timing in terms of multiple bond allocations increases with a higher expected interest rate. However, this is inconsistent with the findings by Barry et al. (2009), who posit that debt market timing by managers is unsuccessful, as they found that managers are unable to precisely predict the future interest rate. Therefore, our finding implies that corporate managers achieve a timing of the debt market to minimize the cost of capital as they issue many corporate bonds during the current period, after which the future interest rate increases, meaning that they can fix the interest rate before it goes up. Based on tables 3.29[38] and 3.30,[39] the parameters of the expected interest rate at time t+2 as evaluated by the forecast inflation rate in table 3.30 have a significantly positive sign at the 95% confidence level in models 1 and 6. This confirms that managers are successful in timing the debt market with issuing several corporate bonds as they can correctly predict the future interest rate. Additionally, the result of the expected interest rate with forecast data is significant at time t+2, whereas the result of this variable with the perfect foresight method is significant at time t+1. This implies that managers use information on the expected interest rate at time t+2; however, the prediction of the expected interest rates influences firms in only time t+1.

Foreign investors negatively and significantly associate with the quantity of bond allocation at least at the 90% confidence level. This supports hypothesis 3.3, indicating that the degree of debt market timing with several bond allocations declines with greater foreign ownership. Additionally, our finding is consistent with that of Dahlquist and Robertsson (2001) and Li et al. (2009), who find that there is a negative relationship between the proportion of foreign shareholders and debt financing. Hence, this implies that foreign shareholders wish not to receive incremental risk from debt security since debt financing leads to additional financial distress and bankruptcy risk. Therefore, as they are outside investors, if the firms in which they hold the shares go bankrupt, they may not have their initial money repaid because the creditors have preference regarding firm assets over equity shareholders. Therefore, foreign shareholders prefer not to finance with more debt and convince managers to reduce the degree of debt market timing. However, the absence of any significance does not support hypotheses 3.1, 3.2 and 3.4, implying that managerial, institutional and controlling ownerships neither increase nor decrease the degree of debt market timing with multiple bond issuances.

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[38] VIF values: mean = 2.50, max = 2.53 and min =2.46.
[39] VIF values: mean = 2.50, max = 2.57 and min =2.45.

Surprisingly, the results of board independence, board size, women and audit committee members on the board lack significance. Hence, hypotheses 4.1, 4.2, 4.3 and 4.4 are not confirmed, meaning that the structure of the board does not influence the degree of debt market timing in terms of the quantity of bond allocations.

Regarding the control variables, the degree of debt market timing with multiple bond allocations significantly increases with financial education of CFO, higher bond maturity and a larger size of firms, yet significantly decreases with a female CEO. However, other control factors do not impact on the degree of debt market timing due to insignificant results.

3.5.3.2.2.2.2 GLS regression

Tables 3.31 and 3.32 provide the outcomes of the determinants of the degree of debt market timing with multiple bond issuances, whereby the models are divided into two tables since there is a difference between the current interest rate in table 3.31 and the expected interest rate in table 3.32. There are slightly dissimilar results between the GLS and OLS regressions in terms of the significance level in institutional ownership. Table 3.32 demonstrates that the coefficient of institutional ownership has a significantly positive direction for the quantity of bond offerings at the 90% confidence level in model 1. This provides partial rejection for hypothesis 3.2 (5% significant models) that the level of debt market timing reduces with higher institutional ownership. Moreover, this is inconsistent with the results from Bathala et al. (1994), Pushner (1995) and Dahlquist and Robertsson (2001), who found that the proportion of institutional ownership inversely associates with financial leverage. However, our result implies that institutional shareholders act as monitors in managerial operations and that they prefer to finance with debt to mitigate the damage to shareholder wealth from new shareholders. This is consistent with Cornett et al. (2007), who found that institutional shareholders have a crucial role as monitors of a company. Moreover, the previous literature, including McConnell and Servaes (1990), Del Guercio and Hawkins (1999) and Elyasiani and Jia (2010), found that institutional investors support an enhancement of corporate performance.

Table 3.26: The OLS regression for the determinants of the degree of debt market timing (Current interest rate)

Y / X	(1) #Bond Issuance	(2) #Bond Issuance	(3) #Bond Issuance	(4) #Bond Issuance	(5) #Bond Issuance	(6) #Bond Issuance	(7) #Bond Issuance	(8) #Bond Issuance	(9) #Bond Issuance	(10) #Bond Issuance
Short-Term Interest Rate	2.229					1.957				
	(1.04)					(0.92)				
Interbank Rate		0.676					0.590			
		(1.26)					(1.03)			
MRR rate			0.729					0.668		
			(1.44)					(1.21)		
MLR rate				0.711					0.640	
				(1.38)					(1.14)	
MOR rate					0.731					0.666
					(1.42)					(1.19)
Managerial Ownership	-0.133	-0.144	-0.149	-0.146	-0.147	-0.0562	-0.0721	-0.0809	-0.0766	-0.0790
	(-0.53)	(-0.57)	(-0.59)	(-0.58)	(-0.58)	(-0.24)	(-0.30)	(-0.34)	(-0.32)	(-0.33)
Institutional Ownership	0.376	0.381	0.383	0.382	0.383	0.301	0.311	0.317	0.314	0.316
	(1.22)	(1.23)	(1.25)	(1.24)	(1.24)	(0.97)	(1.01)	(1.03)	(1.02)	(1.03)
Foreign Ownership	-0.463	**-0.467***	**-0.469***	**-0.468***	**-0.468***	**-0.465***	**-0.475***	**-0.481***	**-0.479***	**-0.480***
	(-1.65)	(-1.67)	(-1.68)	(-1.67)	(-1.68)	(-1.73)	(-1.77)	(-1.79)	(-1.78)	(-1.78)
Ownership Concentration	-0.00772	-0.0129	-0.0137	-0.0150	-0.0146	-0.00606	-0.0238	-0.0314	-0.0298	-0.0314
	(-0.03)	(-0.04)	(-0.05)	(-0.05)	(-0.05)	(-0.02)	(-0.07)	(-0.10)	(-0.09)	(-0.10)
Board Independence	-0.240	-0.246	-0.245	-0.241	-0.242	-0.226	-0.236	-0.237	-0.233	-0.235
	(-0.93)	(-0.96)	(-0.96)	(-0.94)	(-0.95)	(-0.84)	(-0.88)	(-0.89)	(-0.87)	(-0.88)
Board Size	-0.130	-0.0906	-0.0832	-0.0895	-0.0866	-0.0801	-0.0627	-0.0622	-0.0657	-0.0645
	(-0.26)	(-0.18)	(-0.17)	(-0.18)	(-0.18)	(-0.16)	(-0.13)	(-0.13)	(-0.13)	(-0.13)
Women on Board	-0.132	-0.105	-0.102	-0.104	-0.103	-0.0681	-0.0429	-0.0362	-0.0404	-0.0381
	(-0.39)	(-0.32)	(-0.31)	(-0.32)	(-0.31)	(-0.21)	(-0.13)	(-0.11)	(-0.13)	(-0.12)
Audit Committee on Board	-0.456	-0.441	-0.439	-0.444	-0.441	-0.401	-0.395	-0.397	-0.400	-0.399
	(-0.79)	(-0.76)	(-0.76)	(-0.77)	(-0.77)	(-0.68)	(-0.67)	(-0.67)	(-0.68)	(-0.68)
Military Experience on Board	-0.0148	-0.0133	-0.0119	-0.0126	-0.0122	-0.0257	-0.0248	-0.0230	-0.0239	-0.0234
	(-0.23)	(-0.21)	(-0.19)	(-0.20)	(-0.19)	(-0.43)	(-0.42)	(-0.39)	(-0.41)	(-0.40)
Female CFO	-0.01000	-0.0103	-0.0104	-0.0104	-0.0105					
	(-0.18)	(-0.19)	(-0.19)	(-0.19)	(-0.19)					
Older CFO	0.00211	0.00179	0.00153	0.00163	0.00156					
	(0.48)	(0.41)	(0.35)	(0.37)	(0.36)					
Financial Education of CFO	**0.165****	**0.156***	**0.151***	**0.152***	**0.152***					
	(1.98)	(1.88)	(1.82)	(1.83)	(1.82)					
Female CEO						**-0.171***	**-0.170***	**-0.169***	**-0.169***	**-0.169***
						(-1.89)	(-1.88)	(-1.88)	(-1.88)	(-1.88)
Older CEO						0.000672	0.0000653	-0.000300	-0.000166	-0.000259
						(0.16)	(0.02)	(-0.07)	(-0.04)	(-0.06)
Financial Education of CEO						0.0783	0.0708	0.0670	0.0684	0.0675
						(1.33)	(1.18)	(1.11)	(1.13)	(1.12)
Private Placement	0.101	0.0909	0.0874	0.0889	0.0881	0.102	0.0936	0.0902	0.0917	0.0909
	(1.45)	(1.30)	(1.26)	(1.28)	(1.27)	(1.61)	(1.46)	(1.41)	(1.44)	(1.42)
Credit Rating	0.0176	0.0179	0.0182	0.0181	0.0182	0.0158	0.0171	0.0179	0.0176	0.0178
	(0.78)	(0.79)	(0.81)	(0.80)	(0.80)	(0.70)	(0.75)	(0.79)	(0.77)	(0.78)
Bond Maturity	0.0106	0.0106	0.0107	0.0107	0.0107	**0.0122***	**0.0121***	**0.0122***	**0.0122***	**0.0122***
	(1.59)	(1.60)	(1.63)	(1.62)	(1.63)	(1.80)	(1.80)	(1.83)	(1.82)	(1.83)
Profitability	0.770	0.791	0.798	0.793	0.796	0.674	0.698	0.709	0.703	0.707
	(1.40)	(1.44)	(1.45)	(1.45)	(1.45)	(1.22)	(1.27)	(1.30)	(1.29)	(1.29)
Firm Size	**0.0805***	**0.0780***	**0.0769***	**0.0773***	**0.0771***	**0.0794***	**0.0778***	**0.0770***	**0.0773***	**0.0771***
	(1.73)	(1.70)	(1.68)	(1.69)	(1.69)	(1.77)	(1.75)	(1.74)	(1.75)	(1.75)
Asset Tangibility	0.0784	0.0783	0.0786	0.0799	0.0794	0.0674	0.0669	0.0675	0.0684	0.0681
	(0.51)	(0.51)	(0.52)	(0.52)	(0.52)	(0.44)	(0.44)	(0.45)	(0.45)	(0.45)
Dividends	-0.474	-0.451	-0.439	-0.442	-0.440	-0.427	-0.420	-0.415	-0.415	-0.415
	(-0.67)	(-0.63)	(-0.61)	(-0.62)	(-0.61)	(-0.63)	(-0.62)	(-0.61)	(-0.61)	(-0.61)
Cash	0.273	0.252	0.248	0.252	0.250	0.221	0.209	0.205	0.208	0.207
	(0.51)	(0.47)	(0.47)	(0.48)	(0.47)	(0.43)	(0.41)	(0.40)	(0.41)	(0.40)
Nominal GDP Growth	-1.039	-0.941	-0.852	-0.872	-0.861	-1.012	-0.930	-0.848	-0.869	-0.857
	(-1.12)	(-1.03)	(-0.93)	(-0.95)	(-0.94)	(-1.09)	(-1.01)	(-0.92)	(-0.94)	(-0.93)
Term Spread	-2.645	-3.493	-3.511	-3.401	-3.480	-1.990	-2.736	-2.823	-2.696	-2.785
	(-0.82)	(-1.07)	(-1.09)	(-1.05)	(-1.08)	(-0.62)	(-0.83)	(-0.87)	(-0.83)	(-0.86)
Risk Spread	-2.263	-3.218	-3.393	-3.539	-3.450	-3.935	-4.721	-4.772	-4.943	-4.836
	(-0.32)	(-0.47)	(-0.50)	(-0.52)	(-0.51)	(-0.54)	(-0.68)	(-0.70)	(-0.72)	(-0.71)
Constant	-0.524	-0.504	-0.531	-0.522	-0.526	-0.378	-0.336	-0.352	-0.347	-0.348
	(-0.74)	(-0.72)	(-0.76)	(-0.75)	(-0.76)	(-0.54)	(-0.49)	(-0.51)	(-0.50)	(-0.50)
N	145	145	145	145	145	148	148	148	148	148
F	2.959***	2.937***	2.927***	2.918***	2.921***	2.875***	2.905***	2.965***	2.941***	2.958***
R2	0.227	0.230	0.232	0.231	0.231	0.235	0.236	0.238	0.237	0.238

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 3.27: The OLS regression for the determinants of the degree of debt market timing (Expected interest rate with perfect foresight method)

Y / X	(1) #Bond Issuance	(2) #Bond Issuance	(3) #Bond Issuance	(4) #Bond Issuance	(5) #Bond Issuance	(6) #Bond Issuance	(7) #Bond Issuance	(8) #Bond Issuance	(9) #Bond Issuance	(10) #Bond Issuance
Expected ST Interest Rate t+1	3.692**					3.780**				
	(2.20)					(2.28)				
Expected Interbank Rate t+1		0.859					0.900			
		(1.49)					(1.57)			
Expected MRR rate t+1			0.859					0.892		
			(1.54)					(1.60)		
Expected MLR rate t+1				0.874					0.910	
				(1.51)					(1.58)	
Expected MOR rate t+1					0.869					0.903
					(1.53)					(1.59)
Managerial Ownership	-0.150	-0.165	-0.170	-0.167	-0.169	-0.0828	-0.0994	-0.108	-0.104	-0.106
	(-0.63)	(-0.68)	(-0.70)	(-0.69)	(-0.69)	(-0.37)	(-0.43)	(-0.47)	(-0.45)	(-0.46)
Institutional Ownership	0.399	0.393	0.396	0.395	0.396	0.343	0.338	0.345	0.343	0.344
	(1.35)	(1.31)	(1.32)	(1.32)	(1.32)	(1.16)	(1.12)	(1.14)	(1.14)	(1.14)
Foreign Ownership	-0.521*	-0.528*	-0.533*	-0.531*	-0.532*	-0.515*	-0.524*	-0.532**	-0.529*	-0.531*
	(-1.90)	(-1.91)	(-1.92)	(-1.91)	(-1.92)	(-1.94)	(-1.96)	(-1.98)	(-1.97)	(-1.98)
Ownership Concentration	-0.0533	-0.0318	-0.0346	-0.0351	-0.0350	-0.0626	-0.0317	-0.0413	-0.0392	-0.0406
	(-0.19)	(-0.11)	(-0.12)	(-0.12)	(-0.12)	(-0.21)	(-0.10)	(-0.13)	(-0.13)	(-0.13)
Board Independence	-0.276	-0.315	-0.318	-0.315	-0.316	-0.286	-0.318	-0.324	-0.320	-0.321
	(-1.09)	(-1.21)	(-1.22)	(-1.21)	(-1.22)	(-1.09)	(-1.16)	(-1.19)	(-1.17)	(-1.18)
Board Size	-0.0616	-0.0260	-0.00924	-0.0156	-0.0132	-0.0655	-0.0278	-0.0232	-0.0261	-0.0258
	(-0.13)	(-0.05)	(-0.02)	(-0.03)	(-0.03)	(-0.14)	(-0.06)	(-0.05)	(-0.05)	(-0.05)
Women on Board	-0.133	-0.0971	-0.0906	-0.0932	-0.0921	-0.0363	-0.0110	-0.00228	-0.00605	-0.00440
	(-0.40)	(-0.29)	(-0.27)	(-0.28)	(-0.28)	(-0.12)	(-0.03)	(-0.01)	(-0.02)	(-0.01)
Audit Committee on Board	-0.471	-0.422	-0.417	-0.421	-0.420	-0.454	-0.389	-0.391	-0.392	-0.392
	(-0.84)	(-0.74)	(-0.73)	(-0.74)	(-0.73)	(-0.80)	(-0.67)	(-0.68)	(-0.68)	(-0.68)
Military Experience on Board	-0.0153	-0.00996	-0.00772	-0.00851	-0.00816	-0.0198	-0.0168	-0.0142	-0.0152	-0.0148
	(-0.24)	(-0.16)	(-0.12)	(-0.13)	(-0.13)	(-0.34)	(-0.29)	(-0.24)	(-0.26)	(-0.25)
Female CFO	-0.0110	-0.00604	-0.00542	-0.00556	-0.00554					
	(-0.21)	(-0.11)	(-0.10)	(-0.11)	(-0.10)					
Older CFO	-0.000182	0.000637	0.000334	0.000445	0.000384					
	(-0.04)	(0.14)	(0.07)	(0.10)	(0.08)					
Financial Education of CFO	0.139*	0.139*	0.134*	0.135*	0.135*					
	(1.87)	(1.86)	(1.79)	(1.80)	(1.79)					
Female CEO						-0.204**	-0.196**	-0.196**	-0.196**	-0.196**
						(-2.44)	(-2.29)	(-2.31)	(-2.30)	(-2.30)
Older CEO						0.000500	0.000780	0.000450	0.000563	0.000502
						(0.13)	(0.20)	(0.12)	(0.14)	(0.13)
Financial Education of CEO						0.0595	0.0582	0.0541	0.0554	0.0546
						(1.02)	(1.00)	(0.93)	(0.95)	(0.93)
Private Placement	0.0918	0.0881	0.0836	0.0849	0.0842	0.0907	0.0863	0.0822	0.0834	0.0828
	(1.36)	(1.29)	(1.23)	(1.25)	(1.24)	(1.52)	(1.39)	(1.32)	(1.35)	(1.33)
Credit Rating	0.0155	0.0155	0.0160	0.0158	0.0158	0.0142	0.0144	0.0152	0.0149	0.0150
	(0.70)	(0.69)	(0.71)	(0.71)	(0.71)	(0.66)	(0.65)	(0.69)	(0.68)	(0.68)
Bond Maturity	0.0109*	0.0101	0.0102	0.0102	0.0102	0.0125*	0.0117*	0.0118*	0.0117*	0.0118*
	(1.70)	(1.57)	(1.59)	(1.58)	(1.59)	(1.94)	(1.80)	(1.81)	(1.81)	(1.81)
Profitability	0.804	0.824	0.832	0.827	0.830	0.737	0.762	0.774	0.769	0.772
	(1.52)	(1.53)	(1.55)	(1.54)	(1.55)	(1.41)	(1.43)	(1.46)	(1.45)	(1.46)
Firm Size	0.0808*	0.0813*	0.0802*	0.0805*	0.0803*	0.0789*	0.0795*	0.0787*	0.0789*	0.0788*
	(1.83)	(1.80)	(1.79)	(1.79)	(1.79)	(1.92)	(1.87)	(1.86)	(1.86)	(1.86)
Asset Tangibility	0.0641	0.0544	0.0526	0.0542	0.0537	0.0732	0.0565	0.0557	0.0568	0.0567
	(0.43)	(0.36)	(0.35)	(0.36)	(0.36)	(0.50)	(0.38)	(0.38)	(0.38)	(0.38)
Dividends	-0.453	-0.442	-0.428	-0.432	-0.429	-0.410	-0.398	-0.391	-0.392	-0.391
	(-0.63)	(-0.61)	(-0.59)	(-0.60)	(-0.59)	(-0.59)	(-0.57)	(-0.56)	(-0.56)	(-0.56)
Cash	0.324	0.278	0.272	0.275	0.274	0.244	0.205	0.200	0.203	0.202
	(0.65)	(0.54)	(0.53)	(0.54)	(0.54)	(0.50)	(0.41)	(0.40)	(0.41)	(0.41)
Nominal GDP Growth	-0.339	-0.757	-0.690	-0.701	-0.690	-0.205	-0.654	-0.585	-0.596	-0.585
	(-0.36)	(-0.83)	(-0.75)	(-0.76)	(-0.75)	(-0.22)	(-0.71)	(-0.63)	(-0.64)	(-0.63)
Term Spread	-3.777	-3.469	-3.795	-3.745	-3.801	-3.543	-3.209	-3.558	-3.503	-3.564
	(-1.22)	(-1.09)	(-1.18)	(-1.17)	(-1.18)	(-1.18)	(-1.03)	(-1.13)	(-1.12)	(-1.13)
Risk Spread	-6.445	-6.409	-6.839	-7.002	-6.876	-7.538	-7.663	-8.028	-8.230	-8.079
	(-0.93)	(-0.90)	(-0.95)	(-0.97)	(-0.95)	(-1.07)	(-1.05)	(-1.09)	(-1.11)	(-1.10)
Constant	-0.374	-0.432	-0.464	-0.454	-0.458	-0.295	-0.330	-0.353	-0.345	-0.348
	(-0.55)	(-0.63)	(-0.68)	(-0.67)	(-0.67)	(-0.44)	(-0.49)	(-0.53)	(-0.52)	(-0.52)
N	145	145	145	145	145	148	148	148	148	148
F	3.259***	3.127***	3.135***	3.128***	3.130***	3.163***	2.994***	3.024***	3.006***	3.013***
R2	0.250	0.237	0.238	0.238	0.238	0.260	0.247	0.248	0.247	0.248

t statistics in parentheses: * $p<0.1$, ** $p<0.05$, *** $p<0.01$

Table 3.28: The OLS regression for the determinants of the degree of debt market timing (Expected interest rate with forecast inflation rate)

Y / X	(1) #Bond Issuance CFO Model	(2) #Bond Issuance CEO Model	(3) #Bond Issuance CFO Model	(4) #Bond Issuance CEO Model	(5) #Bond Issuance CFO Model	(6) #Bond Issuance CEO Model	(7) #Bond Issuance CFO Model	(8) #Bond Issuance CEO Model	(9) #Bond Issuance CFO Model	(10) #Bond Issuance CEO Model
Expected ST Interest Rate t+1 (Forecast)	8.855					6.78				
	-1.07					-0.87				
Expected Interbank Rate t+1 (Forecast)		2.299					1.876			
		-0.62					-0.51			
Expected MRR Rate t+1 (Forecast)			3.997					3.631		
			-1.34					-1.15		
Expected MLR Rate t+1 (Forecast)				3.959					3.277	
				-1.04					-0.82	
Expected MOR Rate t+1 (Forecast)					4.169					3.666
					-1.23					-1.02
Other Core Explanatory Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Industry Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.775	-0.715	-0.688	-0.735	-0.709	-0.691	-0.702	-0.621	-0.675	-0.644
	(-0.72)	(-0.66)	(-0.65)	(-0.68)	(-0.66)	(-0.64)	(-0.64)	(-0.60)	(-0.64)	(-0.62)
N	145	145	145	145	145	148	148	148	148	148
F	2.978***	3.022***	3.049***	3.016***	3.027***	2.747***	2.701***	2.891***	2.788***	2.841***
R2	0.23	0.224	0.233	0.228	0.231	0.237	0.233	0.241	0.236	0.239

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 3.29: The OLS regression for the determinants of the degree of debt market timing (Expected interest rate with perfect foresight method)

Y / X	(1) # Bond Issuance CFO Model	(2) # Bond Issuance CEO Model	(3) # Bond Issuance CFO Model	(4) # Bond Issuance CEO Model	(5) # Bond Issuance CFO Model	(6) # Bond Issuance CEO Model	(7) # Bond Issuance CFO Model	(8) # Bond Issuance CEO Model	(9) # Bond Issuance CFO Model	(10) # Bond Issuance CEO Model
Expected Short-term Interest Rate t+2	-0.802					-1.072				
	(-0.38)					(-0.53)				
Expected Interbank Rate t+2		-0.758					-0.805			
		(-1.20)					(-1.32)			
Expected MRR Rate t+2			-0.508					-0.561		
			(-0.89)					(-0.99)		
Expected MLR Rate t+2				-0.626					-0.675	
				(-1.07)					(-1.19)	
Expected MOR Rate t+2					-0.530					-0.584
					(-0.92)					(-1.03)
Other Core Explanatory Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Industry Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.701	-0.635	-0.641	-0.628	-0.640	-0.751	-0.729	-0.703	-0.705	-0.705
	(-0.65)	(-0.59)	(-0.60)	(-0.58)	(-0.60)	(-0.66)	(-0.65)	(-0.63)	(-0.63)	(-0.63)
N	145	145	145	145	145	148	148	148	148	148
F	3.026	3.161	3.059	3.109	3.069	2.658	2.666	2.623	2.643	2.627
R2	0.223	0.228	0.225	0.227	0.225	0.233	0.238	0.236	0.237	0.236

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 3.30: The OLS regression for the determinants of the degree of debt market timing (Expected interest rate with forecast inflation rate)

Y / X	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Y	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance
X	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model
Expected Short-term Interest Rate t+2 (Forecast)	8.734**					8.105**				
	(2.41)					(2.28)				
Expected Interbank Rate t+2 (Forecast)		7.749					7.802			
		(1.43)					(1.51)			
Expected MRR Rate t+2 (Forecast)			3.652					3.570		
			(1.20)					(1.15)		
Expected MLR Rate t+2 (Forecast)				4.051					3.978	
				(1.00)					(0.99)	
Expected MOR Rate t+2 (Forecast)					4.155					4.073
					(1.24)					(1.21)
Other Core Explanatory Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Industry Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.335	-0.777	-0.785	-0.827	-0.792	-0.343	-0.927	-0.782	-0.850	-0.802
	(-0.33)	(-0.73)	(-0.73)	(-0.76)	(-0.74)	(-0.33)	(-0.88)	(-0.76)	(-0.80)	(-0.78)
N	145	145	145	145	145	148	148	148	148	148
F	3.112	3.196	3.071	3.055	3.074	2.981	2.962	2.963	2.891	2.970
R2	0.253	0.234	0.232	0.229	0.233	0.259	0.244	0.241	0.238	0.242

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 3.31: The GLS regression for the determinants of the degree of debt market timing (Current interest rate)

Y / X	(1) #Bond Issuance	(2) #Bond Issuance	(3) #Bond Issuance	(4) #Bond Issuance	(5) #Bond Issuance	(6) #Bond Issuance	(7) #Bond Issuance	(8) #Bond Issuance	(9) #Bond Issuance	(10) #Bond Issuance
Short-Term Interest Rate	2.251					1.920				
	(0.92)					(0.79)				
Interbank Rate		0.689					0.574			
		(1.15)					(0.93)			
MRR rate			0.746					0.651		
			(1.31)					(1.11)		
MLR rate				0.727					0.623	
				(1.25)					(1.04)	
MOR rate					0.748					0.649
					(1.30)					(1.09)
Managerial Ownership	-0.128	-0.140	-0.145	-0.142	-0.144	-0.0557	-0.0708	-0.0792	-0.0751	-0.0774
	(-0.54)	(-0.59)	(-0.61)	(-0.59)	(-0.60)	(-0.24)	(-0.31)	(-0.34)	(-0.32)	(-0.33)
Institutional Ownership	0.373	0.379	0.381	0.380	0.381	0.298	0.308	0.315	0.312	0.314
	(1.52)	(1.55)	(1.56)	(1.56)	(1.56)	(1.23)	(1.27)	(1.30)	(1.29)	(1.30)
Foreign Ownership	**-0.466***	**-0.470***	**-0.473***	**-0.471***	**-0.472***	**-0.460***	**-0.471***	**-0.477***	**-0.475***	**-0.476***
	(-1.87)	(-1.89)	(-1.91)	(-1.90)	(-1.90)	(-1.86)	(-1.90)	(-1.93)	(-1.91)	(-1.92)
Ownership Concentration	-0.00812	-0.0134	-0.0143	-0.0155	-0.0152	0.000372	-0.0162	-0.0232	-0.0218	-0.0232
	(-0.03)	(-0.04)	(-0.05)	(-0.05)	(-0.05)	(0.00)	(-0.05)	(-0.07)	(-0.07)	(-0.07)
Board Independence	-0.234	-0.241	-0.239	-0.236	-0.236	-0.225	-0.234	-0.236	-0.232	-0.233
	(-1.07)	(-1.10)	(-1.10)	(-1.08)	(-1.08)	(-1.06)	(-1.10)	(-1.10)	(-1.09)	(-1.09)
Board Size	-0.113	-0.0728	-0.0655	-0.0718	-0.0690	-0.0780	-0.0619	-0.0618	-0.0651	-0.0640
	(-0.25)	(-0.16)	(-0.14)	(-0.16)	(-0.15)	(-0.18)	(-0.14)	(-0.14)	(-0.15)	(-0.15)
Women on Board	-0.131	-0.104	-0.100	-0.103	-0.102	-0.0697	-0.0463	-0.0404	-0.0443	-0.0423
	(-0.44)	(-0.34)	(-0.33)	(-0.34)	(-0.34)	(-0.23)	(-0.15)	(-0.13)	(-0.15)	(-0.14)
Audit Committee on Board	-0.442	-0.427	-0.426	-0.430	-0.428	-0.398	-0.393	-0.395	-0.398	-0.397
	(-0.83)	(-0.80)	(-0.80)	(-0.81)	(-0.80)	(-0.76)	(-0.75)	(-0.75)	(-0.76)	(-0.76)
Military Experience on Board	-0.0162	-0.0146	-0.0132	-0.0139	-0.0135	-0.0260	-0.0251	-0.0232	-0.0242	-0.0236
	(-0.29)	(-0.26)	(-0.23)	(-0.25)	(-0.24)	(-0.48)	(-0.47)	(-0.43)	(-0.45)	(-0.44)
Female CFO	-0.00935	-0.00964	-0.00963	-0.00970	-0.00976					
	(-0.19)	(-0.19)	(-0.19)	(-0.19)	(-0.19)					
Older CFO	0.144	0.106	0.0755	0.0871	0.0790					
	(0.31)	(0.22)	(0.16)	(0.18)	(0.17)					
Financial Education of CFO	0.158	0.149	0.145	0.146	0.145					
	(1.20)	(1.14)	(1.11)	(1.12)	(1.11)					
Female CEO						-0.172	-0.171	-0.171	-0.171	-0.171
						(-1.42)	(-1.41)	(-1.41)	(-1.41)	(-1.41)
Older CEO						0.128	0.0542	0.00877	0.0254	0.0137
						(0.25)	(0.10)	(0.02)	(0.05)	(0.03)
Financial Education of CEO						0.0795	0.0723	0.0686	0.0699	0.0691
						(1.33)	(1.20)	(1.14)	(1.16)	(1.15)
Private Placement	**0.102***	0.0916	0.0880	0.0895	0.0887	**0.102***	0.0935	0.0903	0.0917	0.0909
	(1.67)	(1.48)	(1.41)	(1.44)	(1.43)	(1.73)	(1.57)	(1.51)	(1.54)	(1.52)
Credit Rating	0.0177	0.0181	0.0184	0.0183	0.0184	0.0153	0.0166	0.0174	0.0171	0.0173
	(0.89)	(0.91)	(0.92)	(0.92)	(0.92)	(0.77)	(0.83)	(0.87)	(0.85)	(0.86)
Bond Maturity	0.0106	0.0105	0.0107	0.0106	0.0107	0.0122	0.0121	0.0122	0.0122	0.0122
	(1.41)	(1.40)	(1.42)	(1.42)	(1.42)	(1.64)	(1.63)	(1.64)	(1.64)	(1.64)
Profitability	**0.768***	**0.790***	**0.797***	**0.792***	**0.795***	**0.674**	**0.697***	**0.708***	**0.702***	**0.705***
	(1.81)	(1.86)	(1.88)	(1.87)	(1.87)	(1.62)	(1.67)	(1.69)	(1.68)	(1.69)
Firm Size	**0.0812***	**0.0787***	**0.0776***	**0.0779***	**0.0777***	**0.0791***	**0.0776***	**0.0768***	**0.0771***	**0.0769***
	(1.90)	(1.84)	(1.82)	(1.82)	(1.82)	(1.88)	(1.84)	(1.82)	(1.83)	(1.83)
Asset Tangibility	0.0739	0.0736	0.0738	0.0752	0.0746	0.0684	0.0678	0.0684	0.0693	0.0690
	(0.56)	(0.56)	(0.56)	(0.57)	(0.57)	(0.54)	(0.53)	(0.54)	(0.54)	(0.54)
Dividends	-0.473	-0.449	-0.436	-0.440	-0.437	-0.421	-0.414	-0.409	-0.410	-0.409
	(-1.24)	(-1.18)	(-1.15)	(-1.16)	(-1.15)	(-1.10)	(-1.09)	(-1.08)	(-1.08)	(-1.08)
Cash	0.280	0.259	0.254	0.258	0.256	0.217	0.206	0.202	0.205	0.204
	(0.66)	(0.61)	(0.60)	(0.61)	(0.60)	(0.52)	(0.49)	(0.48)	(0.49)	(0.48)
Nominal GDP Growth	-1.066	-0.967	-0.876	-0.898	-0.886	-1.004	-0.923	-0.842	-0.863	-0.851
	(-1.38)	(-1.26)	(-1.13)	(-1.16)	(-1.15)	(-1.32)	(-1.22)	(-1.11)	(-1.14)	(-1.13)
Term Spread	-2.622	-3.488	-3.511	-3.396	-3.478	-1.992	-2.719	-2.810	-2.684	-2.772
	(-0.79)	(-1.01)	(-1.03)	(-0.99)	(-1.02)	(-0.60)	(-0.78)	(-0.81)	(-0.78)	(-0.80)
Risk Spread	-2.263	-3.220	-3.397	-3.547	-3.455	-3.994	-4.768	-4.812	-4.981	-4.875
	(-0.31)	(-0.47)	(-0.49)	(-0.52)	(-0.50)	(-0.56)	(-0.69)	(-0.70)	(-0.73)	(-0.71)
Constant	-0.686	-0.617	-0.606	-0.612	-0.605	-0.561	-0.423	-0.379	-0.396	-0.382
	(-0.72)	(-0.65)	(-0.64)	(-0.65)	(-0.64)	(-0.53)	(-0.39)	(-0.35)	(-0.37)	(-0.36)
N	145	145	145	145	145	148	148	148	148	148
Wald chi2	42.47*	43.06**	43.58**	43.37**	43.53**	45.48**	45.79**	46.26**	46.06**	46.20**

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 3.32: The GLS regression for the determinants of the degree of debt market timing (Expected interest rate with perfect foresight method)

Y / X	(1) #Bond Issuance	(2) #Bond Issuance	(3) #Bond Issuance	(4) #Bond Issuance	(5) #Bond Issuance	(6) #Bond Issuance	(7) #Bond Issuance	(8) #Bond Issuance	(9) #Bond Issuance	(10) #Bond Issuance
Expected ST Interest Rate t+1	**3.755****					**3.769****				
	(2.33)					(2.40)				
Expected Interbank Rate t+1		**0.882***					**0.897***			
		(1.67)					(1.72)			
Expected MRR rate t+1			**0.883***					**0.887***		
			(1.76)					(1.80)		
Expected MLR rate t+1				**0.898***					**0.905***	
				(1.72)					(1.76)	
Expected MOR rate t+1					**0.893***					**0.898***
					(1.74)					(1.78)
Managerial Ownership	-0.148	-0.163	-0.168	-0.166	-0.167	-0.0824	-0.0991	-0.107	-0.103	-0.105
	(-0.63)	(-0.68)	(-0.71)	(-0.69)	(-0.70)	(-0.36)	(-0.43)	(-0.46)	(-0.45)	(-0.46)
Institutional Ownership	**0.399***	0.392	0.395	0.394	0.395	0.340	0.335	0.343	0.340	0.342
	(1.65)	(1.61)	(1.62)	(1.62)	(1.62)	(1.43)	(1.39)	(1.42)	(1.41)	(1.42)
Foreign Ownership	**-0.526****	**-0.534****	**-0.538****	**-0.536****	**-0.538****	**-0.511****	**-0.520****	**-0.527****	**-0.524****	**-0.526****
	(-2.14)	(-2.14)	(-2.16)	(-2.15)	(-2.16)	(-2.09)	(-2.09)	(-2.12)	(-2.11)	(-2.12)
Ownership Concentration	-0.0552	-0.0330	-0.0360	-0.0364	-0.0364	-0.0568	-0.0261	-0.0352	-0.0332	-0.0345
	(-0.18)	(-0.11)	(-0.12)	(-0.12)	(-0.12)	(-0.18)	(-0.08)	(-0.11)	(-0.11)	(-0.11)
Board Independence	-0.272	-0.312	-0.316	-0.312	-0.313	-0.286	-0.317	-0.323	-0.319	-0.320
	(-1.26)	(-1.41)	(-1.42)	(-1.41)	(-1.41)	(-1.35)	(-1.45)	(-1.48)	(-1.46)	(-1.46)
Board Size	-0.0505	-0.0105	0.00619	-0.0000657	0.00218	-0.0637	-0.0258	-0.0217	-0.0244	-0.0242
	(-0.11)	(-0.02)	(0.01)	(-0.00)	(0.00)	(-0.15)	(-0.06)	(-0.05)	(-0.06)	(-0.06)
Women on Board	-0.133	-0.0955	-0.0888	-0.0915	-0.0904	-0.0378	-0.0122	-0.00423	-0.00774	-0.00622
	(-0.45)	(-0.32)	(-0.30)	(-0.31)	(-0.30)	(-0.13)	(-0.04)	(-0.01)	(-0.03)	(-0.02)
Audit Committee on Board	-0.463	-0.411	-0.406	-0.410	-0.409	-0.451	-0.386	-0.389	-0.390	-0.390
	(-0.88)	(-0.77)	(-0.77)	(-0.77)	(-0.77)	(-0.88)	(-0.74)	(-0.75)	(-0.75)	(-0.75)
Military Experience on Board	-0.0164	-0.0110	-0.00866	-0.00947	-0.00911	-0.0200	-0.0171	-0.0145	-0.0155	-0.0150
	(-0.30)	(-0.20)	(-0.15)	(-0.17)	(-0.16)	(-0.38)	(-0.32)	(-0.27)	(-0.29)	(-0.28)
Female CFO	-0.0101	-0.00515	-0.00444	-0.00461	-0.00458					
	(-0.20)	(-0.10)	(-0.09)	(-0.09)	(-0.09)					
Older CFO	-0.0983	-0.0133	-0.0487	-0.0360	-0.0429					
	(-0.21)	(-0.03)	(-0.10)	(-0.07)	(-0.09)					
Financial Education of CFO	0.135	0.134	0.129	0.130	0.129					
	(1.05)	(1.03)	(0.99)	(1.00)	(1.00)					
Female CEO						**-0.205***	-0.196	-0.197	-0.197	-0.197
						(-1.71)	(-1.63)	(-1.63)	(-1.63)	(-1.63)
Older CEO						0.0985	0.135	0.0939	0.108	0.100
						(0.20)	(0.27)	(0.19)	(0.21)	(0.20)
Financial Education of CEO						0.0606	0.0593	0.0553	0.0565	0.0557
						(1.02)	(0.98)	(0.91)	(0.93)	(0.92)
Private Placement	0.0922	0.0884	0.0838	0.0852	0.0844	0.0903	0.0859	0.0818	0.0831	0.0825
	(1.53)	(1.44)	(1.36)	(1.38)	(1.37)	(1.56)	(1.45)	(1.38)	(1.40)	(1.39)
Credit Rating	0.0157	0.0157	0.0161	0.0160	0.0160	0.0138	0.0140	0.0148	0.0145	0.0146
	(0.80)	(0.79)	(0.82)	(0.81)	(0.81)	(0.71)	(0.71)	(0.76)	(0.74)	(0.75)
Bond Maturity	0.0109	0.0101	0.0102	0.0101	0.0102	**0.0125***	0.0117	0.0118	0.0118	0.0118
	(1.47)	(1.35)	(1.36)	(1.36)	(1.36)	(1.71)	(1.58)	(1.59)	(1.59)	(1.59)
Profitability	**0.803***	**0.824***	**0.832****	**0.828***	**0.830***	**0.738***	**0.762***	**0.774***	**0.769***	**0.771***
	(1.92)	(1.94)	(1.96)	(1.95)	(1.96)	(1.79)	(1.83)	(1.85)	(1.84)	(1.85)
Firm Size	**0.0813***	**0.0819***	**0.0807***	**0.0810***	**0.0809***	**0.0787***	**0.0792***	**0.0784***	**0.0786***	**0.0785***
	(1.94)	(1.94)	(1.91)	(1.91)	(1.91)	(1.90)	(1.90)	(1.88)	(1.88)	(1.88)
Asset Tangibility	0.0597	0.0494	0.0474	0.0491	0.0486	0.0739	0.0574	0.0566	0.0577	0.0575
	(0.46)	(0.38)	(0.36)	(0.37)	(0.37)	(0.59)	(0.45)	(0.45)	(0.46)	(0.45)
Dividends	-0.451	-0.439	-0.425	-0.429	-0.426	-0.405	-0.393	-0.386	-0.387	-0.386
	(-1.20)	(-1.16)	(-1.12)	(-1.13)	(-1.13)	(-1.08)	(-1.04)	(-1.02)	(-1.03)	(-1.02)
Cash	0.330	0.284	0.277	0.281	0.280	0.241	0.202	0.196	0.199	0.198
	(0.79)	(0.67)	(0.66)	(0.67)	(0.66)	(0.58)	(0.48)	(0.47)	(0.48)	(0.48)
Nominal GDP Growth	-0.347	-0.774	-0.704	-0.715	-0.704	-0.201	-0.649	-0.580	-0.591	-0.580
	(-0.43)	(-1.00)	(-0.90)	(-0.92)	(-0.90)	(-0.25)	(-0.85)	(-0.75)	(-0.76)	(-0.75)
Term Spread	-3.777	-3.476	-3.811	-3.759	-3.817	-3.545	-3.208	-3.556	-3.501	-3.562
	(-1.14)	(-1.03)	(-1.12)	(-1.11)	(-1.12)	(-1.06)	(-0.94)	(-1.03)	(-1.02)	(-1.03)
Risk Spread	-6.507	-6.490	-6.935	-7.103	-6.974	-7.554	-7.680	-8.037	-8.240	-8.089
	(-0.95)	(-0.93)	(-0.99)	(-1.01)	(-1.00)	(-1.12)	(-1.12)	(-1.17)	(-1.19)	(-1.18)
Constant	-0.231	-0.396	-0.384	-0.390	-0.385	-0.437	-0.520	-0.489	-0.500	-0.493
	(-0.24)	(-0.41)	(-0.40)	(-0.41)	(-0.40)	(-0.42)	(-0.50)	(-0.47)	(-0.48)	(-0.47)
N	145	145	145	145	145	148	148	148	148	148
Wald chi2	48.32**	44.94**	45.36**	45.16**	45.28**	52.16***	48.52**	48.86**	48.68**	48.78**

t statistics in parentheses: * $p<0.1$, ** $p<0.05$, *** $p<0.01$

Table 3.33: The GLS regression for the determinants of the degree of debt market timing (Expected interest rate with forecast inflation rate)

Y / X	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance
	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model
Expected Short-term Interest Rate t+1	8.855					6.78				
	(1.23)					(0.95)				
Expected Interbank Rate t+1		2.299					1.876			
		(0.63)					(0.52)			
Expected MRR Rate t+1			3.997					3.631		
			(1.46)					(1.31)		
Expected MLR Rate t+1				3.959					3.277	
				(1.1)					(0.9)	
Expected MOR Rate t+1					4.169					3.666
					(1.33)					(1.15)
Other Core Explanatory Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Industry Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.775	-0.715	-0.688	-0.735	-0.709	-0.691	-0.702	-0.621	-0.675	-0.644
	(-0.82)	(-0.75)	(-0.73)	(-0.78)	(-0.75)	(-0.66)	(-0.67)	(-0.59)	(-0.64)	(-0.62)
N	145	145	145	145	145	148	148	148	148	148
Wald Chi2	43.33**	41.87**	44.11**	42.93**	43.64**	45.85**	45.02**	46.88**	45.71**	46.38**

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 3.34: The GLS regression for the determinants of the degree of debt market timing (Expected interest rate with perfect foresight method)

Y / X	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance
	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model
Expected Short-term Interest Rate t+2	-0.802					-1.072				
	(-0.34)					(-0.46)				
Expected Interbank Rate t+2		-0.758					-0.805			
		(-1.02)					(-1.10)			
Expected MRR Rate t+2			-0.508					-0.561		
			(-0.78)					(-0.86)		
Expected MLR Rate t+2				-0.626					-0.675	
				(-0.93)					(-1.01)	
Expected MOR Rate t+2					-0.530					-0.584
					(-0.80)					(-0.88)
Other Core Explanatory Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Industry Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.701	-0.635	-0.641	-0.628	-0.640	-0.751	-0.729	-0.703	-0.705	-0.705
	(-0.74)	(-0.67)	(-0.68)	(-0.66)	(-0.67)	(-0.70)	(-0.70)	(-0.67)	(-0.67)	(-0.67)
N	145	145	145	145	145	148	148	148	148	148
Wald Chi2	41.52*	42.72**	42.14*	42.47*	42.19*	44.93**	46.23**	45.63**	45.98**	45.68**

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 3.35: The GLS regression for the determinants of the degree of debt market timing (Expected interest rate with forecast inflation rate)

Y / X	(1) # Bond Issuance CFO Model	(2) # Bond Issuance CEO Model	(3) # Bond Issuance CFO Model	(4) # Bond Issuance CEO Model	(5) # Bond Issuance CFO Model	(6) # Bond Issuance CEO Model	(7) # Bond Issuance CFO Model	(8) # Bond Issuance CEO Model	(9) # Bond Issuance CFO Model	(10) # Bond Issuance CEO Model
Expected Short-term Interest Rate t+2	8.734**					8.105**				
	(2.46)					(2.33)				
Expected Interbank Rate t+2		7.749					7.802			
		(1.53)					(1.57)			
Expected MRR Rate t+2			3.652					3.570		
			(1.35)					(1.32)		
Expected MLR Rate t+2				4.051					3.978	
				(1.12)					(1.11)	
Expected MOR Rate t+2					4.155					4.073
					(1.41)					(1.39)
Other Core Explanatory Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Industry Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.335	-0.777	-0.785	-0.827	-0.792	-0.343	-0.927	-0.782	-0.850	-0.802
	(-0.36)	(-0.82)	(-0.83)	(-0.87)	(-0.84)	(-0.33)	(-0.88)	(-0.75)	(-0.80)	(-0.76)
N	145	145	145	145	145	148	148	148	148	148
Wald Chi2	49.12**	44.37**	43.70**	42.99**	43.94**	51.70***	47.89**	46.94**	46.28**	47.19**

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 3.36: Summary results of examined hypotheses of the likelihood of debt market timing

Order	Hypothesis	The presence of debt market timing	The result of corporate bonds (HOT_{Debt})	Support/ Reject Hypothesis	The result of corporate bonds ($HOT_{Proceeds}$)	Support/ Reject Hypothesis	The result of corporate bonds ($IR_{Extreme}$)	Support/ Reject Hypothesis	The result of corporate bonds (IR_{Median})	Support/ Reject Hypothesis
H1	Corporate debt market timing exists in Thailand.	Yes	Yes***	Support	Yes***	Support	Yes***	Support	Yes***	Support
H2	Interest rate									
	Current interest rate	-	-**/-***	Support	-***	Support	NA	NA	NA	NA
	Expected interest rate	+	+*/+**	Support	+	NA	NA	NA	NA	NA
H3	Ownership structure									
H3.1	Managerial ownership	+	-*/-**	Reject	-*/-**	Reject	-***	Reject	+	NA
H3.2	Institutional ownership	-	+***	Reject	-	NA	+	NA	-	NA
H3.3	Foreign ownership	-	-*	Support	-	NA	-	NA	+**/+***	Reject
H3.4	Ownership concentration	-	-*	Support	-	NA	+*/+**	Reject	+	NA
H4	Board structure									
H4.1	Board independence	+	-***	Reject	-*/-**	Reject	-***	Reject	-	NA
H4.2	The number of board size	+	+***	Support	+*/+**/+***	Support	+	NA	+	NA
H4.3	Women on board directors	-	+**/+***	Reject	+*/+**	Reject	+*	Reject	+	NA
H4.4	Audit committee on board directors	+	+***	Support	+**/+***	Support	+**	Support	+**	Support

Table 3.37: Summary results of examined hypotheses of the level of debt market timing

Order	Hypothesis	The level of debt market timing	The result of corporate bonds *(Debt proceeds ratio)*	Support/ Reject Hypothesis	The result of corporate bonds *(#Bond issuance)*	Support/ Reject Hypothesis
H1	Corporate debt market timing exists in Thailand.	Yes	Yes***	Support	Yes***	Support
H2	Interest rate					
	Current interest rate	-	-*/-**	Support	+	NA
	Expected interest rate	+	-*/-**/-***	Reject	+*/+**	Support
H3	Ownership structure					
H3.1	Managerial ownership	+	-**/-***	Reject	-	NA
H3.2	Institutional ownership	-	-	NA	+*	Reject
H3.3	Foreign ownership	-	-	NA	-*/-**	Support
H3.4	Ownership concentration	-	+*/+**	Reject	-	NA
H4	Board structure					
H4.1	Board independence	+	+*/+***	Support	-	NA
H4.2	The number of board size	+	+*/+**/+***	Support	-	NA
H4.3	Women on board directors	-	-	NA	-	NA
H4.4	Audit committee on board directors	+	+	NA	-	NA

3.6 Discussion of findings

This chapter aims to investigate whether there is the existence of debt market timing in the Thai bond market and which factors are the determinants of the probability and degree of debt market timing in Thailand with bond issuance. This section demonstrates the discussion of the findings presented in section 3.5.3.

3.6.1 The presence of debt market timing in Thailand

This study examines the existence of debt market timing in Thailand with the conducting of corporate bonds. We tested this issue with four indicators, including detecting debt market timers with four strategies, the testing of differences in the bond proceeds and interest rate level between timers and non-timers, and the investigating of spending money by timers after a bond allocation.

The first indicator is inspected using four strategies consisting of hot debt market, hot proceeds market, and extreme and median interest rates. Based on the hot debt strategy and the hot proceeds strategy, the results show that the proportion of hot firms is significantly greater than cold firms in Thailand for both hot debt strategy (79.37% > 20.63%) and hot proceeds strategy (61.90% > 38.10%). This is consistent with Doukas et al. (2011), who find that more firms have a high motivation to allocate debt at a favourable time rather than during an unfavourable period, with 3,227 hot and 845 cold companies in a hot debt market and with 3,082 hot and 889 cold issuances in a hot proceeds market. Moreover, there is similarity between the two strategies, both in patterns of the graphs (see figure 3.8) and the number of hot and cold firms. Also, the correlation of the two strategies is +38.08% which is a slightly high positive correlation. This is consistent with Doukas et al. (2011), who claim that the two assessments are indistinguishable, both from qualitative and quantitative aspects. Furthermore, we can detect 35 and 106 timing firms in the extreme and median strategies, respectively. This indicates that there are firms who attempt to time the debt market in a period of low interest rate. Consequently, we can capture debt market timers for all strategies; therefore, this confirms the first indicator of debt market timing.

In addition, the result for the mean difference test shows that hot debt companies gain a higher proceeds ratio at time t at 1.38% compared to cold debt companies at 0.69%, with economic and statistical significance. Hence, this confirms the second indicator of debt market timing, namely that firms that issue bonds when the market is favourable obtain higher proceeds than companies who conduct bonds when the market is unfavourable. This is consistent with Doukas et al. (2011), who found that hot companies significantly allocate more debt than cold corporations.

Also, the result of the mean difference test presents that the level of the current interest rate of hot firms are lower than for cold firms in both hot debt and hot proceeds markets with statistical and economic significance. This affirms the third indicator that executives tend to time the debt market with issuing debt when they recognise a lower interest rate (Graham & Harvey, 2001; Baker et al., 2003; Barry et al., 2009).

Moreover, there is significant evidence that timers tend to maintain proceeds as cash after conducting corporate bonds. This supports the posit of Blanchard et al. (1993); Loughran and Ritter (1997) and Kim and Weisbach (2008) in context of equity issuance that the one reason for equity allocation is market timing as there is evidence of maintaining the proceeds as cash after selling stocks. In other words, debt is another source of financing as same as equity. Therefore, our finding implies that there is debt market timing in the Thai bond market as timers tend to keep the money gained from selling corporate bonds as cash. This confirms the fourth indicator of debt market timing.

Consequently, this study confirms that there is debt market timing in Thailand with conducting corporate bonds based on above evidence. Additionally, this study offers a new implication of debt market timing in terms of maintaining the proceeds as cash after conducting corporate bonds.

3.6.2 The determinants of the probability of debt market timing

1. Interest rate

Current interest rate

This study reveals strong evidence that the propensity for debt market timing increases with a lower current interest rate in both hot debt and hot proceeds markets. This finding verifies the claim by Graham and Harvey (2001); Baker et al. (2003) and Barry et al. (2008), who found that interest rate is an important factor in the decision to time the debt market. When managers perceive that the current interest rate is relatively low, they issue more debt to earn the benefit of low cost of debt financing. Moreover, most prior literature considered only the current interest rate as estimated by 3-month T-bill returns. However, this study employs five different measurements to test this issue, including 3-month T-bill yields, interbank and lending (MRR, MLR and MOR) rates, especially the lending rate, which has quite an influence directly on the cost of debt financing for companies. Therefore, the results of all variables strongly support the previous literature that current interest rate is a crucial factor in increasing the likelihood of debt market timing when the market is hot.

Expected interest rate

This study offers significant evidence that the probability of debt market timing during hot debt period increases with a higher expected interest rate. This implies that managers are successful at timing the debt market to decrease the cost of debt financing since they can fix the cost of debt at a low interest rate before it increases. However, our result argues the claim by Barry et al. (2009) that executives are unsuccessful in debt market timing since they found that the interest rate declines after issuing a fixed-rate debt and there is no evidence that firms allocate more fixed-rate debt before the future interest rate increases. The different measurements of the future interest rate may be the cause of these dissimilar results. They employed the yields of Baa fixed-debt issue, whereas this study estimates the expected interest rate from 3-month T-bill returns and interbank and lending rates. As this study contains corporate bonds with various credit ratings, using only yields of Baa fixed-debt issue may be an inappropriate representative of our sample in total. However, our finding was documented by Graham and Harvey (2001), who posit that managers tend to time the debt market with conducting debt financing when they acknowledge that the current interest rate is relatively low. In other words, executives issue debt when they predict that the interest rate will rise in future. Therefore, we offer the new evidence that managers are successful at timing the debt market with selling corporate bonds during hot debt period.

2. Ownership structure

Managerial ownership

Interestingly, our result provides significant evidence that the likelihood of debt market timing with hot debt, hot proceeds and extreme strategies decreases with higher managerial ownership. Thus, our finding contests the claim by Stulz (1988) and Wiwattanakantang (1999) that firms with a higher proportion of managerial shareholders are eager to finance with more debt as managers prefer to maintain their voting power and control in firm management. However, our result supports the posit by Jensen and Meckling (1976) that corporations with a higher managerial ownership prefer not to use more debt as they contain less of an agency problem. Hence, both managerial and outside investors have the same interest in firm operations to achieve the company objective; hence, it is unnecessary for them to gain more pressure and risk from debt financing.

Institutional ownership

This study shows that there is a positive effect of institutional ownership on the probability of debt market timing only during a hot debt market. This indicates that hot debt market is the strategy of debt market timing for institutional shareholders in Thailand. However, the positive effect is against the claim by Pushner (1995) and Dahlquist and Robertsson (2001) that companies with higher institutional ownership tend to use less financial leverage. However, as there is no study employing this variable in debt market timing, we provide the new perspective that the propensity of debt market timing during a hot debt market increases with higher institutional ownership. It is likely that institutional shareholders act to monitor the managers in firm operations, so they avoid a financing policy that could lead to a dilution of shareholder wealth. Hence, they desire to finance with debt rather than equity and when they recognise a window of opportunity in the debt market, they tend to time the debt market.

Foreign ownership

We find that foreign ownership negatively impacts the hot debt variable, whereas this variable positively influences the median interest rate. The negative effect implies that foreign shareholders prefer not to obtain additional risk from debt securities since the debtholders have the priority regarding the right to the firm assets (Bokpin & Isshaq, 2009). In contrast, the positive effect implies that they gain the benefit from the debt market timing and this is consistent with Kang (1997) that foreign ownership positively associates with debt financing. Hence, by comparing the findings of the two strategies, this indicates that foreign investors prefer not to time the debt market in a hot period, but they prefer to time the debt market when the interest rate is relatively low to reduce the cost of debt, although they may obtain more pressure from lenders.

Ownership concentration

The results report that the likelihood of debt market timing with hot debt strategy decreases with higher ownership concentration. This goes against the claim by Stulz (1988) and Doukas et al. (2011) that firms with a higher proportion of controlling shareholders are willing to finance with more leverage as they prefer to prevent the diminution of their controlling authority. However, the cause of the different results between this study and that of Doukas et al. (2011) may be the dissimilar variable. They estimate this variable with the quantity of common shareholders divided by the outstanding quantity of common shares, while we employs the Herfindahl-

Hirschman Index (HHI) 3 as our ownership concentration variable, which is stronger than the variable of Doukas et al. (2011) since we focus only on the third largest portion of controlling shareholders. In addition, this study is conducted in an emerging country which contains a high ownership concentration (La Porta et al., 2000; Thanatawee, 2013). In contrast, Doukas et al. (2011) investigated companies in the US, which is a developed market, and Gul et al. (2010) assert that the ownership structure of US firms is quite dispersed. Hence, there is a non-identical outcome between this study and their study. However, our finding is supported by the claim by Wiwattanakantang (1999) that Thai corporations with more controlling shareholders tend to finance with less debt as they avoid the high monitoring by debtholders. Therefore, we offer the novel perspective that large shareholders in Thai firms prefer not to time the debt market during a hot debt market as they are not willing to gain high pressure and risk from using financial leverage.

In contrast, our results illustrate that the probability of debt market timing with the extreme strategy increases with higher ownership concentration. This means that if the current interest rate is tremendously low, controlling shareholders convince managers to time the debt market to earn the benefit from a low cost of debt, although this financing source may lead to more stress by the bondholders. Furthermore, they are able to maintain their voting rights, which is consistent with Stulz (1988) and Doukas et al. (2011).

3. Board structure

Board independence

This study reveals evidence that the percentage of independent directors on the board has a negative influence on the propensity of debt market timing. This result goes against the assertion by Lim et al. (2007), who found that there is a positive association between board independence and the debt ratio. However, our finding is supported by the posit of Core et al. (1999) and Gillan and Starks (2000) that the percentage of independent directors on the board relates to a firm's corporate governance. Consequently, this implies that corporations with high corporate governance do not time the debt market. Moreover, this study contributes a new aspect to the literature that the probability of debt market timing decreases with higher board independence.

Board size

Our result illustrates that the likelihood of debt market timing increases with greater board size. This affirms the claim by Lim et al. (2007), Wang (2012) and

Upadhyay (2015) that there is a positive association between board size and debt financing. Also, our finding is supported by Berger et al. (1997), who assert that the domination of executives is minimized by rise in the number of directors on the board. This implies that a larger board size supports an enhancement in the diversification and balances the authority of managers. Therefore, firms tend to implement policies that protect shareholder wealth, so they have a high motivation to time the debt market to diminish the cost of capital.

Women on the board

Our result provides strong evidence that the probability of debt market timing increases with a higher percentage of women on the board. This does not support the view by Alves et al. (2014) that the diversification of genders on the board negatively associates with debt financing. However, we explore the novel perspective that firms with more women on the board tend to time the debt market with selling corporate bonds. Additionally, the idea of Hillman et al. (2007) can account for our finding that different views, ideas and experiences are brought to the boardroom improve the quality of board decisions in firm policy. Moreover, Gul et al. (2011) claim that corporate governance is enhanced by the increase in the number of female directors on the board. Hence, the diversification of genders on the board enriches the efficiency of monitoring the management of executives and mitigates the dilution of shareholder wealth (Liu et al., 2014). Thus, firms with a higher diversification of gender on the board tend to finance with debt and they prefer to time the debt market when the market is hot and when the interest rate is extremely low.

Audit committee on the board

This study offers evidence that the probability of debt market timing increases with a higher proportion of audit committee members on the board. Our finding supports the posit of Adams (1997) that audit committee members on the board act as monitors to observe the managerial operations to avoid the dilution of shareholder wealth. Hence, they prefer to use debt financing and to time the debt market during a window of opportunities.

3.6.3 The determinants of the level of debt market timing

1. Interest rate

Current interest rate

The results report that there is a negative influence of the current interest rate on the level of debt market timing as measured by proceeds ratio. This also confirms the results of the probability of debt market timing. Furthermore, this finding supports the claim by Kaya (2013b) that the current interest rate inversely relates to the proceeds obtained from debt financing. Also, this affirms the statement of Marsh (1982) and Bancel and Mittoo (2004) that companies tend to time the debt market with debt issuance when they perceive that the interest rate is comparatively low. Thus, it is likely that corporations attempt to finance with more debt when the current interest rate is relatively low to minimize the cost of debt financing. Hence, the current interest rate is a crucial determinant of the level of debt market timing with larger proceeds.

Expected interest rate

We find that expected interest rate has a significantly negative effect on the proceeds ratio, yet a significantly positive effect on the number of bond issuances. The negative effect supports the claim by Barry et al. (2009), while the positive effect argues their statement. However, this implies that managers can succeed in timing the debt market with multiple bond allocations, but they fail to time the debt market with larger proceeds. Therefore, the expected interest rate is the important determinant of the degree of debt market timing.

2. Ownership structure

Managerial ownership

This study demonstrates that there is a significantly negative impact of managerial shareholders on the bond proceeds ratio, while this variable does not influence the number of bond issuances. These findings indicate that managers as shareholders do not associate with timing the debt market in terms of multiple bond allocations and they prefer not to take the benefit to gain substantial proceeds. Moreover, the negative effect confirms the results of the likelihood of debt market timing and the claim of Jensen and Meckling (1976). Thus, this indicates that when firms do not suffer or suffer less from the agency problem, they prefer to reduce the degree of debt market timing with larger proceeds.

Institutional ownership

We find that institutional ownership has a positive effect on the quantity of bond issuance, but no impact on the proceeds ratio. This suggests that institutional shareholders prefer to time the debt market in terms of multiple bond issuances rather than substantial proceeds. In addition, the positive effect confirms the results of the propensity of debt market timing. Also, this supports Cornett et al. (2007) who argue that institutional investors have an important role in monitoring the operations of managers to achieve the firm's objectives. Hence, they avoid the dilution of firm value through the issuance of new external equity. In contrast, our finding argues against the claim by Wiwattanakantang (1999) that institutional investors in Thailand, which is a developing country, have less power than their counterparts in developed countries. However, there are two main differences between our and her studies. *Firstly,* her samples are total listed industrial firms in Thailand, whereas our samples are only the listed non-financial firms that allocate new corporate bonds in Thailand. *Secondly,* she investigated solely in 1996, while we examine a longer period, from 2001 to 2014. Therefore, these differences imply that institutional shareholders have more potential role in firms that are large and reputable as most firms that issue corporate bonds are large and famous. Additionally, it is likely that institutional investors will have a greater role in Thailand.

Foreign ownership

The results show that foreign ownership has a negative effect on the number of bond allocation but no effect on the proceeds ratio. This indicates that foreign shareholders prefer not to time the debt market with multiple bond issuances. Also, this finding is consistent with Li et al. (2009), implying that foreign investors are not willing to gain additional risk from debtholders (Bokpin & Isshaq, 2009). Therefore, they convince managers to avoid issuing debt securities, even when the debt market offers a window of opportunity.

Ownership concentration

This study reveals evidence that the level of debt market timing with larger proceeds increases with larger controlling investors. Our result leads argues against the statement by Wiwattanakantang (1999), Deesomsak et al. (2004) and Margaritis and Psillaki (2010) that firms with a higher ownership concentration prefer to finance with less debt. In contrast, our finding supports the claim by Harris and Raviv (1988), Stulz (1988) and Doukas et al. (2011) that corporations with more controlling investors tend to finance with more financial leverage to maintain the authority of their voting power and decrease the opportunity of takeover efforts; hence, they encourage managers to increase the level of debt market timing during a window of opportunity to minimize the cost of capital.

3. Board structure

Board independence

This study reports the level of debt market timing with larger proceeds increases with greater board independence. Our result supports the statement of Lim et al. (2007) that the percentage of independent directors on the board positively affects the gearing ratio. Therefore, it is possible that independent directors on the board are an efficient monitor to observe the operations of firm managers. Hence, they convince other directors in the boardroom to avoid implementing policies that may dilute the firm's value and thus use more debt financing. This is consistent with Choi et al. (2007), who found that there is a strongly positive effect of independent directors on the board on firm performance. Consequently, the firms with greater board independence tend to raise the level of debt market timing with lager proceeds.

Board size

We find that board size has a positive influence on the degree of debt market timing with larger proceeds. This also supports the claim by Lim et al. (2007), Wang (2012) and Upadhyay (2015). Hence, a higher quantity of board members leads to the diversification of decision-making in the boardroom and helps diminish the domination of inside investors in considering the policy for important projects (Berger et al., 1997). Thus, companies with a larger board tend to use more debt to prevent the dilution of firm value by new investors.

Women on the board

We find that the results of this variable are insignificant. However, this supports the claim by Coleman and Cohn (1999) and Verheul and Thurik (2001) that male and female managers are no different regarding their decision-making on capital structure policy. Thus, it is possible that this variable does not impact on the level of debt market timing.

Audit committee on the board

The results report that this variable is not a determinant of the degree of debt market timing due to the statistical insignificance. Also, this does not support the statements by Menon and Williams (1994) and Adams (1997), that the audit committee can act as efficient detectors in the company to reduce the agency cost between managers and other stakeholders. However, there are several ways to calculate the variable of audit committee, including the percentage, independence and professional attributes revealing their quality of expertise (Krishnan, 2005). Therefore, we suggest that future studies use other measurements to test in this context, especially in terms of professional attributes of the member.

3.7 Practical implications

Equity market timing is of considerable interest to modern researchers in explaining the capital structure puzzle, while debt market timing is seldom covered by them, even though there is strong evidence that debt market timing exists in financial market. The findings of this chapter support the documentation of another behaviour of firm managers in decision-making of financing capital in Thailand and provide several implications for non-identical agents and stakeholders of companies, including managers, current shareholders, outside investors and regulators.

The first implication is from the aspect of managers, whereby firm executives will realize from our findings that they can obtain benefit from the debt market by issuing corporate bonds in a hot market and a period of low interest rate to earn more new capital and minimize the cost of debt financing. Moreover, our findings associated with the significant determinants of the probability and level of debt market timing support managers in concentrating on these factors to decide when to employ the debt market timing policy. In addition, our findings offer four strategies that managers can appropriately choose regarding their company structure to succeed in using this policy. In contrast, if they consider that the debt market is not in a window of opportunity period, they can change their policy to moving to the stock market or finding other sources of funds.

Next, contributing to the practical implications for current shareholders, our findings inform shareholders that debt market timing is a financing policy of firms. If some shareholders do not agree with this policy, they can exercise their right to vote in the boardroom to prevent the implementation of this policy. Although this strategy seems to create benefit for current shareholders, the increase in debt financing leads to greater pressure from creditors. Additionally, if corporations in which they hold stocks are in a period of financial distress or bankruptcy, the increase in debtholders results in the rise of additional stakeholders who have priority rights to the firm assets, hence our findings appear to advise caution to current shareholders to increase their concern regarding this issue. Besides, they can increase their interest in focusing on the determinants of debt market timing in this study to consider the possibility that managers may be employing this strategy.

Moving on to the practical implications for outside investors who are looking to invest in the bond market, our findings can offer guidance for investors in selecting the appropriate bond securities. As debt market timing is debt allocation when the market is in a window of opportunity and firms with this policy tend to gain more proceeds and reduce the cost of debt financing, investors can recognise this behaviour of managers and avoid investing in such companies as they may earn less yields. Likewise, our findings on the determinants of debt market timing can help outside investors when considering which firm times the debt market.

Most importantly, regarding regulators, especially the Stock Exchange of Thailand (SET), the Security and Exchange Committee (SEC), Thailand, the Thai Bond Market Association (ThaiBMA) and the Bank of Thailand (BOT), this study informs the regulators on recognizing the behaviour of managers conducting debt market timing and reflects the lower efficiency of the debt market, particularly the bond market in Thailand, which is less developed and is inactive. They can use this study as guidance to enhance the efficiency of the Thai bond market by launching rigorous regulations as the obstacle to prevent this behaviour of managers. In addition, the findings on the determinants of debt market timing are useful to regulators exerting more focus on firms which meet the qualifications for debt market timing. Consequently, this study contributes to enhancing the efficiency of the bond market in Thailand and serves as guidance for bond markets in other countries.

3.8 Limitations and recommendation for future study

The main limitations of this chapter are the unavailable data on bond issuances in the OTC market. Moreover, the bond market in Thailand is less active and less developed because it is an emerging market, thus there are small samples of bond allocations in Thailand. Moreover, the details of the bond ratings for some companies were not reported in the three main sources, which leads to missing data of credit ratings for some companies in this study. Therefore, we suggest for the future research studies that they attempt to investigate this context in other markets, where the bond market is more active and it is easier to access the data on corporate bonds to gain larger samples and make the results from this study more robust.

3.9 Conclusion

This chapter aimed to achieve three major objectives. The first was to investigate whether there is the presence of debt market timing with new corporate bond issuance in Thailand in both the organized and OTC bond markets. Furthermore, the second and third purposes were to explore the determinants of the likelihood and degree of debt market timing with new corporate bond allocations from 2001 to 2014. In the first objective, we followed the definition of Doukas et al. (2011), who detected debt market timing through a development of Alti (2006) method in the context of IPO market timing. Doukas et al. (2011) captured debt market timing with a classification of hot and cold markets with the volume of corporate bond issuances in terms of money ($HOT_{Proceeds}$) and quantity (HOT_{Debt}), which is a window of opportunity in the debt market. Additionally, this study develops a new measurement of debt market timing according to the statement of Graham and Harvey (2001) consisting of extreme ($IR_{Extreme}$) and median (IR_{Median}) approaches, which is debt market timing with conducting corporate bonds during extremely and moderately low interest rate, respectively. Likewise, the mean difference test between hot and cold firms in terms of the proceeds ratio, the amount of bond issuance and the level of the interest rate were produced. Moreover, this study inspected the motivation of spending the money gained from corporate bond issuance with respect to Kim and Weisbach (2008) and Julio et al. (2007) to confirm the presence of debt market timing. Based on the second and third objectives, the interesting factors were used to test whether they were determinants of the probability and level of debt market timing, consisting of the current and expected interest rates, ownership structure and board composition. The probit, OLS and GLS regressions were conducted to deal with these issues.

According to the first purpose of this chapter, which tested the presence of debt market timing in the Thai bond market, this study examined from four aspects to cross-check the existence of debt market timing with corporate bond allocation consisting of capturing debt market timing with four strategies to detect debt timers, the mean difference test for the proceeds ratio and interest rate level between timers and non-timers, and the motivation of spending the proceeds after corporate bond issuance of timers. Based on the first aspect, we find that the proportion of timers is higher than non-timers in both a hot debt market and a hot proceeds period. In addition, we can detect 35 timers and 106 timers when the interest rate is extremely and moderately low, respectively. Additionally, the mean difference test exhibits that timers gain more proceeds and pay a lower interest rate than non-timers with economic and statistical significances. Most importantly, this study reveals that timers tend to maintain the proceeds as cash after corporate bond allocation, which verifies that one of the motivations in corporate bond issuance is debt market timing in order to take advantage of a window of opportunity in the debt market, according to Blanchard et al. (1993), Loughran and Ritter (1997) and Kim and Weisbach (2008). Consequently, this study provides strong evidence that there is debt market timing in the Thai bond market.

With regards to the second aim, which examined the determinants of the probability of debt market timing with corporate bond offering, the marginal effects of the probit regression with robust command demonstrates that the chance of debt market timing increases with expected interest rate, institutional ownership, board size, women and audit committee members on the board. On the other hand, the likelihood of debt market timing declines with the current interest rate, managerial ownership and board independence. However, there are some factors, including foreign and controlling ownerships, which have conflicting effects on the debt market timing in each situation. Foreign ownership has a positive effect on the median strategy but a negative influence on the hot debt strategy. In addition, controlling ownership has a positive impact on the extreme strategy yet a negative effect on the hot debt strategy.

Based on the third objective, which investigates the determinants of the degree of debt market timing with corporate bond issuance, the OLS and GLS regressions exhibit that the level of debt market timing increases with institutional shareholders, ownership concentration, board independence and board size. In contrast, the degree of debt market timing decreases with the current interest rate, managerial and foreign shareholders. However, there is a conflicting influence of expected interest rate on the level of debt market timing, depending on each case. For instance, the expected interest rate has a positive effect on the multiple bond issuances but a negative effect on the larger proceeds.

In conclusion, this study presents that there is debt market timing with corporate bond allocation in the Thailand during favourable and low interest rate periods. Moreover, current and expected interest rates, ownership structure and board composition are crucial determinants of the probability and degree of debt market timing; however, the effect of these variables is different, depending on each situation and purpose. Consequently, this study provides guidance for managers, shareholders, investors, regulators and other stakeholders in the context of debt market timing, which is a new theory of capital structure.

CHAPTER 4:

Market Timing, Cost of Capital and Firm Performance: Evidence from Thailand

4.1 Introduction

The main purpose of timing the equity and debt markets is minimizing cost of capital (Baker & Wurgler, 2002; Baker et al., 2003). However, there are insufficient empirical studies concerning this topic. According to the literature, Chang et al. (2008) claim that executives are able to accomplish a reduction in cost of equity from equity market timing. Simultaneously, Chang et al. (2010a) provide evidence that equity market timers achieve a minimization of cost of equity, and they also posit that transparent firms in their financial statements gain a higher benefit from equity market timing than non-transparent corporations. However, cost of capital combines both debt and equity sources, thus the decrease in cost of equity does not necessarily mean that overall cost of capital also declines if cost of debt increases (Brigham & Ehrhardt, 2013). Moreover, there is a lack of research into the impact of debt market timing on cost of debt and cost of capital. Therefore, this study investigates the impact of equity market timing on cost of equity and overall cost of capital and the influence of debt market timing on cost of debt and overall cost of capital to fill these gaps in the context of market timing.

Furthermore, cost of equity can be estimated in several ways, whereby there are two major groups, namely backward or forward-looking approaches. Regarding the literature on market timing and cost of capital, only Chang et al. (2008) and Chang et al. (2010a) have focused in this issue, and they employed only a forward-looking method with an average of four procedures of implied cost of equity (GLS, CT, OJ and MPEG) to examine this issue. Frank and Shen (2016) find that different measurements of cost of equity influence the non-identical investments of corporations. They found that companies employing the CAPM method tend to invest less than corporations using implied cost of equity procedure. Hence, this indicates that the different methods, between CAPM and implied cost of equity, lead to the dissimilar behaviour of firms as well. Also, Graham and Harvey (2001) found evidence from a survey of CFOs that 73.5% of corporations employ the CAPM method to estimate their cost of equity. Therefore, it is interesting to include the CAPM model to evaluate cost of equity for robustness of the results with the implied cost of equity method. Additionally, it is well-known that the main benefit of equity holders comprises dividend and capital gain yields, according to the theory by Gordon (1962). However, yet no study has employed this theory to investigate in the context of market timing. Consequently, this study employs three different methods, including the backward-looking method with the CAPM model and the forward-looking approach with the Gordon dividend growth model and implied cost of equity approach, to explore the influence of market timing on cost of capital to contribute to the existing literature in this area.

Generally, the objective of a company is "maximizing firm value", thus the reason for market timing may be the increase in firm value. Regarding the literature, the majority of research studies have concentrated on the context of the influence of security allocation on firm performance, including Asquith and Mullins (1986), Ritter (1991), Jain and Kini (1994), Loughran and Ritter (1995), Loughran and Ritter (1997), Cai and Wei (1997), Mikkelson et al. (1997), Rangan (1998), Clarke et al. (2001) and Hertzel et al. (2002) in the field of equity issuance, while Eckbo (1986), Spiess and Affleck-Graves (1999), Dichev and Piotroski (1999) and Datta et al. (2000) focused on the area of debt allocation. However, there is little research directly testing the impact of market timing on firm value and performance. Moreover, the existing results are still ambiguous. For instance, Song (2009) insists that debt timers are unable to enhance firm value, as calculated by Tobin's q ratio. In contrast, Bougatef and Chichti (2011) argue that debt timers in Tunisia achieve an increase in their share price, whereas debt timers in French failed to improve their market stock price. On the other hand, Sah and Seagraves (2012) claim that there is no difference in ROA and the total asset turnover ratio between equity timers and non-timers in REITs. Hence, there is still unclear evidence and other variables (i.e. ROE, ROIC and MVA) have so far been neglected. So, this study investigates the effect of equity and debt market timing on firm value and performance, measured by accounting-based (ROA, ROE and ROIC ratios) and market-based (stock returns, MVA and Tobin's q) performances.

Importantly, not only is there little evidence of the effect of market timing on cost of capital and firm performance, there has also been no research study in Thailand focusing on this issue. Even though the stock market of Thailand has a weak-form efficiency (Kim & Shamsuddin, 2008; Aumeboonsuke, 2012), it is likely that firms have the opportunity to time the market because of its less efficiency. Likewise, Thai firms tend to possess a high ownership concentration (La Porta et al., 2000; Thanatawee, 2013), which may be the cause of an increase in the agency problem and weak corporate governance mechanism because insider shareholders may attempt to control the board of directors (Claessens & Fan, 2002). These factors may lead to a low barrier faced by firms when timing the market to accomplish their objective in terms of the reduction of cost of capital and improvement in firm performance. Therefore, this study exerts an effort to examine this issue in Thailand for both the stock and bond markets.

In conclusion, regarding the prior literature, several gaps appear regarding market timing, cost of capital and firm value and performance. *First*, there is little evidence of the effect of equity market timing on cost of equity. *Second,* there is a lack of evidence of the influence of equity market timing on overall cost of capital. *Third*, the impact of debt market timing on cost of debt and overall cost of capital has been ignored by the previous literature. *Fourth,* there is equivocal evidence of the association between equity market timing and firm performance. *Fifth,* the evidence of the effect of debt market timing on firm performance is still dubious and limited. *Sixth*, some measurements of cost of equity, including CAPM and Gordon dividend growth models, have been neglected in this context. *Finally,* some estimators of firm performance, including ROE, ROIC and MVA, have been disregarded by the existing literature on market timing.

4.1.1 Research questions

This chapter contains four major research questions, as follows:

1. How do the presence and degree of equity market timing affect cost of equity and cost of capital?
2. How do the presence and degree of equity market timing influence firm value and performance?
3. How do the presence and degree of debt market timing affect cost of debt after taxes and cost of capital?
4. How do the presence and degree of debt market timing influence firm value and performance?

4.1.2 Research aims and contributions

This chapter attempts to investigate whether timing the equity and debt markets influences cost of capital and firm value and performance in order to provide further insights into market timing theory. Basically, this study examines 285 IPO firms, 1,038 SEO issuances and 189 corporate bond issuances in Thailand to address in this issue, whereby the results are separately provided due to the different characteristics of each security. In addition, the OLS, GLS, ATE (2-step) and IV (2SLS) are used to produce the empirical results dealing with above research questions. Overall, this study reveals that there is an influence of market timing on cost of capital and firm value and performance;

however, the success or failure of minimizing cost of capital and enhancing firm value and performance relies on three main factors, namely the kind of allocated security, i.e. IPO, SEO or corporate bond, the strategy employed by firm managers in timing the market, and the method of calculation of cost of capital and firm performance. The results are briefly illustrated in the following.

Regarding the first purpose of this chapter, we examined the impact of the presence and degree of equity market timing on cost of equity and overall cost of capital. Equity market timing with the hot equity strategy according to Alti (2006) and the economic boom strategy, which is a new variable developed from the statement by Virolainen (2009) in terms of macro factors, are used to test this issue. Besides, we capture the degree of equity market timing with the equity proceeds ratio. Moreover, the cost of equity is estimated with three different methods: CAPM, Gordon, and implied cost of equity models covering both backward and forward-looking techniques. This study reveals strong evidence that IPO timing firms with the hot equity strategy are successful in reducing the cost of equity and the overall cost of capital in the short and long term, while the timers with larger proceeds accomplish a reduction of only cost of equity, yet a mixed effect appears for overall cost of capital. On the other hand, IPO timers with the economic boom strategy fail to reduce cost of equity and overall cost of capital in offering year; however, the influence of this strategy is mixed, depending on each measurement of cost of equity in the following years.

In contrast, SEO timers with the hot equity strategy can achieve a minimization of cost of equity and overall cost of capital only in the short term until 3 years post-offering. However, the impact of this strategy in the long term is mixed for cost of equity but is positive for overall cost of capital. In contrast, SEO timing firms with higher proceeds tend to suffer from an increase in cost of equity and overall cost of capital, both in the short and long term, until 5 years after selling follow-on equity. However, timing the SEO market with the economic boom strategy has mixed influences according to the approach of cost of equity calculation. As a result, this study provides evidence that equity market timers can both succeed and fail to reduce cost of equity and overall cost of capital depending on the type of equity issuance, the strategy of equity market timing, and the procedure of cost of equity evaluation.

Moving on to the second objective of this chapter, we detect the effect of the existence and degree of debt market timing on cost of debt after taxes and overall cost of capital. We included two strategies for the presence of debt market timing with the hot proceeds strategy following Doukas et al. (2011) and the median interest rate strategy, and we capture the degree of debt market timing with the debt proceeds ratio. Cost of debt after taxes is estimated by the Bloomberg dataset and interest expense ratio. This study presents that debt market timers during a hot proceeds period fail to diminish cost of debt after taxes; on the other hand, debt market timers during a period of moderately low interest rates accomplish a decrease in cost of debt after taxes. However, although debt timing companies with huge proceeds have difficulty increasing cost of debt after taxes in the short term, they can reduce cost of debt after taxes in the long term.

Interestingly, the success (failure) of reduction in cost of debt after taxes may not guarantee that they also are a winner (loser) in the decrease of overall cost of capital since the effect of debt market timing on overall cost of capital is mixed, depending on the method of cost of equity estimation. In debt market timing with the hot proceeds strategy, the timers who fail to minimize cost of debt after taxes can be both a winner and loser in decreasing overall cost of capital, depending on the procedure of cost of equity measurement. Simultaneously, in debt market timing with the median interest rate strategy, they are a winner in the decrease of cost of debt after taxes; however, they are a loser in the reduction of overall cost of capital based on the CAMP method. Conversely, they are a victor in the decline of overall cost of capital based on the Gordon and implied cost of equity procedures. In addition, debt market timers with larger proceeds can be both a winner and a loser, depending on the approach of cost of equity evaluation. Hence, our findings disclose that debt market timing can be both a good and bad policy in minimizing cost of debt after taxes and overall cost of capital, depending on the strategy implemented by firm executives and the measurement of cost of equity. Most importantly, a winner (loser) from a decrease of cost of debt after taxes may not be a winner (loser) in the diminution of overall cost of capital.

The third aim of this chapter is to explore the influence of the presence and level of equity market timing on firm value and performance. Again, there are two strategies regarding the existence of equity market timing: hot equity and economic boom and the level of equity market timing detected by equity proceeds ratio. Firm performance is measured with accounting-based (ROA, ROE and ROIC ratios) and market-based (stock returns, MVA and Tobin's q) performances. Our findings display that IPO market timers with the hot equity strategy suffer from underperformance in accounting-based performance and MVA value; on the other hand, they improve their stock returns and Tobin's q ratio after going public. In contrast, IPO market timers with the economic boom strategy enhance accounting-based performance and equity yields, while they suffer from a decrease of the MVA value and Tobin's q ratio. However, IPO timing corporations with higher proceeds appreciate through the increase of accounting-based performance and equity returns only in the IPO year, yet they fail to improve performance in the years later until 5 years. Conversely, they succeed in enhancing the MVA value and Tobin's q ratio in the short and long term.

On the other hand, SEO market timers with the hot equity and economic boom strategies suffer from a deterioration of their performance in the SEO year, while the influence of these strategies is mixed in the later years, depending on the procedure of firm performance evaluation. Conversely, SEO timing companies with larger proceeds accomplish an improvement of accounting-based performance and stock returns only in the offering year, whereas they suffer from a downturn of these performances in the subsequent years until 4 years. However, a successful improvement in MVA and Tobin's q ratio in the short and long term occurs in these companies. Thus, an equity market timing policy has both positive and negative influences on firm value and performance, depending on the strategy selected by firm executives and the methods implemented in each corporation.

Finally, the fourth objective of this chapter is to inspect the influence of the existence and level of debt market timing on firm value and performance. Debt market timing with hot proceeds and median interest rate are used to detect the presence of debt market timing, and the debt proceeds ratio is included to capture the level of debt market timing. In addition, the accounting and market-based performances are employed to estimate firm value and performance. This study explores significant evidence that debt market timers with the hot proceeds and median interest rate strategies successfully enhance their performance after corporate bond allocation in the short and long term. In contrast, debt timing corporations with huge proceeds suffer from a decrease in accounting-based performance and Tobin's q ratio. However, they suffer from a decrease in MVA value only in the first year after offering, yet they succeed in improving firm performance in the long term. Hence, this study demonstrates that the presence of debt market timing has a positive effect on firm value and performance, whereas the degree of debt market timing has a mixed impact on firm value and performance, depending on the approach employed in the calculation.

Therefore, it can obviously be seen that the market timing policy has an influence on cost of capital and firm value and performance. However, this policy can be good or bad, depending on the type of issued security and the strategy of market timing employed by firm managers and the method of evaluation of cost of capital and firm performance. Consequently, those firms which are deciding to time the equity and debt markets should carefully consider these factors before implementing market timing policy in their capital structure.

Overall, this chapter examines the influence of the presence and degree of equity and debt market timings on cost of capital and firm value and performance. Most importantly, this chapter offers *seven* contributions to the literature. *First,* unlike most of the previous literature, we employ three different methods of cost of equity, including CAPM, Gordon and implied cost of equity procedures, to detect the effect of the existence and degree of equity market timing on cost of equity. *Second,* to be the best of our knowledge, this study is the first work to find strong evidence of the effect of the presence and degree of equity market timing on overall cost of capital as calculated by WACC. *Third,* based on the best of our knowledge, we are the first study investigating the impact of the presence and degree of debt market timing on cost of debt after taxes and overall cost of capital. *Fourth,* contributing to the existing literature, as some variables of firm value and performance have been ignored (ROE, ROIC and MVA), this study includes these to investigate in the context of market timing. *Fifth,* based on the previous literature, there is still vague evidence of debt market timing and firm performance, thus we fill this gap and provide robustness in this topic. *Sixth,* contributing to the methodology, this study is the first to implement GLS, ATE (2-step) and IV (2SLS) regressions, enabling more consistent and efficient results on this issue. *Finally,* we are the first study to examine this issue in Thailand, which is emerging market, to support an improvement in the efficiency of the stock and bond markets and enhance the corporate governance of firms in Thailand. Additionally, our findings serve as a guidance for all stakeholders to comprehend the effect of market timing, which is one strategy that can have both positive and negative effects for them. Thus, they can evade any negative influence from this strategy.

The remainder of this chapter proceeds as follows. Section 4.2 illustrates the literature review of this chapter. Next, section 4.3 exhibits the hypothesis development of this chapter. Then, the data and methods are shown in section 4.4. Section 4.5 demonstrates the results and findings. After that, the discussion of findings is given in section 4.6. Section 4.7 displays the practical implications of this chapter. Later, section 4.8 concentrates on the limitations and further research recommendations of this chapter. Finally, the conclusion of this chapter is presented in section 4.9.

4.2 Literature review

4.2.1 Cost of capital and market timing

4.2.1.1 Definition and measurement of cost of equity

Cost of equity is defined as the expected returns of equity. Generally, there are many options in estimation of cost of equity; however, there are six models which are well-known with real-life implications. First is the capital asset pricing model (CAPM), introduced by Sharpe (1964) and Lintner (1965). This model classifies risk of stock into two types, consisting of undiversified and diversified risks with the key assumption that diversified risk can be eliminated by increasing the number of stocks in an investor's portfolio; therefore, the expected return can be explained by only undiversified risk estimated with beta. However, Ross (1976) contended that if a portfolio contains only single stock, it is impossible that it is a well-diversified portfolio, so the CAPM model is difficult to implement. Thus, an alternative method is the arbitrage asset pricing (APT) model, which calculates the expected return with both market risk and various macro-economic factors. Moreover, the classical procedure of evaluation in cost of equity, which is well-known, is the Gordon dividend growth model developed by Gordon (1962). This method is based on the perception that the price of firm equity mainly depends on the allocation of firm income, whereby corporations are required to make a trade-off between maintaining it as retained earnings and paying it as dividends. Therefore, the growth rate of dividends is a crucial factor in the documenting of cost of equity and he used this concept to estimate the cost of equity of firms; this approach is known as Gordon dividend growth model. Subsequently, Fama and French (1993) argued that some variables which have a high power to describe stock returns do not appear in the asset pricing model, including size, leverage and book-to-market equity. Thus, they enlarged the CAPM model by adding SMB, which is the difference between the yields of small and big equities, and HML, which is the difference of the returns of high and low book-to-market shares. This model is known as the three-factor asset pricing model. Recently, Fama and French (2015) issued a new model, which is the five-factor asset pricing model. This model extends the three-factor approach because they dispute that not only are there SMB, while HML drive expected equity returns, but also RMW, defined by the difference of the returns between strong and weak profitability equities, and CMA, which is the difference between the yields of low and high investment companies, are important factors.

Recently, implied cost of equity has attracted interest from many researchers in the financial field. Frank and Shen (2016) posit that the implied cost of equity approach has greater potential than the CAPM method as this method can more efficiently reflect the change of time for cost of equity compared to the CAPM approach. However, implied cost of equity can be estimated in several ways. The first approach is implied cost of equity developed by Gebhardt et al. (2001), also called the "GLS method", which is the estimation of cost of equity based on the residual income model (RIM) and market prices, whereby this method is an operation with four major parts, including industry association, book-to-market ratio (B/M), forecast long-term growth rate and spread in analyst earnings forecasts. The key concept of the GLS approach is the measurement of the internal rate of return (IRR) from the present value of all future cash flows which are available to common equity shareholders. Furthermore, they posit that this measurement can account for the variant of cross-section for future cost of equity, at approximately 60%, and this approach is utilized to measure the cost of equity in future. In addition, they refer to the conclusion of Fama and French (1997) that the historical cost of capital methods consisting of CAPM and three-factor models suffer from three main issues: (1) the problem of defining the appropriate model for estimating the stock price; (2) vagueness of the factor affecting the measurement; and (3) an ambiguity of crucial risk in measurement. Therefore, the evaluation of cost of equity with these methods leads to high standard errors, at approximately 3% per annum, and this effects an unclear estimation of cost of equity with historical information. Next, the second model of implied cost of equity was introduced by Claus and Thomas (2001) and is known as the "CT method". This model measures implied cost of equity based on the future cash flow of earnings, since they claim that accounting flow is similar to dividend flow; however, more accessible information is used by earnings rather than dividends and the scope of the growth rates of earnings are more shallow and rational. Additionally, they posit that the cost of equity evaluated by historical information is considerably higher, whereby it seems unreasonable due to both instinct and experience, whereas cost of equity estimated by future earnings generates a lower value and is more reasonable.

The third model of implied cost of equity, which is popular at present, is the model developed by Ohlson and Juettner-Nauroth (2005). This model is the function of expected earnings per share, short and long-term growth rates in EPS, and cost of equity, and this approach applies the model of Gordon (1962) and Williams (1938) in estimating the stock price with the present value of dividends per share (DPS). However, this measurement relies on the concept that investors are willing to earn EPS in future, thus they decide to invest the stock with a consideration of the price (P) per earnings per share (EPS), or P/E ratio, to buy cheaper stocks. Hence, the OJ procedure is evaluated by the future EPS and the growth of EPS in the short and long-term to assess the current market price. Likewise, they claim that the estimation with EPS is better than with DPS since the growth rate measured by EPS is independent, whereas this variable evaluated by DPS is dependent. Hence, they prefer to use EPS to estimate the stock price rather than DPS. Next, the fourth technique is the modified PEG ratio developed by Easton (2004). This approach is the estimation of market price based on EPS and the growth of EPS, which they apply from the P/E ratio and PEG ratio (P/E ratio over the short-term growth rate of EPS). Moreover, they posit that this measurement is superior to the P/E ratio regarding the pricing status of stocks and this method generates a substantially lower bias than the P/E ratio; however, this model uses only the short-term growth rate of EPS and assumes that the long-term effect can be detected by the short-term growth rate. Moreover, they suggest that their measurement provides a higher value for some firms that have special characteristics, including a greater P/E ratio, PEG ratio and market capitalization and lower book-to-price ratio, standard deviation of historical yields and expected growth rate of earnings in the short-term.

Overall, there are several methods to estimate cost of equity with historical and forecast information of firms. However, each measurement contains both advantages and disadvantages, depending on the different assumptions of each approach. Furthermore, the different features of companies make it appropriate to use different estimations of cost of equity. Therefore, as this study contains various characteristics of companies listed on the stock market, we employ several models to estimate the cost of equity, including the CAPM model, Gordon dividend growth model and the average of four methods of implied cost of equity (GLS, CT, OJ and MPEG).

4.2.1.2 Definition and measurement of cost of debt

Cost of debt is defined as the required rate of returns from investment for uncertain corporate bonds (Chen, 1978). As a company issues various types of debt (i.e. fixed and floating rate bonds, convertible and straight bonds, etc.), the estimation of cost of debt is difficult and varies depending on the characteristics of debt (Brigham & Ehrhardt, 2013). For example, Sengupta (1998) used yield to maturity (YTM) and total interest rate cost of new debt as cost of debt. Minton and Schrand (1999) adopted YTM as cost of debt. Anderson et al. (2003) employed yield spreads, which is calculated by the difference between YTM of firm and YTM of Treasury security. Francis et al. (2005) employed the ratio of interest expense estimated by interest expense divided by book value of debt as the cost of debt financing. However, as debt is able to take exploit the benefit of taxes, the cost of debt is computed after taxes (Brigham & Ehrhardt, 2013).

4.2.1.3 Definition and measurement of cost of capital

Cost of capital is defined as a cost of a company which is used in financing capital from various sources, including debt, equity and preferred stock. Generally, cost of capital is weighted average cost of capital (WACC) in capital budgeting decisions (Brigham & Ehrhardt, 2013). Simultaneously, WACC is the expected required rate of returns of investors who hold securities of a company and can be calculated as follows (Berk & DeMarzo, 2011):

$$\begin{aligned} WACC = {} & (Fraction\ of\ firm\ value\ financed\ by\ equity) \\ & * (cost\ of\ equity\ capital) \\ & + (Fraction\ of\ firm\ value\ financed\ by\ debt) * (cost\ of\ debt) \end{aligned} \tag{4.1}$$

4.2.1.4 The empirical evidence of cost of capital and market timing

There are very few studies investigating the impact of market timing on cost of equity. Chang et al. (2008) investigated whether executives can achieve a reduction in cost of equity in timing the equity market with all companies in "Compustat/CRSP merged file" from 1981 to 2004. Moreover, they defined the level of market timing using the covariance between external financing and the market-to-book ratio following Baker and Wurgler (2002) and Kayhan and Titman (2007), while cost of equity is measured with an average of four implied cost of equity methods, including the GLS model of Gebhardt et al. (2001), the CT model of Claus and Thomas (2001), the OJ model of Ohlson and Juettner-Nauroth (2005) and the modified PEG ratio of Easton (2004). They showed that timers have an implied cost of equity lower than non-timers. In addition, they provided evidence that corporations with a higher proportion of institutional shareholders obtain more benefit from timing the equity market than others. Also, Chang et al. (2010a) extended the study of Chang et al. (2008), whereby they not only found evidence for equity market timing, detected with the covariance between external financing and market-to-book ratio, has a negative association with cost of equity, they also found that companies with higher quality financial statements earn more benefit from timing the equity market in terms of lower cost of equity than the firms with a lower quality of accounting statements in terms of transparency and accuracy.

4.2.2 Firm performance and market timing

4.2.2.1 Definition of firm performance

There are various choices for the definition of firm performance. Berger and Di Patti (2006) claim that firm performance can be estimated with three instruments, namely financial ratio, stock market returns and Tobin's q, which are accounting and market perspectives. However, Huselid and Becker (2007) argue that there are two main aspects for financial performance, which are accounting-based performance, such as return on asset (ROA), return on equity (ROE) and return on sale (ROS), and market-based performance such as Tobin's q.

In addition, Agarwal and Taffler (2008) classify the performance of firms into two groups: accounting and market-based performances. Moreover, they state that accounting-based performance is the assessment of firm performance in forms of the ratio estimated from the accounting figures to consider the success or failure of firm operations. The concept of the accounting-based method is the weight of two accounting numbers converted to the same scale to compare and measure the ability of firms by the ratio. However, there is uncertainty regarding the accuracy and efficiency of this approach (Mensah, 1984), which may be the result of four issues. Firstly, as the accounting figures are evaluated from historical information of firm activity, they may not reflect the performance of firms in the future. Secondly, the values of assets in financial statements are in terms of book value; however, the actual value of these assets changes over time, both as a decrease and increase of asset value. Thirdly, the window-dressing of financial statements may be conducted by firms. Finally, the accounting-based method is based on the assumption of the "going-concern" of firms; thus, this measurement may be inappropriate for evaluation regarding bankrupt firms.

On the other hand, Black and Scholes (1973) and Merton (1974) state that the market-based approach is another option in the computation of corporate performance, whereby this method does not suffer from the above concerns for five main reasons. Firstly, a suitable model for the bankrupt firms is presented by this procedure. Secondly, this model includes information which is both reported and unreported in financial statements to assess the performance of companies. Thirdly, the market-based technique is not impacted from the accounting principal. Fourthly, this method can efficiently document future cash flow. Finally, the independence from "time" and "sample" is an advantage of the market-based approach. However, Agarwal and Taffler (2008) claim that it is dubious that market-based performance is better than accounting-based performance. Moreover, Graham et al. (2005) posit that financial managers are more concerned about earnings than cash flow since outside investors concentrate on accounting information for their decisions regarding the equity investment. Moreover, they claim that "delivery earnings" is the objective in the short term, while "maximizing shareholder wealth" is the purpose in the long term based on the perception of financial executives.

Consequently, it is extremely difficult to verify which method is the best approach for an assessment of firm performance since each model contains both benefits and drawbacks. Therefore, this study employs both accounting and market-based models to evaluate firm value and performance.

4.2.2.2 The empirical evidence of firm performance and market timing

There are several studies that investigate capital structure and firm performance. First, Margaritis and Psillaki (2007) examined the connection between leverage and firm efficiency calculated by profit margin, EBIT, sales, size, tangible assets in New Zealand and showed that there is a significantly positive association between them. Also, Kyereboah-Coleman (2007) found that high leverage leads to high performance. On the other hand, Opler and Titman (1994) argue that high leverage causes low operating profitability. Myers (1977) also predicted a negative relationship between leverage and profitability. Further, Dawar (2014) claims that leverage has a negative relationship with firm performance evaluated by ROA and ROE. De Wet and Hall (2004) found that high leverage leads to low EVA and MVA. Conversely, Myers (1977), Jensen (1986) and Stulz (1990) found that debt can have both positive and negative associations with firm performance, depending on the company's growth opportunity. In contrast, El-Sayed Ebaid (2009) claims that there is no relevance between capital structure and firm performance in Egypt, and Demsetz and Villalonga (2001) also support him. However, Abor (2005) presents that high short-term debt leads to high firm performance, whereas high long-term debt causes low firm performance in Ghana. Consequently, discussion remains regarding the relationship between capital structure and firm performance.

However, there are few studies that examine market timing in relation to firm performance. Song (2009) investigated whether debt timers can raise more firm value than non-timers. Also, he defined debt market timers with three different approaches, namely (1) *"Naive strategy"* (2) "*Complex Strategy"* and (3) *"Timing Strategy".* The naive strategy is when timers are a company that allocates long-term debt when term spreads are lower than the historical period, while a complex strategy is the category where timers are a corporation that issues long-term debt when excess bond yields are relatively low. On the other hand, a timing strategy is when timers are a firm that offers debt containing the same maturity as the maturity function of excess bond returns. Additionally, he employed mean, median, cumulative abnormal returns (CARs) and multivariate regression to compare the firm value between timers and non-timers. He summarized that managers who time the debt market with issuing long-term debt securities when expected future bond returns are low are unable to enhance their firm value as calculated by Tobin's q. In contrast, Bougatef and Chichti (2011) claim that Tunisian firms can succeed in increasing their stock price with debt market timing, whereas French firms cannot achieve an enhancement of their stock value after debt market timing with panel data analysis. Moreover, Sah and Seagraves (2012) studied equity market timing with IPO cluster and operating performance estimated with operating ROA, net return on total assets and total assets turnover ratio in the real estate investment trusts industry and showed that there is no difference in the operating performance between timers and non-timers. Therefore, there is insufficient evidence of the influence of market timing on firm performance.

4.2.2.3 The empirical evidence of security issuance and firm performance

4.2.2.3.1 Equity offering and firm performance

In the previous literature on equity offering and firm performance, several studies provide strong evidence that equity issuance signals bad news to the market since it indicates that the stock price of these firms is overvalued. As a result, firm performance declines in the long term after equity offering through both IPO and SEO events. Beginning with SEO, Asquith and Mullins (1986) investigated the influence of SEO issuance on the equity price in non-financial and utility companies listed on the ASE and NYSE from 1963 to 1981, and they found that the equity price estimated by the average and cumulative values of "daily excess stock returns" significantly declines after SEO announcement. Likewise, McLaughlin et al. (1996) investigated the consequent operating performance of SEO companies in the US from 1980 to 1991, and they found that the operating performance of issuing companies ameliorates before an SEO; subsequently, these corporations have a decrease in their profitability for 3 years after allocation. In addition, Loughran and Ritter (1997) found that profit margin, ROA and the operating income to assets ratio of SEO companies diminishes for 4 years after offering.

Simultaneously, there is a negative effect of IPO allocation on firm performance. For example, Ritter (1991) posits that although IPO companies earn a benefit from underpricing, they suffer from a deterioration in their performance for 3 years after the issuing date. Moreover, IPO firms, during a high volume of the IPO market, have a larger decrease in performance than others because outside investors are less pessimistic about the ability of their earnings to increase; meanwhile, they also attempt to time the equity market during a favourable period in the stock market. Furthermore, Jain and Kini (1994) found that IPO corporations during from 1976 to 1988 suffer from the decline in operating performance as calculated by “the operating ROA” and “the operating cash flow” for the 3 years later. They gave three reasons for this situation. Firstly, the going public of a company leads to an increase of the agency problem between existing shareholders, including managers and new shareholders, thus executives employ a policy pursuing their benefit rather than firm value, such as spending the money obtained from selling IPO stocks in negative NPV projects, which is a cause of destruction in firm value. Secondly, firm managers exert an effort to manipulate their financial statements before issuing IPO equity to attract the interest of outside investors. Therefore, as their accounting figure does not reflect exact firm performance, their performance declines after going public. Thirdly, managers take advantage from a short period of abnormally favourable performance, and they are unable to maintain their performance in the long term. In addition, Cai and Wei (1997) reveal strong evidence supporting a decrease in performance after the going public of non-US companies. They found that the performance of Japanese corporations deteriorates after selling IPO equity for 5 years.

Furthermore, some research studies provide evidence of a decrease in firm performance after equity offering through both IPO and SEO. For instance, Hansen and Crutchley (1990) claim that there was a reduction 3 years later in the ROA of corporations that offered equity and straight and convertible bonds during the period of 1975 to 1982. Likewise, Loughran and Ritter (1995) looked at the post-performance of US firms that allocated equity offerings, both IPO and SEO, from 1970 to 1990 and found that issuing companies obtain on average lower yields measured by annually and monthly abnormal returns and 3-factor yields than non-issuing corporations for 5 years after offering. Moreover, they explained that SEO allocating companies during the period of a window of opportunity suffer considerably from low performance compared to others. Also, Foerster and Karolyi (2000) showed strong evidence of poor performance after equity allocation in the long term over 3 years for global corporations in the US stock market from 1982 to 1996.

Conversely, some research studies argue that there is no evidence of a reduction in performance after equity offering. Healy and Palepu (1990) provide the evidence that the profitability of US firms that issued initial equity from 1966 to 1981 did not decrease after this event. Likewise, Autore et al. (2009) posit that the decline in performance after an equity offering affects only external equity financing, noting that equity issuance does not have an investment purpose such as rebalancing capital structure. In contrast, the firms that finance with equity for investment purposes show only a slight decrease or no decrease in firm performance.

In addition, positive performance is demonstrated after equity offering with the private placement mechanism. Wruck (1989) argues that although there is a negative effect of public equity offering on firm performance after this event, the enhancement of shareholder wealth as estimated by the average and cumulative stock yields is found in the offering firms with the private placement method on the NYSE and AMEX. Furthermore, Hertzel and Smith (1993) found that there was an increase in the performance of corporations that allocated stocks with the private placement method in the NYSE, AMEX, and OTC markets from 1980 to 1987, even if their equities were sold at a discount price. In addition, they documented for this situation that companies using the private placement mechanism for equity offering signal to the market that their stocks are currently undervalued; therefore, the market reacts to this signalling with an increase of performance after equity offering.

However, Hertzel et al. (2002) contend that there is a positive effect of equity offering with the private placement mechanism on performance calculated by equity price, operating income divided by total assets and ROA only during the period of equity announcement. In contrast, firms suffer from underperformance after the announcement for 3 years. Also, they explain this situation that outside investors are less pessimistic about the growth opportunity of issuing firms and that the causes of the positive influence at the beginning of issuing may be the discount price of private placement equity, which convinces investors to buy these stocks. Moreover, they claim that the discount price of private equity reflects the recognition by investors of the decline of stock value in future, whereby this discount seems to be compensation to investors who invest in the private equity.

Based on the previous literature of equity issuance and firm performance evaluated by stock returns and operating performance, even though a considerable number of prior studies found that there is a deterioration of firm performance after equity offering, some research studies provide the evidence that there is a positive effect on firm performance after equity issuance, particularly with the private placement method of equity allocation and stock issuance for investment purposes. However, most of the prior literature in this context concentrated on the viewpoint of investors and documented that one of the reasons for the decrease in firm performance after issuing equity is equity market timing. Furthermore, they do not directly investigate in the field of the influence of market timing on firm performance. Therefore, it is interesting to examine whether equity market timers have a negative performance after offering, as the purpose of equity market timing is to minimize cost of capital, implying that the objective of timing the equity market is to enhance their performance as well. Consequently, this study attempts to address this issue from the perspective of managerial market timing.

4.2.2.3.2 Debt offering and firm performance

While there are several studies concerned with the influence of equity offering on firm performance after allocation, there are fairly few studies examining the effect of debt offering on firm performance, even if debt security is another instrument of companies to finance capital and is as important as equity security. Furthermore, the findings of the previous literature are ambiguous as there is evidence of both positive and negative results in this context.

Regarding the agency problem theory, Harris and Raviv (1990) claim that debt allocation signals good news to the stock market since the increase in leverage leads to the minimization of the conflict of interest between managers and firm shareholders to concentrate on the enhancement of firm value. Additionally, there is some evidence that corporate performance improves after debt financing. For instance, Masulis (1980) found that there is an amelioration of the equity price of a firm after debt issuance. In addition, Jewell and Livingston (1997) insist that firms which allocate debt security do not suffer from lower equity returns than other companies on the stock market.

On the other hand, some research studies dispute the fact that debt offering has a negative effect on firm performance, supporting the pecking order theory of Myers and Majluf (1984). Spiess and Affleck-Graves (1999) investigated the impact of debt issuance, both straight and convertible debts, in the NASDAQ market from 1975 to 1989 and found that companies conducting straight debt offering had no increase in their equity price, whereas corporations selling convertible debt had a decrease of the equity price after debt offering. Moreover, they documented the finding that security issuance, both debt and equity instruments, seems to signal the high value of a firm. Additionally, Eckbo (1986) insisted that the positive effect of equity returns is not captured after conducting a straight debt security of company, while he found that corporations which allocate convertible debt have a decline in the stock returns after issuance. Consequently, he claims that the agency problem cannot be reduced by financial leverage and that debt issuance is similar to equity allocation, which signals bad news to the market. While Dichev and Piotroski (1999) attempted to examine this issue for both private and public debts, whereby the private debt is quite popular, they did not find a different result as they found that the abnormal equity yields do not increase after a straight debt offering. Besides, a decrease in stock returns for 5 years is detected in companies that allocate public debt. Furthermore, Datta et al. (2000) support that there is a negative influence of debt offering on equity price after the issuing date since they found that corporations selling an initial public offering of debt security experienced a deterioration of their equity price after bond offering from 1971 to 1994.

Consequently, there are vague findings on the impact of debt offering on firm performance based on the existing literature. Additionally, as debt market timing aims to reduce the cost of debt financing, which represents an improvement in corporate performance, this study endeavours to investigate the influence of debt market timing on firm performance.

4.3 Hypothesis development

4.3.1. Cost of capital

The reason for market timing is to reduce cost of capital (Alti, 2006; Elliott et al., 2008; Song, 2009); however, there is little research focusing on this topic. Chang et al. (2008) and Chang et al. (2010a) found that the cost of equity of timers is lower than non-timers with implied cost of equity. Hence, there is no research study examining the impact of debt market timing on cost of debt and overall cost of capital and the effect of equity market timing on overall cost of capital. Therefore, this thesis attempts to fill this gap, and we expect that:

Hypothesis 1: *The presence and degree of equity market timing have a negative effect on cost of equity and cost of capital.*

Hypothesis 2*: The presence and degree of debt market timing have a negative effect on cost of debt and cost of capital.*

4.3.2. Firm value and performance

Maximizing firm value is the objective of the top executives of a company; however, ambiguity remains regarding whether market timing can enhance firm value and performance. In accordance with the previous literature, Song (2009) found that timers cannot succeed in raising firm value as computed by Tobin's q. However, Dybvig and Warachka (2010) argue that the Tobin's q approach is inappropriate for the estimation of corporate performance because of an increase in underinvestment. Bougatef and Chichti (2011) argue that debt timers in Tunisia achieve an increase in their share price, while Sah and Seagraves (2012) claim that there is no difference in the ROA and total asset turnover ratio between equity timers and non-timers in REITs. Hence, there is still unclear evidence regarding this topic and there is a lack of some variables (i.e. ROE, ROIC and MVA). Therefore, we attempt to examine the effect of market timing on firm value and performance. Moreover, based on the general objective of firms in terms of maximizing shareholder wealth, we suggest that:

Hypothesis 3*: The presence and degree of equity market timing have a positive influence on firm value and performance.*

Hypothesis 4*: The presence and degree of debt market timing have a positive influence on firm value and performance.*

Table 4.1: Summary of hypothesis for market timing, cost of capital and firm performance

Order		Hypothesis	Sign of effect
1.	H1	The presence and degree of equity market timing on cost of equity and cost of capital	-
2.	H2	The presence and degree of debt market timing on cost of debt and cost of capital	-
3.	H3	The presence and degree of equity market timing on firm value and performance	+
4.	H4	The presence and degree of debt market timing on firm value and performance	+

4.4 Data and methods

4.4.1 Sampling design and data sources

The sample for this chapter is similar to that for chapter 2 for equity issuing firms and chapter 3 for corporate bond allocating firms. For equity issuance, there are 285 IPO corporations and 1,038 observations of SEO issuances from 2000 to 2014 in the stock market of Thailand, consisting of large and small and medium companies. For corporate bond allocation, there are 189 observations from 2001 to 2014 in both the organizational and OTC bond markets in Thailand. The data for the IPOs are obtained from the SEC, Thailand's official website and are cross-checked with the SETSMART database. Moreover, the data for the SEOs are combined from three main sources, including the SET's Fact Books, which are available on the SET's official website, and the SETSMART and Thomson ONE databases. In addition, the data on corporate bond issuances are gained from three major sources, consisting of the SET's Fact Books and the SET's and ThaiBMA's official websites. Consequently, there are 1,521 samples in total for this chapter. Additionally, the date of IPO issuance and proceeds data are obtained from company's filling form on the website of the SEC. The dates and types of SEO issuance data are gained from the SET's Fact Books and the SETSMART database. In addition, the net proceeds of the SEO data are collected from the DataStream and Bloomberg databases. Finally, industry groups are classified according to SET, whereby there are 7 industry groups.

The data on cost of equity, cost of debt and weighted cost of capital (WACC) estimated by the CAPM method are collected from the Bloomberg database. The data of firm beta are obtained from the DataStream database. The financial data, including earnings before interest, taxes, and depreciation (EBITDA), income before extraordinary items (IBEI), net income available to common equity (NI), total debt (TD), total assets (TA), book value per share (BVPS), earnings per share (EPS), common dividends (Div), total investment capital (TC), interest expenses (IE), effective tax rate (Eff_Tax), net operating profit after-tax (NOPAT), market price (P), the number of common stocks, net sales (NS), net plant, property, and equipment (PPE), cash and short-term investments (CASH), the capital expenditures (CAPEX) and retained earnings (RE), are obtained from the DataStream database and some missing data are taken from the Bloomberg database.

In addition, macroeconomic data consisting of gross domestic product (GDP), producer price index (PPI) and stock market index are obtained from the DataStream database. Moreover, the data on 3-month T-bill returns and 10-year T-bond yields are obtained from the official website of the Bank of Thailand (BOT). Likewise, the data on BBB corporate bond yield spreads are taken from the official website of the ThaiBMA.

Table 4.2: Number of equity and debt issuances by calendar year								
Year	**Number of IPO samples**	**Percent of IPO samples**	**Number of SEO samples**	**Percent of SEO samples**	**Number of corporate bond samples**	**Percent of corporate bond samples**	**Number of total samples**	**Percent of total samples**
2000	2	0.70%	14	1.35%	-	-	16	1.06%
2001	6	2.11%	28	2.70%	2	1.06%	36	2.38%
2002	18	6.32%	40	3.85%	3	1.59%	61	4.03%
2003	26	9.12%	86	8.29%	5	2.65%	117	7.74%
2004	42	14.74%	90	8.67%	7	3.70%	139	9.19%
2005	43	15.09%	80	7.71%	7	3.70%	130	8.60%
2006	18	6.32%	84	8.09%	5	2.65%	107	7.08%
2007	13	4.56%	73	7.03%	12	6.35%	98	6.48%
2008	11	3.86%	35	3.37%	7	3.70%	53	3.51%
2009	16	5.61%	22	2.12%	11	5.82%	49	3.24%
2010	10	3.51%	35	3.37%	12	6.35%	57	3.77%
2011	10	3.51%	88	8.48%	18	9.52%	116	7.67%
2012	15	5.26%	99	9.54%	24	12.70%	138	9.13%
2013	25	8.77%	145	13.97%	27	14.29%	197	13.03%
2014	30	10.53%	119	11.46%	49	25.93%	198	13.10%
Total	**285**	**100%**	**1,038**	**100%**	**189**	**100%**	**1,512**	**100%**

4.4.2 Data Definition

Table 4.3: Summary of the definition of the dependent, explanatory and control variables				
The order	**The variables**	**The notation**	**The definition**	**Sign**
1. Dependent variables				
1.1	Cost of equity	k_e	The cost of equity is the required return of equity shareholders estimated with three different approaches as below: **1. CAPM method** (Sharpe, 1964; Lintner, 1965) $k_e = k_{rf} + (country\ risk\ premium)b_i$ (4.2) Where, k_{rf} is the risk-free rate using the country's 10-year long-term bond rate and b_i is the firm beta. The data are obtained from the Bloomberg database. **2. Gordon model with dividend growth rate** (Gordon, 1962) $k_e = \frac{d_1}{P_0} + g$ (4.3) Where, P_0 is current price at the fiscal-year end at time 0 (the year of security's issuance), d_1 is the dividend value at the fiscal-year end of future year 1, g is the growth rate of dividend in perpetuity estimated by $g = \frac{d_1 - d_0}{d_0}$ following Fama and French (2002) and Campbell and Shiller (1988), k_e is expected cost of equity obtained from the Gordon dividend growth model (Gordon, 1962). We employ the perfect foresight approach to estimate this model to obtain the maximization of data. **3. Implied cost of equity (literature)** is measured according to Chen et al. (2011) and Dhaliwal et al. (2016) as follows: **3.1 GLS method** (Gebhardt et al., 2001) $P_t = B_t + \sum_{i=1}^{T-1} \frac{(FROE_{t+1} - R_{GLS}) * B_{t+i-1}}{(1 + R_{GLS})^i} + \frac{(FROE_{t+T} - R_{GLS}) * B_{t+T-1}}{(1 + R_{GLS})^{T-1} * R_{GLS}}$ (4.4) Where, B_t is book value of equity per share from the most recent financial statement at time t, R_{GLS} is cost of equity, $FROE_{t+1}$ is income available from common shareholders divided by lagged total book value of equity, whereby the forecasted data from the institutional Brokers' Estimate System (I/B/E/S) in the DataStream and Bloomberg databases are unavailable at approximately 70% for listed firms in Thailand, thus the actual data at time t+1 are used instead of forecasted data based on the perfect foresight model* and T is the terminal year, which is equal to 6 years following Gebhardt et al. (2001), who found that there is the same result estimated by the terminal year at 6, 9, 12, 15, 18 and 21. We employ the MATLAB programme to solve this equation for R_{GLS}, which allows the right and left-hand sides of equation (4.4) to be within a difference of ฿0.1 or $0.0031, based on the exchange rate of the Bank of Thailand (BOT) on 29/12/2017. **3.2 CT approach** (Claus & Thomas, 2001) $P_t = B_t + \sum_{i=1}^{T} \frac{[FEPS_{t+1} - R_{CT} * B_{t+i-1}]}{(1 + R_{CT})^i} + \frac{[FEPS_{t+T} - R_{CT} * B_{t+T-1}] * (1 + g_{it})}{(R_{CT} - g_{it}) * (1 + R_{CT})^T}$ (4.5) Where, B_t is book value of equity per share from the most recent financial statement at time t, R_{CT} is cost of equity, $FEPS_{t+1}$ is earnings per share, whereby as the forecasted data from I/B/E/S in DataStream and Bloomberg databases are unavailable for approximately 70% for Thai listed firms, the actual data at time t+1 are used instead of forecasted data based on the perfect foresight model, and T is terminal year, which is equal to 5 years according to Claus and Thomas (2001), who assumed that the companies will have constant growth after 5 years. g_{it} is the long-term abnormal earnings growth rate and is estimated by the	-

contemporaneous risk-free rate (10-years T-bond returns) minus 3%. We employ the MATLAB programme to solve this equation for R_{CT}, which allows the right and left-hand sides of equation (4.5) to be within a differnce of ฿0.1 or $0.0031.

3.3 OJ method Ohlson and Juettner-Nauroth (2005) implemented by Gode and Mohanram (2003)

$$P_t = \frac{E_t(EPS_{t+1})}{R_{OJ}} + \frac{E_t(EPS_{t+1})E_t[g_{st} - R_{OJ} * (1 - POUT)]}{R_{OJ} * (R_{OJ} - g_{lt})} \tag{4.6}$$

Where, $E_t(EPS_{t+1})$ is earnings per share at time t+1 since the forecasted data from I/B/E/S are unavailable for approximately 70% of Thai listed corporations. Therefore, the actual data at time t+1 are used instead of forecasted data, based on the perfect foresight model. P_t is the share price at time t. g_{st} is the average of short-term earnings growth rate implied in EPS_{t+1} and EPS_{t+2}. g_{lt} is the long-term abnormal earnings growth rate and is estimated by the contemporaneous risk-free rate (10-years T-bond returns) minus 3%. POUT is the dividend payout ratio calculated by dividends time t+1 divided by earnings per share at time t+1 and is winsorized to be within 0 and 1. For the calculation of POUT, if the $EPS_{t+1} < 0$, the estimation of EPS_{t+1} is assumed from ROA at 6%. **Note:** EPS_{t+1} and $EPS_{t+2} > 0$. We employ the MATLAB programme to solve this equation for R_{OJ}, which allows the right and left-hand sides of equation (4.6) to be within a differnce of ฿0.1 or $0.0031.

Moreover, we cross-check the results of R_{OJ} obtained from the MATLAB programme with the equation according to Dhaliwal et al. (2016) as follows:

$$R_{OJ} = A + \sqrt{A^2 + \left(\frac{E_t(EPS_{(t+1)})}{P_t}\right)(g_{st} - g_{lt})} \tag{4.7}$$

Where,

$$A = 0.5\,(g_{lt} + \frac{DPS_{t+1}}{P_t}) \tag{4.8}$$

Where, P_t is the share price at time t. g_{st} is the average of short-term earnings growth rate implied in EPS_{t+1} and EPS_{t+2}. **Note:** EPS_{t+1} and $EPS_{t+2} > 0$. g_{lt} is the long-term abnormal earnings growth rate and is estimated by the contemporaneous risk-free rate (10-years T-bond returns) minus 3%.

3.4 The modified PEG ratio model (Easton, 2004)

$$P_t = \frac{E_t(EPS_{t+1})}{R_{MPEG}} + \frac{E_t(EPS_{t+1})E_t[g_{st} - R_{MPEG} * (1 - POUT)]}{R_{MPEG}^{\ 2}} \tag{4.9}$$

Where, $E_t(EPS_{t+1})$ is earnings per share at time t+1 since the forecasted data from I/B/E/S are unavailable for approximately 70% of Thai listed companies. Therefore, the actual data at time t+1 are used instead of forecasted data based on the perfect foresight model. P_t is the share price at time t. g_{st} is the average of short-term earnings growth rate implied in EPS_{t+1} and EPS_{t+2}. g_{lt} is the long-term abnormal earnings growth rate is estimated by the contemporaneous risk-free rate (10-years T-bond returns) minus 3%. POUT is the dividend payout ratio calculated by dividends per share time t+1 divided by earnings per share at time t+1 and is winsorized to be within 0 and 1. For the calculation of POUT, if the calculation of $EPS_{t+1} < 0$, the EPS_{t+1} is assumed from ROA at 6%. **Note:** $E_t(EPS_{t+2}) \geq E_t(EPS_{t+1}) \geq 0$. We employ the MATLAB programme to solve this equation for R_{MPEG}, which allows the right and left-hand sides of equation (4.9) to be within a differnce of ฿0.1 or $0.0031.

			4. Implied cost of equity (modified) For the modified version, this method is evaluated the same as in the literature version; however, we adjust some assumption for robustness of result and appropriation for our data. For the GLS and CT methods, we also employ terminal year (T), which is equal to 3 years according to Warr et al. (2012), in the estimation of implied cost of equity with the GLS and CT procedures. Moreover, based on the OJ and MPEG approaches, there is a problem with negative value in the short-term earnings growth rate for several companies in our sample from using the average of earnings growth rate implied in EPS_{t+1} and EPS_{t+2} and this leads many companies to be dropped from our observations. Thus, we implement the normalized short-term growth rate with the average 5 years of earnings growth rate to replace the negative growth rate following Ohlson and Juettner-Nauroth (2005), who suggested that the average 5 years of earnings growth rate is reasonable to use as g_{st} as well as the average of year 1 and 2. According to the previous literature on implied cost of equity, there is little evidence for which technique is the best approach for the calculation of implied cost of equity. For example, Botosan and Plumlee (2005) posit that the GLS approach is inferior to other methods. On the other hand, Guay et al. (2011) argue that the GLS method is the best procedure to estimate cost of equity. As a result, several research studies employ the average value of various methods, especially four techniques including the GLS, CT, OJ and MPEG approaches, such as Attig et al. (2008), Dhaliwal et al. (2006), Chang et al. (2008), Chang et al. (2010), Chen et al. (2011), Boubakri et al. (2012) and Dhaliwal et al. (2016). Furthermore, Dhaliwal et al. (2006) suggest that the likelihood of "spurious outcomes" from using only a single method is decreased by employing the average value of implied cost of equity. Therefore, we use the average value of four approaches to estimate implied cost of equity. *** Note:** Warr et al. (2012) posit that there are benefits and drawbacks for both the forecast and perfect foresight methods as the perfect foresight approach is absent when using the data which executives do not know in advance, while the forecast approach does not suffer from this bias since they use data based on the exact information given to the public. However, the perfect foresight method offers more immense data than the forward-looking method. Therefore, as this study suffers from missing data regarding forecast earnings data, we decide to employ the perfect foresight approach for implied cost of equity calculation to deal with this issue.	
1.2	Cos of debt	$k_d(1-T)$	The after-tax cost of debt is the required return of debt holders calculated in two different way, as follows: 1. Interest expense divided by total book value of debt after taxes (Francis et al., 2005) $$k_d(1-T) = \left(\frac{Interest\ Expense}{BV(Debt)}\right) * (1-T) \quad (4.10)$$ 2. The weighted average cost of debt estimated by the Bloomberg database $$k_d = \left[\left(\frac{SD}{TD}\right) \times (CS \times AF)\right] + \left[\left(\frac{LD}{TD}\right) \times (CL \times AF)\right] \times (1-TR) \quad (4.11)$$ Where, SD is short-term debt, CS is pre-tax cost of short-term debt, AF is debt adjustment factor of the Bloomberg database, LD is long-term debt, CL is pre-tax cost of long-term debt and TR is effective tax rate.	-
1.3	Cost of capital	$WACC$	Cost of capital is an average cost of using the funds which investors expect to receive from a company (Brigham & Ehrhardt, 2013). It is estimated with the weighted average cost of capital (WACC) (Berk & DeMarzo, 2011). $$WACC = (W_d \times k_d) + (W_p\ x\ k_p) + (W_e \times k_e) \quad (4.12)$$ Where, W_d is the proportion of debt, W_p is the proportion of preferred stock, W_e is the proportion of common stock, k_d is the after-tax cost of debt, k_p is the cost of preferred equity and k_e is the cost of equity.	-
1.4 Firm performance				
1.4.1	*Accounting approach*			

1.4.1.1	Return on assets	ROA	The return on assets (ROA) is defined as net income divided by book value of total assets (Loughran & Ritter, 1997; Anderson et al., 2003).	+
1.4.1.2	Return on equity	ROE	The return on equity (ROE) is defined as net income divided by book value of total equity (Boubakri & Cosset, 1998).	+
1.4.1.3	Return on investment capital	$ROIC$	The return on investment capital (ROIC) is defined as net operating profit after-tax (NOPAT) divided by book value of investment capital.	+
1.4.2	*Market approach*			
1.4.2.1	Stock return	$Return$	The stock return of firm is defined as log of stock price at time t divided by stock price at time t-1.	+
1.4.2.2	Market adjusted return	MA_Return	The market adjusted return is defined as stock return minus market movements in returns. Where, market movements in returns are log of market index at time t divided by market index at time t-1.	
1.4.2.3	Market value added	MVA	The market value added (MVA) is market value of firm (market value of equity plus book value of debt) deducted by book value of invested capital (Kramer & Peters, 2001; Kyriazis & Anastassis, 2007).	+
1.4.2.4	Tobin's q	$Tobin's\ q$	The Tobin's q is defined as the book value of assets less the book value of equity plus the market value of equity divided by the book value of assets (Coles et al., 2012).	+
2. Explanatory variables				
2.1	*Presence of equity market timing*			
2.1.1	Hot Equity	HOT_{Equity}	- The dummy variable which captures equity market timing = 1 if a firm issues equity in a hot market and 0 if a firm issues equity in a cold market (Alti, 2006).	NA
2.1.2	Economic Boom	$BOOM$	- The dummy variable which captures equity market timing = 1 if a firm issues equity in a period of economic boom and 0 if a firm issues equity in a period of economic bust, which we develop from Virolainen (2009).	NA
2.2	*Presence of debt market timing*			
2.2.2	Hot Proceeds	$HOT_{Proceeds}$	- The dummy variable which captures debt market timing = 1 if a firm issues corporate bonds in a hot proceeds market and 0 if a firm issues corporate bonds in a cold proceeds market (Doukas et al., 2011).	NA
2.2.4	Median Interest Rate	IR_{Median}	- The dummy variable which captures debt market timing = 1 if a firm issues corporate bonds in a period of median interest rate, and 0 otherwise.	NA
2.3	*Degree of equity market timing*			
2.3.1	Equity proceeds ratio	PA_E	- The amount of capital raised from equity issuance divided by year-end assets at time t (Kim & Weisbach, 2008).	NA
2.4	*Degree of debt market timing*			
2.4.1	Debt proceeds ratio	PA_D	- The amount of capital raised from corporate bond issuance divided by year-end assets at time t (Doukas et al., 2011).	NA
3. Control variables				
3.1	Profitability	$Profit$	- Earnings before interest, taxes and depreciation (EBITDA) over total assets (Baker & Wurgler, 2002).	NA
3.2	Firm size	$Size$	- The logarithm of net sales (Baker & Wurgler, 2002).	NA
3.3	Asset tangibility	$Tang$	- Net plant, property and equipment over total assets (Walker & Yost, 2008).	NA
3.4	Dividend payout	$DivP$	- Common dividends divided by income before extraordinary items (Floyd et al., 2015).	NA
3.5	Cash	$CASH/A$	- Cash and short-term investments divided by total assets (Alti, 2006).	NA
3.6	Nominal GDP growth	NG	- Nominal growth is estimated by real GDP growth rate plus inflation rate.	NA
3.7	Leverage	D/A	- Book debt divided by total assets (Rajan & Zingales, 1995; Baker & Wurgler, 2002).	NA
3.8	Capital expenditure	INV/A	- Capital expenditure divided by total assets (Alti, 2006).	NA
3.9	Market-to-book ratio	*M/B*	- Book value of debt plus market value of equity divided by total assets (Alti, 2006).	NA
3.10	Beta	*Beta*	- Beta of each firm to control for sensitivity of market movement (Chang et al., 2008).	NA
3.11	Credit Rating	*Credit_Rating*	- The credit ratings of corporate bond are estimated by the bond agency including TRIS and Fitch. The figure is AAA=19, AA+ =18, AA=17, AA- =16 and so on, following Paisarn (2012), as seen in section 3.4.2 of chapter 3.	NA
3.12	Market Index	*MI*	- Annual growth rate of market index (Bougatef & Chichti, 2011).	NA

4.4.3 Empirical analysis

4.4.3.1. Mean difference test

Regarding the previous literature in the context of security issuance and firm performance, several research studies, including Asquith and Mullins (1986), Hansen and Crutchley (1990), Ritter (1991), Jain and Kini (1994), McLaughlin et al. (1996), Cai and Wei (1997), Mikkelson et al. (1997), Spiess and Affleck-Graves (1999), Dichev and Piotroski (1999) and Fu (2010) employed the mean or median different test to compare firm performance after security allocation between issuing and non-issuing companies. Furthermore, Song (2009) used these methods to assess the influence of debt market timing on firm performance. Hence, we employ the mean difference test to investigate whether timers can be successful in enhancing their firm performance and reduce cost of capital after using the market timing policy by comparing between timers and non-timers.

4.4.3.2. Regression model

According to the hypothesis development section, the dependent variables of this chapter consist of cost of capital and firm performance, which are continuous variables, therefore the ordinary least squares (OLS) regression with industry fixed effects is employed to inspect the relationship between dependent and explanatory variables for 15 years from 2000 to 2014 for the models of equity issuance, both IPO and SEO, and 14 years from 2001 to 2014 for the models of debt allocation with corporate bonds following the previous literature, such as Asquith and Mullins (1986), Eckbo (1986), Hansen and Crutchley (1990), Datta et al. (2000), Autore et al. (2009) and Chang et al. (2008). Moreover, White (1980) standard errors are used to evaluate the coefficients' significance level. In addition, we employ the GLS regression to examine for heteroskedasticity (Gil-Bazo & Ruiz-Verdu, 2009).

Heckman (1979) stated that samples that are selected non-randomly lead to the bias due to the missing data problem, and the Heckman 2-stage estimator can solve this issue. As our sample comprises only firms that issue equity or debt, it is a subpopulation and the decision to time the market of corporation may be self-selected since the benefit of cost of capital or performance is a motivation for timing the market. Hence, the Heckman sample-selection method is appropriate to treat bias for this chapter. However, we conducted Heckman's regression in the Stata programme version 14.2 SE and 15 SE and found a problem of collinearity between the first and second stages, and thus the main explanatory variables are dropped from the main model. It is more likely that the

Heckman regression model produces the inverse Mills' ratio (λ), which is generated in stage 1 with a probit regression and then this variable is added to stage 2. Therefore, it is possible that the inverse Mills' ratio (λ) obtained from the first stage may contain some correlations between stages 1 and 2 since there are the identical variables of the model in stages 1 and 2, and this means it is not possible econometrically to conduct Heckman's regression for this study.

Consequently, we have attempted to employ a linear regression with endogenous treatment effects (ATE), the "***etregress"*** command with two-step consistent estimation, which is known as "*the endogenous binary-variable model"*. This model is "*a linear potential outcome model that allows for the specific correlation structure between the unobservable that affects the treatment and the unobservable that affects the potential outcome"* (Stata, 2017a). Thus, this model seems to be appropriate for this study as the treatment variable (market timing variable) of our model is the same variable as the explanatory variable in the model of potential outcome.

Moreover, it seems that this study is a simultaneous equation regression model since the market timing variable appears to correlate with the error term, whereby market timing may affect firm performance or cost of capital, while they may be also impacted by firm performance and cost of capital. Moreover, some variables are omitted variables that affect both dependent and explanatory variables; however, they are excluded in our models. The variables which may be the omitted variables are the determinants of market timing consisting of equity mispricing, ownership structure and board composition from the chapter 2 on IPO models. Meanwhile, the determinants of SEO are similar to those of IPO, except foreign ownership from chapter 2 on SEO models. For corporate bond issuance, the omitted variables may be interest rate, ownership structure and board composition. Larcker and Rusticus (2010) states that the instrumental variable approach can deal with these issues. Therefore, we have also employed the single-equation instrumental-variables regression (IV) "ivregress" command with 2SLS estimation to *"fit one equation of a multiple-equation system without specifying the functional form of the remaining equations"* (Stata, 2017b) to address these problems.

Furthermore, as our sample in this chapter contains three main different types of security issuance, namely IPO, SEO and corporate bond allocations, the models of the OLS, GLS, linear regression with endogenous treatment effects with two-step consistent estimation (ATE 2-step) for only the model of the dummy explanatory variables and single-equation instrumental-variables regression with 2SLS estimation procedural regressions (IV 2SLS) are separately produced for each event since there are different characteristics of each kind of security. The Stata 14.2 SE and 15 SE software programmes are employed to generate the empirical results and the MATLAB programme is used to measure implied cost of equity.

4.4.3.2.1) The influence of equity market timing on cost of capital and firm performance

4.4.3.2.1.1) The OLS and GLS regression models

$$Y_{t+k} = \alpha + \beta HOT_{Equity} + \Psi k \sum_{k=1}^{9} Control_t + \delta\, i \sum_{i=1}^{7} Industry_i + \varepsilon_t \qquad (4.13)$$

Where, Y_t = cost of equity (k_e), cost of capital ($WACC$), firm performance (ROA, ROE, $ROIC$, MVA, $Return$ and $Tobin's\ q$) at time t whereby t is the year of equity issuance for each event (IPO and SEO).

k = the year after equity issuance whereby k = 0, 1, 2, 3, 4 and 5 are according to Loughran and Ritter (1995), Cai and Wei (1997) and Mikkelson et al. (1997).

HOT_{Equity}[40] = the presence of equity market timing, which is equal to 1 if a firm issues equity in a hot equity market, and 0 otherwise.

$\sum_{k=1}^{9} Control_t$ = the control variables contain firm size, profitability, leverage, dividend payout, asset tangibility, cash, capital expenditure, nominal GDP growth, where Y_{t+k} is firm performance, whereas the control variables contain the market-to-book ratio, profitability, firm size, leverage ratio, dividend payout ratio, capital expenditure, firm beta, market movement, nominal GDP growth, where Y_{t+k} is cost of equity (k_e) and cost of capital ($WACC$).

$\sum_{i=1}^{7} Industry_i$ = the industry fixed effects

[40] We also employ other strategies, which are $BOOM$ capturing the presence of equity market timing during the period of economic expansion and PA_E detecting the degree of equity market timing evaluated by the equity proceeds ratio.

4.4.3.2.1.2) The ATE regression with two-step consistent estimation procedural model[41]

As there is a limitation of lagged data and the specific characteristics of IPO samples, there are different determinant variables of the binary treatment variable models between IPO and SEO, as follows.

a.) IPO model

The primary regression equation

$$E(Y_{t+k}) = \beta_0 + \beta_1 HOT_{Equity} + \Psi k \sum_{k=1}^{9} Control_t + \delta\, i \sum_{i=1}^{7} Industry_i + \varepsilon_t \tag{4.14}$$

Where, HOT_{Equity}[42] is a binary treatment variable that is assumed to stem from an unobservable latent variable:

$$\begin{aligned} P_i &= p\left(HOT_{Equity} = 1\right) \\ &= \beta_1 + \beta_2 Overpricing_t + \beta_3 \%MOWN_t + \beta_4 \%IOWN_t + \beta_5 HHI3_t \\ &+ \beta_6 \%IBO_t + \beta_7 BOZ_t + \beta_8 \%WBO_t + \beta_9 \%ACO_t + \sum_{k=1}^{13} \Psi k Control_{t-1} \\ &+ \sum_{i=1}^{7} \delta i Industry_i + u_i \end{aligned} \tag{4.15}$$

Where, Y_{t+k} = cost of equity (k_e), cost of capital ($WACC$), firm performance (ROA, ROE, $ROIC$, MVA, $Return$ and $Tobin's\ q$).

k = the year after IPO issuance, whereby k = 0, 1, 2, 3, 4 and 5 years.

HOT_{Equity} = the presence of equity market timing, which is equal to 1 if a firm issues equity in a hot equity market, and 0 otherwise.

b.) SEO model

The primary regression equation

[41] This regression method is employed only for the presence of equity market timing, which is the binary variable.
[42] Another strategy is $BOOM$.

$$E(Y_{t+k}) = \beta_0 + \beta_1 HOT_{Equity} + \Psi k \sum_{k=1}^{9} Control_{t-1} + \delta\, i \sum_{i=1}^{7} Industry_i + \varepsilon_t \quad (4.16)$$

Where, HOT_{Equity}[43] is a binary treatment variable that is assumed to stem from an unobservable latent variable:

$$\begin{aligned} P_i = p\left(HOT_{Equity} = 1\right) \\ &= \beta_1 + \beta_2 Overpricing_{t-1} + \beta_3 \%MOWN_{t-1} + \beta_4 \%IOWN_{t-1} \\ &+ \beta_5 \%FROWN_{t-1} + \beta_6 HHI3_{t-1} + \beta_7 \%IBO_{t-1} + \beta_8 BOZ_{t-1} \\ &+ \beta_9 \%WBO_{t-1} + \beta_{10} \%ACO_{t-1} + \sum_{k=1}^{12} \Psi k Control_{t-1} + \sum_{i=1}^{7} \delta i Industry_i \\ &+ u_i \end{aligned} \quad (4.17)$$

Where, Y_t = cost of equity (k_e), cost of capital ($WACC$), firm performance (ROA, ROE, $ROIC$, MVA, $Return$ and $Tobin's\ q$).

k = the year after SEO issuance, whereby k = 0, 1, 2, 3, 4 and 5 years.

HOT_{Equity} = the existence of equity market timing, which is equal to 1 if a firm issues equity in a hot equity market, and 0 otherwise.

4.4.3.2.1.3) The IV regression with the 2SLS estimation procedural model

For the IPO and SEO models, the primary regression equation of IV (2SLS) is similar to the ATE (2-step) regression model, but we include the presence of the equity market timing variable (HOT_{Equity})[44] as an endogenous regressor and the control variables as exogenous regressors. Moreover, we employ the determinant variables of the presence of equity market timing (HOT_{Equity}) as the excluded exogenous regressors (instruments).

[43] Another strategy is $BOOM$.

[44] For the degree of equity market timing, PA_E is as an endogenous regressor.

4.4.3.2.2) The influence of debt market timing on cost of capital and firm performance

4.4.3.2.2.1) The OLS and GLS regression models

$$Y_{t+k} = \alpha + \beta HOT_{Proceeds} + \Psi k \sum_{k=1}^{10} Control_t + \delta i \sum_{i=1}^{7} Industry_i + \varepsilon_t \quad (4.18)$$

Where; Y_t = cost of debt ($k_d(1-T)$), cost of capital ($WACC$), firm performance (ROA, ROE, $ROIC$, MVA, $Return$ and $Tobin's\ q$) at time t, whereby t is the year of corporate bond issuance.

k = the year after corporate bond issuance, whereby k = 0, 1, 2, 3, 4 and 5 years following Dichev and Piotroski (1999) and Song (2009).

$HOT_{proceeds}$[45] = the presence of debt market timing, which is equal to 1 if a firm issues corporate bond in a hot proceeds market, and 0 otherwise.

$\sum_{k=1}^{10} Control_t$ = the control variables contain firm size, profitability, leverage, dividend payout, asset tangibility, cash, capital expenditure, credit rating, nominal GDP growth, where Y_{t+k} is firm performance, whereas the control variables contain the market-to-book ratio, profitability, firm size, leverage ratio, dividend payout ratio, capital expenditure, firm beta, credit rating, market movement, nominal GDP growth rate, where Y_{t+k} is cost of equity (k_e) and cost of capital ($WACC$).

$\sum_{i=1}^{7} Industry_i$ = the industry fixed effects

4.4.3.2.2.2) The ATE regression with the two-step consistent estimation procedural model[46]

The primary regression equation

$$E(Y_{t+k}) = \beta_0 + \beta_1 HOT_{Proceeds} + \Psi k \sum_{k=1}^{10} Control_t + \delta i \sum_{i=1}^{7} Industry_i + \varepsilon_t \quad (4.19)$$

[45] Other procedures of debt market timing are median interest rate variables (IR_{Median}) and the degree of debt market timing as estimated by the bond proceeds ratio (PA_D).

[46] This regression method is employed only for the presence of debt market timing, which is the binary variable.

Where, $HOT_{proceeds}$[47] is a binary treatment variable that is assumed to stem from an unobservable latent variable:

$$
\begin{aligned}
P_i &= p(HOT_{proceeds} = 1) \\
&= \beta_1 + \beta_2 IR_t + \beta_3 \%MOWN_{t-1} + \beta_4 \%IOWN_{t-1} + \beta_5 \%FOWN_{t-1} \\
&+ \beta_6 HHI3_{t-1} + \beta_7 \%IBO_{t-1} + \beta_8 BOZ_{t-1} + \beta_9 \%WBO_{t-1} \\
&+ \beta_{10} \%ACO_{t-1} + \sum_{i=1}^{13} \Psi i Firm\_Control_{t-1} + \sum_{j=1}^{2} \gamma j Market\_Control_t \\
&+ \sum_{k=1}^{7} \delta k Industry_i + u_i \qquad (4.20)
\end{aligned}
$$

Where, Y_t = cost of debt ($k_d(1-T)$), cost of capital ($WACC$), firm performance (ROA, ROE, $ROIC$, MVA, $Return$ and $Tobin's\ q$) at time t, whereby t is the year of corporate bond issuance.

k = the year after corporate bond issuance, whereby k = 0, 1, 2, 3, 4 and 5 years.

$HOT_{proceeds}$ = the debt market timing dummy variable, which is equal to 1 if a firm issues corporate bonds in a hot proceeds market, and 0 otherwise.

4.4.3.2.2.3) The IV regression with the 2SLS estimation procedural model

The primary regression equation of IV (2SLS) is similar to with the ATE (2-step) regression model, but we include the presence of debt market timing variable ($HOT_{proceeds}$)[48] as an endogenous regressor and the control variables as exogenous regressors. Moreover, we employ the determinant variables of the presence of debt market timing ($HOT_{proceeds}$) as the excluded exogenous regressors (instruments).

[47] Another strategy is median interest rate (IR_{Median}).
[48] For the degree of debt market timing, PA_D is as an endogenous regressor.

4.5 Results and findings

4.5.1 Descriptive statistics[49]

4.5.1.1 Firm performance

4.5.1.1.1 IPO samples

Table 4.4 demonstrates the descriptive statistics, consisting of mean value, standard deviation, and maximum and minimum values for the influence of equity market timing on firm performance with 285 IPO firms from 2000 to 2014. There are six different measurements of firm performance, including ROA, ROE, ROIC, stock returns, MVA and Tobin's q from IPO year to 5 years later.

According to table 4.4, the mean of ROA, ROE, ROIC and stock returns declines after conducting IPO stocks. Based on ROA and ROIC, the average of ROA and ROIC ratios continuously declines over 5 years after allocation, whereby the mean of ROA and ROIC reduces to 2.7% and 5.1% in the fifth year after going public compared to 8.2% and 14.5% in the IPO year, respectively. Therefore, the ROA and ROIC ratios of IPO corporations fall by considerably more than a half within 5 years after an IPO. Simultaneously, the average of stock returns declines remarkably to -6.7% in the fourth year after an IPO issuance, from 5.5% in an IPO year. Also, the mean of market adjusted returns reduces slightly to -9.6% in the third year after IPO compared to -6.6% in an IPO year. In addition, the mean of the ROE ratio decreases over time for 5 years, except for year 2 after IPO issuance, when this value increases slightly by approximately 0.8% (IPO+1: 7.3% vs. IPO+2: 8.1%). Hence, it is likely that companies on average underperform after selling IPO equity, which is consistent with Ritter (1991), Jain and Kini (1994) and Cai and Wei (1997), who found that IPO firms have a decrease in their performance after going public. Hence, this indicates that there is a negative effect on firm performance after conducting IPO stocks.

On the other hand, the mean of MVA increases year-to-year until 3 years after an IPO, while the average of Tobin's q is volatile over time for 5 years after an IPO. According to table 4.4, there is an increase by three quarters of the MVA value in year 3 after offering compared to the IPO year (IPO: 3.007 vs. IPO+3: 5.24). However, there is a downturn in the mean of MVA in year 4 after selling the initial stocks, by approximately

[49] The data of all models are winsorized at 1st and 99th percentiles to prevent the effect of outlier observations.

one-fourth of year 3 (IPO+3: 5.24 vs. IPO+4: 3.843). Regarding Tobin's q approach, the mean of Tobin's q increases from 1.372 in the IPO year to 1.493 in the first year after IPO allocation. However, the mean of this variable drops slightly in the second year by roughly 0.032. After that, Tobin's q ratio marginally increases by around 0.017 in the third year. In contrast, the average of this variable diminishes in years 4 and 5 post-offering at 0.103 and 0.143, respectively. Therefore, IPO corporations do not suffer from underperformance in the short term based on MVA and Tobin's q. In contrast, they earn an increase in MVA value until 3 years after IPO issuance. However, this is inconsistent with the previous literature, including Ritter (1991), Jain and Kini (1994) and Cai and Wei (1997), who found that there is a dilution of firm performance after going public.

Overall, based on the average of firm performance, there is a decrease in accounting-based performance and stock returns after an IPO, while there is an increase in the MVA value. However, Tobin's q ratio swings over the 5 years after IPO allocation.

Table 4.4: Summary descriptive statistics of performance model for IPO samples

Variable	Period	Number of Observations	Mean Value	Standard Deviation	Minimum Value	Maximum Value
ROA	IPO	282	0.082	0.069	-0.149	0.310
	IPO+1	282	0.065	0.085	-0.307	0.249
	IPO+2	278	0.038	0.126	-0.597	0.238
	IPO+3	249	0.031	0.127	-0.465	0.267
	IPO+4	223	0.028	0.120	-0.361	0.314
	IPO+5	207	0.027	0.105	-0.258	0.232
ROE	IPO	282	0.094	0.096	-0.317	0.366
	IPO+1	282	0.073	0.119	-0.435	0.290
	IPO+2	278	0.081	0.242	-0.502	1.869
	IPO+3	249	0.046	0.189	-0.847	0.647
	IPO+4	223	0.042	0.172	-0.496	0.594
	IPO+5	207	0.040	0.168	-0.509	0.618
ROIC	IPO	279	0.145	0.108	-0.171	0.499
	IPO+1	279	0.103	0.107	-0.327	0.336
	IPO+2	276	0.076	0.137	-0.495	0.371
	IPO+3	246	0.057	0.190	-0.918	0.365
	IPO+4	220	0.052	0.176	-0.869	0.418
	IPO+5	201	0.051	0.172	-0.942	0.398
Returns	IPO+1	272	0.055	0.567	-1.301	1.656
	IPO+2	283	0.007	0.582	-1.429	1.772
	IPO+3	253	-0.050	0.637	-1.999	2.045
	IPO+4	228	-0.067	0.687	-2.394	1.560
	IPO+5	213	0.039	0.552	-1.873	1.261
Market Adjusted Returns	IPO+1	272	-0.066	0.703	-2.074	1.725
	IPO+2	283	-0.063	0.669	-1.704	1.841
	IPO+3	253	-0.096	0.718	-2.232	1.902
	IPO+4	228	-0.061	0.848	-2.627	2.206
	IPO+5	213	0.006	0.715	-2.106	1.865
MVA	IPO	267	3.007	8.528	-7.731	50.233
	IPO+1	278	3.096	7.641	-7.861	49.636
	IPO+2	276	4.061	11.972	-8.846	90.682
	IPO+3	248	5.240	16.938	-5.175	125.293
	IPO+4	222	3.843	11.821	-7.621	74.818
	IPO+5	206	4.282	17.473	-20.563	133.821
Tobin's q	IPO	266	1.372	0.825	0.266	4.246
	IPO+1	279	1.493	0.981	0.325	5.680
	IPO+2	276	1.461	1.209	0.212	8.342
	IPO+3	248	1.478	1.487	0.276	9.924
	IPO+4	222	1.375	1.652	0.222	11.199
	IPO+5	206	1.232	1.004	0.255	6.192
HOT Equity	IPO	285	0.754	0.431	0.000	1.000
Economic Boom	IPO	285	0.540	0.499	0.000	1.000
Equity Proceed Ratio	IPO	273	0.265	0.152	0.001	0.995
Firm Size (in Million Baht)	IPO	282	7,354.76	33,900	20.54	364,000
Profitability	IPO	284	0.155	0.095	-0.318	0.733
Leverage	IPO	283	0.217	0.220	0.000	0.987
Dividend Payout	IPO	280	0.390	0.397	0.000	1.000
Asset Tangibility	IPO	283	0.325	0.230	0.004	0.929
Cash Holding	IPO	284	0.164	0.158	0.000	0.858
Capital Expenditure	IPO	283	0.090	0.108	-0.116	0.791
Real GDP Growth Rate	IPO	285	0.070	0.032	-0.006	0.112

4.5.1.1.2 SEO samples

Table 4.5 illustrates the descriptive statistics, which provide mean value, standard deviation, and maximum and minimum values for the effect of equity market timing on firm performance with 1,038 SEO issuances from 2000 to 2014. The corporate performance is evaluated with two groups of measurement, including accounting-based (ROA, ROE and ROIC) and market-based (Returns, MVA and Tobin's q) performances. These values are estimated from the pre-SEO year to 5 years later. Overall, on average, the accounting-based performance and equity returns decline in the short term after stock issuance, while the MVA value increases in both the short and long term after selling follow-on stocks. However, Tobin's q ratio is volatile over time after an SEO.

Based on the accounting-based method, the average of firm performance for SEO companies substantially increases in an SEO year. As shown in table 4.5, the averages of ROA, ROE and ROIC ratios increase from 0.2%, 5% and 5.5% in a pre-SEO year to 2.3%, 10.9% and 7.1% in an SEO year, respectively. It seems that the ROA and ROE ratios increase more than two folds in comparison to a pre-SEO year and the ROIC ratio improves by one quarter of the mean value before SEO allocation. However, the firm performance of SEO corporations considerably decreases in the short term until 2 years after allocation for the ROA and ROE ratios and 3 years after issuance for the ROIC ratio. According to table 4.5, the means of ROA, ROE and ROIC ratios decline remarkably from 2.3%, 10.9% and 7.1% in an SEO year to 0.8%, 1.3% in 2 years and 0% 3 years later, respectively. Furthermore, the average of operating performance peaks at the SEO year. This is consistent with McLaughlin et al. (1996) and Loughran and Ritter (1997), who found that SEO firms have an increase in operating performance before equity allocation; however, they suffer from a reduction in operating performance after conducting follow-on stocks. Conversely, the average of accounting-based performance improves in the long term, especially 5 years after an SEO. This is inconsistent with Loughran and Ritter (1995), who posit that SEO corporations tend to underperform in the long term until 5 years after offering.

According to the market-based approach, the average of firm performance for SEO corporations varies depending on each method. Based on table 4.5, SEO firms have a sizeable increase in stock returns, market adjusted returns and the MVA value in an SEO year, approximately two folds, two folds and one quarter of the pre-SEO year, respectively. This indicates that SEO companies obtain higher stock returns and MVA values in an offering year. In contrast, there is a decrease in the mean of Tobin's q from

1.184 in a pre-SEO year to 1.136 in an SEO year, which is equal to a 4% reduction of this variable during the offering year. This suggests that SEO corporations suffer from poor performance with Tobin's q in the year of an SEO.

Table 4.5: Summary descriptive statistics of performance model for SEO samples

Variable	Period	Number of Observations	Mean Value	Standard Deviation	Minimum Value	Maximum Value
ROA	SEO-1	1,029	0.002	0.189	-0.968	0.313
	SEO	1,028	0.023	0.160	-0.771	0.578
	SEO+1	1,018	0.016	0.129	-0.633	0.260
	SEO+2	889	0.008	0.147	-0.793	0.231
	SEO+3	737	0.014	0.225	-1.005	3.670
	SEO+4	631	0.002	0.174	-1.000	0.250
	SEO+5	545	0.015	0.140	-0.616	0.326
ROE	SEO-1	1,028	0.050	0.448	-1.419	3.127
	SEO	1,028	0.109	0.666	-1.047	5.552
	SEO+1	1,017	0.020	0.199	-1.083	0.372
	SEO+2	887	0.013	0.208	-1.080	0.417
	SEO+3	737	0.017	0.249	-1.467	0.701
	SEO+4	631	0.026	0.233	-1.193	0.821
	SEO+5	544	0.065	0.358	-1.040	2.256
ROIC	SEO-1	1,009	0.055	0.204	-0.795	0.614
	SEO	1,012	0.071	0.254	-0.954	1.478
	SEO+1	1,000	0.046	0.158	-0.665	0.392
	SEO+2	985	0.035	0.176	-0.931	0.392
	SEO+3	860	0.000	1.119	-32.365	0.354
	SEO+4	709	0.043	0.146	-0.649	0.360
	SEO+5	610	0.050	0.150	-0.679	0.361
Returns	SEO-1	945	0.090	0.603	-1.419	1.992
	SEO	995	0.166	0.622	-1.585	2.092
	SEO+1	1,019	0.112	0.645	-1.728	2.361
	SEO+2	1,029	-0.100	0.587	-1.748	1.754
	SEO+3	910	-0.014	0.571	-1.566	1.747
	SEO+4	765	0.085	0.501	-1.557	1.699
	SEO+5	664	-0.072	0.477	-1.445	1.502
Market Adjusted Returns	SEO-1	945	-0.066	0.573	-2.178	2.136
	SEO	995	0.031	0.556	-2.358	2.026
	SEO+1	1,019	0.008	0.578	-2.430	2.506
	SEO+2	1,029	-0.143	0.512	-2.001	1.904
	SEO+3	910	-0.043	0.482	-2.056	1.898
	SEO+4	765	0.031	0.546	-1.775	2.344
	SEO+5	664	-0.112	0.445	-1.589	1.652
MVA	SEO-1	1,004	5.474	17.035	-5.258	125.677
	SEO	1,017	6.941	24.520	-7.344	205.389
	SEO+1	1,010	8.903	28.444	-5.297	210.192
	SEO+2	994	8.984	28.965	-7.918	213.721
	SEO+3	868	9.180	30.525	-14.076	213.687
	SEO+4	718	10.142	33.782	-16.188	222.681
	SEO+5	617	10.432	36.809	-20.940	236.001
Tobin's q	SEO-1	1,006	1.184	1.040	0.223	7.273
	SEO	1,022	1.136	0.915	0.175	6.965
	SEO+1	1,012	1.304	1.121	0.253	7.916
	SEO+2	994	1.250	1.017	0.285	7.503
	SEO+3	869	1.201	1.008	0.225	7.533
	SEO+4	716	1.147	0.914	0.234	6.698
	SEO+5	618	1.155	1.189	0.173	9.099
HOT Equity	SEO	1,032	0.640	0.480	0.000	1.000
Economic Boom	SEO	1,038	0.400	0.490	0.000	1.000
Equity Proceed Ratio	SEO	985	0.161	0.575	0.000	13.529
Firm Size (in Million Baht)	SEO-1	1,027	8,473.132	51,100.000	0.317	1,110,000.000
Firm Size (in Million Baht)	SEO	1,021	10,000	64,500	0.318	1,420,000
Profitability	SEO-1	1,033	0.080	0.187	-1.735	0.839
Profitability	SEO	1,026	0.117	0.852	-7.952	11.615
Leverage	SEO-1	1,035	0.343	0.244	0.000	0.946
Leverage	SEO	1,029	0.311	0.220	0.000	0.912
Dividend Payout	SEO-1	1,024	0.246	0.323	-0.002	1.000
Dividend Payout	SEO	1,018	0.278	0.341	-0.005	1.004
Asset Tangibility	SEO-1	1,033	0.363	0.253	0.000	0.996
Asset Tangibility	SEO	1,022	0.345	0.250	0.000	0.964
Cash Holding	SEO-1	1,035	0.091	0.112	0.000	0.790
Cash Holding	SEO	1,029	0.103	0.129	0.000	0.976
Capital Expenditure	SEO-1	1,035	0.058	0.075	0.000	0.558
Capital Expenditure	SEO	1,023	0.063	0.080	0.000	0.888
Real GDP Growth Rate	SEO	1,038	0.068	0.030	-0.006	0.112

Additionally, there is a difference in the market-based performance of SEO companies after conducting follow-on equity depending on the method. On average, stock returns and market adjusted returns decline after an SEO in the short term until 2 years post-offering. As seen in table 4.5, there is a significant diminution in stock yields and market adjusted returns from positive returns to negative returns in the year 2 after an SEO. Simultaneously, the mean of Tobin's q ratio drops from 1.304 in the first year to 1.147 at four years post-SEO event. Therefore, this indicates that SEO corporations underperform after an equity offering, whereby it is likely that they contain overvalued stocks. Thus, when investors acknowledge this situation regarding their equity, their performance declines after an SEO issuance. This is consistent with the previous literature, including Loughran and Ritter (1995), Loughran and Ritter (1997) and Clarke et al. (2001), who find that SEO corporations suffer from a dilution effect after follow-on stock issuance due to selling overvalued stocks. Conversely, the average MVA value increases over time until 5 years after an SEO, suggesting that SEO firms do not suffer from poor performance as estimated by MVA. This is inconsistent with the prior literature; however, this study offers the new perspective that SEO companies increase in MVA value after offering.

Overall, there is an increase in accounting-based performance in an SEO year, and then the performance decreases in the short term, on average. However, the average of market-based performance is different, depending on each measurement. At the year of an SEO, stock returns and the MVA value increase remarkably compared to pre-SEO issuance, while Tobin's q ratio slightly decreases in an SEO year. At subsequent years of SEO issuance, stock returns drop in the short term until 2 years post-SEO issuance, whereas Tobin's q ratio rises slightly in the first year and diminishes until 4 years after issuance. Conversely, MVA value increases over time until 5 years after conducting follow-on stocks, on average.

4.5.1.1.3 Corporate bond samples

Table 4.6 exhibits descriptive statistics which provide mean value, standard deviation, and maximum and minimum values for the influence of debt market timing on firm performance with 189 corporate bond issuances from 2001 to 2014. Firm performance is estimated by two methods, including accounting-based and market-based approaches from the pre-allocating year to 5 years after offering. Overall, there is a decrease in firm performance as estimated by all measurements except MVA in the issuing year. However, there is quite a lot of variance for the tendency of firm performance after corporate bond issuance, depending on each method.

In the accounting-based approach, the averages of the ROA, ROE and ROIC ratios of bond-issuing corporations decline slightly in the offering year. The averages of the ROA, ROE and ROIC ratios decrease from 6.4%, 10.3% and 10.4% in 1 year before offering to 5.4%, 8.8% and 8.6% in the offering year, respectively, which is a reduction of over 15% compared to the pre-issuing year. Furthermore, the poor performance appears only in the short term surrounding the issuing year until 1 year later for the ROA and ROE ratios. For example, the means of the ROA and ROE ratios drop from 5.4% and 8.8% in the offering year to 5.3% and 8.7% 1 year later, respectively. However, the average proportion of the underperformance for these ratios 1 year after allocation is smaller than in the offering year, whereby there is a decrease of roughly 1.85% and 1.14% in the first year compared to 15.63% and 14.56% in allocating year for ROA and ROE, respectively. In contrast, the average operating performance for bond-issuing corporations improves in the long term until 5 years after offering. Interestingly, the rebound of the accounting-based performance is considerable since the means of the ROA, ROE and ROIC ratios in year 5 after offering at 6.2%, 9.8% and 9.5% are almost equal to the year before offering at 6.4%, 10.3% and 10.4%, respectively. This indicates that the bond-allocating corporations underperform in the offering year and in the short term; however, their accounting-based performances improve in the long-term, on average. The reduction in the mean performance in the short term is consistent with Spiess and Affleck-Graves (1999) and Datta et al. (2000), who found that the bond-issuing corporations do not outperform after offering; on the other hand, their performance declines after corporate bond allocation and they documented that corporate bond issuance is a negative signal about the mispricing of firm stocks, similar as with equity issuance. However, the enhancement of these values in the long term is inconsistent with them since they found that the negative effect is in the long term, while the decline of our mean accounting-based performance appears only in the short term, yet there is an increase in the long term.

According to the market-based technique, the means of equity returns, market adjusted returns and Tobin’s q ratio are quite similar, while the average MVA value is different from these. Based on table 4.6, the averages of stock returns, market adjusted returns and Tobin’s q ratio diminish in the offering year, particularly the equity yields, which noticeably halve from 23.7% in the pre-offering year to 9.8% in the issuing year.

Conversely, the mean of MVA increases from 63.713 million baht before issuance to 66.026 million baht in the offering year. In addition, equity yields, market adjusted returns and Tobin's q ratio decrease in the short and long term after offering, although there is an improvement in stock returns in the third year after offering, market adjusted returns

Table 4.6: Summary descriptive statistics of performance model for corporate bond samples

Variable	Period	Number of Observations	Mean Value	Standard Deviation	Minimum Value	Maximum Value
ROA	CB-1	175	0.064	0.047	-0.043	0.182
	CB	177	0.054	0.046	-0.061	0.153
	CB+1	178	0.053	0.050	-0.085	0.170
	CB+2	177	0.058	0.052	-0.057	0.245
	CB+3	134	0.058	0.053	-0.074	0.244
	CB+4	109	0.061	0.061	-0.080	0.326
	CB+5	86	0.062	0.060	-0.049	0.295
ROE	CB-1	174	0.103	0.078	-0.105	0.295
	CB	176	0.088	0.083	-0.215	0.246
	CB+1	177	0.087	0.089	-0.216	0.280
	CB+2	175	0.094	0.084	-0.133	0.386
	CB+3	133	0.091	0.085	-0.144	0.344
	CB+4	107	0.097	0.092	-0.129	0.431
	CB+5	86	0.098	0.088	-0.116	0.414
ROIC	CB-1	178	0.104	0.065	-0.018	0.311
	CB	178	0.086	0.060	-0.049	0.213
	CB+1	178	0.087	0.061	-0.072	0.234
	CB+2	177	0.088	0.062	-0.048	0.306
	CB+3	133	0.088	0.066	-0.068	0.325
	CB+4	109	0.093	0.083	-0.076	0.528
	CB+5	86	0.095	0.085	-0.034	0.492
Returns	CB-1	172	0.237	0.461	-0.871	1.335
	CB	177	0.098	0.427	-1.047	1.325
	CB+1	181	0.065	0.384	-0.915	0.921
	CB+2	181	0.037	0.365	-1.098	0.920
	CB+3	134	0.085	0.395	-0.796	1.123
	CB+4	110	0.059	0.393	-1.152	0.957
	CB+5	88	0.015	0.408	-0.990	1.073
Market Adjusted Returns	CB-1	172	0.044	0.358	-0.864	0.870
	CB	177	0.010	0.324	-0.889	0.984
	CB+1	181	-0.064	0.302	-0.889	0.800
	CB+2	181	0.021	0.242	-0.587	0.708
	CB+3	134	0.014	0.282	-0.789	0.756
	CB+4	110	0.015	0.273	-0.889	0.646
	CB+5	88	-0.009	0.266	-0.889	0.583
MVA	CB-1	178	63.713	101.820	-26.667	433.976
	CB	178	66.026	97.910	-5.478	430.408
	CB+1	178	68.719	103.317	-14.296	406.137
	CB+2	176	67.076	102.976	-96.744	378.970
	CB+3	133	82.217	108.531	-65.892	380.384
	CB+4	109	93.427	127.713	-134.710	569.133
	CB+5	86	105.178	142.231	-40.614	594.486
Tobin's q	CB-1	178	1.200	0.585	0.477	3.287
	CB	178	1.169	0.482	0.508	2.744
	CB+1	177	1.165	0.478	0.618	2.582
	CB+2	176	1.174	0.553	0.524	3.361
	CB+3	133	1.260	0.657	0.576	3.626
	CB+4	109	1.321	0.841	0.583	5.094
	CB+5	86	1.318	1.007	0.455	6.187
HOT Proceed	CB	189	0.619	0.487	0.000	1.000
Median Interest Rate	CB	188	0.564	0.497	0.000	1.000
Debt Proceed Ratio	CB	174	0.013	0.038	0.000	0.371
Firm Size (in Million Baht)	CB-1	178	110000	260000	16.584	1610000
Firm Size (in Million Baht)	CB	177	122000	286000	336.001	1620000
Profitability	CB-1	178	0.141	0.076	0.014	0.419
Profitability	CB	177	0.162	0.466	-0.072	6.231
Leverage	CB-1	178	0.273	0.150	0.000	0.779
Leverage	CB	178	0.307	0.128	0.000	0.694
Dividend Payout	CB-1	178	0.069	0.069	0.000	0.574
Dividend Payout	CB	177	0.044	0.046	-0.001	0.303
Asset Tangibility	CB-1	178	0.412	0.244	0.008	0.950
Asset Tangibility	CB	177	0.396	0.248	0.004	0.945
Cash Holding	CB-1	178	0.081	0.063	0.006	0.488
Cash Holding	CB	177	0.079	0.058	0.003	0.314
Capital Expenditure	CB-1	177	0.069	0.073	0.002	0.623
Capital Expenditure	CB	177	0.070	0.075	0.001	0.623
Credit Rating	CB	189	12.958	4.477	0.000	19.000
Real GDP Growth Rate	CB	189	0.055	0.034	-0.006	0.112

in year 2 after bond offering and Tobin's q ratio in years 2, 3 and 4 after issuance. The mean of the MVA value increases in the short and long term except in the second year after offering. As a result, bond-issuing firms suffer from a decline of stock returns and Tobin's q ratio, both in the short and long term, which is consistent with Spiess and Affleck-Graves (1999) and Datta et al. (2000), who found that there is negative effect on firm performance after selling debt securities. However, they earn an increase in the MVA value in the short and long term, which is consistent with Cheng (1995) and Jung et al. (1996), who provided weak evidence that there is a positive impact on firm performance after debt issuance.

Overall, the operating performance of bond-allocating firms has a decrease in the short term but an increase in the long term based on the accounting-based approach, on average. However, their market-based performance is different, depending on each measurement. They suffer from a diminution in stock returns and Tobin's q ratio in the short and long term, while they appreciate due to an increase in the MVA value in the short and long term, on average.

4.5.1.2 Cost of separate sources

4.5.1.2.1 IPO samples

Table 4.7 reports descriptive statistics for the impact of equity market timing on the cost of equity model containing mean value, standard deviation, and the highest and lowest values with 285 IPO corporations from 2000 to 2014. The cost of equity is measured by three different approaches, namely the CAPM method, the Gordon model and the average of four methods of implied cost of equity (GLS, CT, OJ and MPEG) with the literature and adjusted versions. Overall, there is a difference in the mean value of cost of equity, depending on each measurement. It seems that cost of equity evaluated by the implied cost of equity method is higher than with other methods since the concept of the implied cost of equity procedure includes changes in time, such as the inflation rate, in its estimation (Frank & Shen, 2016).

Based on the CAPM approach, the average cost of equity is between 9% and 11.30% for IPO firms, which is nearly equal to the finding by Estrada (2007), who reported that the average required rate of returns for equity shareholders in Thailand is 12.79%. Furthermore, the mean cost of equity slightly reduces to 9.6% and 9% in the first and second years after going public, compared to 11.3% in the IPO year. This suggests that IPO firms earn the benefit of a reduction of cost of equity as estimated by the CAPM method, implying that their stocks may be overvalued during the period of an IPO event. This is consistent with the concept of equity market timing that firms tend to time the market with overvalued stock issuance to minimize cost of capital according Baker and Wurgler (2002). However, IPO companies can decrease cost of equity only in the short term since there is an increase in cost of equity as calculated by the CAPM method from 3 until 5 years after offering. As seen in table 4.7, cost of equity with the CAPM method is 10.6% in year 5 after an IPO event, which is nearly equal to 11.3% in an IPO year. This indicates that IPO firms cannot obtain benefit from a reduction of cost of equity in the long term based on the CAPM method, on average.

According to the Gordon model, the average of cost of equity is between 0.7% and 17.4% for IPO firms. However, there is the fluctuation of the mean value after IPO. For instance, there is an extreme increase in cost of equity to 17.2% in the first year after going public compared to 1.3% in the IPO year. After that, cost of equity considerably declines from 17.2% in the first year to 0.7% in the second year after offering. Then, there is a rebound in cost of equity in years 3 and 4 after IPO issuance. Finally, there is a reduction in cost of equity in year 5 to 5.9%, which is consistent with Bekaert and Harvey (2000), who found that average cost of equity measured by the Gordon dividend growth model in Thailand is equal to 5.92%. This implies that IPO companies have a lower cost of equity with the Gordon model than others since the cost of equity in an IPO year is only 1.3% compared to 5.92% for general companies on the Thai stock market. Moreover, this suggests that there is a rebalance of cost of equity, reaching the normal level in the long term, which may be the target cost of equity of IPO firms as the average of this variable in year 5 post-IPO issuance is nearly equal to cost of equity of general firms.

Moving on to the implied cost of equity method, the average of cost of equity is between 11.2% and 16.2%, based on the literature version, while the mean of this variable with the adjusted version is between 14.2% and 19.8%. Therefore, cost of equity following the literature is slightly lower than the modified form; however, both measurements are consistent with Boubakri et al. (2010), who found that the average of four methods of implied cost of equity in Thailand is 14.9%. Regarding the two patterns of mean cost of equity, there is an increase in cost of equity in the short and long term, although there is a slight decrease in years 4 and 3 after IPO issuance for the literature and modified versions, respectively. Consequently, it is likely that the stocks of IPO firms are not overvalued and that they do not time the equity market, which is consistent with

Ekkayokkaya and Pengniti (2012), who found that Thai IPO firms are underpricing when they issue the first stock to public.

Therefore, the cost of equity of IPO firms after going public is different, depending on the methods employed by managers in estimating cost of equity. In brief, IPO firms have a decrease in cost of equity estimated with the CAPM method in the short term, yet an increase in the long term until 5 years after offering. However, the cost of equity evaluated by the Gordon model is volatile over time until 5 years after IPO. On the other hand, there is an enhancement in the cost of equity, both in the short and long term, based on the implied cost of equity approach.

Table 4.7: Summary descriptive statistics of cost of equity model for IPO samples

Variable	Period	Number of Observations	Mean Value	Standard Deviation	Minimum Value	Maximum Value
CAPM	IPO	280	0.113	0.170	-0.228	1.097
	IPO+1	249	0.096	0.037	0.039	0.206
	IPO+2	223	0.090	0.027	0.036	0.168
	IPO+3	206	0.094	0.029	0.042	0.177
	IPO+4	194	0.101	0.029	0.056	0.186
	IPO+5	180	0.106	0.028	0.062	0.189
Gordon Dividend Growth Model	IPO	262	0.013	0.759	-1.000	3.242
	IPO+1	242	0.172	0.962	-1.000	4.644
	IPO+2	216	0.007	0.809	-1.000	3.481
	IPO+3	200	0.085	0.947	-1.000	5.053
	IPO+4	191	0.174	0.957	-1.000	5.533
	IPO+5	158	0.059	0.564	-1.000	2.130
Average 4 ICC Methods (Literature)	IPO	268	0.112	0.093	0.005	0.518
	IPO+1	279	0.130	0.113	0.005	0.740
	IPO+2	248	0.152	0.152	0.006	0.910
	IPO+3	222	0.162	0.141	0.005	0.907
	IPO+4	206	0.159	0.193	0.000	1.255
	IPO+5	194	0.161	0.206	0.004	1.512
Average 4 ICC Methods (Adjusted)	IPO	265	0.142	0.102	0.003	0.672
	IPO+1	247	0.149	0.118	0.002	0.935
	IPO+2	221	0.176	0.150	0.004	0.865
	IPO+3	205	0.166	0.108	0.008	0.643
	IPO+4	193	0.175	0.121	0.001	0.641
	IPO+5	152	0.198	0.149	0.018	0.977
HOT Equity	IPO	285	0.754	0.431	0.000	1.000
Economic Boom	IPO	285	0.540	0.499	0.000	1.000
Equity Proceed Ratio	IPO	273	0.265	0.152	0.001	0.995
Market-to-book Ratio	IPO	268	1.654	3.637	0.137	55.750
Profitability	IPO	284	0.155	0.095	-0.318	0.733
Firm Size (in Million Baht)	IPO	282	7,354.76	33,900.00	20.54	364,000.00
Leverage	IPO	283	0.217	0.220	0.000	0.987
Dividend Payout	IPO	280	0.390	0.397	0.000	1.000
Capital Expenditure	IPO	283	0.090	0.108	-0.116	0.791
Firm Beta	IPO	279	1.028	3.132	-12.193	27.130
Market Movement	IPO	285	0.127	0.366	-0.646	0.773
Real GDP Growth Rate	IPO	285	0.070	0.032	-0.006	0.112

4.5.1.2.2 SEO samples

Table 4.8 demonstrates the summary descriptive statistics of the dependent, explanatory and control variables, including mean value, standard deviation, and the highest and lowest values for the impact of equity market timing on the cost of equity model with 1,038 SEO allocations from 2000 to 2014. There are three different methods measuring cost of equity, consisting of the CAPM method, Gordon model and implied cost of equity approach from pre-SEO issuance to 5 years after offering. Overall, the tendency of cost of equity both in the SEO year and following years is non-identical, depending on the estimators of cost of equity.

Beginning with the CAPM procedure, SEO firms have an increase in cost of equity in the short and long term until 5 years post-SEO allocation. The mean of cost of equity with the CAPM method is between 10.1% and 11.5% for SEO corporations, which is nearly similar to Estrada (2007), who reported that cost of equity calculated by the CAPM method is 12.79%. Moreover, the average of cost of equity with the CAPM method slightly enhances in an SEO year to 10.3% compared to 10.1% in the pre-SEO year. Additionally, the mean cost of equity continuously rises until 5 years post-SEO issuance, whereby the highest mean value of cost of equity is 11.5% in year 5 after SEO issuance. This indicates that, on average, SEO firms do not earn benefit from the reduction of cost of equity, but they suffer from an increase in cost of equity after SEO issuance, implying that SEO firms are unsuccessful at timing the equity market with selling overvalued equities.

Moving on to the Gordon model, the average of cost of equity for SEO companies is between 36.3% and 48.4%, which is higher than the mean value of Bekaert and Harvey (2000) at 5.92% for general firms in Thailand. This suggests that SEO firms in Thailand have a higher cost of equity with the Gordon model than with others. Moreover, there is a significant decline in cost of equity for SEO corporations in the offering year since the mean of this variable reduces from 48.4% before an SEO year to 45.8% in an SEO year. Moreover, SEO companies continue to obtain benefit from the diminution of cost of equity 1 year after offering, whereby the average of this cost decreases to 40.7% in the first year compared to 45.8% in an SEO year. Then, the cost of equity increases in year 3 after an SEO allocation, on average. However, they earn an advantage of a reduction in cost of equity again in year 5 after an SEO event, whereby the average cost of equity for SEO firms declines to 41% in the fifth year compared to 44% in the fourth year after an SEO. This indicates that SEO firms can, on average, succeed in reducing cost of equity in the short and long term according to the Gordon model, whereby this may be a result from conducting overvalued stocks for their SEO issuance, which is consistent with Baker and Wurgler (2002), who claim that firms tend to issue overvalued stocks to time the equity market to minimize their cost of capital.

According to the implied cost of equity method, the average cost of equity for SEO corporations is between 10.6% and 15.10% for the literature version, while this variable is between 11.6% and 17.5% for the adjusted version. This is consistent with the previous literature. For example, Boubakri et al. (2010) report that the average implied cost of equity with a mean value of four methods (GLS, CT, OJ and MPEG) in Thailand is equal to 14.9%. Moreover, Boubakri et al. (2012) illustrate that this variable with a mean of four methods (GLS, CT, OJ and ES) is 19.2%. As seen in table 4.8, there is a decrease in implied cost of equity for both versions in an SEO year, on average, whereby the average cost of equity reduces to 10.6% and 11.6% in an SEO year compared to 12.8% and 13% in a pre-SEO year for the literature and adjusted patterns, respectively. However, there is a continuous increase in the cost of equity year-to-year until 5 years after the SEO event. Furthermore, the effect of the increase in cost of equity after an SEO issuance is greater than the benefit from the decrease of cost of equity in an SEO year, since the average cost of equity in year 5 post-SEO issuance is higher than the year before SEO allocation. We can see that average cost of equity increases remarkably from 12.8% and

Table 4.8: Summary descriptive statistics of cost of equity model for SEO samples

Variable	Period	Number of Observations	Mean Value	Standard Deviation	Minimum Value	Maximum Value
CAPM	SEO-1	953	0.101	0.041	0.026	0.224
	SEO	974	0.103	0.039	0.033	0.213
	SEO+1	849	0.103	0.036	0.031	0.200
	SEO+2	705	0.103	0.034	0.045	0.190
	SEO+3	598	0.105	0.035	0.046	0.204
	SEO+4	508	0.111	0.035	0.048	0.211
	SEO+5	479	0.115	0.033	0.041	0.210
Gordon Dividend Growth Model	SEO-1	959	0.484	1.321	-1.000	6.453
	SEO	963	0.458	1.294	-1.000	6.413
	SEO+1	842	0.407	1.247	-1.000	6.312
	SEO+2	697	0.411	1.231	-1.000	6.304
	SEO+3	592	0.363	1.068	-1.000	5.443
	SEO+4	506	0.440	1.199	-1.000	6.311
	SEO+5	454	0.410	1.146	-1.000	6.121
Average 4 ICC Methods (Literature)	SEO-1	1,000	0.128	0.171	0.003	1.190
	SEO	1,005	0.106	0.119	0.003	0.898
	SEO+1	996	0.106	0.145	0.003	1.256
	SEO+2	868	0.111	0.136	0.004	1.064
	SEO+3	714	0.122	0.120	0.005	0.825
	SEO+4	609	0.141	0.149	0.003	0.978
	SEO+5	517	0.151	0.151	0.005	0.982
Average 4 ICC Methods (Adjusted)	SEO-1	969	0.130	0.144	0.001	1.001
	SEO	974	0.116	0.117	0.001	0.844
	SEO+1	855	0.122	0.115	0.001	0.834
	SEO+2	708	0.136	0.127	0.001	0.878
	SEO+3	610	0.150	0.122	0.003	0.796
	SEO+4	525	0.159	0.133	0.001	0.844
	SEO+5	450	0.175	0.140	0.005	1.019
HOT Equity	SEO	1,032	0.640	0.480	0.000	1.000
Economic Boom	SEO	1,038	0.400	0.490	0.000	1.000
Equity Proceed Ratio	SEO	985	0.161	0.575	0.000	13.529
Market-to-book Ratio	SEO-1	1,010	1.282	1.769	0.032	27.213
Market-to-book Ratio	SEO	1,023	1.207	1.476	0.034	19.381
Profitability	SEO-1	1,033	0.080	0.187	-1.735	0.839
Profitability	SEO	1,026	0.117	0.852	-7.952	11.615
Firm Size (in Million Baht)	SEO-1	1,027	8,473.132	51,100	0.317	1,110,000
Firm Size (in Million Baht)	SEO	1,021	10,000	64,500	0.318	1,420,000
Leverage	SEO-1	1,035	0.343	0.244	0.000	0.946
Leverage	SEO	1,029	0.311	0.220	0.000	0.912
Dividend Payout	SEO-1	1,024	0.246	0.323	-0.002	1.000
Dividend Payout	SEO	1,018	0.278	0.341	-0.005	1.004
Capital Expenditure	SEO-1	1,035	0.058	0.075	0.000	0.558
Capital Expenditure	SEO	1,023	0.063	0.080	0.000	0.888
Firm Beta	SEO-1	1,029	0.863	0.701	-5.690	7.123
Firm Beta	SEO	1,035	0.894	0.734	-1.940	12.930
Market Movement	SEO	1,038	0.138	0.301	-0.646	0.773
Real GDP Growth Rate	SEO	1,038	0.068	0.030	-0.006	0.112

13% in the pre-SEO year to 15.10% and 17.5% 5 years after issuance for the literature and modified forms, respectively. This indicates that SEO firms obtain a benefit from the reduction of cost of equity only in the allocating year, which may be a result of the advantage of selling overvalued equity. However, when investors recognize the high value of firm stocks, they attempt to sell these stocks, and this effects a reduction of the market price after SEO issuance. Hence, the cost of equity, which is the required rate of returns for investors, increases to offset the risk from the dilution of shareholder wealth later. In addition, the benefit from the decrease of cost of equity is unable to overcome the cost of the compensation of risk in the long term.

Consequently, there is a difference in cost of equity depending on the method of cost of equity estimation. Briefly, there is a continuous increase over time year-to-year of cost of equity until 5 years after an SEO based on the CAPM method. On the other hand, cost of equity of SEO firms declines in the short and long term after SEO allocation according to the Gordon model. However, cost of equity of SEO corporations reduces only in an SEO year, while there is a continuous increase in cost of equity over time after offering until 5 years in the implied cost of equity approach.

4.5.1.2.3 Corporate bond samples

Table 4.9 illustrates the summary statistics of explained, explanatory and control variables for the influence of debt market timing on cost of debt after taxes model with 189 corporate bond issuances from 2001 to 2014 in the Thai bond market. The table provides mean value, standard deviation, and the maximum and minimum values of each variable. Moreover, cost of debt after taxes is estimated by two different methods, including the Bloomberg database and interest expense ratio. Overall, there is a decrease in the cost of debt after taxes of bond-issuing firms in an allocating year, while there is a fluctuation of this cost in the following years.

Starting with the Bloomberg method, the average cost of debt after taxes is between 3.6% and 3.9%. As shown in table 4.9, cost of debt after taxes decreases in an offering year, whereby the average of this cost reduces slightly to 3.7% in the issuing year compared to 3.9% in the pre-issuing year. However, there is a swing over time of cost of debt after taxes after issuance, since this cost rises slightly in year 1 after allocation. After that, there is a reduction in cost of debt after taxes in year 2 after offering. Then, there is both an increase and a decrease in the subsequent years. Therefore, this indicates that bond-issuing firms tend to gain benefit from a reduction in cost of debt after taxes in an offering year. However, there is unclear evidence for the results of this cost in the following years, based on Bloomberg dataset.

According to the interest expense ratio, the average cost of debt after taxes is between 3% to 3.4%, which is quite a bit lower than this variable in Thailand as reported by Demirgüç-Kunt and Huizinga (2004) at 8.2%. However, as we measure cost of debt after taxes, while they considered the interest expense ratio before taxes, the mean value of our measurement is lower than theirs because of the tax shield. Moreover, the figure for cost of debt after taxes is consistent with that of Sharfman and Fernando (2008), who showed that the mean cost of debt gained from the Bloomberg dataset is 4%.

Table 4.9: Summary descriptive statistics of cost of debt model for corporate bond samples

Variable	Period	Number of Observations	Mean Value	Standard Deviation	Minimum Value	Maximum Value
Bloomberg	CB-1	173	0.039	0.010	0.019	0.067
	CB	173	0.037	0.009	0.017	0.064
	CB+1	131	0.038	0.009	0.020	0.065
	CB+2	108	0.037	0.009	0.018	0.059
	CB+3	87	0.038	0.009	0.020	0.061
	CB+4	69	0.036	0.010	0.019	0.066
	CB+5	58	0.036	0.008	0.017	0.052
Interest Expenses	CB-1	170	0.032	0.017	0.002	0.102
	CB	171	0.030	0.016	0.001	0.099
	CB+1	128	0.034	0.015	0.008	0.102
	CB+2	104	0.032	0.012	0.006	0.069
	CB+3	84	0.033	0.013	0.008	0.079
	CB+4	67	0.034	0.017	0.010	0.110
	CB+5	58	0.034	0.018	0.009	0.112
HOT Debt	CB	189	0.794	0.406	0.000	1.000
HOT Proceed	CB	189	0.619	0.487	0.000	1.000
Extreme Interest Rate	CB	189	0.185	0.389	0.000	1.000
Median Interest Rate	CB	188	0.564	0.497	0.000	1.000
Debt Proceed Ratio	CB	174	0.013	0.038	0.000	0.371
# Bond Issuance	CB	189	2.534	1.983	1.000	18.000
Market-to-book Ratio	CB-1	178	1.326	0.718	0.389	5.755
Market-to-book Ratio	CB	178	1.314	1.851	0.495	25.002
Profitability	CB-1	178	0.141	0.076	0.014	0.419
Profitability	CB	177	0.162	0.466	-0.072	6.231
Firm Size (in Million Baht)	CB-1	178	110000	260000	16.584	1610000
Firm Size (in Million Baht)	CB	177	122000	286000	336.001	1620000
Leverage	CB-1	178	0.273	0.150	0.000	0.779
Leverage	CB	178	0.307	0.128	0.000	0.694
Dividend Payout	CB-1	178	0.069	0.069	0.000	0.574
Dividend Payout	CB	177	0.044	0.046	-0.001	0.303
Capital Expenditure	CB-1	177	0.069	0.073	0.002	0.623
Capital Expenditure	CB	177	0.070	0.075	0.001	0.623
Firm Beta	CB-1	180	1.070	0.461	-0.120	2.880
Firm Beta	CB	180	1.075	0.503	-0.090	3.640
Market Movement	CB	189	0.081	0.298	-0.646	0.773
Credit Rating	CB	189	12.958	4.477	0.000	19.000
Real GDP Growth Rate	CB	189	0.055	0.034	-0.006	0.112

Additionally, there is a slight reduction of cost of debt after taxes in the offering year. This suggests that bond-allocating firms can minimize cost of debt by conducting corporate bonds during a period of low interest rates according to Graham and Harvey (2001), who claim that executives have a tendency to issue debt when the interest rate is relatively low to reduce the cost of debt financing. However, issuing firms can earn this benefit only in the short term since there is an increase in cost of debt after taxes in years 1, 3 and 4 after offering. Interestingly, the effect of the increase in cost of debt after taxes in the long term is greater than the benefit from the reduction of this cost in the offering year (CB: 3% vs. CB+5: 3.4%). Therefore, this indicates that bond-allocating firms cannot achieve a reduction of cost of debt financing in the long term.

Consequently, the average cost of debt after taxes with data from the Bloomberg database is quite similar to that from the interest expense ratio after taxes. Moreover, there is a reduction in cost of debt after taxes in a bond-issuing year based on two approaches. However, there is a fluctuation in the cost of debt financing after taxes in the following year with the Bloomberg method, while there is an increase in this cost in the long term based on the interest expense ratio.

4.5.1.3 Weighted average cost of capital (WACC)

4.5.1.3.1 IPO samples

Table 4.10 displays the summary statistics of the core variables for the influence of equity market timing on the cost of capital model, containing mean value, standard deviation, and the maximum and minimum values with 285 IPO companies from 2000 to 2014 in the Thai stock market. The cost of capital is estimated by the weighted average cost of capital (WACC), whereby the cost of debt after tax is evaluated by the Bloomberg database while the cost of equity is measured by three different approaches, consisting of the CAPM method, the Gordon model and the implied cost of equity method. Overall, the average WACC is lower than cost of equity except for some mean values of WACC calculated by the Gordon model. However, the tendency of WACC is almost identical to cost of equity, except in implied cost of equity following the literature. This suggests that IPO firms depend on equity financing as the movement of WACC changes in the same direction as cost of equity, on average.

According to the CAPM method, the average WACC for IPO companies is between 7.7% and 10.2%, which is consistent with Sirasoontorn (2005) and Sharfman and Fernando (2008), who reported this variable of Thai firms as being between 9.46% and 10.3% and at 9%, respectively. Furthermore, the tendency of WACC is quite similar to that of cost of equity in terms of direction, whereby WACC reduces in an IPO year and 1 year later, while there is an increase of WACC in the long term until 5 years after offering, on average. This indicates that IPO firms earn benefit from the reduction of WACC only in an IPO year and 1 year later; however, they suffer from an increase of WACC in the long term. Interestingly, although the movement of WACC and cost of equity is identical, the proportion of change in WACC is slightly different to that of cost of equity. For instance, the percentage of decrease in WACC 1 year after offering is 17.65% (IPO: 10.2% vs. IPO+1: 8.4%), whereas the proportion of decline in cost of equity in the same year is 15.04% (IPO: 11.3% vs. IPO+1: 9.6%). Hence, there is a different proportion of the shift between WACC and cost of equity.

Moving on to the Gordon model, the WACC of IPO firms changes in the same direction as cost of equity. It has been seen that the average WACC is similar to cost of equity, which substantially increases from 2.1% in an IPO year to 16% 1 year after IPO. After that, WACC significantly decreases, approximately by 80% in the second year after offering (IPO+1: 16% vs. IPO+2: 3.3%). Subsequently, WACC increases in the third and fourth years after allocation; however, there is a diminution of WACC, roughly by 50% in the 5 years after going public (IPO+4: 15.6% vs. IPO+5: 6.8%). Thus, there is a similar tendency of shift in WACC and cost of equity according to the Gordon model.

Table 4.10: Summary descriptive statistics of WACC model for IPO samples

Variable	Period	Number of Observations	Mean Value	Standard Deviation	Minimum Value	Maximum Value
CAPM	IPO	280	0.102	0.153	-0.164	1.009
	IPO+1	249	0.084	0.032	0.037	0.174
	IPO+2	223	0.077	0.022	0.037	0.137
	IPO+3	206	0.078	0.024	0.041	0.153
	IPO+4	194	0.081	0.025	0.039	0.160
	IPO+5	180	0.083	0.027	0.038	0.179
Gordon Model (Dividend)	IPO	259	0.021	0.658	-1.000	3.226
	IPO+1	241	0.160	0.764	-1.000	4.375
	IPO+2	215	0.033	0.613	-1.000	2.992
	IPO+3	199	0.115	0.733	-0.974	4.903
	IPO+4	191	0.156	0.687	-1.000	5.384
	IPO+5	142	0.068	0.427	-0.998	2.025
Average 4 ICC Methods (Literature)	IPO	275	0.089	0.070	0.000	0.373
	IPO+1	248	0.110	0.080	0.005	0.474
	IPO+2	222	0.118	0.080	0.007	0.443
	IPO+3	206	0.114	0.079	0.004	0.546
	IPO+4	193	0.115	0.106	0.004	0.747
	IPO+5	179	0.106	0.094	0.005	0.629
Average 4 ICC Methods (Adjusted)	IPO	260	0.117	0.080	0.003	0.664
	IPO+1	244	0.118	0.077	0.002	0.490
	IPO+2	219	0.129	0.086	0.005	0.555
	IPO+3	203	0.120	0.072	0.007	0.519
	IPO+4	190	0.124	0.078	0.001	0.405
	IPO+5	134	0.130	0.088	0.018	0.753
HOT Equity	IPO	285	0.754	0.431	0.000	1.000
Economic Boom	IPO	285	0.540	0.499	0.000	1.000
Equity Proceed Ratio	IPO	273	0.265	0.152	0.001	0.995
Market-to-book Ratio	IPO	268	1.654	3.637	0.137	55.750
Profitability	IPO	284	0.155	0.095	-0.318	0.733
Firm Size (in Million Baht)	IPO	282	7,354.76	33,900	20.54	364,000
Leverage	IPO	283	0.217	0.220	0.000	0.987
Dividend Payout	IPO	280	0.390	0.397	0.000	1.000
Capital Expenditure	IPO	283	0.090	0.108	-0.116	0.791
Firm Beta	IPO	279	1.028	3.132	-12.193	27.130
Market Movement	IPO	285	0.127	0.366	-0.646	0.773
Real GDP Growth Rate	IPO	285	0.070	0.032	-0.006	0.112

Based on the implied cost of equity method, the change of mean value in WACC with the literature version is non-identical to cost of equity in the long term. As seen in table 4.10, the average WACC increases remarkably to 11% in the first year after an IPO event compared to 8.9% in an IPO year, which is almost equal to one quarter of the mean value in an IPO year. Moreover, the mean of WACC continuously rises from 11% in the first year to 11.8% in the second year post-IPO issuance, but the proportion of the increase in the second year is less than in the first year after an IPO. This is similar to the change of cost of equity in years 1 and 2 after selling IPO equity, but the percentage of movement is non-identical. However, there is a difference in the long term between cost of equity and WACC because of the fluctuations of both costs. Therefore, it is likely that IPO firms are unsuccessful at reducing their cost of capital after going public, based on the implied cost of equity method with the literature version.

On the other hand, there is the same movement between WACC and cost of equity in the short and long term based on the modified version since there is an increase in WACC and cost of equity in the short and long term. As illustrated in table 4.10, the average WACC increases from 11.7% in an IPO year to 11.8% and 12.9% in the first and second years after the IPO, respectively. Moreover, the WACC of IPO firms on average continues to increase in the long term in years 4 and 5 after an IPO issuance, although there is a slight decrease in year 3 after offering. This indicates that IPO companies cannot reduce WACC; on the other hand, they suffer from the increase of WACC after IPO.

Overall, the mean WACC for IPO companies has a movement that is nearly same as cost of equity, except in the implied cost of equity approach following the literature version. Consequently, it is likely that IPO firms rely on equity financing more than on other sources of funds.

4.5.13.2 SEO samples

Table 4.11 provides the summary statistics of the crucial variables for the influence of equity market timing on the WACC model, consisting of mean value, standard deviation, and the highest and lowest values with 1,038 SEO issuances in Thailand from 2000 to 2014. There are three forms of WACC according to the different methods of cost of equity, including the CAPM method, Gordon model and the implied cost of equity method, whereby WACC is evaluated from the lagged SEO year until 5 years after SEO issuance. Overall, there is slightly difference in the movement of WACC and cost of equity for SEO firms, except in the implied cost of equity method. This also suggests that SEO firms tend to use a higher proportion in equity financing for their capital than other sources of funds. Moreover, cost of equity is higher than WACC for SEO firms in all methods, implying that cost of equity is the riskiest source of funds for SEO companies, on average.

Regarding the CAPM approach, the average WACC for SEO firms is between 8.1% and 8.6%, which is consistent with Sharfman and Fernando (2008), who reported 9% in Thailand. Furthermore, there is a difference in the change of WACC after an SEO between WACC and cost of equity as there is an increase over time in cost of equity, whereas the WACC slightly increases in an SEO year and then there is a reduction in WACC in the first and second years after selling SEO stocks. However, this variable rises in the long term from year 3 until year 5 after allocation. This suggests that SEO firms earn benefit from a diminution of WACC only in the short term after offering, based on the CAPM method, on average.

With regards to the Gordon model, the mean WACC is in the range of 31.3% to 39.4%. According to table 4.11, there is a noticeable decrease in the mean value of WACC in the short term until 3 years post-SEO issuance, from 39.40% in the pre-SEO year to 31.3% 3 years after offering. Although there is a rebound of WACC in year 4 post-SEO allocation to 37%, WACC again reduces 5 years after SEO issuance to 34.3%. Moreover, the WACC peaks in a pre-offering year is 39.4%, indicating that SEO companies take advantage of a diminution of WACC after equity offering in the long term.

Based on the implied cost of equity method, the average WACC with the literature pattern is between 8% and 10.4%, while this value is in the range of 8.3% to 11.5% for the modified version. Consequently, the mean of WACC with the adjusted approach is slightly higher than the literature form. In addition, there is an identical movement of the average value between WACC and cost of equity. Cost of capital has a decline only in an SEO year, while there is a significant increase in WACC over time after offering until 5 years later. As shown in table 4.11, the mean WACC decreases to 8% and 8.3% in an issuing year for the literature and modified versions, compared to 8.6% in the pre-offering year for both forms. Then, the mean value of WACC keeps increasing year-to-year in an SEO year to 10.4% and 11.5% in the fifth year after offering. This indicates that SEO firms are successful at reducing WACC only in an offering year; however, they suffer from increase of WACC in the offering year until 5 years later. Additionally, the effect of WACC enhancement in the post-offering years overcomes the benefit from the reduction of WACC in the offering year. This suggests that SEO firms may issue overvalued stocks to time the equity market to minimize cost of capital, according to Baker and Wurgler (2002). However, when investors recognise this situation of companies, they require high returns from the firms to compensate or the greater risk.

Consequently, it is quite similar regarding the average WACC and cost of equity. However, there is a difference in the change of the mean value of WACC, depending on the method employed in the estimation of cost of equity since the concept of each measurement is different.

Table 4.11: Summary descriptive statistics of WACC model for SEO samples

Variable	Period	Number of Observations	Mean Value	Standard Deviation	Minimum Value	Maximum Value
CAPM	SEO-1	952	0.082	0.033	0.022	0.198
	SEO	974	0.085	0.032	0.031	0.182
	SEO+1	850	0.083	0.030	0.028	0.169
	SEO+2	704	0.081	0.029	0.030	0.168
	SEO+3	598	0.083	0.030	0.035	0.167
	SEO+4	508	0.084	0.030	0.030	0.176
	SEO+5	478	0.086	0.030	0.030	0.164
Gordon Dividend Growth Model	SEO-1	914	0.394	1.007	-1.000	6.453
	SEO	943	0.388	1.033	-0.997	5.971
	SEO+1	820	0.346	0.977	-1.000	5.846
	SEO+2	677	0.341	0.946	-1.000	5.841
	SEO+3	573	0.313	0.857	-1.000	4.980
	SEO+4	482	0.370	0.922	-1.000	6.311
	SEO+5	439	0.343	0.879	-1.000	5.355
Average 4 ICC Methods (Literature)	SEO-1	936	0.086	0.087	0.004	0.772
	SEO	968	0.080	0.077	0.005	0.583
	SEO+1	847	0.084	0.090	0.004	0.841
	SEO+2	700	0.089	0.082	0.007	0.773
	SEO+3	590	0.096	0.074	0.008	0.515
	SEO+4	499	0.101	0.079	0.014	0.559
	SEO+5	475	0.104	0.085	0.006	0.559
Average 4 ICC Methods (Modified)	SEO-1	954	0.086	0.084	0.001	0.731
	SEO	976	0.083	0.077	0.001	0.686
	SEO+1	853	0.087	0.080	0.001	0.651
	SEO+2	708	0.094	0.083	0.001	0.629
	SEO+3	602	0.102	0.081	0.001	0.560
	SEO+4	513	0.103	0.082	0.001	0.547
	SEO+5	439	0.115	0.087	0.001	0.685
HOT Equity	SEO	1,032	0.640	0.480	0.000	1.000
Economic Boom	SEO	1,038	0.400	0.490	0.000	1.000
Equity Proceed Ratio	SEO	985	0.161	0.575	0.000	13.529
Market-to-book Ratio	SEO-1	1,010	1.282	1.769	0.032	27.213
Market-to-book Ratio	SEO	1,023	1.207	1.476	0.034	19.381
Profitability	SEO-1	1,033	0.080	0.187	-1.735	0.839
Profitability	SEO	1,026	0.117	0.852	-7.952	11.615
Firm Size (in Million Baht)	SEO-1	1,027	8,473.132	51,100	0.317	1,110,000
Firm Size (in Million Baht)	SEO	1,021	10,000	64,500	0.318	1,420,000
Leverage	SEO-1	1,035	0.343	0.244	0.000	0.946
Leverage	SEO	1,029	0.311	0.220	0.000	0.912
Dividend Payout	SEO-1	1,024	0.246	0.323	-0.002	1.000
Dividend Payout	SEO	1,018	0.278	0.341	-0.005	1.004
Capital Expenditure	SEO-1	1,035	0.058	0.075	0.000	0.558
Capital Expenditure	SEO	1,023	0.063	0.080	0.000	0.888
Firm Beta	SEO-1	1,029	0.863	0.701	-5.690	7.123
Firm Beta	SEO	1,035	0.894	0.734	-1.940	12.930
Market Movement	SEO	1,038	0.138	0.301	-0.646	0.773
Real GDP Growth Rate	SEO	1,038	0.068	0.030	-0.006	0.112

4.5.1.3.3 Corporate bond samples

Table 4.12 presents the descriptive statistics, containing the mean value, standard deviation, and the maximum and minimum values of important variables for the model of the effect of debt market timing on WACC with 189 corporate bond issuances in the Thai bond market from 2001 to 2014. WACC is calculated with the cost of debt gained from the Bloomberg dataset, whereby there is a difference in cost of equity with the three techniques, namely the CAPM method, Gordon model and the implied of cost of equity method. Overall, the average of three procedures is quite different regarding the change of WACC for bond-issuing firms, depending on each approach.

According to the CAPM technique, the mean of WACC is between 8.7% and 9.5%, which is consistent with Sirasoontorn (2005) and Sharfman and Fernando (2008). Furthermore, the WACC of bond issuers elevates slightly to 9.5% in the offering year compared to 9.2% in the post-offering year, on average. After that, the mean WACC significantly diminishes from 9.5% in the issuing year to 8.7% 1 year after offering. In addition, the average WACC maintains the same value until 3 years after allocation; however, there is a significant increment in WACC from 8.7% in year 3 to 9.3% in year 4 after issuance. Finally, the WACC of bond-allocating corporations has a rebalance in the long term, since the mean WACC reduces to 9.2% in year 5 after offering, which is the same value with before issuance. Thus, bond issuers earn benefit from a diminution of WACC only in the short term; however, there is a rebalance of WACC in the long term, reaching in the same as prior to the offering.

Based on the Gordon model, the average WACC is between 8.7% and 31.5%. Furthermore, the mean WACC significantly increases to 24.7% and 31.5% in offering year and 1 year later, respectively. However, there is a considerable decline in WACC from 31.5% in the first year to 16.1% in the second year after issuance. Furthermore, the average WACC fluctuates dramatically in the long term. This suggests that bond issuers fail to reduce WACC after offering but two years after the offering, they can see this expected reduction.

Regarding the implied cost of equity method, there is a remarkable difference in the mean value of WACC for 5 years after bond issuance between two versions. For the literature version, the average WACC for bond issuers is in the range of 7.7% to 9.1%, whereas the mean of this variable with the modified form is between 8.9% and 10.1%. Hence, the average value with the literature version is slightly less than with the adjusted version. Furthermore, the mean WACC slightly increases from 9% in the pre-offering year to 9.1% in the issuing year. However, there is a continuous decrease in WACC over time until 5 years post-offering. In addition, the reduction of WACC in the long term is greater than the increase of WACC in the offering year. This indicates that, on average, bond-allocating corporations tend to achieve a diminution of WACC in the long term according to the literature pattern, although there is a slight increase of WACC in the issuing year. This is consistent with Graham and Harvey (2001), who claim that executives tend to finance with debt when the interest rate is relatively low to minimize cost of capital.

In contrast, the average WACC evaluated by the implied cost of equity method with the modified version has a different movement. According to table 4.12, the mean WACC declines from the allocating year to 4 years after offering, although there is a slight rise in the mean WACC 1 year after offering. Conversely, there is a significant rebound in the mean WACC in the fifth year, by approximately 13.5%, compared to the fourth year after offering (CB+4: 8.9% vs. CB+5: 10.1%). Furthermore, the mean WACC with the modified version in year 5 post-issuance is higher than the year before allocation. This implies that although bond issuers can reduce WACC after offering, this benefit appears only in the short term and then WACC experiences an increase in the long term. Additionally, the amelioration of WACC in the long term can overcome the downturn of WACC in the short term for the implied cost of equity method with modified version.

Consequently, there is difference in the movement for average WACC after bond offering, depending on the method of cost of equity estimation.

Table 4.12: Summary descriptive statistics of WACC model for corporate bond samples

Variable	Period	Number of Observations	Mean Value	Standard Deviation	Minimum Value	Maximum Value
CAPM	CB-1	174	0.092	0.030	0.045	0.184
	CB	174	0.095	0.035	0.043	0.200
	CB+1	129	0.087	0.027	0.041	0.162
	CB+2	108	0.087	0.026	0.047	0.154
	CB+3	86	0.087	0.027	0.041	0.157
	CB+4	69	0.093	0.030	0.047	0.170
	CB+5	59	0.092	0.029	0.042	0.162
Gordon Model (Dividend)	CB-1	170	0.204	0.673	-0.988	4.703
	CB	172	0.247	0.750	-0.764	5.230
	CB+1	126	0.315	0.956	-0.764	6.380
	CB+2	105	0.161	0.453	-0.391	2.728
	CB+3	85	0.205	0.487	-0.372	2.804
	CB+4	66	0.087	0.290	-0.547	1.155
	CB+5	44	0.214	0.459	-0.247	2.063
Average 4 ICC Methods (Literature)	CB-1	174	0.090	0.048	0.012	0.249
	CB	174	0.091	0.052	0.013	0.304
	CB+1	131	0.090	0.054	0.016	0.386
	CB+2	108	0.084	0.041	0.016	0.202
	CB+3	87	0.083	0.041	0.016	0.224
	CB+4	69	0.080	0.034	0.015	0.168
	CB+5	58	0.077	0.062	0.008	0.304
Average 4 ICC Methods (Adjusted)	CB-1	172	0.098	0.048	0.012	0.250
	CB	173	0.095	0.056	0.011	0.313
	CB+1	128	0.097	0.057	0.018	0.466
	CB+2	105	0.096	0.041	0.024	0.218
	CB+3	84	0.092	0.042	0.031	0.251
	CB+4	67	0.089	0.037	0.014	0.223
	CB+5	40	0.101	0.051	0.018	0.276
HOT Proceed	CB	189	0.619	0.487	0.000	1.000
Median Interest Rate	CB	188	0.564	0.497	0.000	1.000
Debt Proceed Ratio	CB	174	0.013	0.038	0.000	0.371
Market-to-book Ratio	CB-1	178	1.326	0.718	0.389	5.755
Market-to-book Ratio	CB	178	1.314	1.851	0.495	25.002
Profitability	CB-1	178	0.141	0.076	0.014	0.419
Profitability	CB	177	0.162	0.466	-0.072	6.231
Firm Size (in Million Baht)	CB-1	178	110000	260000	16.584	1610000
Firm Size (in Million Baht)	CB	177	122000	286000	336.001	1620000
Leverage	CB-1	178	0.273	0.150	0.000	0.779
Leverage	CB	178	0.307	0.128	0.000	0.694
Dividend Payout	CB-1	178	0.069	0.069	0.000	0.574
Dividend Payout	CB	177	0.044	0.046	-0.001	0.303
Capital Expenditure	CB-1	177	0.069	0.073	0.002	0.623
Capital Expenditure	CB	177	0.070	0.075	0.001	0.623
Firm Beta	CB-1	180	1.070	0.461	-0.120	2.880
Firm Beta	CB	180	1.075	0.503	-0.090	3.640
Market Movement	CB	189	0.081	0.298	-0.646	0.773
Credit Rating	CB	189	12.958	4.477	0.000	19.000
Real GDP Growth Rate	CB	189	0.055	0.034	-0.006	0.112

4.5.2 Correlation matrix

4.5.2.1 Firm performance

Tables 4.13 and 4.14 exhibit the correlation of the explanatory and control variables employed in the regression analysis for the influence of equity market timing on firm performance for IPO and SEO events, respectively. Likewise, the correlation of regressors used in the regression analysis for the effect of debt market timing on firm performance for corporate bond allocation is illustrated in table 4.15. The peer variables with a high correlation are similar variables at different times, as our regression models employ the control variables at time t-1 for the model with the dependent variable at time t, while the control variables at time t are used in the model with the explained variable at time t+n, whereby n is equal to 1, 2, 3, 4 and 5 years after the security offering. For instance, the maximum correlated value of SEO samples is 0.96, which is the correlation value between firm size at time t-1 and t. However, these variables are not entered into same regression model to avoid the problem of multicollinearity. Therefore, our regression models are secured for this assumption.

4.5.2.2 Cost of capital

Tables 4.16 and 4.17 display the correlation of the explanatory and control variables used in the regression analysis for the impact of equity market timing on cost of equity and WACC for the IPO and SEO samples, respectively. In addition, the correlation of regressors employed in the regression model for the effect of debt market timing on cost of debt after taxes and WACC for corporate bond samples is demonstrated in table 4.18. Overall, the matched variables with a high correlation are identical variables in the different periods, as is the case with the firm performance regression model. For example, the highest associated value of the SEO samples is 0.961, which is the correlation value between firm size at time t-1 and t. Therefore, we separate these variables into different models to avoid the problem of multicollinearity as the control variables at time t-1 are employed in the regression model of the dependent variable at time t, whereas these variables at time t are included in the regression model containing the explained variable at time t+n, whereby n is equal to 1, 2, 3, 4 and 5 years post-offering. As a result, our regression models do not suffer from multicollinearity.

Table 4.13: Correlation matrix of explanatory variables of performance model for IPO samples

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
HOT Equity	**(1)**	1										
Economic Boom	**(2)**	0.039	1									
Equity Proceed Ratio	**(3)**	0.017	0.071	1								
Firm Size	**(4)**	0.002	0.080	-0.216	1							
Profitability	**(5)**	0.011	0.083	0.202	0.037	1						
Leverage	**(6)**	-0.019	-0.087	-0.209	0.097	-0.180	1					
Dividend Payout	**(7)**	0.058	-0.039	0.106	-0.120	0.085	-0.110	1				
Asset Tangibility	**(8)**	-0.119	-0.019	-0.166	0.093	-0.035	0.197	-0.193	1			
Cash Holding	**(9)**	0.087	0.062	0.476	-0.280	0.157	-0.332	0.160	-0.343	1		
Capital Expenditure	**(10)**	-0.027	0.017	0.047	-0.043	0.006	0.098	-0.120	0.537	-0.137	1	
Real GDP Growth Rate	**(11)**	0.134	0.067	-0.125	0.115	0.058	0.065	-0.144	0.180	-0.164	0.08	1

Table 4.14: Correlation matrix of explanatory variables of performance model for SEO samples

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
HOT Equity	**(1)**	1																	
Economic Boom	**(2)**	0.091	1																
Equity Proceed Ratio	**(3)**	0.013	-0.016	1															
Firm Size (Pre)	**(4)**	0.019	-0.023	-0.229	1														
Firm Size	**(5)**	0.013	-0.028	-0.215	0.960	1													
Profitability (Pre)	**(6)**	0.014	0.008	-0.273	0.286	0.289	1												
Profitability	**(7)**	-0.086	-0.004	-0.109	-0.015	0.002	0.067	1											
Leverage (Pre)	**(8)**	0.010	0.037	0.049	0.121	0.118	-0.205	0.111	1										
Leverage	**(9)**	0.010	-0.004	-0.049	0.185	0.187	-0.161	-0.093	0.767	1									
Dividend Payout (Pre)	**(10)**	0.031	-0.018	-0.095	0.225	0.214	0.319	0.037	-0.247	-0.149	1								
Dividend Payout	**(11)**	0.024	-0.054	-0.112	0.258	0.265	0.364	0.043	-0.269	-0.167	0.536	1							
Asset Tangibility (Pre)	**(12)**	-0.028	0.060	0.036	0.056	0.046	0.015	0.012	0.224	0.186	-0.068	-0.049	1						
Asset Tangibility	**(13)**	-0.016	0.033	0.011	0.085	0.070	0.040	0.003	0.183	0.195	-0.056	-0.017	0.860	1					
Cash Holding (Pre)	**(14)**	-0.001	-0.012	-0.002	-0.107	-0.097	0.072	0.010	-0.434	-0.400	0.114	0.099	-0.254	-0.21	1				
Cash Holding	**(15)**	-0.019	0.008	0.089	-0.207	-0.194	0.009	0.012	-0.365	-0.452	0.042	0.018	-0.175	-0.25	0.608	1			
Capital Expenditure (pre)	**(16)**	-0.064	0.002	-0.005	0.077	0.084	0.162	0.075	-0.041	0.032	0.150	0.157	0.404	0.38	-0.030	-0.064	1		
Capital Expenditure	**(17)**	0.010	0.046	-0.011	0.069	0.085	0.170	0.077	-0.111	-0.011	0.184	0.166	0.300	0.39	0.076	-0.046	0.589	1	
Real GDP Growth Rate	**(18)**	0.051	0.123	-0.008	0.127	0.144	0.083	0.080	0.076	0.062	-0.003	0.050	0.113	0.12	-0.065	-0.094	0.034	0.081	1

Table 4.15: Correlation matrix of explanatory variables of performance for corporate bond samples

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
HOT Proceed	**(1)**	1																		
Median Interest Rate	**(2)**	0.118	1																	
Debt Proceed Ratio	**(3)**	0.057	0.106	1																
Profitability (pre)	**(4)**	0.136	-0.020	0.016	1															
Profitability	**(5)**	0.077	0.053	0.037	0.640	1														
Firm Size (pre)	**(6)**	0.170	-0.075	-0.232	0.384	0.301	1													
Firm Size	**(7)**	0.192	-0.063	-0.229	0.378	0.321	0.994	1												
Leverage (Pre)	**(8)**	-0.032	0.001	-0.191	-0.273	-0.255	0.071	0.079	1											
Leverage	**(9)**	-0.091	-0.022	-0.091	-0.298	-0.359	-0.119	-0.117	0.736	1										
Dividend Payout (Pre)	**(10)**	-0.036	0.024	-0.041	-0.022	0.036	-0.026	-0.033	-0.122	-0.005	1									
Dividend Payout	**(11)**	-0.064	0.026	-0.023	0.226	0.176	0.140	0.114	-0.009	-0.008	0.317	1								
Asset Tangibility (Pre)	**(12)**	0.012	-0.141	-0.037	0.255	0.162	0.240	0.231	0.094	0.018	0.003	-0.121	1							
Asset Tangibility	**(13)**	0.031	-0.145	-0.040	0.255	0.125	0.310	0.292	0.103	0.007	-0.006	-0.102	0.947	1						
Cash Holding (Pre)	**(14)**	-0.042	0.027	0.042	0.256	0.102	0.060	0.064	-0.214	-0.011	-0.082	0.126	-0.095	-0.102	1					
Cash Holding	**(15)**	-0.008	0.005	0.043	0.258	0.184	0.033	0.038	-0.114	-0.063	-0.050	0.152	0.089	0.031	0.519	1				
Capital Expenditure (Pre)	**(16)**	-0.086	-0.010	0.079	0.133	0.148	0.003	0.011	-0.061	-0.047	-0.038	-0.065	0.446	0.410	0.002	0.096	1			
Capital Expenditure	**(17)**	0.100	0.063	0.070	0.190	0.142	0.049	0.056	-0.062	-0.064	-0.047	-0.040	0.394	0.397	0.024	0.052	0.666	1		
Real GDP Growth Rate	**(18)**	0.260	-0.138	0.074	0.227	0.254	0.172	0.199	0.017	-0.069	-0.028	-0.021	0.131	0.118	0.018	-0.005	-0.072	0.022	1	
Credit Rating	**(19)**	0.252	0.041	0.019	0.425	0.415	0.540	0.545	-0.029	-0.208	-0.112	0.211	0.280	0.301	0.093	0.045	0.132	0.137	0.219	1

Table 4.16: Correlation matrix of explanatory variables of cost of capital model for IPO samples

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
HOT Equity	**(1)**	1											
Economic Boom	**(2)**	0.036	1										
Equity Proceed Ratio	**(3)**	-0.011	0.040	1									
Market-to-book Ratio	**(4)**	0.051	-0.131	0.116	1								
Profitability	**(5)**	-0.008	0.095	0.201	-0.018	1							
Firm Size	**(6)**	-0.002	0.097	-0.186	-0.070	0.029	1						
Leverage	**(7)**	-0.010	-0.067	-0.176	0.291	-0.187	0.088	1					
Dividend Payout	**(8)**	0.035	-0.057	0.074	-0.061	0.076	-0.109	-0.107	1				
Capital Expenditure	**(9)**	0.007	0.021	0.062	-0.039	0.007	-0.031	0.097	-0.104	1			
Firm Beta	**(10)**	-0.014	0.042	-0.033	-0.016	-0.001	0.112	-0.042	0.094	-0.037	1		
Market Movement	**(11)**	0.069	-0.126	0.101	0.153	0.013	0.038	0.103	-0.043	0.108	0.077	1	
Real GDP Growth Rate	**(12)**	0.120	0.064	-0.140	0.028	0.052	0.105	0.079	-0.149	0.087	0.009	0.528	1

Table 4.17: Correlation matrix of explanatory variables of cost of capital model for SEO samples																				
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
HOT Equity	**(1)**	1																		
Economic Boom	**(2)**	0.095	1																	
Equity Proceed Ratio	**(3)**	0.014	-0.015	1																
Market-to-book Ratio (Pre)	**(4)**	-0.038	0.024	0.089	1															
Market-to-book Ratio	**(5)**	-0.015	-0.046	0.031	0.354	1														
Profitability (Pre)	**(6)**	0.018	0.009	-0.275	-0.173	0.086	1													
Profitability	**(7)**	-0.086	-0.004	-0.109	0.347	-0.169	0.064	1												
Firm Size (Pre)	**(8)**	0.017	-0.018	-0.231	-0.109	0.010	0.287	-0.016	1											
Firm Size	**(9)**	0.016	-0.025	-0.217	-0.116	-0.004	0.291	0.001	0.961	1										
Leverage (Pre)	**(10)**	0.000	0.036	0.048	0.026	-0.081	-0.190	0.116	0.127	0.125	1									
Leverage	**(11)**	0.003	-0.008	-0.050	-0.001	0.059	-0.152	-0.090	0.188	0.192	0.767	1								
Dividend Payout (Pre)	**(12)**	0.037	-0.014	-0.096	0.028	0.083	0.314	0.035	0.232	0.222	-0.240	-0.141	1							
Dividend Payout	**(13)**	0.031	-0.051	-0.114	-0.030	0.075	0.362	0.041	0.265	0.270	-0.265	-0.157	0.538	1						
Capital Expenditure (Pre)	**(14)**	-0.061	0.001	-0.003	0.028	0.050	0.157	0.075	0.077	0.086	-0.044	0.028	0.152	0.159	1					
Capital Expenditure	**(15)**	0.021	0.029	-0.011	0.005	0.030	0.167	0.079	0.085	0.094	-0.106	-0.008	0.183	0.161	0.60	1				
Firm Beta (Pre)	**(16)**	0.015	-0.028	-0.082	-0.027	0.021	-0.049	-0.136	0.136	0.118	0.025	0.015	-0.086	-0.106	-0.06	-0.064	1			
Firm Beta	**(17)**	-0.017	0.051	-0.079	0.058	-0.002	-0.068	-0.093	0.144	0.144	-0.006	0.006	-0.092	-0.094	-0.09	-0.088	0.64	1		
Market Movement	**(18)**	-0.117	-0.093	0.026	-0.125	0.145	0.094	0.055	0.020	0.031	-0.019	-0.030	-0.027	0.058	0.00	0.038	0.01	-0.082	1	
Real GDP Growth Rate	**(19)**	0.057	0.120	-0.008	-0.088	-0.017	0.091	0.082	0.131	0.145	0.077	0.058	0.004	0.059	0.03	0.075	-0.03	-0.077	0.310	1

Table 4.18: Correlation matrix of explanatory variables of cost of capital model for corporate bond samples																					
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
HOT Proceed	**(1)**	1																			
Median Interest Rate	**(2)**	0.118	1																		
Debt Proceed Ratio	**(3)**	0.057	0.106	1.000																	
Market-to-book Ratio (Pre)	**(4)**	0.148	0.153	-0.032	1.000																
Market-to-book Ratio	**(5)**	0.116	0.126	-0.030	0.900	1.000															
Profitability (Pre)	**(6)**	0.136	-0.020	0.016	0.477	0.518	1.000														
Profitability	**(7)**	0.077	0.053	0.037	0.343	0.450	0.640	1.000													
Firm Size (Pre)	**(8)**	0.170	-0.075	-0.232	0.065	0.056	0.384	0.301	1.000												
Firm Size	**(9)**	0.192	-0.063	-0.229	0.088	0.069	0.378	0.321	0.994	1.000											
Leverage (Pre)	**(10)**	-0.032	0.001	-0.191	-0.257	-0.210	-0.273	-0.255	0.071	0.079	1.000										
Leverage	**(11)**	-0.091	-0.022	-0.091	-0.110	-0.157	-0.298	-0.359	-0.119	-0.117	0.736	1.000									
Dividend Payout (Pre)	**(12)**	-0.036	0.024	-0.041	0.050	0.113	-0.022	0.036	-0.026	-0.033	-0.122	-0.005	1.000								
Dividend Payout	**(13)**	-0.064	0.026	-0.023	0.201	0.276	0.226	0.176	0.140	0.114	-0.009	-0.008	0.317	1.000							
Capital Expenditure (Pre)	**(14)**	-0.086	-0.010	0.079	0.271	0.259	0.133	0.148	0.003	0.011	-0.061	-0.047	-0.038	-0.065	1.000						
Capital Expenditure	**(15)**	0.100	0.063	0.070	0.259	0.272	0.190	0.142	0.049	0.056	-0.062	-0.064	-0.047	-0.040	0.666	1.000					
Firm Beta (Pre)	**(16)**	-0.060	0.010	-0.177	-0.041	-0.050	-0.201	-0.115	0.052	0.062	0.129	0.033	-0.182	-0.088	-0.002	0.116	1.000				
Firm Beta	**(17)**	-0.113	0.010	-0.140	-0.079	-0.080	-0.179	-0.104	0.116	0.112	0.113	0.056	-0.223	-0.082	-0.016	-0.018	0.750	1.000			
Market Movement	**(18)**	0.213	-0.061	0.082	0.168	0.142	0.066	0.023	0.017	0.039	-0.047	-0.031	-0.074	0.014	-0.067	0.090	-0.112	-0.139	1.000		
Real GDP Growth Rate	**(19)**	0.260	-0.138	0.074	-0.006	-0.001	0.227	0.254	0.172	0.199	0.017	-0.069	-0.028	-0.021	-0.072	0.022	-0.127	-0.151	0.473	1.000	
Credit Rating	**(20)**	0.252	0.041	0.019	0.225	0.237	0.425	0.415	0.540	0.545	-0.029	-0.208	-0.112	0.211	0.132	0.137	0.004	0.023	0.064	0.219	1.000

4.5.3 Mean difference test between timers and non-timers

(Tables A4.12 to A4.20 are given in Appendix D)

4.5.4 Regression result[50]

For all models, the main explanatory variable is evaluated at the time of the security issuance, while the dependent variable is computed from the year of the security offering to 5 years later. However, there is a difference regarding the period for the calculation of the control variables between IPO and SEO and corporate bonds. Due to the unavailability of a lagged value of IPO samples, the estimation of these samples is non-identical, as follows:

IPO models: The control variables are estimated at time t for all models.

SEO and corporate bond models: The control variables are evaluated at time of pre-offering for the model with the dependent variable at the time of the issuing year, while they are calculated at the time of the security offering in the model of the explained variables at time 1 to 5 years after allocation to avoid the endogenous problem.

Note: The coefficients of the control variables (all models) and treatment effect variables (ATE 2-step) are omitted from the resulting tables.

4.5.4.1 The presence of equity and debt market timings

4.5.4.1.1 Firm performance

a.) IPO issuance

1.) Hot equity strategy

Table 4.19[51] demonstrates the results of the OLS with robust command, GLS, ATE (2-step) with robust command and IV (2SLS) regressions for the model of the influence of the presence of equity market timing with the hot equity strategy on firm performance for IPO corporations. Furthermore, the dependent variables are firm performance calculated in two different ways, including accounting-based (ROA, ROE and ROIC) and market-based (stock returns, MVA and Tobin's q) approaches. Overall, the impact of equity market timing in a hot period on firm performance is different between accounting- and market-based performances.

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[50] The example of the full version for the regression model is shown in Appendix D.
[51] VIF values: Max: 4.63, Min: 2.51 and Mean: 3.06.

According to the accounting-based performance, equity market timing has a negative effect on accounting-based performance in the long term. As shown in table 4.19, the coefficients of hot equity have a significantly negative sign for the ROA ratio in years 3 and 5 post-offering at the 95% and 90% confidence levels, respectively. Moreover, there is a significantly negative direction of the coefficients of hot equity on the ROE and ROIC ratios in years 3 and 5 after going public at the 90% confidence level in the IV models. This goes against hypothesis 3, suggesting that timers during a hot equity period tend to reduce their accounting-based performance in the long term. This is consistent with Ritter (1991), who posited that IPO corporations have a poor performance as estimated by equity returns after going public for 3 years. Moreover, IPO market timers during a period of crowded stock issuance suffer the most regarding their performance compared to others, whereby the causes of the poor performance of IPO companies were the overestimation of investors in the ability of IPO firms regarding the generation of future earnings and taking the benefit of favourable time in stock market. In addition, our finding is consistent with that of Kim et al. (2004), who found that IPO firms in Thailand have a reduction of ROA for 3 years after offering, at approximately 70% compared to pre-offering. Hence, our finding indicates that there is a negative impact of equity market timing with IPO stocks on accounting-based performance.

However, there are mixed results for the market-based approach. Regarding the MVA method, the presence of equity market timing negatively relates to the MVA value in years 2 and 4 after IPO with a statistical significance at the 95% and 90% confidence levels, respectively, which does not support hypothesis 3 but verifies the finding of accounting-based performance. In contrast, the coefficients of hot equity have a significantly positive sign for equity returns in year 4 and Tobin's q ratio in year 5 after offering, at the 99% and 90% confidence levels, respectively, supporting hypothesis 3 that the presence of equity market timing has a positive influence on corporate value and performance. This is consistent with Baker and Wurgler (2002), who claim that the reason for equity market timing is to minimize cost of capital, implying that managers are willing to enhance their firm performance to achieve the objective of the company. Thus, their performance, as measured by equity yields and Tobin's q ratio, increases after equity market timing.

Consequently, our finding illustrates that the firms that go public in a hot equity market tend to suffer from a decline in accounting-based performance in the long term. In contrast, there is unclear evidence regarding the effect of equity market timing on

Table 4.19: The regressions for the influence of IPO market timing *(HOT Equity)* on firm performance (Accounting-Based)

Y	Period	OLS and GLS Regressions							ATE (2-Step) Regression						IV (2SLS) Regression							
		X = HOT Equity							X = HOT Equity						X = HOT Equity							
		N		*HOT Equity*		*F*	*Wald Chi2*	R^2	*N*	*HOT Equity*	*Hazard Lambda*	*Wald Chi2*	*Rho*	*Sigma*	*N*	*HOT Equity*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
ROA	IPO	277	277	0.000721 (0.16)	0.000721 (0.17)	40.70***	1208.3***	0.814	165	-0.00451 (-0.36)	0.00508 (0.64)	864.4***	0.201	0.0253	166	-0.000449 (-0.03)	880.9***	0.065	0.058	-	-	0.841
	IPO+1	276	276	0.000750 (0.07)	0.000750 (0.08)	8.724***	160.2***	0.367	166	-0.0240 (-0.80)	-0.00105 (-0.06)	62.98***	-0.0174	0.0604	167	-0.0318 (-0.97)	71.34***	0.044	0.039	-	-	0.308
	IPO+2	273	273	-0.00185 (-0.11)	-0.00185 (-0.11)	3.404***	66.32***	0.195	165	-0.0549 (-0.95)	0.0162 (0.44)	26.65**	0.138	0.117	166	-0.0567 (-0.89)	27.10**	0.179	0.160	-	-	0.140
	IPO+3	244	244	0.0105 (0.45)	0.0105 (0.60)	2.983***	46.01***	0.159	145	-0.0632 (-1.42)	0.0114 (0.40)	37.06***	0.134	0.0848	146	**-0.105**** **(-2.03)**	39.25***	1.545	1.369	-	-	0.182
	IPO+4	218	218	0.0287 (1.38)	0.0287 (1.58)	2.964***	52.51***	0.194	127	-0.00933 (-0.20)	-0.00483 (-0.16)	39.80***	-0.0555	0.0870	128	-0.0634 (-1.17)	48.63***	0.964	0.834	-	-	0.253
	IPO+5	202	202	0.0114 (0.74)	0.0114 (0.68)	3.577***	47.85***	0.192	120	-0.0210 (-0.42)	0.00118 (0.04)	37.99***	0.0143	0.0822	121	**-0.105*** **(-1.81)**	41.70***	2.926	2.553*	21.425	18.289	0.176
ROE	IPO	277	277	0.00103 (0.13)	0.00103 (0.11)	15.40***	294.5***	0.515	165	0.00772 (0.23)	-0.000929 (-0.04)	109.6***	-0.0139	0.0670	166	0.0300 (0.83)	127.3***	0.511	0.457	-	-	0.428
	IPO+1	276	276	-0.00706 (-0.52)	-0.00706 (-0.48)	5.820***	109.1***	0.283	166	0.00452 (0.10)	-0.0298 (-1.00)	25.44**	-0.313	0.0952	167	0.00665 (0.13)	54.21***	0.895	0.803	-	-	0.240
	IPO+2	273	273	0.0294 (1.19)	0.0294 (0.92)	1.686**	64.55***	0.191	165	-0.0461 (-0.45)	0.0126 (0.19)	53.73***	0.0610	0.206	166	-0.134 (-1.18)	76.35***	1.054	0.946	-	-	0.295
	IPO+3	244	244	0.00680 (0.21)	0.00680 (0.26)	3.093***	57.37***	0.190	145	-0.0813 (-1.20)	0.00416 (0.10)	35.26***	0.0322	0.129	146	**-0.138*** **(-1.78)**	54.52***	0.788	0.695	-	-	0.268
	IPO+4	218	218	0.0367 (1.09)	0.0367 (1.36)	2.081**	35.58***	0.140	127	-0.0156 (-0.22)	-0.0189 (-0.41)	36.29***	-0.144	0.132	128	-0.102 (-1.25)	53.82***	0.683	0.590	-	-	0.283
	IPO+5	202	202	0.0199 (0.63)	0.0199 (0.73)	1.929**	36.93***	0.155	120	-0.0262 (-0.33)	-0.0247 (-0.50)	27.50**	-0.187	0.133	121	**-0.171*** **(-1.88)**	35.43***	1.867	1.614	-	-	0.176
ROIC	IPO	276	276	0.0119 (1.53)	0.0119 (1.53)	34.20***	831.9***	0.751	165	0.0247 (1.11)	-0.00575 (-0.41)	606.0***	-0.128	0.0450	166	0.0267 (1.09)	610.8***	0.206	0.183	-	-	0.786
	IPO+1	274	274	0.00859 (0.63)	0.00859 (0.66)	7.034***	122.7***	0.309	165	-0.0109 (-0.27)	-0.0156 (-0.61)	56.28***	-0.190	0.0818	166	-0.0236 (-0.54)	62.11***	0.052	0.047	-	-	0.282
	IPO+2	271	271	0.00157 (0.08)	0.00157 (0.08)	3.450***	49.98***	0.156	165	-0.0442 (-0.70)	0.00788 (0.20)	28.07**	0.0620	0.127	166	-0.0631 (-0.91)	28.44**	0.224	0.224	-	-	0.144
	IPO+3	241	241	0.00549 (0.17)	0.00549 (0.20)	2.512***	44.11***	0.155	144	-0.0705 (-0.95)	-0.00422 (-0.09)	34.25***	-0.0301	0.140	145	**-0.164*** **(-1.93)**	35.23***	1.318	1.165	-	-	0.171
	IPO+4	215	215	0.0431 (1.43)	0.0431 (1.56)	2.197***	36.50***	0.145	126	-0.00114 (-0.02)	-0.0196 (-0.42)	34.35***	-0.146	0.134	127	-0.0996 (-1.20)	39.76***	0.941	0.813	-	-	0.215
	IPO+5	196	196	-0.00325 (-0.15)	-0.00325 (-0.11)	1.970**	28.41**	0.127	118	0.00504 (0.05)	-0.0311 (-0.48)	27.98**	-0.179	0.174	119	**-0.207*** **(-1.75)**	29.92**	2.700	2.345	-	-	0.117

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 4.19: The regressions for the influence of IPO market timing *(HOT Equity)* on firm performance (Market-Based) (Cont.)

Y	Period	OLS and GLS Regressions X = HOT Equity							ATE (2-Step) Regression X = HOT Equity						IV (2SLS) Regression X = HOT Equity							
		N		*HOT Equity*		*F*	*Wald Chi2*	R^2	*N*	*HOT Equity*	*Hazard Lambda*	*Wald Chi2*	*Rho*	*Sigma*	*N*	*HOT Equity*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
Stock's Returns	IPO+1	267	267	0.0456 (0.64)	0.0456 (0.59)	4.311***	48.04***	0.152	160	0.0835 (0.33)	-0.0933 (-0.59)	29.92**	-0.184	0.507	161	0.294 (1.04)	29.53**	1.824	1.639	-	-	0.107
	IPO+2	278	278	0.0653 (0.75)	0.0653 (0.79)	1.105	13.54	0.0465	166	-0.243 (-0.85)	0.182 (1.01)	11.94	0.316	0.578	167	-0.383 (-1.20)	12.56	1.961	1.770	-	-	0.00489
	IPO+3	248	248	-0.0943 (-0.89)	-0.0943 (-1.00)	2.085***	21.75	0.0806	146	0.172 (0.55)	-0.291 (-1.49)	9.812	-0.491	0.592	147	-0.0996 (-0.29)	11.02	0.198	0.174	-	-	0.0819
	IPO+4	223	223	**0.292**** **(2.39)**	**0.292***** **(2.81)**	2.442***	48.25***	0.178	128	**0.568**** **(2.09)**	-0.173 (-1.00)	26.50**	-0.343	0.505	129	0.105 (0.34)	21.87	0.666	0.576	-	-	0.164
	IPO+5	208	208	-0.0857 (-1.02)	-0.0857 (-0.94)	1.919**	27.30**	0.116	121	-0.142 (-0.46)	0.0474 (0.25)	23.33*	0.0926	0.512	122	-0.376 (-1.09)	23.79*	0.946	0.812	-	-	0.130
MVA	IPO	227	227	0.00812 (0.09)	0.00812 (0.09)	12.66***	225.1***	0.498	134	0.0803 (0.33)	0.00950 (0.06)	166.0***	0.0174	0.545	135	0.184 (0.66)	167.8***	0.136	0.118	-	-	0.554
	IPO+1	245	245	-0.0605 (-0.80)	-0.0605 (-0.73)	11.95***	200.8***	0.450	145	-0.0976 (-0.41)	0.0682 (0.44)	154.6***	0.139	0.490	146	0.142 (0.53)	154.5***	0.377	0.331	-	-	0.511
	IPO+2	236	236	-0.0454 (-0.54)	-0.0454 (-0.53)	9.002***	189.1***	0.445	142	**-0.529**** **(-2.14)**	0.327** (2.03)	121.9***	0.596	0.548	143	-0.258 (-0.91)	124.6***	0.325	0.284	-	-	0.463
	IPO+3	201	201	0.0626 (0.56)	0.0626 (0.60)	11.010***	146.5***	0.422	122	-0.309 (-1.04)	-0.309 (-1.04)	100.1***	0.385	0.598	123	-0.295 (-0.81)	100.4***	0.765	0.657	-	-	0.439
	IPO+4	167	167	-0.0960 (-0.82)	-0.0960 (-0.84)	8.372***	140.4***	0.457	102	-0.511 (-1.39)	0.230 (1.20)	108.1***	0.357	0.583	103	**-0.915*** **(-1.77)**	99.51***	2.325	1.963	-	-	0.455
	IPO+5	155	155	0.134 (1.10)	0.134 (1.06)	8.418***	101.7***	0.396	99	0.587 (1.55)	0.208 (0.89)	64.41***	-0.373	0.602	100	0.00185 (0.00)	62.95***	0.489	0.403	-	-	0.386
Tobin's q Ratio	IPO	264	264	0.0270 (0.24)	0.0270 (0.25)	4.493***	82.60***	0.238	158	-0.0505 (-0.14)	0.0742 (0.33)	78.75***	0.101	0.733	159	0.217 (0.56)	83.54***	0.214	0.190	-	-	0.341
	IPO+1	274	274	0.107 (0.88)	0.107 (0.87)	4.705***	99.72***	0.267	164	0.120 (0.30)	0.0914 (0.35)	94.46***	0.110	0.830	165	0.249 (0.56)	96.88***	0.000	0.000	-	-	0.374
	IPO+2	271	271	0.0261 (0.16)	0.0261 (0.16)	3.062***	69.57***	0.204	163	0.189 (0.37)	-0.0994 (-0.31)	59.55***	-0.0943	1.053	164	-0.0297 (-0.05)	60.49***	0.023	0.021	-	-	0.269
	IPO+3	243	243	0.104 (0.46)	0.104 (0.51)	1.864**	70.10***	0.224	144	0.200 (0.33)	0.0499 (0.13)	68.36***	0.0421	1.185	145	0.0398 (0.06)	68.12***	0.131	0.115	-	-	0.320
	IPO+4	217	217	-0.218 (-0.80)	-0.218 (-0.92)	2.028**	87.23***	0.287	126	0.0472 (0.08)	-0.0471 (-0.13)	93.08***	-0.0448	1.053	127	0.209 (0.33)	93.73***	0.152	0.131	-	-	0.423
	IPO+5	201	201	**0.208*** **(1.75)**	0.208 (1.41)	5.225***	91.80***	0.314	119	0.431 (0.90)	-0.174 (-0.58)	69.26***	-0.214	0.814	120	0.292 (0.56)	69.59***	0.050	0.043	-	-	0.368

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

market-based performance since the results are mixed with both a positive effect on stock returns and Tobin's q ratio and a negative effect on MVA value.

2.) Economic boom strategy

Table 4.20[52] provides the empirical results of the OLS, GLS, ATE (2-step) and IV (2SLS) regressions on the impact of the existence of equity market timing with the economic boom strategy on corporate value and performance for Thai IPO firms. The accounting-based and market-based performances are employed to measure firm performance. Overall, equity market timing during an economic expansion positively influences accounting-based performance and stock returns, while there is a negative impact of this strategy on market-based performance as calculated by the MVA value and Tobin's q ratio.

Regarding accounting-based performance, the presence of equity market timing with the economic boom strategy has a positive influence on accounting-based performance, in both the short and long term. According to table 4.20, the coefficients of economic boom in the OLS and GLS regressions have a significantly positive direction for ROA, ROE and ROIC in the first year after IPO issuance at least at the 90% confidence level. Furthermore, the parameters of economic boom significantly and positively associate with ROA and ROIC in year 2 post-offering, at the 95% confidence level in the ATE and IV regressions. Interestingly, there is the significance for coefficients in different years between IPO+1 and IPO+2 depending on the model used. The results show that there is a statistical significance for the parameter of ROA and ROIC in IPO+1 only in OLS and GLS methods but no significance in ATE and IV methods. The main difference between OLS&GLS and ATE&IV methods is that OLS and GLS methods do not include the omitted variables, which are the determinants of market timing, while ATE and IV methods include these variables as treatment variables and instrumental variables, respectively (see in section 4.4.3). However, the values *"Durbin (score) Chi2"* and "*Wu-Hausman F"* in IV method are insignificant; hence, our model for IPO+1 does not suffer from endogeneity. Thus, the parameter produced by the OLS model is more consistent than that of the IV model (Larcker & Rusticus, 2010). Moreover, the GLS method, which can account for the heteroskedasticity problem, provides the same significant result with OLS method. In contrast, the coefficients for IPO+2 are statistically significant in only ATE&IV methods but no significance in OLS&GLS methods.

[52] VIF values: Max: 3.67, Min: 2.32 and Mean: 2.77.

Table 4.20: The regressions for the influence of IPO market timing *(Economic Boom)* on firm performance (Accounting-Based)																						
Y	**Period**	**OLS and GLS Regressions**							**ATE (2-Step) Regression**							**IV (2SLS) Regression**						
		X = Economic Boom							**X = Economic Boom**							**X = Economic Boom**						
		N		*Economic Boom*		*F*	*Wald Chi2*	R^2	*N*	*BOOM*	*Hazard Lambda*	*Wald Chi2*	*Rho*	*Sigma*	*N*	*BOOM*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
ROA	IPO	277	277	-0.00170 (-0.48)	-0.00170 (-0.46)	40.31***	1209.4***	0.814	165	-0.0124 (-1.28)	0.00621 (0.96)	858.7***	0.244	0.0255	166	-0.0127 (-1.37)	864.5***	1.144	1.027	-	-	0.838
	IPO+1	276	276	**0.0159* (1.81)**	**0.0159* (1.90)**	8.800***	165.9***	0.375	166	0.0261 (1.12)	-0.0125 (-0.80)	59.94***	-0.203	0.0615	167	0.0102 (0.46)	69.43***	0.002	0.002	-	-	0.296
	IPO+2	273	273	-0.000515 (-0.04)	-0.000515 (-0.04)	3.364***	66.30***	0.195	165	**0.132** (2.51)**	-0.110*** (-3.26)	28.17**	-0.792	0.138	174	**0.142** (2.49)**	27.23**	13.262***	12.871***	13.374	11.907	0.111
	IPO+3	244	244	**0.0396** (2.43)**	**0.0396*** (2.69)**	4.139***	54.15***	0.182	145	**0.0630** (2.06)**	-0.0340 (-1.62)	36.14***	-0.385	0.0883	146	0.0335 (1.16)	37.42***	0.260	0.228	-	-	0.203
	IPO+4	218	218	0.0199 (1.27)	0.0199 (1.31)	2.971***	51.55***	0.191	127	**0.0778** (2.41)**	-0.0454** (-2.07)	44.09***	-0.502	0.0906	136	**0.123*** (2.81)**	41.47***	7.963***	7.338***	15.874	13.875	0.0721
	IPO+5	202	202	**0.0256* (1.84)**	**0.0256* (1.87)**	3.852***	51.60***	0.203	120	**0.0572** (2.04)**	-0.0235 (-1.18)	41.50***	-0.286	0.0823	121	**0.0611** (2.07)**	47.26***	1.588	1.370	-	-	0.263
ROE	IPO	277	277	0.00772 (0.91)	0.00772 (0.94)	15.48***	296.2***	0.517	165	0.00772 (0.23)	-0.000929 (-0.04)	109.6***	-0.0139	0.0670	166	0.0114 (0.47)	129.6***	0.001	0.001	-	-	0.440
	IPO+1	276	276	**0.0290** (2.23)**	**0.0290** (2.35)**	5.921***	116.5***	0.297	166	0.00452 (0.10)	-0.0298 (-1.00)	25.44**	-0.313	0.0952	167	0.0512 (1.50)	57.27***	0.579	0.519	-	-	0.252
	IPO+2	273	273	-0.00865 (-0.30)	-0.00865 (-0.32)	1.623*	63.64***	0.189	165	-0.0461 (-0.45)	0.0126 (0.19)	53.73***	0.0610	0.206	166	-0.107 (-1.38)	75.00***	2.484	2.248	-	-	0.277
	IPO+3	244	244	0.0385 (1.57)	**0.0385* (1.76)**	3.491***	61.10***	0.200	145	-0.0813 (-1.20)	0.00416 (0.10)	35.26***	0.0322	0.129	146	0.0329 (0.74)	51.82***	0.003	0.002	-	-	0.266
	IPO+4	218	218	0.0122 (0.51)	0.0122 (0.54)	2.077**	33.77***	0.134	127	-0.0156 (-0.22)	-0.0189 (-0.41)	36.29***	-0.144	0.132	128	**0.117** (2.50)**	59.04***	2.383	2.087	-	-	0.291
	IPO+5	202	202	0.0154 (0.67)	0.0154 (0.68)	2.024**	36.85***	0.154	120	-0.0262 (-0.33)	-0.0247 (-0.50)	27.50**	-0.187	0.133	121	**0.0841* (1.79)**	37.94***	0.405	0.346	-	-	0.243
ROIC	IPO	276	276	-0.00489 (-0.72)	-0.00489 (-0.74)	33.45***	824.8***	0.749	165	-0.0108 (-0.62)	0.00617 (0.53)	588.8***	0.136	0.0455	166	-0.0110 (-0.66)	598.7***	0.338	0.302	-	-	0.782
	IPO+1	274	274	**0.0199* (1.69)**	**0.0199* (1.82)**	7.317***	126.9***	0.316	165	0.0415 (1.30)	-0.0204 (-0.96)	54.52***	-0.246	0.0831	166	0.0210 (0.71)	61.38***	0.072	0.065	-	-	0.271
	IPO+2	271	271	0.0115 (0.70)	0.0115 (0.73)	3.521***	50.61***	0.157	165	**0.145** (2.55)**	-0.115*** (-3.12)	29.95**	-0.768	0.149	180	**0.171*** (2.70)**	28.71**	14.134***	13.804***	18.371	17.050	0.115
	IPO+3	241	241	**0.0545** (2.12)**	**0.0545** (2.41)**	3.472***	50.90***	0.174	144	0.0588 (1.16)	-0.0331 (-0.95)	31.33***	-0.230	0.144	145	0.00765 (0.16)	31.96**	0.059	0.051	-	-	0.182
	IPO+4	215	215	0.00489 (0.21)	0.00489 (0.21)	2.264***	33.72***	0.136	126	**0.0824* (1.66)**	-0.0525 (-1.54)	35.73***	-0.382	0.137	127	0.0668 (1.37)	40.43***	1.412	1.225	-	-	0.219
	IPO+5	196	196	0.0115 (0.54)	0.0115 (0.47)	2.246***	28.65**	0.128	118	0.0397 (0.65)	-0.0276 (-0.64)	28.59**	-0.158	0.174	119	0.0439 (0.70)	29.89**	0.463	0.395	-	-	0.193
t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01																						

Table 4.20: The regressions for the influence of IPO market timing *(Economic Boom)* on firm performance (Market-Based) (Cont.)

Y	Period	OLS and GLS Regressions							ATE (2-Step) Regression						IV (2SLS) Regression							
		X = Economic Boom							X = Economic Boom						X = Economic Boom							
		N		*Economic Boom*		*F*	*Wald Chi2*	R^2	*N*	*BOOM*	*Hazard Lambda*	*Wald Chi2*	*Rho*	*Sigma*	*N*	*BOOM*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
Stock's Returns	IPO+1	267	267	**0.159****	**0.159****	4.455***	54.81***	0.170	160	**0.362***	-0.198	31.99***	-0.381	0.520	161	0.269	31.78**	1.144	1.023	-	-	0.142
				(2.44)	**(2.47)**					**(1.85)**	(-1.53)					(1.46)						
	IPO+2	278	278	-0.0180	-0.0180	1.066	12.95	0.0445	166	**0.601****	-0.474***	15.65	-0.726	0.653	167	**0.400***	13.79	5.745**	5.308**	17.420	15.256	0.0447
				(-0.25)	(-0.26)					**(2.44)**	(-2.97)					**(1.83)**						
	IPO+3	248	248	0.0759	0.0759	2.227***	21.65	0.0803	146	-0.169	0.152	11.06	0.258	0.587	147	-0.203	11.32	1.579	1.401	-	-	0.0367
				(0.93)	(0.95)					(-0.77)	(1.03)					(-0.95)						
	IPO+4	223	223	0.0326	0.0326	2.283***	39.15***	0.149	128	0.170	-0.0209	22.22	-0.0413	0.507	129	0.0989	21.76	0.069	0.060	-	-	0.154
				(0.36)	(0.37)					(0.88)	(-0.16)					(0.51)						
	IPO+5	208	208	0.0581	0.0581	1.901**	26.98**	0.115	121	0.0547	0.0415	23.36*	0.0814	0.510	122	-0.0110	23.41	0.464	0.397	-	-	0.160
				(0.74)	(0.77)					(0.29)	(0.32)					(-0.06)						
MVA	IPO	227	227	**-0.195****	**-0.195*****	13.27***	239.1***	0.513	134	**-0.439****	0.165	169.7***	0.303	0.545	135	-0.216	175.4***	0.005	0.005	-	-	0.571
				(-2.56)	**(-2.65)**					**(-2.16)**	(1.20)					(-1.11)						
	IPO+1	245	245	**-0.153****	**-0.153****	12.45***	209.0***	0.460	145	**-0.347***	0.169	153.3***	0.340	0.498	146	-0.272	157.1***	0.882	0.778	-	-	0.513
				(-2.19)	**(-2.25)**					**(-1.81)**	(1.32)					(-1.49)						
	IPO+2	236	236	-0.0717	-0.0717	8.831***	190.5***	0.447	142	-0.115	0.0449	122.8***	0.0850	0.529	143	-0.162	124.2***	0.393	0.344	-	-	0.462
				(-0.99)	(-1.02)					(-0.54)	(0.31)					(-0.83)						
	IPO+3	201	201	-0.0494	-0.0494	10.47***	146.4***	0.421	122	0.147	-0.181	97.67***	-0.303	0.597	123	-0.0734	103.1***	0.000	0.000	-	-	0.457
				(-0.56)	(-0.57)					(0.65)	(-1.13)					(-0.35)						
	IPO+4	167	167	-0.0697	-0.0697	8.196***	140.2***	0.456	102	-0.0939	-0.0232	106.5***	-0.0402	0.578	103	-0.174	108.7***	0.053	0.044	-	-	0.514
				(-0.79)	(-0.77)					(-0.35)	(-0.13)					(-0.69)						
	IPO+5	155	155	0.0133	0.0133	8.211***	99.92***	0.392	99	0.329	-0.128	65.24***	-0.214	0.599	100	0.261	65.17***	0.136	0.112	-	-	0.396
				(0.13)	(0.14)					(1.48)	(-0.80)					(1.09)						
Tobin's q Ratio	IPO	264	264	**-0.359*****	**-0.359*****	5.548***	104.6***	0.284	158	**-0.729*****	0.211	89.48***	0.295	0.714	159	**-0.549****	95.71***	0.215	0.191	-	-	0.398
				(-3.87)	**(-4.10)**					**(-2.64)**	(1.15)					**(-2.15)**						
	IPO+1	274	274	**-0.344*****	**-0.344*****	5.552***	114.2***	0.294	164	**-1.029*****	0.461**	99.79***	0.531	0.867	165	**-0.834*****	102.5***	2.676	2.423	-	-	0.363
				(-3.32)	**(-3.37)**					**(-3.12)**	(2.13)					**(-2.76)**						
	IPO+2	271	271	-0.0204	-0.0204	3.197***	69.57***	0.204	163	**-1.040****	0.745**	64.23***	0.639	1.166	164	**-1.013****	55.83***	7.818***	7.308***	24.729	22.728	0.122
				(-0.14)	(-0.15)					**(-2.28)**	(2.51)					**(-2.35)**						
	IPO+3	243	243	-0.289	**-0.289***	1.948**	73.40***	0.232	144	**-0.829****	0.287	69.72***	0.243	1.181	145	**-1.092*****	73.68***	3.396*	3.046*	22.068	19.567	0.303
				(-1.59)	**(-1.68)**					**(-2.03)**	(1.02)					**(-2.69)**						
	IPO+4	217	217	-0.151	-0.151	2.048**	86.86***	0.286	126	**-0.660***	0.331	93.82***	0.311	1.064	131	**-0.710***	94.80***	1.666	1.455	-	-	0.405
				(-0.72)	(-0.76)					**(-1.74)**	(1.26)					**(-1.81)**						
	IPO+5	201	201	-0.130	-0.130	5.301***	90.57***	0.311	119	0.0733	-0.0838	67.18***	-0.103	0.814	120	-0.0403	69.02***	0.007	0.006	-	-	0.365
				(-0.97)	(-1.06)					(0.26)	(-0.42)					(-0.14)						

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

However, the values *"Durbin (score) Chi2"* and "*Wu-Hausman F"* in IV method are significant; thus, our model for IPO+2 suffers from the endogenous issue. Hence, the parameter generated by the IV model is more consistent than that of the OLS model. Consequently, this indicates that the regression method is important for the significance of results since some models suffer from the endogeneity problem, so if we ignore this problem, this may lead to imprecise estimates. Additionally, the parameters of economic boom have a significantly positive direction for ROA and ROE in years 3, 4 and 5 after offering at least at the 90% confidence level. This confirms hypothesis 3 that the presence of equity market timing has a positive influence on firm value and performance. This is consistent with Baker and Wurgler (2002), who claim that firms that time the equity market are eager to decrease their cost of capital, implying that they tend to time the equity market to increase their firm performance. Moreover, this finding is further explained by Dawar (2014), who found that there is a negative association between the leverage ratio and ROA and ROE. In other words, equity financing leads to an increase in corporate performance.

On the other hand, there are different outcomes of market-based performance as evaluated by stock returns, MVA and Tobin's q. Based on table 4.20, the parameters of economic boom have a significantly positive direction on stock returns 1 year after allocation at least at the 90% confidence level in the OLS, GLS and ATE models but no significance in IV model. However, our models do not suffer from endogeneity problem as the values *"Durbin (score) Chi2"* and "*Wu-Hausman F*" are insignificant. Therefore, the significant parameter in OLS model is more consistent than IV model. Also, there is a significantly positive sign for economic boom on equity yields in year 2 post-offering at the 95% and 90% confidence levels in the ATE and IV models, respectively. Although the coefficient in OLS and GLS methods are insignificant, the values of *"Durbin (score) Chi2"* and "*Wu-Hausman F*" are significant. Thus, the parameter produced by IV method is more consistent than OLS model because of the existence of endogeneity issue. Hence, hypothesis 3 is affirmed, suggesting that the presence of equity market timing has a positive influence on equity yields. This confirms our finding in accounting-based performance and is also consistent with Baker and Wurgler (2002) and Dawar (2014). Conversely, the existence of equity market timing negatively relates to the MVA value and Tobin's q ratio. According to table 4.20, the coefficients of economic boom on the MVA value in an IPO year and 1 year later have a significantly negative sign at the 99% and 95% confidence level in GLS models, respectively. In addition, the parameters of economy boom have a significantly negative sign for Tobin's q ratio from the IPO year to 4 years later at least at the 90% confidence level in the ATE and IV models. Therefore, these findings contest hypothesis 3, implying that timers during a period of economic expansion suffer from a deterioration of MVA value and Tobin's q ratio after equity market timing. This is consistent with Ritter (1991), who found that there is a lower performance estimated by "abnormal and cumulative returns" of IPO corporations for 3 years after going public, while firms that issue their initial stocks in a period with a high number of issuances have a poorer performance than others. This implies that IPO market timers cannot achieve the purpose of equity market timing when the market is favourable. Additionally, this finding is identical to that of Jain and Kini (1994), Loughran and Ritter (1995), Cai and Wei (1997) and Mikkelson et al. (1997), who found that IPO companies show an underperformance after conducting IPO stocks.

Consequently, there is a quite non-identical result regarding the effect of equity market timing with economic boom strategy on the accounting and market-based performances. The results demonstrate that IPO timing firms in a period of economic expansion can succeed in the enhancement of accounting-based performance and equity returns, while they suffer from a reduction of MVA value and Tobin's q ratio. Moreover, the different results across market-based approaches arise from the different perception among them. Stock returns is the profit (loss) from buy-and-hold stock for one year, while MVA and Tobin's q is the added value from the book value of total invested capital. Therefore, the different method for the estimation of firm performance leads to the different results as well.

b.) SEO issuance

1.) Hot equity strategy

Table 4.21[53] illustrates the empirical results for the model of the effect of the existence of equity market timing with the hot equity strategy on firm value and performance for SEO firms in the Thai stock market from 2000 to 2014. The results are analysed with the OLS, GLS, ATE (2-step) and IV (2SLS) regressions. Moreover, the explained variables are firm performance measured by accounting-based and market-based performances. Overall, the presence of equity market timing in a hot period does not have an impact on accounting-based performance. However, this variable has an

[53] VIF values: Max: 3.68, Min: 2.32 and Mean: 2.78.

influence on market-based performance, yet the effect is different, depending on each measurement.

According to accounting-based performance, the existence of equity market timing with the hot equity strategy does not influence accounting-based performance in the short and long term because of insignificance. Therefore, this does not support hypothesis 3, indicating that the presence of equity market timing neither increases nor decreases accounting-based performance.

On the other hand, there are mixed results regarding market-based performance. To begin with stock returns, the coefficients of hot equity on stock yields have a volatile direction in the short and long term. As shown in table 4.21, the coefficients of hot equity on stock yields have a significantly negative sign in the offering year, whereas there is a significantly positive direction in years 1 and 3 after offering, at least at the 90% confidence level in the ATE and IV models. In contrast, a significantly negative association appears between them in year 4 post-issuance at the 90% confidence level in the OLS and GLS models. Conversely, there is a significantly positive involvement between them in year 5 after an allocation at the 95% confidence level in the OLS and GLS models. Consequently, our findings provide mixed evidence for hypothesis 3, suggesting that the presence of equity market timing with a hot strategy both increases and decreases stock returns in different years after an SEO.

Based on the MVA measurement, the existence of equity market timing significantly negatively relates to MVA value in an SEO year and 1 year later at least at the 90% confidence levels in the ATE and IV models. This goes against hypothesis 3, implying that the existence of equity market timing has a negative influence on the MVA value in the short term. This is consistent with Loughran and Ritter (1997), who found that SEO firms tend to decline in their performance since they are overestimated in the future NPV of new projects. Moreover, Hertzel and Li (2010) found that firms that are overvalued in their equity have poor performance after selling follow-on stocks. This means that timing companies underperform after SEO issuance.

In contrast, the existence of equity market timing with the hot equity strategy significantly positively influences Tobin’s q ratio in years 3, 4 and 5 after offering at the 95%, 95% and 90% confidence levels in the ATE, ATE and GLS models, respectively. This verifies hypothesis 3, suggesting that the existence of equity market timing has a

Table 4.21: The regressions for the influence of SEO market timing *(HOT Equity)* on firm performance (Accounting-Based)

Y	Period	OLS and GLS Regressions							ATE (2-Step) Regression						IV (2SLS) Regression							
		X = HOT Equity							X = HOT Equity						X = HOT Equity							
		N		*HOT Equity*		*F*	*Wald Chi2*	R^2	*N*	*HOT Equity*	*Hazard Lambda*	*Wald Chi2*	*Rho*	*Sigma*	*N*	*HOT Equity*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
ROA	SEO	1001	1001	-0.00815 (-0.87)	-0.00815 (-0.86)	10.51***	232.9***	0.189	654	-0.0222 (-0.58)	0.0112 (0.47)	196.6***	0.0970	0.116	654	-0.0331 (-0.82)	195.3***	0.539	0.526	-	-	0.222
	SEO+1	992	992	0.00198 (0.25)	0.00198 (0.25)	9.247***	174.8***	0.150	650	-0.00422 (-0.14)	-0.000649 (-0.03)	298.9***	-0.00716	0.0907	650	-0.0211 (-0.67)	297.2***	0.269	0.262	-	-	0.311
	SEO+2	866	866	-0.00757 (-0.78)	-0.00757 (-0.79)	7.180***	199.4***	0.187	556	0.0250 (0.70)	-0.0123 (-0.56)	174.4***	-0.124	0.0994	556	0.00675 (0.18)	174.7***	0.001	0.001	-	-	0.239
	SEO+3	720	720	-0.00192 (-0.12)	-0.00192 (-0.11)	4.536***	95.05***	0.117	448	-0.0115 (-0.22)	-0.00298 (-0.09)	69.75***	-0.0214	0.140	448	-0.0408 (-0.80)	70.08***	0.261	0.252	-	-	0.132
	SEO+4	617	617	-0.0114 (-0.96)	-0.0114 (-0.93)	4.589***	241.7***	0.281	363	-0.0202 (-0.51)	0.0105 (0.43)	86.47***	0.0968	0.109	363	-0.0527 (-1.34)	85.00***	1.769	1.694	-	-	0.161
	SEO+5	531	531	-0.00617 (-0.54)	-0.00617 (-0.53)	7.441***	179.9***	0.253	298	-0.00721 (-0.18)	0.0104 (0.41)	77.95***	0.101	0.103	298	-0.0423 (-1.01)	75.74***	1.731	1.642	-	-	0.172
ROE	SEO	1001	1001	0.00529 (0.14)	0.00529 (0.13)	5.019***	113.0***	0.101	654	0.0966 (0.75)	-0.0345 (-0.43)	61.04***	-0.0883	0.391	654	0.0982 (0.73)	61.04***	0.180	0.176	-	-	0.0832
	SEO+1	991	991	0.00576 (0.46)	0.00576 (0.46)	6.749***	154.5***	0.135	650	-0.00724 (-0.15)	0.00153 (0.05)	239.6***	0.0110	0.140	650	-0.0417 (-0.85)	236.7***	0.612	0.596	-	-	0.259
	SEO+2	866	866	-0.00816 (-0.56)	-0.00816 (-0.58)	5.275***	120.2***	0.122	556	0.0335 (0.61)	-0.0159 (-0.47)	134.8***	-0.103	0.154	556	0.00442 (0.08)	134.9***	0.006	0.006	-	-	0.196
	SEO+3	720	720	-0.0102 (-0.51)	-0.0102 (-0.52)	3.921***	76.12***	0.0956	448	-0.00107 (-0.02)	-0.0267 (-0.67)	102.4***	-0.151	0.177	448	-0.0254 (-0.40)	102.9***	0.080	0.077	-	-	0.193
	SEO+4	617	617	0.0239 (1.19)	0.0239 (1.22)	4.144***	55.83***	0.0830	363	-0.0238 (-0.39)	0.0149 (0.40)	95.15***	0.0896	0.167	363	-0.0417 (-0.70)	94.63***	0.527	0.503	-	-	0.199
	SEO+5	530	530	0.0397 (1.36)	0.0397 (1.30)	3.100***	44.97***	0.0782	298	0.0205 (0.25)	0.0138 (0.27)	46.58***	0.0666	0.207	298	-0.00534 (-0.06)	46.03***	0.361	0.341	-	-	0.132
ROIC	SEO	991	991	-0.00839 (-0.52)	-0.00839 (-0.52)	9.047***	164.9***	0.143	651	-0.00765 (-0.13)	0.00362 (0.10)	153.8***	0.0201	0.180	651	-0.0295 (-0.47)	153.2***	0.203	0.198	-	-	0.187
	SEO+1	979	979	0.00446 (0.45)	0.00446 (0.45)	10.40***	175.1***	0.152	641	-0.00550 (-0.13)	-0.000692 (-0.03)	323.0***	-0.00574	0.121	641	-0.0323 (-0.76)	320.2***	0.395	0.385	-	-	0.329
	SEO+2	964	964	0.00114 (0.10)	0.00114 (0.10)	6.949***	149.7***	0.134	631	-0.0151 (-0.31)	0.0157 (0.53)	184.3***	0.114	0.138	631	-0.0380 (-0.76)	181.5***	1.000	0.974	-	-	0.208
	SEO+3	841	841	0.117 (0.92)	0.117 (1.41)	3.826***	9.964	0.0117	545	-0.0244 (-0.39)	0.0117 (0.30)	102.7***	0.0703	0.167	545	-0.0480 (-0.74)	101.9***	0.453	0.440	-	-	0.148
	SEO+4	695	695	-0.00258 (-0.23)	-0.00258 (-0.23)	5.458***	117.8***	0.145	438	-0.00596 (-0.13)	0.00434 (0.16)	106.3***	0.0352	0.123	438	-0.0404 (-0.94)	104.9***	1.032	0.994	-	-	0.178
	SEO+5	599	599	-0.000387 (-0.03)	-0.000387 (-0.03)	6.238***	116.4***	0.163	361	-0.00792 (-0.16)	0.00873 (0.28)	80.17***	0.0630	0.139	363	-0.0408 (-0.75)	79.41***	0.804	0.766	-	-	0.164

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 4.21: The regressions for the influence of SEO market timing *(HOT Equity)* on firm performance (Market-Based) (Cont.)

Y	Period	OLS and GLS Regressions							ATE (2-Step) Regression						IV (2SLS) Regression							
		X = HOT Equity							X = HOT Equity						X = HOT Equity							
		N		*HOT Equity*		*F*	*Wald Chi2*	*R²*	*N*	*HOT Equity*	*Hazard Lambda*	*Wald Chi2*	*Rho*	*Sigma*	*N*	*HOT Equity*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	*R²*
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
Stock's Returns	SEO	969	969	-0.0474	-0.0474	4.446***	76.42***	0.0816	650	**-0.436****	0.258**	37.39***	0.429	0.601	658	**-0.401***	37.30***	2.833*	2.767*	19.504	19.153	0.0324
				(-1.11)	(-1.15)					**(-2.16)**	(2.07)					**(-1.77)**						
	SEO+1	983	983	0.0389	0.0389	2.730***	60.60***	0.0581	656	**0.626*****	-0.356***	88.68***	-0.590	0.604	665	**0.416***	77.10***	2.853*	2.787*	4.162	3.993	0.0344
				(0.91)	(0.91)					**(3.16)**	(-2.93)					**(1.88)**						
	SEO+2	992	992	-0.0550	-0.0550	3.049***	45.11***	0.0435	656	0.108	-0.0910	27.66**	-0.160	0.567	656	0.124	27.76**	0.700	0.683	-	-	0.0254
				(-1.42)	(-1.41)					(0.57)	(-0.79)					(0.63)						
	SEO+3	876	876	**0.0959****	**0.0959****	2.976***	41.84***	0.0456	568	**0.364***	-0.180	22.13	-0.318	0.566	568	**0.385***	21.89	2.454	2.391	-	-	0.0427
				(2.33)	**(2.35)**					**(1.85)**	(-1.49)					**(1.87)**						
	SEO+4	738	738	**-0.0731***	**-0.0731***	2.700***	40.56***	0.0521	464	0.0246	-0.0259	28.86**	-0.0544	0.476	464	-0.0685	28.96**	0.117	0.113	-	-	0.0565
				(-1.89)	**(-1.86)**					(0.15)	(-0.25)					(-0.42)						
	SEO+5	640	640	**0.103****	**0.103****	1.117	16.51	0.0251	383	0.0118	0.0509	16.98	0.109	0.468	383	0.0939	16.93	0.002	0.002	-	-	0.0477
				(2.49)	**(2.53)**					(0.08)	(0.53)					(0.62)						
MVA	SEO	767	767	0.0594	0.0594	38.48***	722.8***	0.485	515	**-0.415***	0.307**	550.4***	0.515	0.596	522	-0.247	600.1***	2.293	2.223	-	-	0.521
				(1.26)	(1.34)					**(-1.94)**	(2.33)					(-1.12)						
	SEO+1	823	823	0.0176	0.0176	34.31***	682.6***	0.453	547	**-0.535****	0.348***	522.4***	0.570	0.609	554	**-0.511****	519.0***	5.827**	5.698**	17.021	16.578	0.438
				(0.41)	(0.40)					**(-2.51)**	(2.66)					**(-2.13)**						
	SEO+2	784	784	0.0355	0.0355	39.84***	708.3***	0.475	521	-0.0585	0.0671	551.9***	0.126	0.532	521	-0.0475	551.2***	0.194	0.188	-	-	0.513
				(0.85)	(0.84)					(-0.27)	(0.50)					(-0.21)						
	SEO+3	670	670	0.0681	0.0681	24.68***	486.8***	0.421	439	-0.233	0.175	325.5***	0.293	0.596	439	-0.165	328.7***	0.798	0.769	-	-	0.420
				(1.28)	(1.37)					(-0.97)	(1.18)					(-0.68)						
	SEO+4	551	551	-0.0418	-0.0418	55.19***	511.2***	0.481	347	-0.0497	-0.0384	406.0***	-0.0697	0.551	347	-0.0436	405.3***	0.083	0.079	-	-	0.540
				(-0.74)	(-0.74)					(-0.20)	(-0.25)					(-0.18)						
	SEO+5	451	451	0.0123	0.0123	38.43***	433.4***	0.490	275	0.0949	-0.114	312.3***	-0.182	0.627	275	0.0929	311.6***	0.458	0.430	-	-	0.529
				(0.19)	(0.19)					(0.34)	(-0.66)					(0.34)						
Tobin's q Ratio	SEO	997	997	0.0318	0.0318	4.876***	97.71***	0.0893	654	-0.205	0.178	97.86***	0.245	0.727	654	-0.185	97.46***	1.153	1.125	-	-	0.110
				(0.62)	(0.58)					(-0.85)	(1.20)					(-0.74)						
	SEO+1	988	988	0.0593	0.0593	8.174***	155.3***	0.136	650	0.176	-0.0607	113.1***	-0.0750	0.809	650	0.286	112.2***	0.564	0.550	-	-	0.138
				(0.93)	(0.91)					(0.65)	(-0.36)					(1.01)						
	SEO+2	973	973	0.00803	0.00803	4.654***	237.8***	0.196	638	0.282	-0.151	163.6***	-0.192	0.784	638	0.345	160.3***	1.253	1.222	-	-	0.180
				(0.14)	(0.14)					(1.04)	(-0.90)					(1.23)						
	SEO+3	849	849	0.0536	0.0536	3.105***	186.1***	0.180	548	**0.591****	-0.318**	61.98***	-0.447	0.711	548	**0.481***	60.60***	2.407	2.343	-	-	0.0420
				(0.81)	(0.86)					**(2.25)**	(-1.97)					**(1.80)**						
	SEO+4	702	702	0.0245	0.0245	5.246***	197.2***	0.219	439	**0.510****	-0.301**	56.98***	-0.451	0.667	444	0.315	58.00***	1.296	1.247	-	-	0.0851
				(0.35)	(0.37)					**(2.08)**	(-2.00)					(1.23)						
	SEO+5	604	604	**0.142***	**0.142***	494.3***	317.9***	0.345	359	0.248	-0.117	53.68***	-0.199	0.586	359	0.291	53.59***	1.245	1.190	-	-	0.107
				(1.82)	**(1.78)**					(1.15)	(-0.87)					(1.37)						

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

positive influence on firm value and performance. This is consistent with the finding by Baker and Wurgler (2002) that the objective of equity market timing is the minimizing of cost of capital, implying that they prefer to time the market to increase firm performance. Additionally, this finding was also documented by De Wet and Hall (2004), who posit that high debt financing leads to a low EVA and MVA.

Consequently, there is no association between hot equity and accounting-based performance, while there is a different impact of the hot equity strategy on market-based performance, depending on the method of calculation.

2.) Economic boom strategy

Table 4.22[54] exhibits the empirical results for the impact of the presence of equity market timing with allocating follow-on stocks during a period of economic expansion on corporate performance produced by the OLS, GLS, ATE (2-step) and IV (2SLS) regressions. In addition, firm performance is calculated by accounting-based and market-based methods. Overall, the existence of equity market timing negatively impacts corporate performance in the year of SEO and in the long term.

According to accounting-based performance, there is a negative effect of the presence of equity market timing with the economic boom strategy on ROE in an SEO year and 3 years later. As shown in table 4.22, the coefficients of economic boom have a significantly negative sign on the ROE ratio in an SEO year at the 90% confidence level in the OLS and GLS models. Although there is a significantly positive direction of parameters for economic boom for the ROE ratio 1 year after allocation at the 95% confidence level in the OLS and GLS models, there is a significantly negative sign for the coefficients of economic boom for the ROE ratio 3 years after issuing at the 90% confidence level. Therefore, the negative sign argues against hypothesis 3, indicating that the presence of equity market timing with the economic boom strategy negatively affects accounting-based performance in the SEO year and in the long term. This is consistent with Hansen and Crutchley (1990), who found that there is a decrease in earnings after equity financing for 3 years. Moreover, it is also identical to McLaughlin et al. (1996), who found that SEO firms suffer from a reduction of profitability for 3 years after allocating follow-on equity. In addition, this can also be explained by Rangan (1998), who posits that the cause of the decrease of earnings after SEO issuance is that the allocating companies conduct "*earnings management*" before offering, leading to the

[54] VIF values: Max: 3.67, Min: 2.32 and Mean: 2.77.

overestimation of SEO firms in the year around allocating. Therefore, earnings reduce in the following years to reflect the real earnings of SEO companies.

Based on market-based performance, the outcomes present that the existence of equity market timing has a negative influence on market-based performance in an SEO year and in the long term, although there is a fluctuation of corporate performance in years 1, 2 and 3 post-SEO issuance. As exhibited in table 4.22, the coefficients of economic boom have a significantly negative direction for stock returns and MVA value in an SEO year at least at the 90% confidence level. Subsequently, there is volatility in the market-based performance in years 1, 2 and 3 after offering. Beginning with the first year following SEO allocation, the coefficients of economic boom have a significantly positive sign for stock returns, but a significantly negative direction for MVA at the 99% and 95% confidence levels in the ATE and OLS&GLS models, respectively. Then, there is a significantly negative direction of coefficients for economic boom on MVA in year 2 post-allocation at the 90% confidence level in the OLS and GLS models. However, the coefficients of economic boom have a significantly positive sign on stock returns, MVA and Tobin's q in year 3 after offering, at least at the 90% confidence level in the ATE models. Hence, the results in years 1, 2 and 3 after offering provide mixed evidence for hypothesis 3. However, the parameters of economic boom have a significantly negative sign for MVA in years 4 and 5 post-SEO issuance at the 95% and 90% confidence levels in the IV models, respectively. Therefore, the negative direction in the SEO year and in the long term does not support hypothesis 3, indicating that the existence of equity market timing with the economic boom strategy has a negative influence on market-based performance in the offering year and the long term. This is consistent with Asquith and Mullins (1986), who claim that investors recognize the announcement of equity offering as a negative signal that informs the public that they have overvalued stocks, hence the investors respond to this signal by selling the stocks of these firms. Therefore, their market stock price declines following an SEO issuance. Moreover, this is identical to the statements by Loughran and Ritter (1995), Loughran and Ritter (1997) and Clarke et al. (2001) that SEO companies suffer from poor performance in the long term as the stock market responds to the high value of their stocks.

Consequently, the presence of equity market timing with the economic boom strategy has a negative influence on firm performance for both accounting and market-based methods in the SEO year and in the long term after allocating.

Table 4.22: The regressions for the influence of SEO market timing *(Economic Boom)* on firm performance (Accounting-Based)

Y	Period	OLS and GLS Regressions							ATE (2-Step) Regression						IV (2SLS) Regression							
		X = Economic Boom							X = Economic Boom						X = Economic Boom							
		N		*Economic Boom*		*F*	*Wald Chi2*	R^2	*N*	*BOOM*	*Hazard Lambda*	*Wald Chi2*	*Rho*	*Sigma*	*N*	*BOOM*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
ROA	SEO	1006	1006	0.00446 (0.49)	0.00446 (0.49)	10.63***	234.2***	0.189	655	-0.0171 (-0.39)	0.0122 (0.44)	196.5***	0.106	0.116	655	-0.0241 (-0.51)	195.5***	0.316	0.308	-	-	0.223
	SEO+1	997	997	0.00746 (0.95)	0.00746 (0.97)	9.485***	176.7***	0.151	651	0.00480 (0.14)	-0.00950 (-0.44)	297.4***	-0.105	0.0908	651	0.0326 (0.93)	286.6***	1.644	1.606	-	-	0.282
	SEO+2	871	871	-0.00836 (-0.88)	-0.00836 (-0.90)	7.216***	200.7***	0.187	557	-0.0118 (-0.31)	0.000162 (0.01)	175.2***	0.00164	0.0988	557	0.0177 (0.45)	172.5***	0.600	0.583	-	-	0.226
	SEO+3	725	725	-0.0169 (-0.95)	-0.0169 (-1.06)	4.514***	97.04***	0.118	449	-0.0499 (-0.83)	0.0102 (0.27)	71.20***	0.0738	0.139	449	-0.0324 (-0.56)	71.35***	0.001	0.001	-	-	0.147
	SEO+4	622	622	-0.00192 (-0.16)	-0.00192 (-0.17)	4.500***	242.7***	0.281	364	-0.0643 (-1.45)	0.0365 (1.30)	85.07***	0.327	0.112	364	-0.0701 (-1.57)	82.96***	2.160	2.071	-	-	0.132
	SEO+5	536	536	-0.0000570 (-0.01)	-0.0000570 (-0.01)	7.374***	180.6***	0.252	299	-0.0143 (-0.41)	0.0172 (0.76)	78.04***	0.166	0.103	299	-0.0160 (-0.45)	77.17***	0.652	0.617	-	-	0.196
ROE	SEO	1006	1006	**-0.0735*** **(-1.84)**	**-0.0735*** **(-1.83)**	4.936***	116.4***	0.104	655	0.0650 (0.43)	-0.0676 (-0.72)	60.19***	-0.172	0.393	655	0.0891 (0.55)	59.64***	0.678	0.661	-	-	0.0639
	SEO+1	996	996	**0.0274**** **(2.21)**	**0.0274**** **(2.24)**	6.907***	160.2***	0.139	651	0.0471 (0.88)	-0.0355 (-1.06)	235.3***	-0.250	0.142	660	0.0422 (0.65)	212.9***	0.806	0.785	-	-	0.225
	SEO+2	871	871	-0.00990 (-0.70)	-0.00990 (-0.72)	5.250***	121.1***	0.122	557	0.00688 (0.12)	-0.0185 (-0.51)	134.4***	-0.121	0.153	557	0.0297 (0.49)	132.5***	0.777	0.755	-	-	0.178
	SEO+3	725	725	**-0.0344*** **(-1.85)**	**-0.0344*** **(-1.92)**	4.143***	80.48***	0.0999	449	0.00560 (0.07)	-0.0326 (-0.67)	102.2***	-0.184	0.177	449	0.0208 (0.28)	100.6***	0.860	0.829	-	-	0.171
	SEO+4	622	622	0.00830 (0.44)	0.00830 (0.46)	4.006***	54.91***	0.0811	364	-0.0317 (-0.48)	0.0201 (0.47)	95.15***	0.120	0.167	364	-0.0400 (-0.60)	94.56***	0.367	0.350	-	-	0.197
	SEO+5	535	535	0.00327 (0.12)	0.00327 (0.12)	2.983***	42.59***	0.0737	299	-0.0700 (-0.98)	0.0625 (1.35)	46.55***	0.295	0.212	299	-0.0835 (-1.15)	45.00***	2.454	2.333	-	-	0.0845
ROIC	SEO	996	996	0.00239 (0.15)	0.00239 (0.15)	9.061***	164.9***	0.142	652	0.0266 (0.39)	-0.0174 (-0.40)	153.3***	-0.0966	0.180	652	0.0197 (0.27)	153.5***	0.078	0.076	-	-	0.189
	SEO+1	984	984	0.00990 (1.01)	0.00990 (1.02)	10.47***	176.7***	0.152	642	0.0291 (0.62)	-0.0217 (-0.74)	319.8***	-0.178	0.122	642	0.0544 (1.14)	307.6***	1.702	1.662	-	-	0.298
	SEO+2	969	969	-0.0160 (-1.39)	-0.0160 (-1.47)	6.956***	152.9***	0.136	632	-0.0405 (-0.76)	0.0102 (0.31)	186.6***	0.0741	0.137	632	0.00208 (0.04)	185.5***	0.250	0.244	-	-	0.226
	SEO+3	846	846	0.0558 (0.88)	0.0558 (0.70)	4.083***	8.515	0.00996	546	0.00176 (0.03)	-0.00995 (-0.24)	103.0***	-0.0597	0.167	546	0.0532 (0.78)	100.0***	1.052	1.022	-	-	0.129
	SEO+4	700	700	0.000656 (0.06)	0.000656 (0.06)	5.411***	118.6***	0.145	439	-0.0806 (-1.51)	0.0410 (1.21)	104.2***	0.324	0.127	439	-0.0865 (-1.63)	102.0***	1.914	1.848	-	-	0.138
	SEO+5	604	604	0.00994 (0.86)	0.00994 (0.88)	6.103***	117.9***	0.163	362	-0.0362 (-0.67)	0.0221 (0.64)	79.90***	0.159	0.139	362	-0.0478 (-0.87)	79.12***	0.751	0.717	-	-	0.161

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 4.22: The regressions for the influence of equity market timing *(Economic Boom)* on firm performance (Market-Based) (Cont.)

Y	Period	OLS and GLS Regressions X = Economic Boom							ATE (2-Step) Regression X = Economic Boom						IV (2SLS) Regression X = Economic Boom							
		N		*Economic Boom*		*F*	*Wald Chi2*	R^2	*N*	*BOOM*	*Hazard Lambda*	*Wald Chi2*	*Rho*	*Sigma*	*N*	*BOOM*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
Stock's Returns	SEO	974	974	**-0.0893**** **(-2.11)**	**-0.0893**** **(-2.23)**	4.590***	80.57***	0.0764	651	-0.360 (-1.63)	0.150 (1.09)	38.46***	0.259	0.579	658	-0.159 (-0.68)	35.53***	0.021	0.021	-	-	0.0604
	SEO+1	988	988	0.0666 (1.52)	0.0666 (1.60)	3.069***	63.08***	0.0600	657	**0.671***** **(2.90)**	-0.379*** (-2.63)	86.30***	-0.614	0.617	666	0.303 (1.22)	78.11***	1.001	0.975	-	-	0.0713
	SEO+2	997	997	-0.0480 (-1.23)	-0.0480 (-1.26)	3.226***	45.48***	0.0436	657	0.209 (0.96)	-0.161 (-1.19)	26.95**	-0.280	0.576	657	0.259 (1.19)	27.60**	2.147	2.098	-	-	0.0306
	SEO+3	881	881	0.0420 (1.06)	0.0420 (1.07)	2.552***	37.52***	0.0409	569	**0.561**** **(2.39)**	-0.373** (-2.54)	23.71*	-0.601	0.620	569	**0.402*** **(1.78)**	20.28	4.119**	4.025**	20.862	20.285	0.0225
	SEO+4	743	743	0.00106 (0.03)	0.00106 (0.03)	2.526***	37.72***	0.0483	465	-0.117 (-0.58)	0.0506 (0.40)	28.07**	0.106	0.477	465	-0.203 (-1.06)	28.38**	0.808	0.780	-	-	0.0315
	SEO+5	645	645	-0.0592 (-1.54)	-0.0592 (-1.55)	0.862	13.51	0.0205	384	-0.235 (-1.32)	0.141 (1.24)	17.69	0.295	0.479	384	-0.201 (-1.13)	17.23	1.138	1.090	-	-	0.00862
MVA	SEO	771	771	**-0.0776*** **(-1.77)**	**-0.0776*** **(-1.81)**	38.95***	727.0***	0.485	515	**-0.476*** **(-1.78)**	0.227 (1.36)	581.8***	0.393	0.578	522	**-0.512*** **(-1.82)**	574.5***	2.441	2.368	-	-	0.498
	SEO+1	827	827	**-0.0892**** **(-2.12)**	**-0.0892**** **(-2.13)**	36.15***	683.8***	0.453	548	-0.317 (-1.32)	0.186 (1.24)	570.2***	0.321	0.579	548	-0.341 (-1.45)	561.6***	1.998	1.943	-	-	0.488
	SEO+2	788	788	**-0.0710*** **(-1.73)**	**-0.0710*** **(-1.74)**	38.85***	711.4***	0.474	522	-0.0928 (-0.45)	0.0269 (0.21)	552.1***	0.0506	0.532	522	-0.104 (-0.51)	553.6***	0.071	0.069	-	-	0.515
	SEO+3	674	674	-0.0136 (-0.28)	-0.0136 (-0.28)	23.34***	482.4***	0.417	440	**0.466*** **(1.65)**	-0.326* (-1.84)	294.7***	-0.515	0.633	445	0.0603 (0.20)	336.2***	0.150	0.144	-	-	0.428
	SEO+4	555	555	-0.0846 (-1.58)	-0.0846 (-1.62)	56.16***	518.0***	0.483	348	**-0.556**** **(-2.04)**	0.293* (1.70)	363.5***	0.493	0.594	352	**-0.628**** **(-2.24)**	345.7***	4.384**	4.212**	24.29	23.50	0.444
	SEO+5	455	455	-0.0998 (-1.64)	**-0.0998*** **(-1.66)**	39.82***	442.3***	0.493	275	-0.252 (-1.10)	0.1000 (0.68)	315.2***	0.160	0.625	275	**-0.406*** **(-1.76)**	303.8***	2.012	1.902	-	-	0.512
Tobin's q Ratio	SEO	1002	1002	-0.0422 (-0.80)	-0.0422 (-0.80)	4.995***	98.63***	0.0896	655	-0.371 (-1.34)	0.154 (0.89)	99.67***	0.214	0.723	655	-0.450 (-1.50)	98.03***	1.232	1.202	-	-	0.0986
	SEO+1	993	993	-0.0485 (-0.77)	-0.0485 (-0.76)	8.480***	156.3***	0.136	651	0.273 (0.89)	-0.134 (-0.70)	112.8***	-0.165	0.814	651	0.0803 (0.26)	112.8***	0.003	0.003	-	-	0.149
	SEO+2	978	978	-0.0404 (-0.74)	-0.0404 (-0.70)	4.705***	239.2***	0.197	639	0.0606 (0.21)	-0.0458 (-0.25)	163.0***	-0.0590	0.777	639	-0.121 (-0.40)	163.3***	0.137	0.133	-	-	0.201
	SEO+3	854	854	0.0213 (0.37)	0.0213 (0.36)	3.126***	186.1***	0.179	549	**0.660**** **(2.30)**	-0.382** (-2.13)	59.96***	-0.521	0.733	549	0.316 (1.14)	60.82***	0.871	0.845	-	-	0.0740
	SEO+4	707	707	-0.0227 (-0.38)	-0.0227 (-0.37)	5.179***	197.9***	0.219	440	-0.295 (-1.05)	0.146 (0.82)	55.56***	0.226	0.643	445	0.0114 (0.04)	58.12***	0.060	0.057	-	-	0.115
	SEO+5	609	609	-0.0799 (-1.09)	-0.0799 (-1.08)	548.9***	317.6***	0.343	360	-0.121 (-0.52)	0.0236 (0.16)	52.44***	0.0406	0.581	360	-0.144 (-0.63)	52.95***	0.071	0.068	-	-	0.129

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

c.) Corporate bond issuance

1.) Hot proceeds strategy

Table 4.23[55] exhibits the empirical results of the influence of debt market timing with conducting corporate bonds in a period of a hot volume of proceeds on firm performance analysed by the OLS, GLS, ATE (2-step) and IV (2SLS) regressions. Again, firm performance is measured in two different ways, namely accounting-based and market-based performance measures. Overall, the presence of debt market timing with the hot proceeds strategy has a positive effect on firm performance for both the accounting- and market-based approaches in the short and long term.

Regarding accounting-based performance, the outcomes demonstrate that the existence of debt market timing positively relates to accounting-based performance in all measurements. As shown in table 4.23, there is a significantly positive sign for hot proceeds for ROA, ROE, and ROIC from the offering year until 5 years later at least at the 90% confidence level in the ATE and IV models, except for the first year after issuance for the ROIC ratio, which is insignificant. This verifies hypothesis 4, suggesting that the presence of debt market timing with the hot proceeds strategy has a positive influence on accounting-based performance.[56]

Simultaneously, regarding market-based performance, the results illustrate that debt market timing with the hot proceeds strategy has a positive effect on the market-based performance in the short and long term. As shown in table 4.23, the coefficients of hot proceeds have a significantly positive sign on stock returns and MVA value in the issuing year at least at the 90% confidence level. Although the parameters of hot proceeds have a significantly negative sign for equity yields 1 year after offering at the 95% level in the ATE model, there is a significantly positive direction of coefficients for hot proceeds on stock's returns and MVA value 2 years after issuing at 99% and the 90% confidence levels in the ATE and GLS models, respectively. Additionally, the coefficient of hot proceeds on the MVA value in year 5 post-offering has a significantly positive direction at the 95% confidence level in the IV model. Likewise, there is a significantly positive direction in the parameters of hot proceeds for Tobin's q ratio in an offering year and years 2, 3, 4 and 5 post-allocation at least at the 90% confidence level.

[55] VIF values: Max: 2.10, Min: 1.69 and Mean: 1.85.

[56] Moreover, we found that firms with credit ratings gain a higher average EPS than corporations without credit ratings.

Table 4.23: The regressions for the influence of debt market timing *(HOT Proceed)* on firm performance (Accounting-Based)

Y	Period	OLS and GLS Regressions							ATE (2-Step) Regression						IV (2SLS) Regression							
		X = HOT Proceed							X = HOT Proceed						X = HOT Proceed							
		N		*Hot Proceed*		*F*	*Wald Chi2*	R^2	*N*	*HOT Proceed*	*Hazard Lambda*	*Wald Chi2*	*Rho*	*Sigma*	*N*	*HOT Proceed*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
ROA	CB	175	175	**0.0128****	**0.0128****	20.25***	225.4***	0.563	156	0.0176	-0.00391	210.8***	-0.128	0.0305	156	**0.0304****	197.0***	2.097	1.894	-	-	0.545
				(2.47)	**(2.44)**					(1.44)	(-0.49)					**(2.14)**						
	CB+1	175	175	0.00320	0.00320	5.631***	79.70***	0.313	157	**0.0312****	-0.0212**	80.64***	-0.501	0.0423	157	0.0196	75.34***	0.7894	0.7075	-	-	0.309
				(0.46)	(0.45)					**(2.03)**	(-2.09)					(1.01)						
	CB+2	173	173	0.00519	0.00519	5.749***	82.28***	0.322	156	0.0234	-0.0144	82.15***	-0.337	0.0428	156	**0.0455****	71.61***	7.785***	7.301***	24.902	22.414	0.211
				(0.66)	(0.70)					(1.47)	(-1.37)					**(2.53)**						
	CB+3	130	130	**0.0194****	**0.0194****	7.125***	131.6***	0.503	115	0.0242	-0.00595	130.2***	-0.166	0.0359	115	**0.0390****	122.9***	2.307	2.006	-	-	0.499
				(2.17)	**(2.49)**					(1.59)	(-0.57)					**(2.27)**						
	CB+4	105	105	0.0153	0.0153	3.915***	117.6***	0.528	91	**0.0479****	-0.0274**	111.6***	-0.626	0.0438	91	**0.0640*****	100.6***	6.575**	5.763**	22.396	17.302	0.465
				(1.56)	(1.57)					**(2.47)**	(-2.11)					**(2.69)**						
	CB+5	82	82	0.00486	0.00486	5.8***	108.1***	0.569	71	0.0201	-0.00683	120.9***	-0.181	0.0378	71	**0.0722*****	97.98***	8.980***	7.819***	20.156	13.082	0.512
				(0.34)	(0.42)					(1.05)	(-0.48)					**(2.70)**						
ROE	CB	174	174	**0.0258*****	**0.0258****	10.93***	169.2***	0.493	155	**0.0454****	-0.0134	165.2***	-0.231	0.0579	155	**0.0692****	150.4***	2.549	2.307	-	-	0.469
				(2.70)	**(2.52)**					**(1.99)**	(-0.90)					**(2.33)**						
	CB+1	175	175	0.00971	0.00971	3.328***	59.21***	0.253	157	**0.0665****	-0.0410**	65.32***	-0.524	0.0782	157	**0.0604***	58.64***	2.110	1.908	-	-	0.226
				(0.78)	(0.73)					**(2.34)**	(-2.20)					**(1.66)**						
	CB+2	172	172	0.0197	**0.0197***	4.121***	93.81***	0.353	155	**0.0431***	-0.0186	91.30***	-0.271	0.0687	155	**0.0789*****	81.95***	7.078***	6.602**	19.545	16.882	0.265
				(1.62)	**(1.68)**					**(1.68)**	(-1.08)					**(2.86)**						
	CB+3	130	130	**0.0375****	**0.0375*****	5.594***	106.1***	0.449	115	0.0402	-0.00203	112.0***	-0.0337	0.0604	115	**0.0748****	105.7***	2.256	1.961	-	-	0.463
				(2.57)	**(2.86)**					(1.56)	(-0.12)					**(2.57)**						
	CB+4	104	104	**0.0275***	**0.0275***	3.765***	101.8***	0.495	90	**0.0629****	-0.0285	103.8***	-0.427	0.0669	90	**0.0857****	97.91***	3.784*	3.204*	25.134	20.149	0.486
				(1.77)	**(1.79)**					**(2.10)**	(-1.39)					**(2.42)**						
	CB+5	82	82	0.0101	0.0101	4.21***	78.48***	0.489	71	0.0306	-0.00734	87.09***	-0.119	0.0617	71	**0.104****	75.66***	6.319**	5.276**	24.821	17.737	0.449
				(0.46)	(0.55)					(0.99)	(-0.31)					**(2.47)**						
ROIC	CB	176	176	**0.0164****	**0.0164****	16.96***	206.8***	0.540	157	0.0163	-0.000223	180.4***	-0.00546	0.0408	157	**0.0333***	173.1***	1.237	1.112	-	-	0.518
				(2.54)	**(2.39)**					(1.05)	(-0.02)					**(1.90)**						
	CB+1	175	175	-0.00460	-0.00460	5.311***	75.42***	0.301	157	0.0168	-0.0163	75.45***	-0.318	0.0511	157	0.00889	69.58***	0.354	0.317	-	-	0.301
				(-0.53)	(-0.52)					(0.90)	(-1.31)					(0.37)						
	CB+2	173	173	0.00848	0.00848	3.884***	68.22***	0.283	156	0.0199	-0.00980	69.93***	-0.192	0.0509	156	**0.0474****	62.80***	5.188**	4.781**	25.584	23.148	0.211
				(0.89)	(0.92)					(1.05)	(-0.78)					**(2.25)**						
	CB+3	130	130	0.0175	**0.0175***	5.152***	109.1***	0.456	115	0.0211	-0.00559	106.0***	-0.122	0.0458	115	**0.0419***	100.9***	2.198	1.910	-	-	0.445
				(1.49)	**(1.74)**					(1.09)	(-0.42)					**(1.91)**						
	CB+4	105	105	0.0157	0.0157	2.610***	114.3***	0.521	91	**0.0631****	-0.0396**	104.4***	-0.651	0.0609	91	**0.0860*****	93.91***	7.070***	6.234**	21.577	16.473	0.439
				(1.16)	(1.17)					**(2.34)**	(-2.21)					**(2.59)**						
	CB+5	82	82	0.00338	0.00338	6.65***	123.9***	0.602	71	0.0269	-0.0110	142.5***	-0.220	0.0502	71	**0.105*****	108.6***	11.605***	10.551***	14.691	8.610	0.532
				(0.18)	(0.22)					(1.06)	(-0.58)					**(2.86)**						

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 4.23: The regressions for the influence of debt market timing *(HOT Proceed)* on firm performance (Market-Based) (Cont.)

Y	Period	OLS and GLS Regressions							ATE (2-Step) Regression						IV (2SLS) Regression							
		X = HOT Proceed							X = HOT Proceed						X = HOT Proceed							
		N		*Hot Proceed*		*F*	*Wald Chi2*	R^2	*N*	*HOT Proceed*	*Hazard Lambda*	*Wald Chi2*	*Rho*	*Sigma*	*N*	*HOT Proceed*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
Stock's Returns	CB	173	173	0.194***	0.194***	2.782***	41.76***	0.194	155	0.770***	-0.452***	44.39***	-0.946	0.478	155	0.820***	31.05***	13.639***	13.315***	15.885	14.159	0.078
				(2.79)	(2.93)					(4.29)	(-4.08)					(3.49)						
	CB+1	175	175	0.0517	0.0517	1.809**	23.50*	0.118	157	-0.368**	0.303***	30.24**	0.753	0.403	157	-0.175	24.09*	1.580	1.423	-	-	0.0854
				(0.79)	(0.83)					(-2.53)	(3.25)					(-0.99)						
	CB+2	175	175	0.0965	0.0965	1.258	19.93	0.102	157	0.408***	-0.231***	26.75**	-0.620	0.373	157	0.326*	15.92	1.806	1.629	-	-	0.0287
				(1.58)	(1.61)					(3.02)	(-2.63)					(1.82)						
	CB+3	131	131	-0.0423	-0.0423	2.425***	22.19	0.145	115	-0.0882	0.0339	26.19*	0.0926	0.366	115	0.152	24.85*	1.754	1.518	-	-	0.141
				(-0.51)	(-0.56)					(-0.57)	(0.32)					(0.87)						
	CB+4	107	107	-0.00624	-0.00624	2.146**	29.64**	0.217	92	-0.0882	0.0712	21.89	0.200	0.356	92	-0.129	21.67	0.624	0.512	-	-	0.174
				(-0.08)	(-0.08)					(-0.56)	(0.65)					(-0.70)						
	CB+5	84	84	0.226*	0.226**	1.288	13.13	0.135	72	0.0278	0.227	10.99	0.569	0.399	72	0.376	12.00	0.394	0.303	-	-	0.146
				(1.98)	(2.04)					(0.14)	(1.58)					(1.57)						
MVA	CB	161	161	0.145*	0.145*	21.11***	296.5***	0.648	143	0.421**	-0.203*	260.8***	-0.463	0.439	148	0.494**	239.7***	2.592	2.335	-	-	0.600
				(1.88)	(1.91)					(2.43)	(-1.81)					(1.99)						
	CB+1	157	157	0.0443	0.0443	20.48***	327.5***	0.676	142	-0.175	0.183*	309.9***	0.433	0.423	142	-0.239	295.6***	2.679	2.404	-	-	0.666
				(0.53)	(0.56)					(-1.11)	(1.75)					(-1.17)						
	CB+2	156	156	0.149	0.149*	15.36***	241.8***	0.608	140	0.158	-0.0116	237.2***	-0.0268	0.433	140	0.201	231.4***	0.154	0.136	-	-	0.624
				(1.59)	(1.84)					(0.95)	(-0.10)					(1.18)						
	CB+3	118	118	0.140	0.140	13.04***	157.8***	0.572	106	0.130	0.0455	153.6***	0.116	0.393	106	0.184	155.4***	0.000	0.000	-	-	0.599
				(1.54)	(1.59)					(0.84)	(0.41)					(1.11)						
	CB+4	94	94	0.0406	0.0406	11.24***	117.6***	0.556	83	0.0463	0.0407	110.2***	0.101	0.402	83	0.119	110.5***	0.029	0.023	-	-	0.572
				(0.40)	(0.39)					(0.26)	(0.31)					(0.59)						
	CB+5	72	72	0.0559	0.0559	7.14***	137.8***	0.657	62	0.174	0	115.6***	0	0.398	62	0.614**	104.1***	5.585**	4.455**	24.137	15.300	0.594
				(0.35)	(0.43)					(1.26)	(.)					(2.46)						
Tobin's q Ratio	CB	176	176	0.105*	0.105*	7.324***	132.0***	0.429	157	0.185	-0.0854	140.7***	-0.233	0.367	157	0.224	132.7***	1.218	1.094	-	-	0.446
				(1.68)	(1.69)					(1.32)	(-0.93)					(1.44)						
	CB+1	175	175	0.0768	0.0768	2.481***	41.41***	0.191	157	0.0587	0.00926	47.48***	0.0214	0.433	157	0.203	43.21***	0.787	0.706	-	-	0.202
				(0.99)	(1.04)					(0.37)	(0.09)					(1.19)						
	CB+2	173	173	0.137*	0.137*	3.068***	67.57***	0.281	156	0.327*	-0.154	65.39***	-0.317	0.485	156	0.455*	56.98***	0.135	0.121	-	-	0.214
				(1.75)	(1.69)					(1.82)	(-1.29)					(1.90)						
	CB+3	130	130	0.170*	0.170*	6.706***	97.72***	0.429	115	0.355*	-0.177	96.02***	-0.363	0.488	115	0.571*	86.16***	2.630	2.294	-	-	0.377
				(1.72)	(1.65)					(1.71)	(-1.26)					(1.84)						
	CB+4	105	105	0.221	0.221	5.060***	113.7***	0.520	91	0.624**	-0.348**	116.3***	-0.587	0.592	91	0.903***	103.2***	7.178***	6.337**	23.350	18.293	0.468
				(1.49)	(1.61)					(2.38)	(-1.97)					(2.76)						
	CB+5	82	82	0.375	0.375*	4.64***	86.55***	0.514	71	1.004***	-0.405	93.00***	-0.573	0.708	71	2.197***	67.44***	19.580***	20.563***	15.613	9.302	0.276
				(1.55)	(1.83)					(2.82)	(-1.58)					(3.96)						

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Therefore, this confirms hypothesis 4, indicating that the existence of debt market timing with the hot proceeds strategy positively relates to market-based performance.

The positive impact of debt market timing on firm performance is consistent with Bougatef and Chichti (2011), who found that Tunisian corporations are successful at timing the debt market when they predict that the interest rate level will rise in future because there is a positive association between debt market timing and stock market price. Also, these findings were documented by Ross (1977), Heinkel (1982) and Harris and Raviv (1990), who posit that debt financing seems to be "a positive signalling" by firms regarding the undervaluation of their stock, thus they prefer to avoid using equity financing, which may lead to the dilution of the wealth of the existing shareholders. In addition, our findings are identical to those by Margaritis and Psillaki (2007) and Kyereboah-Coleman (2007), who found that the leverage ratio positively relates to firm performance.

Accordingly, the existence of debt market timing with the hot proceeds strategy has a positive influence on firm performance as estimated by the accounting and market-based approaches in the short and long term.

2.) Median interest rate strategy

Table 4.24[57] reports the empirical results of the effect of debt market timing with allocating corporate bonds when the interest rate is relatively low on corporate performance calculated by the OLS GLS, ATE (2-step) and IV (2SLS) regressions. There are two measurements to evaluate firm performance, consisting of accounting-based and market-based performances. Overall, debt market timing with the median interest rate strategy has a positive impact on firm performance in the short and long term.

Based on the accounting-based approach, the outcomes exhibit that the existence of debt market timing during a period of moderately low interest rates positively associates with ROA, ROE and ROIC in the short and long term. As seen in table 4.24, there is a significantly positive sign for the median interest rate on ROA and ROE from the offering year until 5 years later in the OLS, GLS and IV models at least at the 90% confidence level. Moreover, there are a significantly positive direction for this variable for ROIC in an issuing year and years 2, 3, 4 and 5 later in the OLS, GLS and IV models at least at the 90% confidence level. Therefore, this affirms hypothesis 4, indicating that

[57] VIF values: Max: 2.11, Min: 1.68 and Mean: 1.84.

Table 4.24: The regressions for the influence of debt market timing *(Median Interest Rate)* on firm performance (Accounting-Based)

Y	Period	OLS and GLS Regressions							ATE (2-Step) Regression						IV (2SLS) Regression							
		X = Median Interest Rate							X = Median Interest Rate						X = Median Interest Rate							
		N		*Median Interest Rate*		*F*	*Wald Chi2*	R^2	*N*	*Median IR*	*Hazard Lambda*	*Wald Chi2*	*Rho*	*Sigma*	*N*	*Median IR*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
ROA	CB	174	174	**0.00973***	**0.00973****	20.19***	222.7***	0.561	156	0.0219	-0.00674	212.5***	-0.219	0.0307	156	**0.0348****	187.4***	2.265	2.048	-	-	0.522
				(1.87)	**(1.99)**					(1.41)	(-0.68)					**(2.04)**						
	CB+1	174	174	**0.0123***	**0.0123***	6.469***	83.26***	0.324	157	-0.00100	0.0118	83.98***	0.291	0.0406	157	0.0141	79.63***	0.013	0.012	-	-	0.350
				(1.68)	**(1.86)**					(-0.05)	(0.95)					(0.76)						
	CB+2	172	172	**0.0186****	**0.0186*****	6.077***	89.83***	0.343	156	0.0241	-0.000128	93.87***	-0.00316	0.0405	156	**0.0330***	84.69***	0.271	0.242	-	-	0.370
				(2.59)	**(2.75)**					(1.24)	(-0.01)					**(1.74)**						
	CB+3	129	129	**0.0134***	**0.0134***	7.050***	125.3***	0.493	115	0.0205	-0.00474	128.1***	-0.132	0.0360	115	**0.0308***	122.9***	1.462	1.262	-	-	0.505
				(1.77)	**(1.90)**					(1.18)	(-0.41)					**(1.92)**						
	CB+4	104	104	**0.0234*****	**0.0234*****	4.332***	126.3***	0.548	91	**0.0403***	-0.0146	114.0***	-0.345	0.0422	91	**0.0403****	116.3***	1.786	1.481	-	-	0.551
				(2.66)	**(2.80)**					**(1.78)**	(-0.97)					**(2.26)**						
	CB+5	81	81	**0.0256****	**0.0256*****	6.582***	123.0***	0.603	71	0.0213	0.00303	133.2***	0.0830	0.0365	71	**0.0260***	130.3***	0.011	0.008	-	-	0.652
				(2.32)	**(2.71)**					(1.19)	(0.24)					**(1.77)**						
ROE	CB	173	173	**0.0197****	**0.0197****	10.86***	164.5***	0.487	155	**0.0682****	-0.0300	155.0***	-0.490	0.0612	155	**0.0989*****	122.6***	6.436**	5.978**	21.131	19.100	0.332
				(1.99)	**(2.06)**					**(2.16)**	(-1.51)					**(2.70)**						
	CB+1	174	174	**0.0262****	**0.0262****	3.998***	63.96***	0.269	157	0.0129	0.0141	69.88***	0.191	0.0736	157	0.0384	63.66***	0.026	0.023	-	-	0.307
				(1.98)	**(2.13)**					(0.37)	(0.62)					(1.13)						
	CB+2	171	171	**0.0304*****	**0.0304*****	4.357***	100.5***	0.370	155	0.0449	-0.00516	100.4***	-0.0780	0.0661	155	**0.0566***	90.95***	0.439	0.392	-	-	0.382
				(2.74)	**(2.83)**					(1.41)	(-0.25)					**(1.81)**						
	CB+3	129	129	**0.0246***	**0.0246****	5.867***	100.2***	0.437	115	**0.0510***	-0.0177	106.1***	-0.284	0.0623	115	**0.0660****	99.99***	2.747*	2.398	29.099	26.084	0.437
				(1.91)	**(2.06)**					**(1.70)**	(-0.90)					**(2.36)**						
	CB+4	103	103	**0.0403*****	**0.0403*****	4.539***	112.5***	0.522	90	**0.0673****	-0.0240	105.2***	-0.362	0.0663	90	**0.0691****	106.2***	2.145	1.783	-	-	0.528
				(2.93)	**(3.07)**					**(1.98)**	(-1.05)					**(2.46)**						
	CB+5	81	81	**0.0438****	**0.0438*****	5.058***	94.54***	0.539	71	0.0425	-0.000800	98.24***	-0.0134	0.0596	71	**0.0451***	94.24***	0.042	0.032	-	-	0.577
				(2.59)	**(2.94)**					(1.45)	(-0.04)					**(1.88)**						
ROIC	CB	175	175	**0.0131***	**0.0131****	17.83***	205.5***	0.540	157	**0.0360***	-0.0135	179.9***	-0.322	0.0418	157	**0.0477****	160.3***	2.515	2.279	-	-	0.475
				(1.96)	**(2.04)**					**(1.77)**	(-1.04)					**(2.13)**						
	CB+1	174	174	0.0109	0.0109	5.983***	76.12***	0.304	157	0.00224	0.00972	78.12***	0.194	0.0501	157	0.0146	72.30***	0.007	0.006	-	-	0.325
				(1.21)	(1.32)					(0.09)	(0.63)					(0.63)						
	CB+2	172	172	**0.0170***	**0.0170****	3.886***	69.65***	0.288	156	0.0149	0.00647	76.25***	0.130	0.0496	156	0.0256	69.05***	0.004	0.003	-	-	0.328
				(1.90)	**(2.00)**					(0.63)	(0.42)					(1.11)						
	CB+3	129	129	0.00955	0.00955	4.828***	103.4***	0.445	115	0.0304	-0.0140	104.1***	-0.300	0.0467	115	**0.0367***	99.62***	2.074	1.800	-	-	0.440
				(1.00)	(1.04)					(1.35)	(-0.95)					**(1.77)**						
	CB+4	104	104	**0.0212***	**0.0212***	2.656***	115.0***	0.525	91	0.0512	-0.0239	104.5***	-0.400	0.0596	91	**0.0509****	105.5***	2.404	2.008	-	-	0.517
				(1.70)	**(1.80)**					(1.61)	(-1.13)					**(2.02)**						
	CB+5	81	81	**0.0316****	**0.0316****	7.28***	136.1***	0.627	71	0.0261	0.00560	156.9***	0.116	0.0485	71	**0.0340***	153.9***	0.010	0.008	-	-	0.688
				(2.03)	**(2.45)**					(1.09)	(0.33)					**(1.75)**						

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 4.24: The regressions for the influence of debt market timing *(Median Interest Rate)* on firm performance (Market-Based) (Cont.)

Y	Period	OLS and GLS Regressions							ATE (2-Step) Regression						IV (2SLS) Regression							
		X = Median Interest Rate							X = Median Interest Rate						X = Median Interest Rate							
		N		*Median Interest Rate*		*F*	*Wald Chi2*	*R²*	*N*	*Median IR*	*Hazard Lambda*	*Wald Chi2*	*Rho*	*Sigma*	*N*	*Median IR*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	*R²*
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
Stock's Returns	CB	172	172	**0.114***	**0.114***	2.432***	35.74***	0.172	155	0.0571	0.0566	36.82***	0.142	0.399	155	0.117	28.90**	0.014	0.013	-	-	0.174
				(1.80)	**(1.83)**					(0.30)	(0.46)					(0.58)						
	CB+1	174	174	0.0781	0.0781	1.980**	24.59*	0.124	157	**0.538*****	-0.308**	36.95***	-0.738	0.418	166	0.220	29.84**	0.658	0.593	-	-	0.127
				(1.27)	(1.34)					**(2.73)**	(-2.48)					(1.14)						
	CB+2	174	174	0.0507	0.0507	1.325	18.43	0.0958	157	**-0.395****	0.329***	22.71	0.789	0.416	166	0.0241	14.92	0.053	0.047	-	-	0.0864
				(0.89)	(0.90)					**(-2.02)**	(2.67)					(0.13)						
	CB+3	130	130	0.00675	0.00675	2.499***	23.15*	0.151	115	0.218	-0.139	26.97**	-0.368	0.377	115	0.226	25.61**	1.958	1.697	-	-	0.128
				(0.10)	(0.10)					(1.20)	(-1.17)					(1.37)						
	CB+4	106	106	0.0222	0.0222	2.190**	29.42**	0.217	92	-0.130	0.0919	22.24	0.256	0.360	92	-0.205	21.56	1.751	1.455	-	-	0.134
				(0.29)	(0.31)					(-0.68)	(0.72)					(-1.16)						
	CB+5	83	83	**0.248****	**0.248*****	1.333	16.57	0.166	72	0.236	0.0267	15.30	0.0695	0.384	72	0.204	11.54	0.261	0.200	-	-	0.182
				(2.42)	**(2.67)**					(1.28)	(0.20)					(1.27)						
MVA	CB	160	160	0.0442	0.0442	20.36***	284.8***	0.640	143	0.150	-0.0369	262.3***	-0.0866	0.427	143	0.228	256.7***	0.551	0.487	-	-	0.640
				(0.61)	(0.62)					(0.84)	(-0.31)					(1.19)						
	CB+1	156	156	0.0665	0.0665	21.80***	325.9***	0.676	142	**0.435****	-0.237**	294.5***	-0.542	0.437	142	**0.489****	278.0***	5.605**	5.137**	30.410	28.341	0.638
				(0.89)	(0.93)					**(2.35)**	(-1.98)					**(2.54)**						
	CB+2	155	155	0.0756	0.0756	15.91***	234.0***	0.602	140	0.158	0.0118	235.5***	0.0275	0.430	140	0.267	233.7***	0.259	0.228	-	-	0.627
				(0.91)	(0.97)					(0.81)	(0.09)					(1.35)						
	CB+3	117	117	0.0408	0.0408	13.89***	150.2***	0.562	106	0.0860	0.0160	151.8***	0.0404	0.396	106	0.190	150.9***	0.308	0.260	-	-	0.586
				(0.46)	(0.50)					(0.45)	(0.13)					(1.12)						
	CB+4	93	93	0.0960	0.0960	12.66***	119.4***	0.562	83	**0.405***	-0.159	109.9***	-0.391	0.406	83	**0.283***	116.4***	0.414	0.331	-	-	0.585
				(0.95)	(1.09)					**(1.76)**	(-1.03)					**(1.65)**						
	CB+5	71	71	**0.260****	**0.260*****	8.58***	166.1***	0.701	62	**0.537*****	-0.0845	154.3***	-0.237	0.356	62	**0.450*****	154.2***	0.005	0.004	-	-	0.724
				(2.38)	**(2.59)**					**(3.03)**	(-0.66)					**(3.18)**						
Tobin's q Ratio	CB	175	175	0.0703	0.0703	7.741***	128.9***	0.424	157	0.0416	0.0144	142.8***	0.0396	0.364	157	0.200	132.0***	0.604	0.540	-	-	0.447
				(1.13)	(1.20)					(0.23)	(0.13)					(1.05)						
	CB+1	174	174	0.0899	0.0899	2.669***	41.78***	0.194	157	**0.484****	-0.262*	51.76***	-0.560	0.468	157	**0.623****	38.31***	5.935**	5.501**	19.81	18.05	0.180
				(1.16)	(1.30)					**(2.18)**	(-1.85)					**(2.41)**						
	CB+2	172	172	**0.146***	**0.146***	3.478***	69.50***	0.288	156	0.336	-0.103	68.59***	-0.216	0.477	163	**1.247*****	36.59***	13.016***	12.670***	11.11	10.02	0.172
				(1.76)	**(1.93)**					(1.47)	(-0.70)					**(2.77)**						
	CB+3	129	129	0.113	0.113	5.943***	94.12***	0.422	115	0.205	-0.0481	97.38***	-0.101	0.479	115	**0.379***	93.24***	1.685	1.457	-	-	0.428
				(1.17)	(1.21)					(0.88)	(-0.32)					**(1.77)**						
	CB+4	104	104	**0.267****	**0.267****	5.059***	115.4***	0.526	91	0.417	-0.0820	123.1***	-0.147	0.559	91	**0.659*****	119.9***	3.121*	2.628	29.387	25.279	0.549
				(2.02)	**(2.25)**					(1.39)	(-0.41)					**(2.68)**						
	CB+5	81	81	0.276	0.276	4.41***	82.53***	0.505	71	**0.705****	-0.257	90.04***	-0.359	0.717	71	**0.499***	87.04***	0.211	0.161	-	-	0.553
				(1.55)	(1.58)					**(2.00)**	(-1.04)					**(1.76)**						

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

debt market timers- when the interest rate is comparatively low- enhance their performance in the short and long term after offering.

In addition, the presence of debt market timing with the median strategy has a positive impact on market-based performance in the short and long term. According to table 4.24, the parameters of median interest rate have a significantly positive sign on equity yields in the offering year (OLS and GLS models) and 1 year later (ATE model) at the 90% and 99% confidence levels, respectively. Although there is a significantly negative direction of parameters for median interest rate on equity returns in year 2 post-offering at the 95% confidence level in the ATE model, the coefficients of this variable have a significantly positive direction on stock returns in year 5 post-allocation at the 99% confidence level in the GLS model. Besides, the coefficients of median interest rate on the MVA value have a significantly positive sign in years 1, 4 and 5 following issuances in the ATE and IV models at least at the 90% confidence level. Likewise, there is a significantly positive sign for this variable on Tobin's q ratio from years 1 to 5 after issuance at least at the 90% confidence level in IV model. Thus, this supports hypothesis 4, suggesting that the presence of debt market timing with the median interest rate strategy positively influences market-based performance.

Furthermore, the positive effect of the presence of debt market timing with the median interest rate strategy is similar to the hot proceeds strategy and is consistent with Bougatef and Chichti (2011), who state that there is a positive relationship between debt market timing and market stock price in Tunisian companies, and Ross (1977) and Heinkel (1982) in terms of the fact that a debt offering is a good signal to the market about the undervaluation of firm equity. Additionally, this is identical to Margaritis and Psillaki (2007) and Kyereboah-Coleman (2007), who claim that there is a positive association between the gearing ratio and firm performance.

Therefore, debt market timing with issuing corporate bonds when the interest rate is relatively low increases firm performance in both the accounting and market-based methods in the short and long term.

4.5.4.1.2 Cost of separate source

a.) IPO issuance

1.) Hot equity strategy

Table 4.25[58] illustrates the empirical results of the influence of equity market timing in a hot period of IPO issuance on cost of equity analysed by the OLS, GLS, ATE (2-step) and IV (2SLS) regressions. Furthermore, the explained variable is the cost of equity estimated in three different ways, namely the CAPM method, Gordon model and implied cost of equity approach. Overall, the presence of equity market timing with the hot equity strategy has a negative association with cost of equity in the short and long term based on the Gordon and implied cost of equity techniques.

Regarding the Gordon model, the coefficient of hot equity has a significantly negative sign on cost of equity in year 1 post-IPO issuance in the ATE model at the 95% confidence level. Even though there is a significantly positive direction of parameters for hot equity on cost of equity in year 2 post-IPO issuance in the IV model at the 95% confidence level, the coefficients of hot equity have a significantly negative sign on cost of equity in years 3 and 5 post-IPO allocation in the IV regression at the 90% confidence level. Therefore, the negative sign in years 1, 3 and 5 post-IPO issuance supports hypothesis 1, indicating that timing firms in a hot equity period tend to reduce cost of equity in the short and long term based on the Gordon model.

Based on the implied cost of equity procedure with the literature version, the existence of equity market timing with the hot equity strategy negatively relates to cost of equity in the long term. As shown in table 4.25, the coefficients of hot equity have a significantly negative sign for cost of equity in year 4 after offering in all models at least at the 90% confidence level. Hence, this verifies hypothesis 1, suggesting that the presence of equity market timing with the hot equity strategy has a negative influence on cost of equity in the long term.

Regarding the implied cost of equity method with the modified version, timers with the hot equity strategy are successful at minimizing cost of equity in the short and long term. As seen in table 4.25, there is a significantly negative direction of parameters for hot equity on implied cost of equity in years 1, 2 and 4 after IPO allocation in the IV models at least at the 90% confidence levels. Thus, this confirms hypothesis 1, recommending that timing corporations in a hot equity market can achieve a reduction in cost of equity in the short and long term.

[58] VIF values: Max: 4.3, Min: 2.64 and Mean: 3.93.

Table 4.25: The regressions for the influence of IPO market timing *(HOT Equity)* on cost of equity

Y	Period	OLS and GLS Regressions X = HOT Equity							ATE (2-Step) Regression X = HOT Equity						IV (2SLS) Regression X = HOT Equity							
		N		*HOT Equity*		*F*	*Wald Chi2*	R^2	*N*	*HOT Equity*	*Hazard Lambda*	*Wald Chi2*	*Rho*	*Sigma*	*N*	*HOT Equity*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
CAPM	IPO	261	261	0.00625 (0.87)	0.00625 (0.63)	18.85***	1514.7***	0.853	157	0.0156 (0.56)	-0.0111 (-0.62)	1102.4***	-0.196	0.0568	158	0.0246 (0.84)	1087.7***	0.852	0.754	-	-	0.873
	IPO+1	231	231	-0.00420 (-0.72)	-0.00420 (-0.82)	6.050***	61.30***	0.210	140	-0.0142 (-0.93)	0.00568 (0.57)	34.47***	0.184	0.0308	141	-0.0116 (-0.72)	35.55***	0.120	0.104	-	-	0.201
	IPO+2	206	206	-0.00271 (-0.58)	-0.00271 (-0.64)	3.290***	32.40**	0.136	123	-0.00623 (-0.53)	0.000396 (0.05)	23.07	0.0162	0.0245	124	-0.00615 (-0.50)	25.00*	0.002	0.001	-	-	0.171
	IPO+3	191	191	-0.00186 (-0.38)	-0.00186 (-0.40)	9.048***	49.85***	0.207	116	0.000685 (0.05)	-0.00158 (-0.18)	35.14***	-0.0646	0.0244	117	0.00130 (0.11)	38.60***	0.066	0.055	-	-	0.247
	IPO+4	184	184	-0.00581 (-1.21)	-0.00581 (-1.21)	4.394***	40.11***	0.179	114	-0.00992 (-0.78)	0.00381 (0.45)	37.85***	0.157	0.0243	115	-0.00441 (-0.36)	41.29***	0.003	0.003	-	-	0.266
	IPO+5	169	169	0.00164 (0.31)	0.00164 (0.34)	3.380***	39.69***	0.190	106	-0.00365 (-0.27)	0.00460 (0.51)	27.06**	0.189	0.0244	107	0.00288 (0.22)	29.92**	0.002	0.002	-	-	0.219
Gordon Dividend Growth Model	IPO	254	254	-0.0696 (-0.68)	-0.0696 (-0.71)	7.575***	94.79***	0.272	155	-0.0300 (-0.12)	-0.125 (-0.77)	84.50***	-0.248	0.506	156	-0.0726 (-0.27)	87.31***	0.282	0.248	-	-	0.364
	IPO+1	227	227	-0.131 (-0.67)	-0.131 (-0.85)	1.265	9.102	0.0386	139	**-1.025**** **(-1.99)**	0.591* (1.78)	16.18	0.562	1.051	140	-0.776 (-1.44)	15.10	1.308	1.141	-	-	0.0577
	IPO+2	201	201	0.0559 (0.40)	0.0559 (0.42)	1.194	17.30	0.0793	120	0.525 (1.32)	-0.463* (-1.74)	27.69**	-0.556	0.833	128	**1.197**** **(2.35)**	24.74	8.249***	7.508***	20.548	18.358	0.165
	IPO+3	188	188	-0.166 (-0.85)	-0.166 (-1.00)	1.442	18.85	0.0911	114	-0.540 (-1.06)	0.0493 (0.14)	19.19	0.0511	0.964	115	**-0.952*** **(-1.94)**	21.65	1.325	1.119	-	-	0.135
	IPO+4	182	182	0.0596 (0.27)	0.0596 (0.35)	1.420	19.47	0.0966	113	0.606 (1.23)	-0.248 (-0.75)	19.51	-0.265	0.936	114	-0.0377 (-0.08)	18.79	0.658	0.551	-	-	0.139
	IPO+5	150	150	-0.187 (-1.43)	**-0.187*** **(-1.68)**	1.184	20.72	0.121	93	**-0.508*** **(-1.87)**	0.117 (0.60)	22.23	0.224	0.525	94	**-0.547*** **(-1.77)**	21.41	0.414	0.332	-	-	0.195
Average 4 ICC Methods (Literature)	IPO	259	259	-0.00733 (-0.51)	-0.00733 (-0.57)	1.574**	26.80*	0.0938	158	-0.0214 (-0.55)	-0.00489 (-0.19)	21.58	-0.0613	0.0797	159	-0.0404 (-0.98)	24.20	0.108	0.095	-	-	0.138
	IPO+1	259	259	-0.00721 (-0.40)	-0.00721 (-0.45)	2.647***	35.34***	0.120	158	0.00784 (0.16)	-0.0120 (-0.37)	39.75***	-0.119	0.101	159	-0.0731 (-1.38)	42.92***	1.874	1.670	-	-	0.171
	IPO+2	230	230	-0.0215 (-0.90)	-0.0215 (-0.99)	1.129	31.23**	0.120	139	-0.0267 (-0.49)	-0.00302 (-0.08)	28.63**	-0.0273	0.111	140	-0.0260 (-0.45)	31.60**	0.008	0.007	-	-	0.190
	IPO+3	205	205	0.0183 (0.99)	0.0183 (0.89)	1.568*	31.43**	0.133	122	0.00631 (0.12)	-0.00226 (-0.06)	22.41	-0.0214	0.105	123	0.0130 (0.24)	23.34	0.043	0.036	-	-	0.158
	IPO+4	191	191	**-0.0531*** **(-1.89)**	**-0.0531**** **(-2.00)**	1.318	35.47***	0.157	116	**-0.186***** **(-2.70)**	0.0895** (2.09)	44.33***	0.690	0.130	124	**-0.241***** **(-2.93)**	39.24***	7.397***	6.661**	20.417	18.134	0.0559
	IPO+5	182	182	-0.0372 (-1.30)	-0.0372 (-1.18)	4.631***	37.10***	0.169	112	0.0679 (0.92)	-0.0712 (-1.46)	41.47***	-0.504	0.141	113	0.0214 (0.31)	41.52***	0.582	0.486	-	-	0.263
Average 4 ICC Methods (Modified)	IPO	257	257	-0.00896 (-0.54)	-0.00896 (-0.65)	2.846***	47.77***	0.157	157	0.0126 (0.29)	-0.0431 (-1.57)	53.24***	-0.491	0.0878	158	-0.0477 (-1.10)	59.56***	0.000	0.000	-	-	0.291
	IPO+1	230	230	-0.0177 (-0.88)	-0.0177 (-0.98)	1.162	14.54***	0.0595	140	-0.0464 (-0.79)	0.0112 (0.29)	14.95	0.0938	0.119	141	**-0.109*** **(-1.69)**	17.41	1.895	1.662	-	-	0.0544
	IPO+2	205	205	-0.0391 (-1.43)	-0.0391* (-1.72)	0.953	18.53	0.0829	122	**-0.116**** **(-2.02)**	0.00661 (0.17)	18.37	0.0562	0.118	123	**-0.136**** **(-2.28)**	21.05	0.300	0.254	-	-	0.186
	IPO+3	191	191	-0.000772 (-0.06)	-0.000772 (-0.05)	3.068***	46.64***	0.196	115	-0.00183 (-0.04)	-0.0262 (-0.86)	36.47***	-0.301	0.0871	116	-0.0546 (-1.26)	39.42***	0.263	0.221	-	-	0.255
	IPO+4	182	182	**-0.0526***** **(-2.61)**	**-0.0526***** **(-2.76)**	2.739***	46.67***	0.204	112	**-0.0906*** **(-1.96)**	0.0134 (0.43)	43.75***	0.153	0.0877	113	**-0.0901**** **(-2.03)**	48.10***	0.198	0.165	-	-	0.321
	IPO+5	143	143	-0.00915 (-0.35)	-0.00915 (-0.34)	1.817**	41.67***	0.226	84	0.0303 (0.63)	-0.0360 (-1.01)	44.46***	-0.368	0.0977	85	0.0732 (1.28)	43.13***	3.016*	2.428	21.540	16.293	0.293

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Consequently, the presence of equity market timing with the hot equity strategy has a negative influence on cost of equity in the short and long term based on the Gordon model and implied cost of equity method. Our finding is consistent with that by Chang et al. (2008) and Chang et al. (2010a), who found that there is a negative relationship between equity market timing and implied cost of equity. Therefore, IPO market timers in a favourable period succeed in reducing cost of equity after offering.

2.) Economic boom strategy

Table 4.26[59] provides the empirical results for the OLS, GLS, ATE (2-step) and IV (2SLS) regressions for the effect of equity market timing with the economic boom strategy on cost of equity in Thai IPO corporations. We employ three different procedures to measure cost of equity, consisting of the CAPM approach, Gordon model and implied cost of equity method with the literature and adjusted forms. Briefly, there are different results for the impact of equity market timing during a period of economic expansion on cost of equity, depending on each approach for the evaluation of cost of equity.

Beginning with the CAPM method, equity market timing with the economic boom strategy has a positive effect on cost of equity in the IPO year; however, there is a negative influence of this strategy on cost of equity 1 year later. As shown in table 4.26, the coefficients of economic boom have a significantly positive sign on cost of equity at the 90% and 95% confidence levels in the ATE and IV models, respectively. This opposes hypothesis 1, suggesting that timing firms with the economic expansion strategy are unsuccessful at decreasing cost of equity in the issuing year. However, the parameters of economic boom have a significantly negative effect on cost of equity at the 90% confidence level in the OLS and GLS models. This supports hypothesis 1, meaning that timers with the economic expansion strategy are successful at reducing cost of equity 1 year after going public. This is consistent with Chang et al. (2008) and Chang et al. (2010a), who claim that there is a negative association between equity market timing and cost of equity, and Baker and Wurgler (2002) and Alti (2006), who posit that the reason for equity market timing by a company is that they are eager to diminish cost of capital.

Conversely, the existence of equity market timing has a positive effect on cost of equity in the short and long term based on the Gordon model. According to table 4.26, the coefficients of economic boom have a significantly positive sign on cost of equity in years 2 and 4 post-IPO issuance in the ATE model at the 90% and 99% confidence levels,

[59] VIF values: Max: 4.35, Min: 2.64 and Mean: 3.95.

respectively. This argues against hypothesis 1, suggesting that IPO timing firms with the economic expansion strategy suffer from an increase in cost of equity. This is not in line with the findings of Chang et al. (2008) and Chang et al. (2010a). However, our finding were also documented by Asquith and Mullins (1986), who posit that the pronouncement of stock issuance seems to be "a negative signalling" about the high value of firm stocks, hence when investors recognize this signal, they are eager to get a higher rate of return from holding the stocks of these firms. Hence, the cost of equity of these firms increases after an equity offering to compensate for the additional risk.

In contrast, the existence of equity market timing positively relates to implied cost of equity in the offering year; however, there is a negative association between these in the short and long term after going public. As shown in table 4.26, the coefficients of economic boom have a significantly positive sign on implied cost of equity in an IPO year at least at the 90% confidence level in the OLS, GLS and ATE models. In contrast, the coefficients of economic boom have a significantly negative direction on implied cost of equity with the modified version in years 2 and 5 at the 90% and 95% confidence levels in the IV and ATE models, respectively. Therefore, the positive sign in the allocating year rejects hypothesis 1, indicating that the presence of equity market timing with the economic boom strategy has a positive influence on cost of equity in an IPO year. However, the negative direction in years 2 and 5 supports hypothesis 1, suggesting that the existence of equity market timing in a period of economic expansion has a negative effect on cost of equity. This is consistent with Chang et al. (2008) and Chang et al. (2010a), who found that there is a negative effect of equity market timing on cost of equity. Thus, based on the implied cost of equity method, IPO timing firms with the economic expansion strategy are successful in the reduction of cost of equity in the long term.

Consequently, there are different results for the effect of the presence of equity market timing on cost of equity, depending on the method employed to measure cost of equity, since each method is based on a different perspective in estimation.

Table 4.26: The regressions for the influence of IPO market timing *(Economic Boom)* on cost of equity

Y	Period	OLS and GLS Regressions X = Economic Boom							ATE (2-Step) Regression X = Economic Boom						IV (2SLS) Regression X = Economic Boom							
		N		*Economic Boom*		*F*	*Wald Chi2*	*R²*	*N*	*BOOM*	*Hazard Lambda*	*Wald Chi2*	*Rho*	*Sigma*	*N*	*BOOM*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	*R²*
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
CAPM	IPO	261	261	0.00120	0.00120	19.59***	1512.1***	0.853	157	0.0417*	-0.0283*	1091.0***	-0.476	0.0595	158	0.0569**	942.7***	7.518***	6.944***	16.779	14.376	0.852
				(0.14)	(0.14)					(1.84)	(-1.90)					(2.41)						
	IPO+1	231	231	-0.00841*	-0.00841*	5.371***	65.02***	0.220	140	-0.0147	0.00178	37.77***	0.0587	0.0303	141	-0.00851	36.55***	0.146	0.126	-	-	0.222
				(-1.78)	(-1.90)					(-1.27)	(0.23)					(-0.73)						
	IPO+2	206	206	-0.00353	-0.00353	3.288***	33.04**	0.138	123	-0.00890	0.00273	23.90*	0.112	0.0245	124	-0.00829	25.52*	0.122	0.104	-	-	0.172
				(-0.92)	(-0.98)					(-0.93)	(0.42)					(-0.88)						
	IPO+3	191	191	0.00119	0.00119	9.982***	49.76***	0.207	116	-0.00586	0.00869	35.50***	0.350	0.0249	117	-0.00850	37.59***	2.400	2.052	-	-	0.212
				(0.28)	(0.30)					(-0.64)	(1.37)					(-0.85)						
	IPO+4	184	184	-0.00488	-0.00488	4.141***	40.02***	0.179	114	-0.0108	0.00476	38.30***	0.196	0.0243	115	-0.0126	42.24***	0.824	0.693	-	-	0.256
				(-1.04)	(-1.19)					(-1.20)	(0.76)					(-1.29)						
	IPO+5	169	169	-0.00186	-0.00186	3.314***	39.79***	0.191	106	-0.00650	0.00124	28.11**	0.0513	0.0242	107	-0.00615	30.48**	0.018	0.015	-	-	0.224
				(-0.41)	(-0.45)					(-0.72)	(0.19)					(-0.64)						
Gordon Dividend Growth Model	IPO	254	254	-0.121	-0.121	7.787***	96.84***	0.276	155	0.112	-0.109	84.92***	-0.213	0.512	156	0.0976	85.34***	0.618	0.545	-	-	0.348
				(-1.26)	(-1.41)					(0.61)	(-0.88)					(0.53)						
	IPO+1	227	227	0.0746	0.0746	1.329	8.667	0.0368	139	0.348	-0.207	13.53	-0.203	1.017	140	0.377	14.19	0.768	0.667	-	-	0.0732
				(0.60)	(0.56)					(0.91)	(-0.80)					(0.97)						
	IPO+2	201	201	0.181	0.181	1.240	19.83	0.0898	120	0.463*	-0.229	30.79**	-0.282	0.810	121	0.420	30.60**	0.912	0.775	-	-	0.188
				(1.47)	(1.58)					(1.66)	(-1.16)					(1.50)						
	IPO+3	188	188	0.00262	0.00262	1.521*	17.75	0.0863	114	0.418	-0.317	18.76	-0.319	0.993	115	0.316	18.38	0.652	0.548	-	-	0.124
				(0.02)	(0.02)					(1.19)	(-1.27)					(0.84)						
	IPO+4	182	182	0.136	0.136	1.489	20.31	0.100	113	0.893***	-0.456*	25.29*	-0.480	0.951	114	0.651*	22.68	0.845	0.710	-	-	0.158
				(0.96)	(0.94)					(2.68)	(-1.95)					(1.87)						
	IPO+5	150	150	0.0885	0.0885	1.276	18.57	0.110	93	-0.282	0.205	17.88	0.374	0.548	94	-0.208	18.15	0.667	0.536	-	-	0.147
				(0.98)	(0.95)					(-1.36)	(1.38)					(-0.95)						
Average 4 ICC Methods (Literature)	IPO	259	259	0.0183	0.0183	1.707**	29.34**	0.102	158	0.0578*	-0.0424**	23.24	-0.497	0.0852	159	0.0352	23.28	1.532	1.362	-	-	0.0914
				(1.54)	(1.62)					(1.76)	(-1.97)					(1.11)						
	IPO+1	259	259	0.00442	0.00442	2.764***	35.22***	0.120	158	0.0353	-0.0245	39.85***	-0.240	0.102	159	0.0118	43.29***	0.074	0.065	-	-	0.213
				(0.29)	(0.32)					(0.90)	(-0.94)					(0.30)						
	IPO+2	230	230	0.00845	0.00845	1.175	30.34**	0.117	139	-0.0215	0.0176	28.10**	0.157	0.112	140	-0.0464	31.31**	1.846	1.617	-	-	0.153
				(0.39)	(0.44)					(-0.54)	(0.64)					(-1.14)						
	IPO+3	205	205	0.0128	0.0128	1.710**	31.12**	0.132	122	-0.000177	0.0276	21.76	0.261	0.106	123	-0.0244	22.78	3.238*	2.811*	16.875	16.875	0.125
				(0.66)	(0.73)					(-0.00)	(1.03)					(-0.62)						
	IPO+4	191	191	-0.0101	-0.0101	1.081	31.06**	0.140	115	-0.0189	0.0103	36.92***	0.0836	0.124	116	-0.00811	37.90***	0.000	0.000	-	-	0.246
				(-0.44)	(-0.44)					(-0.44)	(0.33)					(-0.17)						
	IPO+5	182	182	-0.0623**	-0.0623**	4.089***	42.06***	0.188	112	-0.0368	-0.0450	47.40***	-0.336	0.134	113	-0.0310	44.24***	1.821	1.540	-	-	0.304
				(-2.07)	(-2.36)					(-0.78)	(-1.34)					(-0.61)						
Average 4 ICC Methods (Modified)	IPO	257	257	0.0297**	0.0297**	3.137***	54.54***	0.175	157	0.0560*	-0.0317	54.24***	-0.357	0.0888	158	0.0299	56.86***	0.305	0.269	-	-	0.261
				(2.43)	(2.48)					(1.73)	(-1.46)					(0.95)						
	IPO+1	230	230	-0.00232	-0.00232	1.196	13.54	0.0556	140	0.0225	-0.0264	13.89	-0.218	0.121	141	-0.0104	15.32	0.001	0.001	-	-	0.0993
				(-0.13)	(-0.15)					(0.49)	(-0.85)					(-0.23)						
	IPO+2	205	205	0.00268	0.00268	0.834	15.37	0.0697	122	-0.0760	0.0651**	13.76	0.502	0.130	123	-0.0934*	16.71	6.366**	5.677**	13.699	10.778	0.0971
				(0.13)	(0.14)					(-1.62)	(2.03)					(-1.96)						
	IPO+3	191	191	-0.0106	-0.0106	3.155***	47.36***	0.199	115	-0.0200	0.0106	34.18***	0.121	0.0872	116	-0.0435	37.87***	1.684	1.429	-	-	0.220
				(-0.67)	(-0.76)					(-0.66)	(0.48)					(-1.31)						
	IPO+4	182	182	0.00360	0.00360	2.424***	37.51***	0.171	112	-0.0298	0.0280	34.94***	0.303	0.0926	113	-0.0184	40.50***	0.473	0.395	-	-	0.258
				(0.20)	(0.22)					(-0.91)	(1.20)					(-0.53)						
	IPO+5	143	143	-0.0279	-0.0279	1.887**	43.45***	0.233	84	-0.0733**	0.0265	50.32***	0.278	0.0954	85	-0.0559	49.24***	0.070	0.055	-	-	0.375
				(-1.10)	(-1.22)					(-2.11)	(1.00)					(-1.53)						

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

b.) SEO issuance

1.) Hot equity strategy

Table 4.27[60] demonstrates the empirical results of the impact of equity market timing in a hot period for SEO companies on cost of equity generated by the OLS, GLS, ATE (2-step) and IV (2SLS) regressions. There are three different methods for the estimation of cost of equity, consisting of the CAPM approach, Gordon model and implied cost of equity method. Overall, the presence of equity market timing with the hot equity strategy has a negative influence on cost of equity in the short and long term based on the CAPM and implied cost of equity methods with modified version, whereas there is a negative involvement between them regarding the Gordon model and implied cost of equity method with the literature version only in the short term, although the positive association appears in the long term.

Regarding the CAPM and implied cost of equity methods with the modified version, equity market timing with the hot equity strategy has a negative effect on cost of equity in the short and long term. As seen in table 4.27, the coefficients of hot equity have a significantly negative sign on cost of equity with the CAPM method in the SEO year and years 2, 3 and 4 later at least at the 90% confidence levels. At the same time, there is a significantly negative direction for hot equity on implied cost of equity with the modified version in the year of SEO and years 1, 2 and 5 later at least at the 90% confidence level in the ATE and IV models. This supports hypothesis 1, suggesting that SEO timing companies in a hot period are successful at decreasing cost of equity in the short and long term. This affirms the statements by Baker and Wurgler (2002), Chang et al. (2008) and Chang et al. (2010a).

However, the existence of equity market timing has a negative influence on cost of equity as measured by the Gordon model and implied cost of equity method with the literature version only in the short term. According to table 4.27, the parameters of hot equity have a significantly negative direction on cost of equity with the Gordon model in years 1 and 2 after offering at the 90% and 95% confidence levels in the ATE and GLS models, respectively. Also, there is a significantly negative sign for hot equity on implied cost of equity in the issuing year and 1 and 2 years later at the 99% confidence level in

[60] VIF values: Max: 5.47, Min: 2.68 and Mean: 3.34.

Table 4.27: The regressions for the influence of SEO market timing *(HOT Equity)* on cost of equity

Y	Period	OLS and GLS Regressions X = HOT Equity							ATE (2-Step) Regression X = HOT Equity						IV (2SLS) Regression X = HOT Equity							
		N		*HOT Equity*		*F*	*Wald Chi2*	R^2	*N*	*HOT Equity*	*Hazard Lambda*	*Wald Chi2*	*Rho*	*Sigma*	*N*	*HOT Equity*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
CAPM	SEO	928	928	0.000666	0.000666	30.92***	394.4***	0.298	633	-0.0219*	0.0148**	337.3***	0.462	0.0321	640	-0.0536***	214.8***	16.143***	16.069***	19.681	19.322	0.273
				(0.29)	(0.29)					(-1.95)	(2.14)					(-2.96)						
	SEO+1	826	826	-0.000206	-0.000206	19.62***	123.7***	0.130	546	0.000821	-0.00173	97.27***	-0.0518	0.0333	546	-0.00763	97.17***	0.239	0.231	-	-	0.147
				(-0.08)	(-0.08)					(0.07)	(-0.24)					(-0.62)						
	SEO+2	687	687	-0.00464*	-0.00464*	8.882***	90.31***	0.116	439	-0.0147	0.00635	114.7***	0.207	0.0306	439	-0.0127	114.1***	0.557	0.535	-	-	0.200
				(-1.68)	(-1.70)					(-1.38)	(0.96)					(-1.17)						
	SEO+3	585	585	-0.00287	-0.00287	6.538***	50.14***	0.0789	354	-0.0223**	0.0133*	83.11***	0.416	0.0319	354	-0.0187*	81.84***	2.487	2.378	-	-	0.147
				(-0.95)	(-0.94)					(-2.04)	(1.95)					(-1.67)						
	SEO+4	494	494	-0.00606*	-0.00606*	5.436***	76.15***	0.134	287	-0.0251**	0.00941	86.70***	0.314	0.0300	287	-0.0239**	87.81***	1.388	1.308	-	-	0.220
				(-1.91)	(-1.89)					(-2.17)	(1.30)					(-2.02)						
	SEO+5	465	465	-0.00222	-0.00222	9.070***	126.4***	0.214	276	0.00505	-0.00326	133.9***	-0.126	0.0258	277	0.00733	139.1***	0.436	0.407	-	-	0.327
				(-0.78)	(-0.74)					(0.50)	(-0.51)					-0.64						
Gordon Dividend Growth Model	SEO	914	914	0.0776	0.0776	5.701***	128.8***	0.124	617	-0.184	0.155	91.15***	0.121	1.285	617	-0.346	90.38***	0.792	0.770	-	-	0.112
				(0.91)	(0.89)					(-0.42)	(0.57)					(-0.73)						
	SEO+1	817	817	-0.0347	-0.0347	3.787***	98.72***	0.108	538	-0.746*	0.460*	94.19***	0.374	1.232	545	-0.553	93.33***	1.159	1.121	-	-	0.116
				(-0.38)	(-0.39)					(-1.68)	(1.69)					(-1.08)						
	SEO+2	679	679	-0.211*	-0.211**	3.954***	120.4***	0.151	432	-0.514	0.133	101.3***	0.112	1.186	432	-0.810*	101.1***	1.457	1.401	-	-	0.170
				(-1.93)	(-2.17)					(-1.18)	(0.49)					(-1.83)						
	SEO+3	577	577	-0.0980	-0.0980	3.305***	93.38***	0.139	348	-0.313	0.0863	94.64***	0.0841	1.026	348	-0.410	94.75***	0.366	0.348	-	-	0.210
				(-0.99)	(-1.06)					(-0.80)	(0.36)					(-1.03)						
	SEO+4	490	490	-0.0986	-0.0986	3.612***	101.8***	0.172	285	-0.290	0.170	78.76***	0.158	1.075	285	-0.291	78.65***	0.380	0.356	-	-	0.209
				(-0.87)	(-0.89)					(-0.63)	(0.59)					(-0.65)						
	SEO+5	440	440	0.251**	0.251**	3.391***	109.0***	0.198	256	0.282	-0.0182	71.82***	-0.0170	1.070	256	-0.0727	70.09***	0.552	0.515	-	-	0.211
				(2.55)	(2.34)					(0.59)	(-0.06)					(-0.15)						
Average 4 ICC Methods (Literature)	SEO	959	959	-0.00185	-0.00185	3.527***	61.97***	0.0607	634	-0.132***	0.0777***	32.81***	0.656	0.119	787	-0.0619	35.75***	1.508	1.475	-	-	0.045
				(-0.21)	(-0.23)					(-3.14)	(3.02)					(-1.35)						
	SEO+1	972	972	-0.00393	-0.00393	4.476***	74.54***	0.0712	638	-0.210***	0.119***	91.31***	0.779	0.152	788	-0.0995*	86.09***	2.184	2.138	-	-	0.0274
				(-0.38)	(-0.44)					(-4.15)	(3.83)					(-1.68)						
	SEO+2	847	847	0.00198	0.00198	8.757***	87.89***	0.0940	548	-0.134***	0.0738**	95.41***	0.541	0.136	548	-0.129**	87.10***	5.761**	5.631**	26.203	25.660	0.0161
				(0.20)	(0.21)					(-2.75)	(2.47)					(-2.53)						
	SEO+3	698	698	0.00505	0.00505	2.075***	36.79***	0.0501	438	-0.0172	0.0137	54.26***	0.129	0.106	438	-0.00615	54.33***	0.073	0.070	-	-	0.109
				(0.49)	(0.52)					(-0.44)	(0.57)					(-0.16)						
	SEO+4	596	596	0.0418***	0.0418***	5.350***	100.0***	0.144	358	0.0446	-0.00240	54.03***	-0.0175	0.137	358	0.0251	54.74***	0.119	0.113	-	-	0.143
				(3.40)	(3.36)					(0.93)	(-0.08)					(0.51)						
	SEO+5	504	504	0.0173	0.0173	2.510***	38.42***	0.0708	288	0.0429	-0.0211	60.07***	-0.173	0.122	288	0.0373	59.67***	0.317	0.298	-	-	0.165
				(1.21)	(1.21)					(0.89)	(-0.70)					(0.75)						
Average 4 ICC Methods (Modified)	SEO	929	929	-0.000256	-0.000256	5.306***	97.69***	0.0951	622	-0.112***	0.0659***	63.50***	0.574	0.115	766	-0.00248	68.12***	0.003	0.003	-	-	0.0819
				(-0.03)	(-0.03)					(-2.80)	(2.69)					(-0.06)						
	SEO+1	831	831	-0.00488	-0.00488	4.316***	58.98***	0.0663	541	-0.111***	0.0542**	50.41***	0.477	0.114	546	-0.0914**	52.44***	2.299	2.230	-	-	0.0262
				(-0.54)	(-0.59)					(-2.86)	(2.27)					(-1.97)						
	SEO+2	690	690	-0.0000733	-0.0000733	6.113***	51.53***	0.0695	439	-0.0864*	0.0396	47.43***	0.313	0.126	439	-0.0818*	45.47***	1.778	1.712	-	-	0.0612
				(-0.01)	(-0.01)					(-1.94)	(1.44)					(-1.81)						
	SEO+3	595	595	-0.00824	-0.00824	7.805***	40.82***	0.0642	359	-0.0414	0.0137	45.37***	0.129	0.106	359	-0.0511	44.99***	0.728	0.693	-	-	0.101
				(-0.73)	(-0.78)					(-1.10)	(0.58)					(-1.35)						
	SEO+4	510	510	-0.00188	-0.00188	3.201***	41.02***	0.0745	295	0.0311	-0.0150	37.80***	-0.127	0.118	295	0.0373	38.13***	0.442	0.416	-	-	0.105
				(-0.15)	(-0.15)					(0.67)	(-0.52)					(0.80)						
	SEO+5	437	437	0.0133	0.0133	2.176***	43.90***	0.0913	254	-0.0777	0.0554*	59.44***	0.471	0.118	254	-0.105**	54.66***	6.010**	5.719**	25.966	24.710	0.0416
				(1.00)	(0.95)					(-1.46)	(1.69)					(-1.99)						

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

the ATE models, confirming hypothesis 1. This is consistent with Baker and Wurgler (2002), Alti (2006), Chang et al. (2008) and Chang et al. (2010a). Conversely, there is a significantly positive direction for hot equity on cost of equity with the Gordon approach in year 5 post-issuance at the 95% confidence level in the OLS and GLS models. Likewise, the coefficients of hot equity have a significantly positive direction on implied cost of equity in year 4 after SEO allocation at the 99% confidence level in the OLS and GLS models. Hence, this rejects hypothesis 1 and is consistent with the claim of Asquith and Mullins (1986) as well. Therefore, regarding the Gordon model and implied cost of equity method with the literature pattern, timers during a period of a hot equity market achieve a reduction in cost of equity only in the short term; on the other hand, they suffer from an increase in cost of equity in the long term.

To sum up, SEO market timers in a hot period are successful at lessening the cost of equity in the short term from the offering year until 2 years following issuance. However, there is unclarity regarding the effect of the presence of equity market timing on cost of equity in the long term, depending on the measurement of cost of equity.

2.) Economic boom strategy

Table 4.28[61] reports the results of the OLS, GLS, ATE (2-step) and IV (2SLS) regressions for the influence of the existence of equity market timing with the economic expansion strategy on cost of equity in SEO corporations. In addition, the cost of equity is calculated using three procedures, including the CAPM method, Gordon model and implied cost of equity approach. Overall, the presence of equity market timing with the economic boom strategy negatively influences cost of equity as estimated by the CAPM and Gordon models in the short term, whereas they have a positive relationship in the long term according to the implied cost of equity method.

In the short term, the coefficients of economic boom have a significantly negative sign on cost of equity as estimated by the CAPM approach from the SEO year to 3 years later and the Gordon model in years 2 and 3 after allocation at least at the 90% confidence level. This supports hypothesis 1, indicating that the presence of equity market timing has a negative impact on cost of equity, which is consistent with Chang et al. (2008) and Chang et al. (2010a), who claim that corporations are successful at equity market timing to reduce cost of equity.

[61] VIF values: Max: 5.51, Min: 2.68 and Mean: 3.34.

Table 4.28: The regressions for the influence of SEO market timing *(Economic Boom)* on cost of equity

Y	Period	OLS and GLS Regressions X = Economic Boom							ATE (2-Step) Regression X = Economic Boom						IV (2SLS) Regression X = Economic Boom							
		N		*Economic Boom*		*F*	*Wald Chi2*	*R²*	*N*	*BOOM*	*Hazard Lambda*	*Wald Chi2*	*Rho*	*Sigma*	*N*	*BOOM*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	*R²*
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
CAPM	SEO	932	932	**-0.00774*** (-3.36)**	**-0.00774*** (-3.48)**	33.01***	403.3***	0.302	633	**-0.0248** (-2.07)**	0.0135* (1.81)	325.1***	0.423	0.0319	640	-0.0205 (-1.58)	330.6***	1.760	1.712	-	-	0.313
	SEO+1	831	831	**-0.00485* (-1.89)**	**-0.00485** (-1.97)**	20.17***	126.0***	0.132	547	-0.0141 (-1.05)	0.00753 (0.90)	96.40***	0.223	0.0337	554	-0.0173 (-1.11)	98.25***	0.979	0.947	-	-	0.118
	SEO+2	692	692	**-0.00464* (-1.81)**	**-0.00464* (-1.84)**	9.133***	87.88***	0.113	440	-0.000936 (-0.07)	-0.000128 (-0.02)	113.7***	-0.00420	0.0304	440	0.00213 (0.16)	114.1***	0.066	0.064	-	-	0.204
	SEO+3	590	590	**-0.0105*** (-3.73)**	**-0.0105*** (-3.74)**	7.098***	65.51***	0.0999	355	**-0.0335** (-2.50)**	0.0178** (2.09)	81.67***	0.535	0.0332	358	-0.0236 (-1.50)	77.90***	1.209	1.148	-	-	0.138
	SEO+4	499	499	-0.000639 (-0.21)	-0.000639 (-0.21)	5.338***	72.87***	0.127	288	-0.00333 (-0.32)	0.00437 (0.64)	85.73***	0.147	0.0298	288	0.00166 (0.16)	85.88***	0.019	0.018	-	-	0.231
	SEO+5	470	470	0.00136 (0.48)	0.00136 (0.49)	8.972***	131.1***	0.218	277	0.00830 (0.76)	-0.00384 (-0.55)	137.3***	-0.148	0.0259	278	0.000974 (0.08)	144.0***	0.020	0.018	-	-	0.342
Gordon Dividend Growth Model	SEO	918	918	-0.0516 (-0.62)	-0.0516 (-0.61)	5.690***	128.9***	0.123	617	0.430 (0.89)	-0.374 (-1.24)	89.72***	-0.286	1.309	617	0.0176 (0.03)	91.62***	0.110	0.107	-	-	0.129
	SEO+1	822	822	0.111 (1.28)	0.111 (1.30)	3.832***	100.9***	0.109	539	**1.257** (2.56)**	-0.767** (-2.51)	88.76***	-0.581	1.319	546	0.624 (1.15)	92.37***	1.208	1.169	-	-	0.105
	SEO+2	684	684	**-0.155* (-1.71)**	**-0.155* (-1.74)**	4.104***	119.0***	0.148	433	-0.0529 (-0.11)	-0.112 (-0.35)	100.5***	-0.0944	1.187	433	-0.173 (-0.35)	101.0***	0.011	0.011	-	-	0.194
	SEO+3	582	582	**-0.146* (-1.75)**	**-0.146* (-1.73)**	3.148***	94.21***	0.139	349	0.424 (1.00)	-0.426 (-1.58)	88.53***	-0.399	1.069	349	0.293 (0.69)	90.16***	1.692	1.612	-	-	0.175
	SEO+4	495	495	-0.154 (-1.49)	-0.154 (-1.53)	3.555***	103.4***	0.173	286	-0.0800 (-0.23)	-0.123 (-0.53)	79.42***	-0.115	1.065	286	-0.364 (-1.04)	81.18***	0.115	0.108	-	-	0.225
	SEO+5	445	445	-0.0712 (-0.71)	-0.0712 (-0.70)	3.343***	102.4***	0.187	257	0.360 (0.84)	-0.267 (-0.97)	67.33***	-0.236	1.133	257	0.0682 (0.16)	68.57***	0.059	0.055	-	-	0.210
Average 4 ICC Methods (Literature)	SEO	963	963	-0.00516 (-0.68)	-0.00516 (-0.66)	3.475***	62.03***	0.0605	634	-0.0168 (-0.43)	0.0116 (0.47)	24.84*	0.111	0.105	634	-0.0395 (-0.88)	25.02*	0.889	0.865	-	-	0.00495
	SEO+1	977	977	-0.00151 (-0.17)	-0.00151 (-0.17)	4.459***	75.53***	0.0718	639	-0.0313 (-0.64)	0.0132 (0.44)	85.52***	0.104	0.127	639	-0.0494 (-0.95)	83.82***	0.595	0.579	-	-	0.0996
	SEO+2	852	852	0.00203 (0.21)	0.00203 (0.22)	8.702***	87.35***	0.0930	549	-0.0154 (-0.33)	0.0106 (0.36)	90.04***	0.0836	0.127	549	-0.00214 (-0.04)	91.62***	0.004	0.004	-	-	0.143
	SEO+3	703	703	0.00635 (0.69)	0.00635 (0.71)	2.134***	36.68***	0.0496	439	0.0157 (0.35)	-0.00531 (-0.18)	54.35***	-0.0502	0.106	439	0.0446 (0.97)	54.00***	0.702	0.675	-	-	0.0856
	SEO+4	601	601	**0.0213* (1.78)**	**0.0213* (1.83)**	4.842***	91.62***	0.132	359	0.0752 (1.37)	-0.0338 (-0.97)	53.15***	-0.242	0.139	364	**0.132** (2.00)**	53.37***	3.265*	3.123*	15.438	14.704	0.0130
	SEO+5	509	509	0.00616 (0.46)	0.00616 (0.47)	2.128***	35.26***	0.0648	289	**0.125** (2.52)**	-0.0864*** (-2.74)	59.81***	-0.631	0.137	293	**0.162*** (2.68)**	52.15***	10.285***	9.968***	12.450	11.582	0.106
Average 4 ICC Methods (Modified)	SEO	933	933	0.00172 (0.22)	0.00172 (0.23)	5.275***	97.42***	0.0945	622	-0.0243 (-0.60)	0.0166 (0.65)	58.11***	0.158	0.105	622	-0.0105 (-0.24)	58.50***	0.078	0.075	-	-	0.0834
	SEO+1	836	836	-0.00310 (-0.38)	-0.00310 (-0.39)	4.410***	60.91***	0.0679	542	-0.0499 (-1.20)	0.0286 (1.10)	44.11***	0.261	0.110	542	-0.0144 (-0.34)	43.53***	0.048	0.046	-	-	0.0733
	SEO+2	695	695	-0.000222 (-0.02)	-0.000222 (-0.02)	6.170***	51.15***	0.0685	440	-0.00246 (-0.05)	0.0000206 (0.00)	43.02***	0.000166	0.124	440	0.0178 (0.37)	42.86***	0.193	0.185	-	-	0.0833
	SEO+3	600	600	0.00508 (0.52)	0.00508 (0.52)	7.985***	41.45***	0.0646	360	-0.0577 (-1.33)	0.0526* (1.92)	41.08***	0.470	0.112	360	-0.0416 (-0.98)	41.62***	2.575	2.464	-	-	0.0418
	SEO+4	515	515	0.0181 (1.60)	0.0181 (1.57)	3.678***	44.96***	0.0803	296	**0.0710* (1.77)**	-0.0366 (-1.40)	40.47***	-0.305	0.120	296	**0.0761* (1.90)**	39.69***	2.500	2.368	-	-	0.0694
	SEO+5	442	442	-0.00316 (-0.24)	-0.00316 (-0.24)	2.151***	45.43***	0.0932	255	-0.0146 (-0.31)	0.0115 (0.39)	59.02***	0.102	0.113	255	-0.0521 (-1.05)	57.19***	1.399	1.308	-	-	0.145

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

In the long term, there is a significantly positive association between economic boom and implied cost of equity in years 4 and 5 after offering at least at the 90% confidence level in the ATE and IV models. This rejects hypothesis 1, suggesting that timing firms with the economic boom strategy suffer from the increase of cost of equity in the long term. This can be explained by Alti (2006), who posits that equity market timing impacts on capital structure only in the short term, and then corporations rebalance their capital structure to reach their target capital structure. Thus, this implies that firms earn benefit from equity market timing with issuing follow-on stocks during the economic boom to minimize cost of equity in the short term. After that, they rebalance their capital structure, while debt financing may be required in the long term, which may lead to more risk for their shareholders. Hence, the equity holders desire a higher required rate of returns, which is the cost of equity for corporations.

Therefore, it is likely that equity market timers when economy is in a boom phase tend to reduce their cost of equity as calculated by the CAPM and Gordon methods in the short term, while they may suffer from an increase in implied cost of equity in the long term because of the rebalancing of their capital structure in the future.

c.) Corporate bond issuance

1.) Hot proceeds strategy

We employ four regression models consisting of the OLS, GLS, ATE (2-step) and IV (2SLS) regressions to examine the influence of the existence of debt market timing on cost of debt after taxes, whereby the estimated results are presented in table 4.29.[62] The dependent variable is cost of debt after taxes and is estimated in two different ways, namely the Bloomberg approach and the interest expense ratio, while, the main explanatory variable is the dummy variable of hot proceeds. Overall, the presence of debt market timing with the hot proceeds strategy has a positive effect on cost of debt after taxes.

According to the Bloomberg method, there is a significantly positive sign for hot proceeds on cost of debt after taxes in years 2, 4 and 5 post-offering at least at the 90% confidence level. This rejects hypothesis 2, suggesting that the existence of debt market timing with the hot proceeds strategy has a positive effect on cost of debt after taxes. This is consistent with Song (2009), who posits that debt timing firms are unable to diminish

[62] VIF values: Max: 6.42, Min: 1.93 and Mean: 2.97.

Table 4.29: The regressions for the influence of debt market timing *(HOT Proceed)* on cost of debt after taxes

Y	Period	OLS and GLS Regressions X = HOT Proceed							ATE (2-Step) Regression X = HOT Proceed						IV (2SLS) Regression X = HOT Proceed							
		N		*HOT Proceed*		*F*	*Wald Chi2*	*R²*	*N*	*HOT Proceed*	*Hazard Lambda*	*Wald Chi2*	*Rho*	*Sigma*	*N*	*HOT Proceed*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	*R²*
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
Bloomberg	CB	172	172	0.00182	0.00182	2.500***	46.28***	0.212	153	-0.00156	0.00230	43.63***	0.290	0.00793	153	-0.00159	40.72***	1.065	0.946	-	-	0.195
				(1.15)	(1.26)					(-0.48)	(1.07)					(-0.47)						
	CB+1	129	129	0.000480	0.000480	2.359***	33.45***	0.206	113	0.00601	-0.00440*	34.05***	-0.575	0.00766	113	0.00703	30.70**	2.598	2.235	-	-	0.110
				(0.24)	(0.28)					(1.58)	(-1.79)					(1.43)						
	CB+2	105	105	**0.00364***	**0.00364****	25.11***	55.97***	0.348	91	0.00462	-0.00298	64.36***	-0.425	0.00702	91	0.00232	65.85***	0.210	0.169	-	-	0.417
				(1.76)	**(2.10)**					(1.34)	(-1.25)					(0.69)						
	CB+3	83	83	-0.00121	-0.00121	1.98**	39.76***	0.324	72	0.00181	-0.00322	32.80**	-0.464	0.00695	72	-0.00681	32.65***	1.523	1.167	-	-	0.267
				(-0.52)	(-0.57)					(0.49)	(-1.17)					(-1.32)						
	CB+4	66	66	**0.00763*****	**0.00763*****	2.83***	60.89***	0.480	54	**0.00692*****	0	53.99***	0	0.00601	54	**0.00853***	49.85***	0.158	0.108	-	-	0.497
				(2.69)	**(3.10)**					**(2.63)**	(.)					**(1.76)**						
	CB+5	55	55	0.000994	0.000994	3.187***	32.96***	0.375	44	**0.00746****	0	41.99***	0	0.00537	44	**0.00870****	41.66***	0.434	0.269	-	-	0.486
				(0.33)	(0.40)					**(2.51)**	(.)					**(2.47)**						
Interest Expenses	CB	170	170	0.00131	0.00131	4.618***	77.04***	0.312	151	-0.00302	0.00272	93.93***	0.223	0.0122	151	0.00223	89.86***	0.123	0.108	-	-	0.371
				(0.54)	(0.60)					(-0.60)	(0.81)					(0.44)						
	CB+1	127	127	0.00119	0.00119	3.183***	68.38***	0.350	111	-0.000625	0.00175	90.60***	0.151	0.0116	111	0.00620	89.55***	0.716	0.604	-	-	0.437
				(0.40)	(0.45)					(-0.11)	(0.46)					(1.02)						
	CB+2	102	102	-0.000323	-0.000323	3.644***	28.35**	0.217	89	-0.00558	0.00393	30.26**	0.375	0.0105	89	0.000616	30.14**	0.102	0.081	-	-	0.252
				(-0.12)	(-0.13)					(-1.05)	(1.08)					(0.12)						
	CB+3	81	81	-0.000327	-0.000327	1.93**	39.18***	0.326	70	0.00617	-0.00405	62.24***	-0.445	0.00910	70	0.00251	60.33***	0.000	0.000	-	-	0.464
				(-0.08)	(-0.10)					(1.35)	(-1.14)					(0.52)						
	CB+4	64	64	-0.00500	-0.00500	1.603	38.24***	0.374	53	-0.000776	0	114.1***	0	0.00977	53	0.00186	113.4***	0.470	0.322	-	-	0.681
				(-0.79)	(-1.06)					(-0.18)	(.)					(0.32)						
	CB+5	55	55	0.00973	**0.00973****	2.984***	80.97***	0.596	44	0.00115	0	102.1***	0	0.00849	44	0.00150	102.1***	0.014	0.009	-	-	0.699
				(1.51)	**(2.04)**					(0.24)	(.)					(0.27)						

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

their cost of capital. Also, Bougatef and Chichti (2011) found that corporations in France cannot achieve a reduction in cost of capital from debt market timing when they predict that the interest rate will rise in future.

Based on the interest expense ratio, the presence of debt market timing in a period of hot proceeds has a significantly positive effect on cost of debt after taxes in year 5 post-issuance at the 95% confidence level in the GLS model. This rejects hypothesis 2, indicating that the presence of debt market timing with the hot proceeds strategy positively associates with cost of debt after taxes. This also affirms the claims by Song (2009) and Bougatef and Chichti (2011). Moreover, our finding is consistent with that of Baker et al. (2003), who assert that executives attempt to take benefit from the debt market, yet they cannot accomplish a minimization of cost of capital.

In summary, our results show that debt market timers are unsuccessful at decreasing cost of debt after taxes. On the other hand, they suffer from an increase in cost of debt after taxes after offering in the short and long term. This implies that although firms time the debt market in a hot proceeds period and gain more money, they may spend the proceeds to invest in inappropriate projects. For instance, a new project generates negative NPV or an opportunity cost from holding proceeds as cash is high if they do not spend the money as an investment. These reasons may lead to an increase in cost of debt after taxes for timing firms.

2.) Median interest rate strategy

Table 4.30[63] provides the empirical results for the impact of the presence of debt market timing with conducting corporate bonds when the interest rate is comparatively low on the cost of debt after taxes. These outcomes are produced using the OLS, GLS, ATE (2-step) and IV (2SLS) methods. The explained variable is cost of debt after taxes as calculated by the Bloomberg dataset and interest expense ratio. Furthermore, the main explanatory variable is the dummy variable of median interest rate. Clearly, firms that time the debt market when the interest rate is relatively low are successful at minimizing cost of debt after taxes.

Regarding the Bloomberg procedure, the coefficients of the median interest rate have a significantly negative sign on cost of debt after taxes in the first year after

[63] VIF values: Max: 6.40, Min: 1.96 and Mean: 3.35.

Table 4.30: The regressions for the influence of debt market timing *(Median Interest Rate)* on cost of debt after taxes

Y	Period	OLS and GLS Regressions							ATE (2-Step) Regression						IV (2SLS) Regression							
		X = Median Interest Rate							X = Median Interest Rate						X = Median Interest Rate							
		N		*Median Interest Rate*		*F*	*Wald Chi2*	*R²*	*N*	*Median IR*	*Hazard Lambda*	*Wald Chi2*	*Rho*	*Sigma*	*N*	*Median IR*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	*R²*
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
Bloomberg	CB	171	171	0.00162 (1.21)	0.00162 (1.22)	2.556***	49.22***	0.223	153	-0.00348 (-0.90)	0.00297 (1.21)	51.04	0.367	0.00809	153	-0.00178 (-0.44)	40.75***	0.495	0.438	-	-	0.196
	CB+1	128	128	**-0.00443***** **(-3.02)**	**-0.00443***** **(-3.08)**	3.368***	48.53***	0.275	113	**-0.0126***** **(-3.67)**	0.00489** (2.16)	46.33	0.661	0.00740	114	**-0.0137***** **(-3.34)**	41.44***	5.345**	4.722**	16.376	14.091	0.146
	CB+2	104	104	-0.000636 (-0.36)	-0.000636 (-0.41)	29.86***	49.92***	0.324	91	-0.00158 (-0.43)	0.000299 (0.12)	66.83	0.0437	0.00684	91	-0.00302 (-1.05)	66.03***	0.592	0.478	-	-	0.413
	CB+3	82	82	0.000378 (0.17)	0.000378 (0.20)	1.99**	40.10***	0.328	72	0.00458 (1.33)	-0.00382 (-1.59)	37.12	-0.535	0.00715	72	0.00117 (0.40)	33.08***	0.189	0.142	-	-	0.312
	CB+4	65	65	-0.00159 (-0.56)	-0.00159 (-0.75)	2.13**	46.13***	0.415	54	-0.000142 (-0.07)	0 (.)	41.72	0	0.00638	54	0.000585 (0.23)	41.67***	0.231	0.159	-	-	0.435
	CB+5	54	54	0.00126 (0.53)	0.00126 (0.63)	2.760***	32.49***	0.376	44	-0.000393 (-0.19)	0 (.)	31.31	0	0.00574	44	-0.00179 (-0.76)	31.54***	1.837	1.176	-	-	0.410
Interest Expenses	CB	169	169	0.000794 (0.40)	0.000794 (0.40)	4.416***	87.26***	0.341	151	0.00481 (0.92)	-0.00287 (-0.85)	96.02	-0.235	0.0122	151	0.00275 (0.49)	89.70***	0.143	0.126	-	-	0.370
	CB+1	126	126	**-0.00417*** **(-1.67)**	**-0.00417*** **(-1.86)**	3.448***	79.58***	0.387	111	-0.00134 (-0.26)	-0.00370 (-1.06)	94.67	-0.324	0.0114	111	-0.00712 (-1.61)	99.36***	0.051	0.043	-	-	0.485
	CB+2	101	101	**-0.00416*** **(-1.69)**	**-0.00416*** **(-1.91)**	2.516***	31.49**	0.238	89	-0.00276 (-0.56)	-0.00205 (-0.62)	33.32	-0.204	0.0101	89	-0.00208 (-0.52)	31.64**	1.061	0.857	-	-	0.282
	CB+3	80	80	-0.0000626 (-0.02)	-0.0000626 (-0.02)	1.82**	37.05***	0.317	70	0.00490 (1.04)	-0.00597* (-1.83)	58.08	-0.627	0.00952	70	0.000923 (0.23)	58.96***	0.937	0.706	-	-	0.454
	CB+4	63	63	0.000149 (0.03)	0.000149 (0.04)	1.263	36.08***	0.364	53	-0.00245 (-0.59)	-0.00149 (-0.44)	120.5	-0.154	0.00967	53	-0.00280 (-0.73)	117.3***	0.137	0.093	-	-	0.690
	CB+5	54	54	0.00120 (0.25)	0.00120 (0.31)	2.896***	78.67***	0.593	44	0.000660 (0.21)	0 (.)	102.1	0	0.00849	44	0.00175 (0.50)	102.0***	0.511	0.317	-	-	0.698

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

allocation at the 99% confidence level in all models. This confirms hypothesis 2, suggesting that the presence of debt market timing in a period of moderately low interest rates has a negative impact on cost of debt after taxes in the short term. This is consistent with Bougatef and Chichti (2011), who posit that the companies in Tunisia can achieve a timing of the debt market and increase firm value, whereby they imply that these firms can reduce cost of capital due to the evidence of the enhancement of corporate performance.

Simultaneously, based on the interest expense ratio, the coefficients of median interest rate have a significantly negative direction on the interest expense ratio after taxes at the 90% confidence level in the OLS and GLS models in years 1 and 2 after bond offering. This verifies hypothesis 2, indicating that the existence of debt market timing with the median interest rate strategy negatively influences cost of debt after taxes. This is also consistent with the claim by Bougatef and Chichti (2011).

Briefly, the results show that debt market timers during a period of comparatively low interest rates can achieve the objective of a reduction in cost of debt after taxes in the short term. Moreover, this is the first study to provide the evidence of the success in the reduction of cost of debt after taxes, directly. In addition, our finding implies that the effect of the decline in cost of debt from debt market timing when the interest rate is moderately low overcomes the influence of the decrease in the tax shield. Hence, this effects a success in the minimization of cost of debt after taxes.

4.5.4.1.3 Weighted average cost of capital (WACC)

a.) IPO issuance

1.) Hot equity strategy

The OLS, GLS, ATE (2-step) and IV (2SLS) approaches are used to investigate the impact of the presence of equity market timing with the hot equity strategy on WACC for IPO companies in the Stock Exchange of Thailand from 2000 to 2014. The estimated results are shown in table 4.31.[64] WACC is measured by cost of debt after taxes with the Bloomberg database, while cost of equity is calculated using three different approaches consisting of the CAPM, Gordon and the implied cost of equity methods with literature and modified versions. Moreover, the main explanatory variable is the dummy variable

[64] VIF values: Max: 5.73, Min: 2.26 and Mean: 3.82.

Table 4.31: The regressions for the influence of IPO market timing *(HOT Equity)* on WACC

Y	Period	OLS and GLS Regressions X = HOT Equity							ATE (2-Step) Regression X = HOT Equity						IV (2SLS) Regression X = HOT Equity							
		N		*HOT Equity*		*F*	*Wald Chi2*	R^2	*N*	*HOT Equity*	*Hazard Lambda*	*Wald Chi2*	*Rho*	*Sigma*	*N*	*HOT Equity*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
CAPM	IPO	261	261	0.00897 (1.16)	0.00897 (0.94)	11.67***	1275.1***	0.830	157	0.0214 (0.79)	-0.0156 (-0.89)	969.8***	-0.281	0.0556	158	0.0235 (0.82)	960.4***	0.844	0.746	-	-	0.858
	IPO+1	231	231	-0.00235 (-0.46)	-0.00235 (-0.54)	5.015***	65.90***	0.222	140	-0.00358 (-0.26)	-0.00157 (-0.18)	34.82***	-0.0569	0.0275	141	-0.000269 (-0.02)	35.72***	0.174	0.150	-	-	0.202
	IPO+2	206	206	-0.00268 (-0.67)	-0.00268 (-0.78)	5.549***	35.52***	0.147	123	-0.00791 (-0.83)	0.00243 (0.38)	13.28	0.124	0.0197	124	-0.00427 (-0.43)	13.53	0.005	0.004	-	-	0.103
	IPO+3	191	191	0.00441 (1.31)	0.00441 (1.15)	4.316***	39.86***	0.173	116	-0.00342 (-0.31)	0.00453 (0.62)	25.06*	0.217	0.0209	117	-0.00953 (-0.90)	26.48*	1.836	1.562	-	-	0.153
	IPO+4	184	184	-0.00257 (-0.61)	-0.00257 (-0.65)	4.023***	49.34***	0.211	114	-0.0162 (-1.44)	0.0112 (1.52)	31.94**	0.520	0.0215	115	-0.0158 (-1.46)	32.73**	2.441	2.082	-	-	0.176
	IPO+5	169	169	0.000615 (0.13)	0.000615 (0.13)	2.478***	29.81**	0.150	106	-0.0133 (-1.03)	0.0124 (1.46)	21.57	0.530	0.0233	107	-0.0139 (-1.12)	21.74	2.634	2.221	-	-	0.112
Gordon Dividend Growth Model	IPO	253	253	-0.0758 (-0.88)	-0.0758 (-0.89)	6.855***	88.64***	0.259	154	-0.0932 (-0.44)	-0.0673 (-0.48)	81.97***	-0.156	0.432	155	-0.180 (-0.78)	85.98***	0.001	0.001	-	-	0.365
	IPO+1	227	227	-0.113 (-0.73)	-0.113 (-0.92)	1.018	8.495	0.0361	139	**-0.754*** **(-1.89)**	0.406 (1.57)	15.58	0.498	0.814	148	**-0.936*** **(-1.93)**	16.36	3.086*	2.747*	12.996	11.167	0.128
	IPO+2	201	201	0.0286 (0.27)	0.0286 (0.28)	1.233	20.42	0.0922	120	0.309 (1.03)	-0.349* (-1.74)	30.22**	-0.555	0.629	128	**0.813**** **(2.12)**	26.88*	8.568***	7.819***	19.597	17.354	0.210
	IPO+3	188	188	-0.152 (-0.94)	-0.152 (-1.18)	1.360	17.88	0.0869	114	-0.438 (-1.21)	-0.00201 (-0.01)	21.77	-0.00293	0.686	115	**-0.578*** **(-1.67)**	23.47	0.218	0.183	-	-	0.185
	IPO+4	182	182	0.0851 (0.68)	0.0851 (0.71)	1.345	24.59	0.119	113	0.295 (0.78)	-0.0950 (-0.38)	21.80	-0.133	0.715	114	-0.122 (-0.33)	21.89	0.915	0.768	-	-	0.151
	IPO+5	136	136	-0.134 (-1.27)	-0.134 (-1.47)	0.980	15.31	0.101	90	**-0.472**** **(-2.25)**	0.205 (1.38)	21.44	0.529	0.388	90	**-0.526**** **(-2.16)**	18.69	1.917	1.567	-	-	0.123
Average 4 ICC Methods (Literature)	IPO	260	260	-0.00660 (-0.61)	-0.00660 (-0.68)	1.692**	24.90*	0.0874	156	-0.00962 (-0.33)	-0.00959 (-0.50)	25.68*	-0.159	0.0603	157	-0.0408 (-1.32)	31.01**	0.415	0.366	-	-	0.162
	IPO+1	231	231	0.00256 (0.20)	0.00256 (0.21)	1.410	26.16*	0.102	139	0.00435 (0.11)	-0.00524 (-0.21)	25.21*	-0.0681	0.0770	140	-0.0429 (-1.04)	31.77**	1.220	1.063	-	-	0.155
	IPO+2	206	206	-0.00897 (-0.64)	-0.00897 (-0.71)	1.355	22.60	0.0989	122	-0.0283 (-0.99)	0.00714 (0.37)	23.29	0.122	0.0584	123	-0.0202 (-0.69)	35.02***	0.001	0.001	-	-	0.228
	IPO+3	191	191	0.00744 (0.55)	0.00744 (0.57)	1.510*	30.66**	0.138	115	**-0.0478*** **(-1.67)**	0.0185 (0.97)	33.53***	0.339	0.0546	116	**-0.0596**** **(-2.15)**	39.99***	2.407	2.055	-	-	0.216
	IPO+4	183	183	**-0.0518**** **(-2.36)**	**-0.0518***** **(-2.90)**	1.511*	34.13***	0.157	113	**-0.120***** **(-3.03)**	0.0511** (1.99)	39.54***	0.674	0.0757	114	**-0.129***** **(-3.35)**	38.68***	5.911**	5.195**	23.969	20.500	0.155
	IPO+5	168	168	-0.0231 (-1.48)	-0.0231 (-1.47)	5.446***	50.70***	0.232	105	0.0539 (1.32)	-0.0493* (-1.87)	55.60***	-0.672	0.0735	106	0.0131 (0.35)	57.01***	0.569	0.469	-	-	0.344
Average 4 ICC Methods (Modified)	IPO	254	254	-0.0135 (-0.94)	-0.0135 (-1.22)	2.066***	35.04***	0.121	155	0.0114 (0.33)	-0.0390* (-1.77)	43.39***	-0.549	0.0711	156	-0.0389 (-1.11)	52.80***	0.012	0.010	-	-	0.277
	IPO+1	228	228	-0.00836 (-0.62)	-0.00836 (-0.71)	1.460	16.32	0.0668	139	-0.0104 (-0.28)	-0.000344 (-0.01)	22.67	-0.00463	0.0743	140	-0.0599 (-1.49)	27.61**	1.941	1.701	-	-	0.114
	IPO+2	204	204	-0.0248 (-1.41)	**-0.0248*** **(-1.84)**	1.227	22.12	0.0978	122	**-0.0784**** **(-2.43)**	0.0143 (0.66)	28.58**	0.217	0.0661	123	**-0.101***** **(-2.98)**	39.96***	2.042	1.756	-	-	0.235
	IPO+3	190	190	0.00735 (0.69)	0.00735 (0.63)	1.996**	28.85**	0.132	115	-0.0330 (-1.17)	0.0101 (0.53)	28.34**	0.188	0.0537	116	**-0.0752***** **(-2.64)**	42.65***	5.850**	5.152**	24.445	21.093	0.169
	IPO+4	181	181	**-0.0369***** **(-2.73)**	**-0.0369***** **(-2.95)**	5.278***	53.36***	0.228	112	**-0.0711**** **(-2.44)**	0.0220 (1.14)	27.02**	0.397	0.0554	120	**-0.0842**** **(-2.25)**	41.53***	2.344	2.012	-	-	0.208
	IPO+5	128	128	-0.0184 (-1.06)	-0.0184 (-1.01)	2.736***	356.6***	0.175	81	0.0251 (0.67)	-0.0281 (-1.05)	48.52***	-0.395	0.0713	81	0.0501 (1.15)	46.19***	2.478	1.988	-	-	0.328

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

of hot equity. Overall, the existence of equity market timing with the hot equity strategy has a negative influence on WACC.

Based on the Gordon model, the parameters of hot equity have a negative direction on WACC in year 1 after going public with statistical significance at the 90% confidence level in the ATE and IV models. Even if there is a significantly positive sign of the coefficients for hot equity on WACC in year 2 post-issuance at the 95% confidence level in the IV model, the significantly negative association between them appears in year 3 after an SEO at the 90% confidence level in the IV model. Likewise, there is a significantly negative direction for hot equity on WACC at the 95% confidence level in the ATE and IV regressions. Therefore, these findings support hypothesis 1, indicating that IPO timing firms in a hot period can accomplish a reduction in WACC in the short and long term according to the Gordon model. This affirms the claim of Baker and Wurgler (2002) that the reason for equity market timing is to minimize cost of capital.

Similarly, the existence of equity market timing with the hot equity strategy negatively relates to WACC as estimated by the implied cost of equity approach. As shown in table 4.31, there is a significantly negative direction on the coefficients of hot equity on WACC with the literature version in years 3 and 4 post-IPO issuance in the IV models at the 95% and 99% confidence levels, respectively. Also, the coefficients of hot equity on WACC with the adjusted version in years 2, 3 and 4 after going public have a significantly negative sign in the IV model at least at the 95% confidence level. These findings confirm hypothesis 1, indicating that IPO market timers in a hot period tend to reach their objective of a reduction in WACC as measured by implied cost of equity. This is also consistent with the statements by Baker and Wurgler (2002) and Alti (2006).

Interestingly, the coefficients of WACC evaluated by the Gordon model are greater than in the implied cost of equity method. For instance, the parameter of hot equity on WACC estimated by the Gordon model at 3 years after IPO is -0.578, while the same coefficient with the implied cost of equity method (modified) is -0.0752 in the IV model. Thus, this indicates that the effect of a decrease in WACC evaluated by the Gordon model is higher than in the implied cost of equity model for the hot equity strategy of IPO firms.

Summing up, IPO market timers in a hot period are successful at reducing overall cost of capital, which is the one crucial objective of equity market timing.

2.) Economic boom strategy

We provide empirical results of the influence of the existence of equity market timing with the economic expansion strategy on WACC for IPO firms in the Thai stock market from 2000 to 2014. The results are generated by the OLS, GLS, ATE (2-step) and IV (2SLS) regressions. The estimated results are presented in table 4.32.[65] The dependent variable is WACC as estimated by the cost of debt after taxes with the Bloomberg technique, whereas we employ three different methods to measure cost of equity, namely the CAPM, Gordon and implied cost of equity models. The main explanatory variable is the dummy variable of economic boom. Briefly, there are different results for the impact of the presence of equity market timing with the economic boom strategy on WACC, depending on the instrument used in the evaluation of cost of equity.

Beginning with the CAPM approach, IPO timing firms suffer from the amelioration of WACC in the offering year; however, they are successful at diminishing WACC 1 year later. According to table 4.32, the coefficients of economic boom have a significantly positive sign on WACC in an IPO year at the 95% confidence level in the IV model. In contrast, the parameters of economic boom have a significantly negative direction on WACC in the first year after going public at the 95% confidence level in the OLS and GLS models. Therefore, the positive sign in the IPO year argues against hypothesis 1, suggesting that IPO timing firms during an economic boom suffer from an increase in WACC. However, the negative direction in year 1 after offering supports hypothesis 1, indicating that IPO timing companies when an economy is in a boom phase can accomplish a reduction in WACC 1 year after issuance, which is consistent with the statements by Baker and Wurgler (2002) and Alti (2006), who claim that the reason for equity market timing by firms is that they are eager to diminish cost of capital.

Based on the Gordon model, the presence of equity market timing with the economic boom strategy has a positive effect on WACC in the short term, yet there is a negative influence on WACC in the long term. The outcomes show that the coefficients of economic boom have a significantly positive sign on WACC in years 2 and 4 post-offering in the ATE models at the 90% and 95% confidence levels, respectively. In contrast, the parameters of economic boom have a significantly negative direction on WACC in year 5 after allocating at the 95% confidence level in the ATE model.

[65] VIF values: Max: 5.78, Min: 2.24 and Mean: 3.88.

Table 4.32: The regressions for the influence of IPO market timing *(Economic Boom)* on WACC

Y	Period	OLS and GLS Regressions X = Economic Boom							ATE (2-Step) Regression X = Economic Boom						IV (2SLS) Regression X = Economic Boom							
		N		*Economic Boom*		*F*	*Wald Chi2*	R^2	*N*	*BOOM*	*Hazard Lambda*	*Wald Chi2*	*Rho*	*Sigma*	*N*	*BOOM*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
CAPM	IPO	261	261	0.00186 (0.22)	0.00186 (0.22)	11.66***	1270.2***	0.830	157	**0.0423*** **(1.92)**	-0.0278* (-1.92)	964.4***	-0.479	0.0580	158	**0.0481**** **(2.15)**	875.0***	5.214**	4.744**	18.275	15.826	0.844
	IPO+1	231	231	**-0.00787**** **(-1.98)**	**-0.00787**** **(-2.09)**	4.969***	71.14***	0.235	140	-0.0113 (-1.09)	0.000373 (0.05)	39.30***	0.0137	0.0271	141	-0.00876 (-0.84)	37.52***	0.050	0.044	-	-	0.226
	IPO+2	206	206	-0.000621 (-0.20)	-0.000621 (-0.21)	4.751***	34.85***	0.145	123	-0.00482 (-0.63)	0.00296 (0.57)	12.86	0.150	0.0198	124	-0.00426 (-0.56)	13.48	0.235	0.199	-	-	0.0922
	IPO+3	191	191	0.00257 (0.74)	0.00257 (0.78)	5.050***	39.01***	0.170	116	-0.00361 (-0.46)	0.00812 (1.51)	25.70*	0.384	0.0211	117	-0.00561 (-0.66)	26.00*	2.701	2.316	-	-	0.150
	IPO+4	184	184	0.000192 (0.05)	0.000192 (0.06)	4.050***	48.81***	0.210	114	-0.00166 (-0.21)	0.00200 (0.37)	31.15**	0.0956	0.0209	115	-0.00473 (-0.56)	32.21**	0.587	0.493	-	-	0.209
	IPO+5	169	169	0.000584 (0.14)	0.000584 (0.15)	2.546***	29.82**	0.150	106	0.0108 (1.26)	-0.00759 (-1.27)	22.63	-0.332	0.0229	107	0.0128 (1.40)	23.00	2.050	1.719	-	-	0.135
Gordon Dividend Growth Model	IPO	253	253	-0.122 (-1.46)	-0.122 (-1.64)	7.111***	91.18***	0.265	154	0.0822 (0.53)	-0.0874 (-0.83)	81.59***	-0.199	0.440	155	0.0865 (0.55)	82.43***	0.713	0.629	-	-	0.340
	IPO+1	227	227	0.0557 (0.57)	0.0557 (0.52)	1.050	7.896	0.0336	139	0.277 (0.91)	-0.194 (-0.95)	13.19	-0.242	0.800	140	0.263 (0.86)	14.03	0.798	0.694	-	-	0.0720
	IPO+2	201	201	**0.151*** **(1.67)**	**0.151*** **(1.74)**	1.279	23.67	0.105	120	**0.374*** **(1.78)**	-0.175 (-1.18)	34.67***	-0.287	0.612	121	0.292 (1.38)	34.16***	0.463	0.392	-	-	0.216
	IPO+3	188	188	0.0424 (0.40)	0.0424 (0.38)	1.443	16.52	0.0808	114	0.346 (1.37)	-0.203 (-1.13)	20.96	-0.286	0.711	115	0.280 (1.03)	20.72	0.513	0.430	-	-	0.143
	IPO+4	182	182	0.123 (1.26)	0.123 (1.20)	1.353	25.66*	0.124	113	**0.580**** **(2.28)**	-0.291 (-1.62)	26.29*	-0.401	0.724	114	0.440 (1.64)	25.07***	0.675	0.566	-	-	0.173
	IPO+5	136	136	0.0368 (0.48)	0.0368 (0.48)	1.102	13.21	0.0885	90	**-0.301**** **(-1.97)**	0.211* (1.94)	16.53	0.525	0.401	90	-0.222 (-1.39)	15.89	1.271	1.031	-	-	0.120
Average 4 ICC Methods (Literature)	IPO	260	260	0.0139 (1.52)	0.0139 (1.64)	1.817**	27.32*	0.0951	156	**0.0396*** **(1.73)**	-0.0277* (-1.82)	27.58**	-0.438	0.0632	157	0.0184 (0.83)	29.39**	0.589	0.520	-	-	0.146
	IPO+1	231	231	0.00476 (0.41)	0.00476 (0.45)	1.466	26.34*	0.102	139	0.00890 (0.33)	-0.00818 (-0.43)	25.22*	-0.106	0.0771	140	-0.00274 (-0.10)	31.83**	0.004	0.004	-	-	0.185
	IPO+2	206	206	0.00238 (0.20)	0.00238 (0.22)	1.297	22.10	0.0969	122	0.00156 (0.07)	-0.000668 (-0.04)	21.76	-0.0114	0.0587	123	-0.00393 (-0.18)	34.07***	0.069	0.058	-	-	0.216
	IPO+3	191	191	0.0121 (0.95)	0.0121 (1.09)	1.863**	31.65**	0.142	115	0.0185 (0.98)	-0.00114 (-0.08)	31.06**	-0.0211	0.0540	116	-0.00438 (-0.21)	36.07***	1.650	1.400	-	-	0.231
	IPO+4	183	183	-0.0168 (-1.10)	-0.0168 (-1.07)	1.227	25.90*	0.124	113	-0.00619 (-0.24)	0.00201 (0.11)	28.51**	0.0271	0.0741	114	-0.000223 (-0.01)	29.16**	0.026	0.022	-	-	0.204
	IPO+5	168	168	**-0.0251*** **(-1.70)**	**-0.0251*** **(-1.86)**	6.003***	52.38***	0.238	105	0.00687 (0.28)	-0.0302* (-1.70)	56.94***	-0.430	0.0702	112	0.0361 (1.15)	42.44***	7.691***	6.857**	14.459	11.859	0.198
Average 4 ICC Methods (Modified)	IPO	254	254	**0.0193**** **(1.98)**	**0.0193**** **(1.99)**	2.244***	37.84***	0.130	155	0.0407 (1.56)	-0.0249 (-1.43)	44.21***	-0.348	0.0717	156	0.0145 (0.57)	49.36***	0.078	0.069	-	-	0.240
	IPO+1	228	228	0.00100 (0.09)	0.00100 (0.10)	1.466	15.79	0.0648	139	0.00451 (0.17)	-0.00690 (-0.38)	22.54	-0.0926	0.0745	140	-0.0174 (-0.65)	27.08*	0.342	0.297	-	-	0.156
	IPO+2	204	204	0.00140 (0.11)	0.00140 (0.12)	0.968	18.45	0.0829	122	-0.0320 (-1.23)	0.0297* (1.66)	18.84	0.415	0.0714	123	-0.0378 (-1.45)	29.58**	3.825*	3.338*	20.971	17.676	0.135
	IPO+3	190	190	-0.00898 (-0.77)	-0.00898 (-0.90)	2.077***	29.32**	0.134	115	0.00633 (0.34)	-0.00543 (-0.40)	25.91*	-0.101	0.0540	116	-0.00825 (-0.41)	39.78***	0.261	0.219	-	-	0.252
	IPO+4	181	181	-0.00423 (-0.37)	-0.00423 (-0.39)	13.82***	42.79***	0.191	112	-0.000952 (-0.05)	0.00249 (0.17)	18.47	0.0440	0.0565	113	0.00312 (0.15)	42.41***	0.006	0.005	-	-	0.273
	IPO+5	128	128	-0.0145 (-0.75)	-0.0145 (-0.93)	2.609***	26.89**	0.174	81	-0.0268 (-1.07)	0.00783 (0.39)	50.08***	0.112	0.0699	81	-0.0135 (-0.49)	48.94***	0.102	0.079	-	-	0.381

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Consequently, the positive effect in the short term rejects hypothesis 1, suggesting that IPO timing corporations when the economy is booming cannot achieve a reduction in WACC in the short term. Conversely, the negative impact in the long term confirms hypothesis 1, indicating that IPO timing firms can accomplish a minimization of WACC in the long term, which supports the claim of Baker and Wurgler (2002).

According to the implied cost of equity method, the presence of equity market timing with the economic boom strategy positively associates with WACC in an IPO year; on the other hand, it has a negative influence in the long term. As shown in table 4.32, the coefficients of economic boom have a significantly positive sign on WACC with the literature and adjusted versions in the IPO year at the 90% and 95% confidence levels in the ATE and OLS & GLS models, respectively. This argues against hypothesis 1, suggesting that the existence of equity market timing with the economic boom strategy has a positive effect on WACC in an IPO year. However, there is a significantly negative direction of parameters for economic boom on WACC in year 5 after issuance at the 90% confidence level in the OLS and GLS models. This verifies hypothesis 1, indicating that the presence of equity market timing during a period of economic expansion has a negative influence on WACC in the long term, and this is consistent with the claim by Baker and Wurgler (2002).

Consequently, there is a difference in the outcomes of the effect of the presence of equity market timing with the economic boom strategy on WACC, depending on the method of evaluating cost of equity. However, there is the same tendency in all methods, whereby IPO market timers with the economic expansion strategy suffer from an increase in WACC in the initial year, and then they can achieve the purpose of a reduction in WACC in the following year.

b.) SEO issuance

1.) Hot equity strategy

Table 4.33[66] illustrates the results of the OLS, GLS, ATE (2-step) and IV (2SLS) methods in the investigation into the influence of the presence of equity market timing with the hot equity strategy on WACC. We studied firms that conducted SEO issuances in the Thai stock market from 2000 to 2014. The explained variable is WACC as estimated by three different methods of cost of equity, consisting of the CAPM, Gordon

[66] VIF values: Max: 6.14, Min: 1.68 and Mean: 4.00.

and implied cost of equity models. In addition, the main explanatory variable is the dummy variable of hot equity. Overall, the existence of equity market timing with the hot equity strategy has a negative effect on WACC in the short term until 3 years after selling follow-on equity. However, there is a positive effect of the presence of equity market timing on WACC in the long term.

Regarding the CAPM method, the coefficients of hot equity have a significantly negative sign on WACC in the issuing year and 3 and 4 following years at least at the 95% confidence level in the IV, IV and GLS models, respectively. This supports hypothesis 1, suggesting that SEO timing firms during a hot period are successful at minimizing WACC in the offering year and 3 and 4 years later. This is consistent with Baker and Wurgler (2002) and Alti (2006), who showed that timing companies are eager to reduce their cost of capital. However, there is a significantly positive direction of hot equity on WACC in year 5 post-issuance at the 90% confidence level in the IV model. This rejects hypothesis 1, meaning that timing firms with the hot equity strategy are unable to attain their aim of a decrease in WACC in the long term. This is also consistent with the claim of Alti (2006) that the effect of equity market timing appears for the capital structure only in the short term, and then the timing firms rebalance their capital structure to reach their target capital structure. Therefore, this implies that timing firms may finance with other sources of funds containing a higher cost to rebalance their capital structure. Hence, they suffer from an increase in WACC in the long term.

Similarly, based on the Gordon model, the coefficients of hot equity have a significantly negative sign on WACC in year 2 after offering at the 95% confidence level in the OLS and GLS models. This confirms hypothesis 1, indicating that the existence of equity market timing when the stock market is in a good condition supports a lowering of WACC in year 2 following an SEO issuance. Again, this is consistent with the statements by Baker and Wurgler (2002) and Alti (2006). In contrast, the coefficients of hot equity have a significantly positive direction on WACC in year 5 post-offering at the 90% confidence level in the OLS and GLS models. This rejects hypothesis 1, denoting that timers during a hot period tend to suffer from an increase in WACC in the long term, which is consistent with the assertion by Alti (2006).

With respect to the implied cost of equity technique, the parameters of hot equity have a significantly negative direction on WACC with the literature and adjusted versions from the SEO year to 3 years later in the ATE and IV models at least at the 90% confidence level. This affirms hypothesis 1, indicating that SEO timing companies tend

Table 4.33: The regressions for the influence of SEO market timing *(HOT Equity)* on WACC

Y	Period	OLS and GLS Regressions X = HOT Equity							ATE (2-Step) Regression X = HOT Equity						IV (2SLS) Regression X = HOT Equity							
		N		*HOT Equity*		*F*	*Wald Chi2*	R^2	*N*	*HOT Equity*	*Hazard Lambda*	*Wald Chi2*	*Rho*	*Sigma*	*N*	*HOT Equity*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
CAPM	SEO	928	928	0.00261 (1.35)	0.00261 (1.37)	23.22***	399.0***	0.301	633	-0.0268*** (-2.60)	0.0187*** (2.97)	281.3***	0.635	0.0295	640	-0.0327*** (-2.59)	222.3***	11.284***	11.145***	18.568	18.166	0.0605
	SEO+1	827	827	0.000976 (0.52)	0.000976 (0.52)	58.59***	321.2***	0.280	546	-0.00445 (-0.49)	0.00322 (0.57)	180.9***	0.125	0.0258	546	-0.0119 (-1.24)	174.1***	1.893	1.837	-	-	0.212
	SEO+2	686	686	-0.00334 (-1.56)	-0.00334 (-1.56)	17.86***	221.1***	0.244	438	-0.0143 (-1.61)	0.00656 (1.20)	174.5***	0.259	0.0253	438	-0.0129 (-1.44)	173.4***	1.061	1.019	-	-	0.272
	SEO+3	585	585	-0.00478* (-1.89)	-0.00478** (-1.96)	9.339***	137.2***	0.190	354	-0.0220** (-2.43)	0.0104* (1.85)	127.5***	0.395	0.0264	354	-0.0210** (-2.25)	125.1***	2.944*	2.818*	24.640	23.715	0.225
	SEO+4	494	494	-0.00577** (-2.14)	-0.00577** (-2.11)	5.224***	102.1***	0.171	287	-0.0162 (-1.64)	0.00548 (0.89)	100.8***	0.215	0.0255	287	-0.0126 (-1.25)	102.1***	0.235	0.221	-	-	0.266
	SEO+5	464	464	-0.00240 (-0.90)	-0.00240 (-0.87)	5.827***	109.9***	0.192	275	0.00991 (1.06)	-0.00566 (-0.97)	142.4***	-0.241	0.0235	276	0.0203* (1.85)	139.5***	3.667*	3.460*	13.482	12.531	0.276
Gordon Dividend Growth Model	SEO	899	899	0.0512 (0.76)	0.0512 (0.74)	5.296***	140.7***	0.135	617	-0.146 (-0.42)	0.114 (0.53)	107.9***	0.112	1.010	617	-0.271 (-0.73)	107.0***	0.713	0.693	-	-	0.134
	SEO+1	797	797	-0.0493 (-0.68)	-0.0493 (-0.71)	3.727***	119.2***	0.130	534	-0.491 (-1.43)	0.294 (1.39)	116.7***	0.308	0.953	541	-0.288 (-0.72)	115.7***	0.443	0.428	-	-	0.165
	SEO+2	661	661	-0.170** (-2.05)	-0.170** (-2.28)	3.929***	136.1***	0.171	426	-0.277 (-0.82)	0.0367 (0.18)	121.9***	0.0407	0.903	426	-0.550 (-1.63)	121.2***	1.082	1.039	-	-	0.209
	SEO+3	560	560	-0.0700 (-0.88)	-0.0700 (-0.95)	3.563***	114.1***	0.169	342	-0.241 (-0.78)	0.0795 (0.41)	117.4***	0.0990	0.804	342	-0.412 (-1.30)	116.1***	0.978	0.929	-	-	0.239
	SEO+4	463	463	-0.0747 (-0.85)	-0.0747 (-0.87)	3.506***	125.8***	0.214	278	-0.0627 (-0.19)	0.0336 (0.16)	115.9***	0.0440	0.764	278	-0.141 (-0.44)	115.6***	0.182	0.170	-	-	0.291
	SEO+5	423	423	0.153* (1.92)	0.153* (1.84)	3.437***	144.3***	0.254	254	0.186 (0.53)	0.00253 (0.01)	91.71***	0.00315	0.802	254	-0.115 (-0.33)	89.03***	0.914	0.853	-	-	0.250
Average 4 ICC Methods (Literature)	SEO	928	928	-0.00160 (-0.28)	-0.00160 (-0.30)	2.491***	32.33**	0.0337	631	-0.0935*** (-3.14)	0.0558*** (3.07)	35.57***	0.673	0.0829	631	-0.0984*** (-3.08)	29.27**	11.952***	11.835***	25.956	25.568	0.0884
	SEO+1	828	828	-0.00709 (-0.93)	-0.00709 (-1.09)	3.704***	31.52**	0.0367	548	-0.146*** (-4.03)	0.0805*** (3.64)	48.73***	0.758	0.106	575	-0.0826** (-1.97)	39.98***	2.494	2.423	-	-	0.0301
	SEO+2	687	687	-0.0121 (-1.49)	-0.0121* (-1.78)	11.18***	22.18	0.0313	439	-0.118*** (-3.57)	0.0574*** (2.84)	39.15***	0.613	0.0936	459	-0.0790** (-2.18)	32.31**	2.022	1.947	-	-	0.0243
	SEO+3	579	579	-0.00183 (-0.25)	-0.00183 (-0.27)	1.133	20.91	0.0349	353	-0.0561** (-2.10)	0.0305* (1.84)	26.90**	0.406	0.0751	356	-0.0486* (-1.74)	25.52**	2.217	2.112	-	-	0.0145
	SEO+4	487	487	0.0133* (1.71)	0.0133* (1.77)	4.658***	53.33***	0.0987	289	-0.00694 (-0.24)	0.00932 (0.53)	41.45***	0.128	0.0726	289	0.00202 (0.07)	42.72***	0.034	0.032	-	-	0.129
	SEO+5	462	462	0.00960 (1.17)	0.00960 (1.14)	4.770***	44.01***	0.0870	276	-0.0131 (-0.41)	0.00671 (0.34)	37.00***	0.0868	0.0773	276	-0.0276 (-0.87)	37.02***	0.687	0.644	-	-	0.101
Average 4 ICC Methods (Modified)	SEO	930	930	-0.00220 (-0.42)	-0.00220 (-0.42)	3.614***	46.81***	0.0479	637	-0.0696*** (-2.75)	0.0445*** (2.87)	44.82***	0.594	0.0750	742	-0.021 (-0.74)	41.83***	0.588	0.574	-	-	0.0007
	SEO+1	830	830	-0.00687 (-1.05)	-0.00687 (-1.17)	8.332***	38.58***	0.0444	550	-0.0885*** (-2.99)	0.0458** (2.52)	27.08**	0.537	0.0853	575	-0.0669* (-1.93)	23.02	2.249	2.183	-	-	0.0610
	SEO+2	690	690	-0.00583 (-0.74)	-0.00583 (-0.85)	8.963***	41.10***	0.0562	442	-0.0902*** (-2.98)	0.0419** (2.25)	29.19**	0.483	0.0869	542	-0.0668* (-1.84)	32.17**	2.235	2.165	-	-	0.0853
	SEO+3	589	589	-0.00932 (-1.17)	-0.00932 (-1.30)	8.034***	33.01**	0.0531	358	-0.0463* (-1.86)	0.0183 (1.17)	32.26***	0.254	0.0719	361	-0.0600** (-2.09)	34.73***	2.403	2.292	-	-	0.0344
	SEO+4	499	499	-0.00548 (-0.65)	-0.00548 (-0.72)	5.157***	65.59***	0.116	292	-0.0256 (-0.99)	0.0130 (0.81)	63.03***	0.193	0.0675	292	-0.0241 (-0.92)	62.33***	0.540	0.508	-	-	0.165
	SEO+5	425	425	0.00871 (1.02)	0.00871 (0.97)	3.268***	35.18***	0.0764	255	-0.0280 (-0.96)	0.0172 (0.94)	35.11***	0.248	0.0691	255	-0.0345 (-1.05)	34.56***	1.105	1.032	-	-	0.0833

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

to lessen their WACC in the short term until 3 years post-issuance. Conversely, there is a positive influence between them in the long term. As shown in table 4.33, the coefficients of hot equity have a significantly positive sign on WACC with the literature form in year 4 after allocation at the 90% confidence level in the OLS and GLS models. Hence, these findings reject hypothesis 1 regarding the effect of these variables in the long term. This suggests that SEO market timers with the hot equity strategy suffer from an increase in WACC in year 4 post-issuance, which this is consistent with Alti (2006).

In short, timing corporations in a hot market tend to succeed in the reduction of WACC in the short term until 3 years post-offering. However, they suffer from an increase in WACC in the long term.

2.) Economic boom strategy

Table 4.34[67] illustrates the empirical results of the impact of the existence of equity market timing on WACC. The outcomes are generated by the OLS, GLS, ATE (2-step) and IV (2SLS) regressions. We focus on SEO firms in the Stock Exchange of Thailand from 2000 to 2014. The dependent variable is WACC as measured by the cost of debt after taxes with the Bloomberg approach and cost of equity with three different techniques, including the CAPM, Gordon and implied cost of equity methods. Furthermore, the main explanatory variable is the dummy variable of economic boom. Overall, the results are different, depending on the measurement for estimating cost of equity.

Starting with the CAPM method, there is a significantly negative sign for the coefficients of economic boom on WACC in an SEO year and 3 years later at the 95% and 99% confidence levels, respectively, in the OLS and GLS models. This supports hypothesis 1, suggesting that timers with the economic boom strategy are successful at decreasing WACC in the offering year and 3 years after issuing. This is consistent with the notion of Baker and Wurgler (2002) and Alti (2006).

On the other hand, according to the Gordon model, equity market timing with the economic boom strategy significantly positively influences WACC in the first year after offering at the 95% confidence level in the ATE model. This rejects hypothesis 1, indicating that the presence of equity market timing with the economic boom strategy has a positive effect on WACC 1 year after issuance. Conversely, there is a significantly

[67] VIF values: Max: 6.19, Min:1.66 and Mean: 4.01.

Table 4.34: The regressions for the influence of SEO market timing *(Economic Boom)* on WACC

Y	Period	OLS and GLS Regressions: X = Economic Boom							ATE (2-Step) Regression: X = Economic Boom						IV (2SLS) Regression: X = Economic Boom							
		N		*Economic Boom*		*F*	*Wald Chi2*	R^2	*N*	*BOOM*	*Hazard Lambda*	*Wald Chi2*	*Rho*	*Sigma*	*N*	*BOOM*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
CAPM	SEO	932	932	**-0.00419****	**-0.00419****	23.79***	404.3***	0.303	633	-0.00817	0.00390	285.6***	0.148	0.0263	633	-0.00292	295.3***	0.006	0.006	-	-	0.319
				(-2.26)	**(-2.28)**					(-0.82)	(0.63)					(-0.27)						
	SEO+1	832	832	-0.00157	-0.00157	58.73***	324.1***	0.280	547	-0.000178	-0.0000322	179.7***	-0.00125	0.0257	554	-0.00192	183.2***	0.014	0.014	-	-	0.248
				(-0.86)	(-0.86)					(-0.02)	(-0.01)					(-0.16)						
	SEO+2	691	691	-0.00251	-0.00251	17.20***	220.4***	0.242	439	0.00993	-0.00759	169.3***	-0.296	0.0256	439	0.00290	172.0***	0.202	0.194	-	-	0.278
				(-1.28)	(-1.28)					(0.91)	(-1.10)					(0.27)						
	SEO+3	590	590	**-0.00791*****	**-0.00791*****	9.248***	149.8***	0.202	355	-0.0161	0.00666	126.0***	0.257	0.0259	355	**-0.0185***	123.0***	1.510	1.439	-	-	0.229
				(-3.53)	**(-3.53)**					(-1.53)	(1.00)					**(-1.70)**						
	SEO+4	499	499	-0.00117	-0.00117	4.814***	101.0***	0.168	288	-0.00765	0.00738	98.03***	0.283	0.0260	288	-0.00513	96.48***	0.973	0.915	-	-	0.239
				(-0.45)	(-0.46)					(-0.84)	(1.25)					(-0.58)						
	SEO+5	469	469	-0.0000681	-0.0000681	5.857***	112.5***	0.193	276	0.0148	-0.00690	140.7***	-0.290	0.0238	277	0.0107	149.7***	0.379	0.353	-	-	0.346
				(-0.03)	(-0.03)					(1.47)	(-1.08)					(1.00)						
Gordon Dividend Growth Model	SEO	903	903	-0.0329	-0.0329	5.291***	141.1***	0.135	617	0.477	-0.370	104.4***	-0.354	1.043	617	0.185	107.0***	0.495	0.481	-	-	0.136
				(-0.50)	(-0.49)					(1.24)	(-1.54)					(0.45)						
	SEO+1	802	802	0.0653	0.0653	3.734***	120.1***	0.130	535	**1.009****	-0.641***	106.4***	-0.613	1.047	542	0.475	111.5***	1.310	1.267	-	-	0.129
				(0.98)	(0.97)					**(2.55)**	(-2.61)					(1.08)						
	SEO+2	666	666	**-0.140****	**-0.140****	4.068***	135.4***	0.169	427	0.218	-0.260	117.7***	-0.281	0.925	427	0.0446	119.5***	0.334	0.320	-	-	0.215
				(-2.08)	**(-2.05)**					(0.54)	(-1.03)					(0.11)						
	SEO+3	565	565	**-0.122***	**-0.122***	3.468***	116.2***	0.171	343	0.361	-0.366*	110.2***	-0.434	0.843	343	0.219	112.1***	1.597	1.521	-	-	0.219
				(-1.89)	**(-1.81)**					(1.05)	(-1.68)					(0.63)						
	SEO+4	468	468	**-0.173****	**-0.173****	3.514***	131.5***	0.219	279	-0.106	-0.0527	117.3***	-0.0694	0.759	279	-0.300	118.6***	0.239	0.224	-	-	0.300
				(-2.17)	**(-2.23)**					(-0.41)	(-0.31)					(-1.15)						
	SEO+5	428	428	-0.0606	-0.0606	3.577***	140.8***	0.248	255	0.256	-0.188	87.38***	-0.227	0.829	255	0.00148	89.16***	0.005	0.005	-	-	0.259
				(-0.82)	(-0.79)					(0.80)	(-0.92)					(0.00)						
Average 4 ICC Methods (Literature)	SEO	932	932	-0.00387	-0.00387	2.492***	32.83**	0.0340	631	-0.0352	0.0225	27.50**	0.303	0.0744	639	-0.0482	26.37*	2.588	2.521	-	-	0.0315
				(-0.78)	(-0.74)					(-1.26)	(1.29)					(-1.49)						
	SEO+1	833	833	-0.00191	-0.00191	3.679***	30.14**	0.0349	549	-0.0431	0.0218	40.71***	0.239	0.0914	549	-0.0606	39.73***	2.089	2.028	-	-	0.00156
				(-0.31)	(-0.30)					(-1.22)	(0.99)					(-1.60)						
	SEO+2	692	692	**-0.0107***	**-0.0107***	10.45***	21.45	0.0301	440	**-0.0786****	0.0408*	30.70**	0.447	0.0912	444	**-0.0674***	28.23**	1.956	1.881	-	-	0.1362
				(-1.66)	**(-1.70)**					**(-2.02)**	(1.66)					**(-1.73)**						
	SEO+3	584	584	0.00710	0.00710	1.190	22.50	0.0371	354	0.0129	-0.00356	22.67	-0.0493	0.0722	354	0.0171	23.33	0.111	0.106	-	-	0.0596
				(1.11)	(1.15)					(0.44)	(-0.19)					(0.57)						
	SEO+4	492	492	-0.00166	-0.00166	4.172***	51.38***	0.0946	290	**0.0700****	-0.0455**	46.79***	-0.575	0.0792	291	**0.0640****	42.09***	4.697**	4.463**	20.401	19.527	0.1362
				(-0.23)	(-0.24)					**(2.52)**	(-2.56)					**(2.05)**						
	SEO+5	467	467	-0.00733	-0.00733	4.539***	41.90***	0.0823	277	-0.0135	0.00126	35.73***	0.0163	0.0772	277	-0.0280	36.22***	0.265	0.248	-	-	0.110
				(-0.93)	(-0.95)					(-0.40)	(0.06)					(-0.84)						
Average 4 ICC Methods (Modified)	SEO	934	934	0.000405	0.000405	3.637***	46.93***	0.0478	637	-0.0162	0.0102	38.10***	0.149	0.0682	637	-0.0128	38.18***	0.209	0.203	-	-	0.0495
				(0.08)	(0.08)					(-0.63)	(0.64)					(-0.46)						
	SEO+1	835	835	-0.00155	-0.00155	8.222***	37.62***	0.0431	551	-0.0341	0.0174	20.81	0.217	0.0803	551	-0.0181	20.10	0.131	0.127	-	-	0.0321
				(-0.27)	(-0.27)					(-1.11)	(0.91)					(-0.57)						
	SEO+2	695	695	-0.00313	-0.00313	8.914***	41.15***	0.0559	443	-0.0205	0.00786	20.90	0.0948	0.0829	443	-0.0155	20.54	0.047	0.045	-	-	0.0446
				(-0.50)	(-0.50)					(-0.61)	(0.37)					(-0.46)						
	SEO+3	594	594	0.00370	0.00370	7.795***	32.00**	0.0511	359	-0.0447	0.0355*	29.27**	0.468	0.0758	362	-0.0431	29.79**	2.319	2.212	-	-	0.0770
				(0.55)	(0.56)					(-1.45)	(1.82)					(-1.16)						
	SEO+4	504	504	0.00195	0.00195	5.282***	67.35***	0.118	293	-0.00722	0.00325	62.42***	0.0486	0.0669	293	-0.00811	62.42***	0.065	0.061	-	-	0.174
				(0.27)	(0.28)					(-0.31)	(0.21)					(-0.35)						
	SEO+5	430	430	-0.00479	-0.00479	3.403***	36.13***	0.0775	256	-0.0157	0.0120	35.79***	0.174	0.0688	256	-0.0409	34.41***	2.150	2.016	-	-	0.0440
				(-0.55)	(-0.58)					(-0.56)	(0.67)					(-1.28)						

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

negative association between economic boom and WACC in years 2, 3 and 4 post-SEO issuance at least at the 90% confidence level in the OLS and GLS models. This confirms hypothesis 1, meaning that timing companies with the economic boom strategy can achieve a decrease in WACC in years 2, 3 and 4 post-offering. This is identical to the statement by Baker and Wurgler (2002) and Alti (2006).

However, there is a negative effect of the presence of equity market timing with the economic expansion strategy on WACC as measured by implied cost of equity method in the short term, while the positive association appears in the long term. According to table 4.34, the coefficients of hot equity have a significantly negative direction on WACC with the literature version in year 2 after allocation at least at the 90% confidence level in all models. In contrast, the parameters of economic boom have a significantly positive sign on WACC with the literature form in year 4 after offering at the 95% confidence level in the IV model. Therefore, these findings support hypothesis 1 in the short term yet reject it in the long term. This indicates that SEO firms are successful at timing the equity market in an economic expansion and thus reduce WACC in the short term; however, they suffer from an increase WACC in the long term, based on the implied cost of equity procedure. This is also consistent with Alti (2006).

Consequently, there are different results for the influence of the presence of equity market timing with the economic boom strategy on WACC, depending on the method of estimating cost of equity.

c.) Corporate bond issuance

1.) Hot proceeds strategy

We employ four regression models, including the OLS, GLS, ATE (2-step) and IV (2SLS) regressions, to explore the influence of the existence of debt market timing with the hot proceeds strategy on WACC. Our sample consists of companies that conducted corporate bonds in the Thai bond market from 2001 to 2014. The estimated results are provided in table 4.35.[68] The dependent variable is WACC estimated by the cost of debt after taxes from the Bloomberg dataset and cost of equity is estimated using three different approaches consisting of the CAPM, Gordon and implied cost of equity methods. Furthermore, the main explanatory variable is the dummy variable of the hot

[68] VIF values: Max: 6.42, Min: 1.92 and Mean: 3.20.

Table 4.35: The regressions for the influence of debt market timing *(HOT Proceed)* on WACC

Y	Period	OLS and GLS Regressions X = HOT Proceed							ATE (2-Step) Regression X = HOT Proceed						IV (2SLS) Regression X = HOT Proceed							
		N		*HOT Equity*		*F*	*Wald Chi2*	R^2	*N*	*HOT Proceed*	*Hazard Lambda*	*Wald Chi2*	*Rho*	*Sigma*	*N*	*HOT Proceed*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
CAPM	CB	173	173	-0.00517	-0.00517	8.374***	130.4***	0.430	154	**-0.0179***	0.00913	140.0***	0.356	0.0256	154	-0.0141	133.9***	0.754	0.669	-	-	0.458
				(-1.12)	(-1.16)					**(-1.68)**	(1.31)					(-1.28)						
	CB+1	128	128	0.00553	0.00553	7.155***	77.40***	0.377	112	0.00935	-0.00139	84.19***	-0.0667	0.0208	112	0.00346	81.97***	0.165	0.139	-	-	0.427
				(1.17)	(1.21)					(0.90)	(-0.20)					(0.31)						
	CB+2	106	106	0.00391	0.00391	4.118***	49.13***	0.317	91	0.00789	-0.000626	40.27***	-0.0298	0.0210	91	**0.0222***	39.28***	2.174	1.787	-	-	0.251
				(0.76)	(0.78)					(0.76)	(-0.09)					**(1.84)**						
	CB+3	83	83	**0.0126****	**0.0126****	3.15***	63.35***	0.433	72	**0.0281*****	-0.0136*	58.70***	-0.713	0.0191	72	**0.0659*****	40.54***	18.793***	19.073***	12.419	8.129	0.462
				(2.10)	**(2.26)**					**(2.77)**	(-1.87)					**(3.55)**						
	CB+4	65	65	-0.00612	-0.00612	2.286**	41.66***	0.391	54	-0.00980	0	35.16***	0	0.0222	54	**-0.0224***	35.97***	2.086	1.487	-	-	0.376
				(-0.71)	(-0.79)					(-1.01)	(.)					**(-1.69)**						
	CB+5	56	56	-0.00492	-0.00492	2.68***	61.51***	0.523	44	-0.0130	0	46.97***	0	0.0192	44	-0.00967	45.98***	0.242	0.149	-	-	0.515
				(-0.67)	(-0.65)					(-1.22)	(.)					(-0.77)						
Gordon Dividend Growth Model	CB	171	171	-0.0592	-0.0592	1.078	27.09**	0.137	152	-0.0816	-0.0121	35.66***	-0.0182	0.666	152	0.0546	30.30**	0.312	0.276	-	-	0.162
				(-0.45)	(-0.49)					(-0.29)	(-0.06)					(0.18)						
	CB+1	125	125	0.136	0.136	0.474	17.53	0.123	110	0.252	0.0235	14.34	0.0275	0.854	110	-0.0756	13.80	0.793	0.668	-	-	0.103
				(0.65)	(0.68)					(0.66)	(0.09)					(-0.17)						
	CB+2	104	104	0.0173	0.0173	0.916	23.22	0.183	90	0.139	-0.135	24.66	-0.315	0.429	90	0.0456	24.05*	0.148	0.118	-	-	0.208
				(0.17)	(0.18)					(0.67)	(-0.93)					(0.22)						
	CB+3	84	84	-0.168	-0.168	0.680	15.20	0.153	72	-0.0956	-0.0533	13.97	-0.112	0.478	72	-0.318	13.94	0.578	0.437	-	-	0.147
				(-1.02)	(-1.30)					(-0.38)	(-0.27)					(-1.14)						
	CB+4	63	63	0.182	**0.182****	1.073	43.61***	0.409	52	**0.354*****	0	62.18***	0	0.200	52	**0.403*****	57.36***	0.374	0.253	-	-	0.542
				(1.56)	**(2.35)**					**(3.99)**	(.)					**(3.38)**						
	CB+5	42	42	0.0274	0.0274	1.375	62.73***	0.599	34	0.0302	0	60.91***	0	0.263	34	0.0885	60.92***	1.806	0.954	-	-	0.641
				(0.16)	(0.22)					(0.17)	(.)					(0.49)						
Average 4 ICC Methods (Literature)	CB	173	173	-0.00898	-0.00898	2.815***	29.09**	0.144	154	-0.00978	-0.000849	30.08**	-0.0178	0.0476	154	-0.00448	23.92*	0.116	0.103	-	-	0.139
				(-0.92)	(-1.07)					(-0.49)	(-0.06)					(-0.21)						
	CB+1	129	129	0.0193	**0.0193***	1.882**	18.89	0.128	113	0.0114	0.0107	16.93	0.206	0.0518	113	-0.0127	13.23	2.419	2.079	-	-	0.0646
				(1.63)	**(1.80)**					(0.44)	(0.62)					(-0.44)						
	CB+2	105	105	-0.000927	-0.000927	2.378***	36.92***	0.260	91	0.00854	-0.00251	38.50***	-0.0747	0.0336	91	-0.0184	37.22***	2.940*	2.437	26.445	21.302	0.246
				(-0.10)	(-0.11)					(0.51)	(-0.22)					(-1.07)						
	CB+3	83	83	**-0.0238****	**-0.0238****	1.71*	34.50***	0.294	72	-0.0205	-0.00814	35.03***	-0.244	0.0334	72	-0.0214	31.16**	0.206	0.155	-	-	0.332
				(-2.09)	**(-2.42)**					(-1.16)	(-0.60)					(-1.11)						
	CB+4	66	66	0.000486	0.000486	1.24	26.76**	0.288	54	-0.0126	0	23.34*	0	0.0295	54	-0.0143	23.06*	0.020	0.014	-	-	0.302
				(0.04)	(0.05)					(-0.98)	(.)					(-0.82)						
	CB+5	55	55	-0.0267	-0.0267	4.877***	56.42***	0.506	44	**-0.0614*****	0	37.48***	0	0.0417	44	**-0.0626****	35.68***	0.006	0.004	-	-	0.460
				(-1.10)	(-1.54)					**(-2.65)**	(.)					**(-2.29)**						
Average 4 ICC Methods (Modified)	CB	172	172	-0.00606	-0.00606	3.361***	34.62***	0.168	154	0.000954	-0.00146	35.39***	-0.0299	0.0489	154	0.0131	30.02**	0.529	0.469	-	-	0.150
				(-0.61)	(-0.69)					(0.05)	(-0.11)					(0.61)						
	CB+1	127	127	0.0140	0.0140	2.381***	25.82*	0.169	112	0.00545	0.00850	23.68	0.160	0.0533	112	-0.0194	20.60	2.108	1.803	-	-	0.111
				(1.18)	(1.26)					(0.20)	(0.48)					(-0.67)						
	CB+2	103	103	-0.00249	-0.00249	3.043***	44.18***	0.300	89	-0.00711	0.00581	46.70***	0.170	0.0342	89	**-0.0399***	42.45***	5.674**	4.834**	22.499	18.946	0.207
				(-0.24)	(-0.30)					(-0.42)	(0.49)					**(-1.91)**						
	CB+3	81	81	-0.0190	**-0.0190***	2.31***	46.68***	0.366	70	-0.00620	-0.0115	43.53***	-0.336	0.0342	70	**-0.0532***	39.83***	2.111	1.617	-	-	0.303
				(-1.58)	**(-1.92)**					(-0.35)	(-0.83)					**(-1.78)**						
	CB+4	64	64	-0.0197	**-0.0197***	1.516	36.29***	0.362	53	-0.0240	756.1	0.00565	1	1.998	53	**-0.0321***	24.78*	0.957	0.662	-	-	0.303
				(-1.40)	**(-1.83)**					(-0.02)	(0.01)					**(-1.65)**						
	CB+5	39	39	0.0147	0.0147	2.737**	46.26***	0.543	31	-0.0248	0	43.57***	0	0.0301	31	**-0.0461***	44.17***	2.476	1.215	-	-	0.573
				(0.57)	(0.85)					(-1.05)	(.)					**(-1.68)**						

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

proceeds. Briefly, the results are different between the three measurements of cost of equity.

According to the CAPM method, the coefficient of hot proceeds has a significantly negative sign on WACC in the offering year at the 90% confidence level in the ATE model. On the other hand, the parameters of hot proceeds have a significantly positive direction on WACC in years 2 and 3 post-issuance at the 90% and 99% confidence levels, respectively, in the IV models. However, the coefficients of hot proceeds have a significantly negative sign on WACC in year 4 following issuance at the 90% confidence level in the IV model. Therefore, the presence of equity market timing with the hot proceeds strategy has a negative effect on WACC in the offering year and 4 years later, although there is a positive association between them in years 2 and 3 post-issuance. Therefore, the negative effect supports hypothesis 2, denoting that timing companies in a hot proceeds period are successful at reducing WACC in the issuing year and year 4 post-issuance, even though they suffer from a positive effect in years 2 and 3 after offering. This supports the assertion by Bougatef and Chichti (2011).

In contrast, based on the Gordon model, the existence of debt market timing with the hot proceeds strategy has a significantly positive effect on WACC in year 4 after offering at the 99% confidence level in the ATE and IV models. Hence, this strongly confutes hypothesis 2, suggesting that debt market timers in a period of hot proceeds are unable to accomplish the aim of minimizing WACC in the long term regarding the Gordon model. This is consistent with Song (2009), whose findings imply that timing companies in the debt market cannot successfully reduce cost of capital, although this paper does not study directly the impact of debt market timing on cost of capital.

In contrast, regarding the implied cost of equity method, the coefficients of hot proceeds have a significantly positive sign on WACC with the literature version in the first year after issuing at the 90% confidence level in the GLS model. This opposes hypothesis 2, suggesting that the presence of debt market timing with the hot proceeds strategy has a positive impact on WACC in year 1 post-issuance. However, there is a significantly negative direction for hot proceeds on WACC in years 2, 3, 4 and 5 later in the IV (modified) models at the 90% confidence level. This justifies hypothesis 2, indicating that timing companies are successful at diminishing WACC in the long term. This is compatible with the declaration of Bougatef and Chichti (2011).

Consequently, there are different results regarding the existence of the debt market timing effect with the hot proceeds strategy on WACC, depending on the method of estimating cost of equity. It seems that WACC tends to decline in the offering year and 4 years later according to the CAPM method. Conversely, the WACC of timers increase in year 4 post-offering based on the Gordon model. On the other hand, debt market timers cannot achieve a reduction in WACC in the short term; however, they can accomplish a decrease in WACC in the long term based on the implied cost of equity technique.

2.) Median interest rate strategy

Table 4.36[69] presents the results of the impact of debt market timing with allocating corporate bonds when the interest rate is comparably low on WACC in the Thai bond market from 2001 to 2014. The estimated results are produced by the OLS, GLS, ATE (2-step) and IV (2SLS) approaches. The dependent variable is WACC measured in three different ways for cost of equity, including the CAPM, Gordon and implied cost of equity procedures, and cost of debt is calculated by the Bloomberg method. Moreover, the main explanatory variable is the dummy variable of the median interest rate. Overall, there are different results between backward-looking method with the CAPM model and the forward-looking approach with Gordon and implied cost of equity models.

Regarding the backward-looking method with the CAPM model, the coefficients of the median interest rate have a significantly positive sign on WACC in years 1 and 2 after issuance at the 99% and 95% confidence levels in the IV and ATE models, respectively. This argues against hypothesis 2, suggesting that debt market timers during a comparatively low interest rate are unable to reduce WACC in years 1 and 2 after offering. This is consistent with the statement by Song (2009) and Baker et al. (2003).

On the other hand, based on the forward-looking approach with the Gordon and implied cost of equity procedures, the parameters of median interest rate have a significantly negative direction on WACC with the Gordon model in years 1 and 3 and the implied cost of equity approach in years 2 and 4 post-issuance at the 90% confidence level in the ATE and IV models, respectively. This affirms hypothesis 2, suggesting that debt market timers with the median interest rate strategy are successful at minimizing WACC, which supports the statement by Graham and Harvey (2001) that managers tend

[69] VIF values: Max: 6.39, Min: 1.95 and Mean: 3.33.

Table 4.36: The regressions for the influence of debt market timing *(Median Interest Rate)* on WACC

Y	Period	OLS and GLS Regressions X = Median Interest Rate							ATE (2-Step) Regression X = Median Interest Rate						IV (2SLS) Regression X = Median Interest Rate							
		N		*Economic Boom*		*F*	*Wald Chi2*	R^2	*N*	*Median IR*	*Hazard Lambda*	*Wald Chi2*	*Rho*	*Sigma*	*N*	*Median IR*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*ATE*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
CAPM	CB	172	172	0.00486 (1.12)	0.00486 (1.16)	8.401***	128.6***	0.428	154	-0.00398 (-0.33)	0.00748 (0.97)	139.0***	0.294	0.0254	154	-0.00429 (-0.33)	130.6***	0.874	0.777	-	-	0.451
	CB+1	127	127	**0.0118***** **(2.90)**	**0.0118***** **(3.02)**	8.429***	87.27***	0.407	112	**0.0408***** **(3.58)**	-0.0212*** (-2.89)	84.79***	-0.863	0.0246	112	**0.0342***** **(2.96)**	78.30***	5.261**	4.633**	20.681	18.344	0.326
	CB+2	105	105	0.00483 (0.98)	0.00483 (1.10)	4.839***	49.69***	0.321	91	**0.0333**** **(2.51)**	-0.0218** (-2.56)	36.92***	-0.856	0.0255	92	**0.0182*** **(1.86)**	36.22***	2.530	2.092	-	-	0.228
	CB+3	82	82	0.00768 (1.49)	0.00768 (1.55)	2.79***	56.26***	0.407	72	0.0115 (1.25)	-0.00446 (-0.68)	55.08***	-0.234	0.0190	72	0.00120 (0.15)	50.08***	0.711	0.539	-	-	0.413
	CB+4	64	64	0.00153 (0.18)	0.00153 (0.25)	2.290**	39.27***	0.380	54	-0.00121 (-0.17)	0 (.)	33.55***	0	0.0224	54	-0.0116 (-1.02)	33.31***	1.475	1.039	-	-	0.359
	CB+5	55	55	0.00830 (1.10)	0.00830 (1.38)	2.77***	64.17***	0.538	44	0.0110 (1.63)	0 (.)	58.08***	0	0.0181	44	0.00660 (0.84)	45.89***	0.111	0.068	-	-	0.513
Gordon Dividend Growth Model	CB	170	170	0.0572 (0.43)	0.0572 (0.51)	1.260	27.60**	0.140	152	-0.0435 (-0.14)	0.0317 (0.16)	37.28***	0.0474	0.668	152	-0.0364 (-0.11)	30.44**	0.016	0.014	-	-	0.166
	CB+1	124	124	0.00266 (0.02)	0.00266 (0.02)	0.491	13.51*	0.0982	110	**-0.768*** **(-1.66)**	0.590* (1.94)	16.17	0.623	0.948	110	-0.405 (-0.87)	13.89	1.116	0.943	-	-	0.0596
	CB+2	103	103	-0.0646 (-0.73)	-0.0646 (-0.76)	0.916	24.03*	0.189	90	-0.177 (-0.76)	0.112 (0.72)	24.51	0.260	0.430	90	-0.184 (-1.02)	24.43*	1.116	0.904	-	-	0.188
	CB+3	83	83	-0.0182 (-0.15)	-0.0182 (-0.16)	0.609	13.07	0.136	72	-0.0967 (-0.41)	0.0696 (0.42)	16.60	0.145	0.482	72	**-0.436*** **(-1.71)**	14.06	4.4226**	3.534*	15.698	10.874	0.0325
	CB+4	62	62	-0.0145 (-0.20)	-0.0145 (-0.22)	1.206	39.30***	0.388	52	-0.0280 (-0.37)	0 (.)	35.60***	0	0.228	52	0.00472 (0.05)	35.34***	0.305	0.206	-	-	0.404
	CB+5	41	41	-0.0615 (-0.40)	-0.0615 (-0.58)	1.619	68.54***	0.626	34	0.0810 (0.73)	0 (.)	62.33***	0	0.261	34	0.0455 (0.40)	61.76***	1.240	0.644	-	-	0.646
Average 4 ICC Methods (Literature)	CB	172	172	0.0102 (1.24)	0.0102 (1.31)	2.624***	27.47**	0.138	154	-0.00484 (-0.21)	0.0110 (0.76)	33.38**	0.228	0.0481	154	-0.0120 (-0.49)	23.06	1.058	0.940	-	-	0.0995
	CB+1	128	128	0.00749 (0.80)	0.00749 (0.80)	1.644*	16.68	0.115	113	-0.0236 (-0.92)	0.0243 (1.42)	16.71	0.443	0.0548	113	-0.0181 (-0.83)	13.67	2.170	1.860	-	-	0.0601
	CB+2	104	104	-0.00431 (-0.54)	-0.00431 (-0.59)	2.350***	37.03***	0.263	91	-0.0156 (-0.88)	0.00344 (0.29)	42.13***	0.103	0.0333	91	**-0.0284*** **(-1.65)**	40.22***	1.367	1.114	-	-	0.274
	CB+3	82	82	-0.0113 (-1.17)	-0.0113 (-1.30)	1.5	30.28**	0.270	72	-0.0217 (-1.30)	0.00684 (0.58)	33.94***	0.199	0.0344	72	-0.0237 (-1.61)	30.69**	0.789	0.598	-	-	0.288
	CB+4	65	65	-0.00738 (-0.73)	-0.00738 (-0.89)	1.27	27.47**	0.297	54	-0.00668 (-0.70)	0 (.)	22.70*	0	0.0296	54	-0.00923 (-0.78)	22.78*	0.131	0.131	-	-	0.295
	CB+5	54	54	-0.00624 (-0.40)	-0.00624 (-0.43)	4.608***	50.74***	0.484	44	0.0113 (0.66)	0 (.)	23.06**	0	0.0460	44	0.00256 (0.14)	26.33**	0.367	0.227	-	-	0.375
Average 4 ICC Methods (Modified)	CB	171	171	0.00770 (0.89)	0.00770 (0.94)	3.250***	32.93***	0.161	154	0.0116 (0.50)	-0.00278 (-0.19)	39.86***	-0.0570	0.0488	154	0.00768 (0.31)	30.38**	0.000	0.000	-	-	0.168
	CB+1	126	126	0.0126 (1.33)	0.0126 (1.32)	2.397***	26.20*	0.172	112	-0.0169 (-0.65)	0.0249 (1.43)	24.34	0.449	0.0554	112	-0.00610 (-0.28)	21.02	1.452	1.234	-	-	0.144
	CB+2	102	102	0.00256 (0.32)	0.00256 (0.35)	3.011***	45.33***	0.308	89	-0.00733 (-0.40)	0.00484 (0.40)	47.36***	0.142	0.0342	89	-0.00378 (-0.27)	47.01***	0.065	0.052	-	-	0.345
	CB+3	80	80	-0.0113 (-1.28)	-0.0113 (-1.33)	2.12**	43.00***	0.350	70	-0.0102 (-0.59)	-0.00354 (-0.29)	44.55***	-0.104	0.0340	70	-0.0133 (-0.95)	42.48***	0.010	0.007	-	-	0.385
	CB+4	63	63	-0.0117 (-1.43)	-0.0117 (-1.40)	1.589	33.79***	0.349	53	**-0.0231*** **(-1.76)**	0.0112 (1.06)	21.06**	0.359	0.0314	53	-0.0181 (-1.54)	25.10**	0.122	0.083	-	-	0.324
	CB+5	38	38	0.000469 (0.03)	0.000469 (0.03)	3.726***	45.37***	0.544	31	0.0146 (0.01)	-1661.5 (-0.00)	0.0134	-1	1.713	31	0.0128 (0.92)	43.18***	0.538	0.247	-	-	0.583

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

to time the debt market when they recognize that the level of interest rate is comparably low in order to reach their objective of a reduction in cost of capital.

In brief, the findings on the influence of the presence of debt market timing with the median interest rate strategy on WACC are in conflict between that historical information-based method with the CAPM model and the forward information-based approach with the Gordon and implied cost of equity techniques. This was also documented by Frank and Shen (2016), who stated that the backward and forward-looking approaches provide different values for cost of equity since they have different concepts in their estimation. Furthermore, they claim that the forward-looking method is superior to the backward-looking procedure because of the inclusion of the factor of the time value of money, such as inflation rate, in the measurement of cost of equity.

4.5.4.2 The degree of equity and debt market timings

4.5.4.2.1 Firm performance

a.) IPO issuance

Table 4.37[70] exhibits the empirical results for the effect of the degree of equity market timing on firm value and performance for firms that went public on the Thai stock market from 2000 to 2014. The estimated results are generated by the OLS, GLS and IV (2SLS) regressions. The dependent variable is firm performance as estimated by accounting-based and market-based performances. In addition, the main explanatory variable is the degree of equity market timing as measured by the equity proceeds ratio. Overall, there are non-identical outcomes between accounting and market-based approaches.

Regarding accounting-based performance, there is a positive effect of the degree of equity market timing on firm performance only in an IPO year, but the negative association appears in the post-offering year. As shown in table 4.37, the coefficient of the equity proceeds ratio has a significantly positive sign on the ROA ratio at the 99% level in the GLS model. This confirms hypothesis 3, suggesting that firm performance with ROA increases with a higher level of equity market timing as measured by the equity proceeds ratio. In contrast, the parameters of the equity proceeds ratio have a significantly negative direction on the ROE and ROIC ratios 1 year after offering in the IV model at

[70] VIF values: Max: 4.82, Min: 2.60 and Mean: 3.12.

Table 4.37: The regressions for the influence of the degree of IPO market timing on firm performance (Accounting-Based)

Y	Period	OLS and GLS Regressions X = Equity Proceed Ratio							IV (2SLS) Regression X = Equity Proceed Ratio							
		N		*Equity Proceed Ratio*		*F*	*Wald Chi2*	R^2	*N*	*Equity Proceed*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
ROA	IPO	267	267	**0.0398***	**0.0398*****	36.13***	1200.9***	0.818	165	0.0299	913.4***	0.746	0.668	-	-	0.848
				(1.93)	**(2.71)**					(0.92)						
	IPO+1	266	266	-0.0236	-0.0236	8.689***	164.8***	0.383	174	-0.0967	71.63***	2.653	2.415	-	-	0.267
				(-0.61)	(-0.69)					(-1.14)						
	IPO+2	263	263	-0.0726	-0.0726	3.604***	69.09***	0.208	173	-0.217	30.29**	2.149	1.950	-	-	0.117
				(-1.42)	(-1.27)					(-1.30)						
	IPO+3	234	234	0.0120	0.0120	3.007***	44.62***	0.160	145	-0.0434	35.50***	0.923	0.813	-	-	0.191
				(0.15)	(0.19)					(-0.32)						
	IPO+4	210	210	-0.0407	-0.0407	2.968***	50.10***	0.193	136	**-0.410****	45.16***	2.221	1.959	-	-	0.221
				(-0.53)	(-0.62)					**(-2.27)**						
	IPO+5	194	194	**-0.128***	**-0.128****	3.582***	53.08***	0.215	121	**-0.348****	48.56***	3.253*	2.845*	21.113	17.966	0.253
				(-1.76)	**(-2.08)**					**(-2.48)**						
ROE	IPO	267	267	0.0158	0.0158	14.29***	277.6***	0.510	165	-0.0701	128.4***	0.253	0.226	-	-	0.436
				(0.47)	(0.47)					(-0.80)						
	IPO+1	266	266	-0.0271	-0.0271	6.065***	113.3***	0.299	166	**-0.259****	56.21***	4.259**	3.897*	18.639	16.443	0.209
				(-0.52)	(-0.54)					**(-2.03)**						
	IPO+2	263	263	-0.0691	-0.0691	1.671*	63.03***	0.193	165	0.0518	77.01***	0.028	0.025	-	-	0.318
				(-0.72)	(-0.62)					(0.19)						
	IPO+3	234	234	-0.132	-0.132	3.141***	58.52***	0.200	145	-0.0144	50.43***	0.212	0.186	-	-	0.258
				(-1.22)	(-1.39)					(-0.07)						
	IPO+4	210	210	-0.164	**-0.164***	2.296***	35.93***	0.146	140	**-0.654****	51.78***	2.462	2.183	-	-	0.241
				(-1.39)	**(-1.68)**					**(-2.43)**						
	IPO+5	194	194	**-0.304****	**-0.304*****	2.637***	46.66***	0.194	121	**-0.498****	38.11***	2.491	2.165	-	-	0.211
				(-2.41)	**(-3.03)**					**(-2.19)**						
ROIC	IPO	266	266	0.00962	0.00962	31.03***	787.8***	0.748	165	0.00853	607.9***	1.323	1.188	-	-	0.787
				(0.27)	(0.36)					(0.15)						
	IPO+1	264	264	-0.0709	-0.0709	7.026***	131.7***	0.333	191	**-0.643*****	62.92***	17.088***	16.998***	6.620	6.032	0.236
				(-1.30)	(-1.60)					**(-3.40)**						
	IPO+2	261	261	-0.0914	-0.0914	3.551***	54.05***	0.172	191	**-0.985*****	33.23***	20.326***	20.603***	10.086	9.366	0.125
				(-1.41)	(-1.42)					**(-3.28)**						
	IPO+3	231	231	-0.0275	-0.0275	2.554***	43.24***	0.158	144	-0.0257	31.81**	0.517	0.454	-	-	0.179
				(-0.22)	(-0.28)					(-0.12)						
	IPO+4	207	207	-0.176	**-0.176***	2.333***	36.97***	0.152	135	**-0.565***	28.56**	1.095	0.957	-	-	0.162
				(-1.45)	**(-1.73)**					**(-1.91)**						
	IPO+5	188	188	**-0.224****	**-0.224****	2.233***	33.80***	0.152	119	**-0.500***	32.57***	1.168	1.002	-	-	0.201
				(-2.13)	(-2.00)					(-1.70)						

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 4.37: The regressions for the influence of the degree of IPO market timing on firm performance (Market-Based) (Cont.)

Y	Period	OLS and GLS Regressions							IV (2SLS) Regression							
		X = Equity Proceed Ratio							X = Equity Proceed Ratio							
		N		*Equity Proceed Ratio*		*F*	*Wald Chi2*	R^2	*N*	*Equity Proceed*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
Stock's Returns	IPO+1	259	259	-0.267	-0.267	4.634***	49.85***	0.161	161	**-1.989*****	36.41***	7.545	7.031	-	-	0.0892
				(-1.03)	(-1.00)					**(-2.92)**						
	IPO+2	268	268	**-0.393***	-0.393	1.458	13.86	0.0492	166	-0.543	12.41	0.001	0.001	-	-	0.0751
				(-1.70)	(-1.41)					(-0.74)						
	IPO+3	238	238	-0.218	-0.218	2.105***	21.67	0.0834	146	-0.182	12.46	0.396	0.348	-	-	0.0828
				(-0.64)	(-0.65)					(-0.20)						
	IPO+4	214	214	**-0.586***	-0.586	2.701***	43.71***	0.170	129	**-1.861***	24.89	1.548	1.348	-	-	0.138
				(-1.67)	(-1.54)					**(-1.95)**						
	IPO+5	199	199	**-0.512***	-0.512	1.953**	27.74**	0.122	122	0.131	23.40	0.491	0.421	-	-	0.159
				(-1.71)	(-1.54)					(0.15)						
MVA	IPO	223	223	**1.050*****	**1.050*****	13.48***	241.2***	0.520	135	**3.561*****	169.3***	14.607***	14.195***	24.489	21.938	0.500
				(3.78)	**(3.76)**					**(4.46)**						
	IPO+1	239	239	**1.266*****	**1.266*****	13.57***	228.8***	0.489	164	**3.676*****	178.3***	11.966***	11.491***	15.288	13.982	0.465
				(4.53)	**(4.86)**					**(4.90)**						
	IPO+2	228	228	**1.150*****	**1.150*****	10.24***	205.5***	0.474	142	**2.147*****	145.1***	1.796	1.588	-	-	0.505
				(4.10)	**(4.40)**					**(3.39)**						
	IPO+3	194	194	**0.621***	0.621	8.581***	127.8***	0.397	122	1.524	107.2***	0.104	0.089	-	-	0.472
				(1.79)	(1.59)					(1.48)						
	IPO+4	162	162	**1.050****	**1.050****	9.081***	148.9***	0.479	103	1.192	108.8***	0.268	0.222	-	-	0.513
				(2.55)	**(2.25)**					(0.99)						
	IPO+5	151	151	0.393	0.393	7.772***	96.60***	0.390	100	0.323	63.09***	0.002	0.001	-	-	0.387
				(0.81)	(0.83)					(0.27)						
Tobin's q Ratio	IPO	256	256	**1.752*****	**1.752*****	4.679***	112.9***	0.306	164	**4.640*****	120.6***	8.627***	8.107***	25.774	24.054	0.386
				(4.40)	**(4.96)**					**(5.14)**						
	IPO+1	264	264	**2.243*****	**2.243*****	4.630***	135.3***	0.339	172	**4.085*****	143.6***	0.409	0.367	-	-	0.500
				(4.51)	**(5.62)**					**(4.01)**						
	IPO+2	261	261	**2.162*****	**2.162*****	5.526***	87.86***	0.252	163	**5.381*****	78.69***	5.678***	5.234***	22.891	20.749	0.283
				(3.05)	**(4.06)**					**(3.87)**						
	IPO+3	233	233	**1.583***	**1.583****	1.982**	74.23***	0.242	144	**4.252****	78.34***	0.583	0.512	-	-	0.358
				(1.97)	**(2.14)**					**(2.36)**						
	IPO+4	209	209	**2.039****	**2.039****	1.986**	91.63***	0.305	135	**6.164*****	91.15***	2.457	2.169	-	-	0.390
				(2.08)	**(2.39)**					**(2.94)**						
	IPO+5	193	193	0.124	0.124	4.669***	87.45***	0.312	120	**2.453***	76.95***	0.001	0.000	-	-	0.405
				(0.17)	(0.22)					**(1.83)**						

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

the 95% and 99% confidence levels, respectively. Also, there is a significantly negative sign for the coefficients of the equity proceeds ratio on the ROIC ratio 2 years following allocation at the 99% confidence level in the IV model. Furthermore, the coefficients of the equity proceeds ratio have a negative direction on the ROA, ROE and ROIC ratios in years 4 and 5 after IPO allocation at least at the 90% confidence level in the GLS and IV models. Therefore, these findings strongly reject hypothesis 3, indicating that the level of equity market timing with larger proceeds has a negative impact on accounting-based performance in the short and long term. This is consistent with Ritter (1991), who found that the firms that went public in a period of a high volume of IPO allocation suffered the most from poor performance after initial stock issuance. They also documented that the cause of the underperformance in the long term of IPO companies is the overestimation of the future earnings of IPO firms.

Regarding market-based performance, there are different results between stock returns and MVA and Tobin's q. The results show that the equity proceeds ratio significantly negatively influences equity yields in years 1, 2, 4 and 5 after issuance at least at the 90% confidence level in the IV and OLS models. This argues against hypothesis 3, suggesting that stock returns decline with higher proceeds. In addition, this is consistent with the results of the accounting-based approach. In contrast, there is a significantly positive sign for the equity proceeds ratio on the MVA value from an IPO year to 4 years later and Tobin's q from the offering year to 5 years later, at least at the 90% confidence level. This supports hypothesis 3, denoting that the MVA value and Tobin's q of IPO firms increase with larger proceeds.

Summing up, there are non-identical results between accounting and market-based performances for the influence of the degree of equity market timing on firm value.

b.) SEO issuance

Table 4.38[71] provides the empirical outcomes produced by the OLS, GLS and IV (2SLS) regressions to examine the impact of the level of equity market timing on firm value and performance. We studied SEO companies in the Stock Market of Thailand from 2000 to 2014. The explained variable is firm performance measured by accounting-based and market-based performances. Furthermore, the main explanatory variable is the level

[71] VIF values: Max: 3.60, Min: 2.37 and Mean: 2.81.

of equity market timing as calculated by the equity proceeds ratio. Overall, the results are quite conflicting among the different measurements of firm performance.

Regarding accounting-based performance, there are different results for the effect of the degree of equity market timing on firm performance in an SEO year between ROE and ROIC. As exhibited in table 4.38, the coefficients of the equity proceeds ratio have a significantly positive sign on ROE in an SEO year, yet a significantly negative direction on ROIC at the 99% confidence level in the GLS model. Therefore, the finding for ROE supports hypothesis 3, while the outcome of ROIC rejects hypothesis 3, indicating that the degree of equity market timing with higher proceeds has a positive effect on the ROE ratio, but a negative impact on the ROIC ratio in an issuing year.

However, the results for the following years are similar among the ROA, ROE and ROIC ratios. According to table 4.38, the coefficients of the equity proceeds ratio have a significantly negative sign on ROA at years 2 and 3 post-offering at the 95% and 99% confidence levels, respectively, in the OLS and GLS models. Likewise, there is a significantly negative direction of parameters of the equity proceeds ratio on ROE 2, 3 and 4 years post-SEO event at the 95%, 95% and 90% confidence levels, respectively, in the OLS models. Simultaneously, the coefficients of the equity proceeds ratio have a negative sign on ROIC 2 and 3 years after allocation at the 95% and 99% confidence levels in the OLS models, respectively. Hence, this opposes hypothesis 3, suggesting that timing firms with large proceeds tend to suffer from a reduction of accounting-based performance in the short and long term after offering. This is consistent with Loughran and Ritter (1997), who found that SEO firms have an underperformance in the long term after selling follow-on stocks, and they posit that executives tend to overestimate their future profitability from spending the proceeds in new projects. Moreover, Rangan (1998) claims that there is a decline in performance for SEO firms because they attempt to do an "earnings management" surrounding the year of stock allocation; therefore, their earnings reduce after this event to reflect their real earnings.

Regarding market-based performance, there is a difference in the results of the association between the equity proceeds ratio and market-based performance among stock returns, MVA and Tobin's q. The findings present that there is a significantly positive sign for the equity proceeds ratio on stock returns at the 95% confidence level in the GLS model. In contrast, the parameters of the equity proceeds ratio have a significantly negative direction on equity yields 2 and 3 years after allocation at the 90% confidence level in the OLS and GLS models, respectively. Thus, these results support

Table 4.38: The regressions for the influence of the degree of SEO market timing on firm performance (Accounting-Based)

Y	Period	OLS and GLS Regressions X = Equity Proceed Ratio							IV (2SLS) Regression X = Equity Proceed Ratio							
		N		*Equity Proceed*		*F*	*Wald Chi2*	R^2	*N*	*Equity Proceed*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
ROA	SEO	966	966	0.00696	0.00696	11.08***	229.0***	0.192	633	-0.0736	205.8***	0.529	0.516	-	-	0.279
				(0.38)	(0.84)					(-1.41)						
	SEO+1	954	954	-0.000147	-0.000147	9.345***	182.6***	0.161	629	-0.0517	314.8***	1.372	1.338	-	-	0.327
				(-0.02)	(-0.02)					(-1.43)						
	SEO+2	836	836	**-0.0132****	-0.0132	7.192***	190.5***	0.186	541	-0.0259	171.0***	0.346	0.335	-	-	0.238
				(-2.31)	(-1.60)					(-0.68)						
	SEO+3	696	696	**-0.0216*****	-0.0216	4.799***	100.5***	0.126	435	0.0264	69.43***	0.176	0.169	-	-	0.136
				(-3.03)	(-1.60)					(0.54)						
	SEO+4	599	599	-0.00691	-0.00691	4.418***	240.9***	0.287	351	0.0432	82.91***	0.355	0.338	-	-	0.190
				(-0.85)	(-0.76)					(1.21)						
	SEO+5	521	521	-0.0107	-0.0107	6.953***	172.5***	0.249	290	-0.0150	80.45***	0.001	0.001	-	-	0.218
				(-1.42)	(-1.33)					(-0.52)						
ROE	SEO	966	966	0.153	**0.153*****	4.869***	132.6***	0.121	646	-0.243	49.35***	13.972***	13.883***	18.227	17.885	0.015
				(1.35)	**(4.16)**					(-1.02)						
	SEO+1	953	953	0.00749	0.00749	6.800***	146.6***	0.133	629	-0.0728	261.5***	1.953	1.906	-	-	0.284
				(1.12)	(0.67)					(-1.33)						
	SEO+2	836	836	**-0.0174****	-0.0174	5.853***	136.4***	0.140	541	-0.00345	148.8***	0.030	0.030	-	-	0.216
				(-2.21)	(-1.46)					(-0.06)						
	SEO+3	696	696	**-0.0265****	**-0.0265***	4.285***	75.90***	0.0983	435	0.0548	104.5***	0.120	0.115	-	-	0.194
				(-2.50)	**(-1.83)**					(0.90)						
	SEO+4	599	599	**-0.0233***	-0.0233	4.011***	57.57***	0.0877	351	0.0295	89.78***	0.108	0.103	-	-	0.207
				(-1.74)	(-1.62)					(0.55)						
	SEO+5	520	520	-0.0162	-0.0162	2.940***	45.25***	0.0800	290	-0.0398	48.30***	0.056	0.052	-	-	0.143
				(-0.60)	(-0.76)					(-0.68)						
ROIC	SEO	957	957	**-0.0763***	**-0.0763*****	9.079***	180.4***	0.159	629	-0.0979	153.1***	0.486	0.473	-	-	0.226
				(-1.94)	**(-3.47)**					(-1.20)						
	SEO+1	944	944	-0.00365	-0.00365	10.06***	168.7***	0.152	620	-0.0357	330.2***	0.154	0.150	-	-	0.347
				(-0.38)	(-0.41)					(-0.74)						
	SEO+2	927	927	**-0.0147****	-0.0147	7.457***	143.3***	0.134	610	-0.0282	181.6***	0.097	0.095	-	-	0.229
				(-2.22)	(-1.52)					(-0.50)						
	SEO+3	813	813	**-0.0211*****	**-0.0211****	5.943***	103.2***	0.113	530	0.000365	103.0***	0.037	0.035	-	-	0.163
				(-3.24)	**(-1.97)**					(0.01)						
	SEO+4	675	675	-0.00670	-0.00670	4.882***	111.5***	0.142	426	0.0122	101.4***	0.001	0.001	-	-	0.193
				(-1.04)	(-0.78)					(0.28)						
	SEO+5	584	584	-0.00913	-0.00913	5.958***	116.0***	0.166	349	-0.0392	81.81***	0.157	0.149	-	-	0.190
				(-1.18)	(-1.02)					(-0.86)						

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 4.38: The regressions for the influence of the degree of SEO market timing on firm performance (Market-Based) (Cont.)																
Y	Period	OLS and GLS Regressions X = Equity Proceed Ratio							IV (2SLS) Regression X = Equity Proceed Ratio							
		N		*Equity Proceed*		*F*	*Wald Chi2*	R^2	*N*	*Equity Proceed*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
Stock's Returns	SEO	931	931	**0.0756*****	**0.0756****	4.764***	80.23***	0.0793	627	-0.0992	34.76***	2.049	2.000	-	-	0.0389
				(3.19)	**(2.11)**					(-0.37)						
	SEO+1	946	946	0.0275	0.0275	2.588***	58.00***	0.0578	635	0.317	82.22***	1.643	1.604	-	-	0.102
				(0.91)	(0.72)					(1.43)						
	SEO+2	955	955	**-0.0456***	-0.0456	2.909***	42.34***	0.0424	644	**-0.398***	29.39**	2.146	2.093	-	-	0.0221
				(-1.87)	(-1.31)					**(-1.67)**						
	SEO+3	846	846	**-0.0642****	**-0.0642***	2.823***	39.95***	0.0451	553	-0.150	22.50*	0.741	0.719	-	-	0.0328
				(-2.06)	**(-1.81)**					(-0.72)						
	SEO+4	713	713	-0.00893	-0.00893	2.941***	38.82***	0.0516	451	-0.234	30.25**	1.866	1.803	-	-	0.0474
				(-0.73)	(-0.29)					(-1.41)						
	SEO+5	621	621	-0.0260	-0.0260	0.882	38.82***	0.0223	370	0.0891	17.58***	2.712*	2.606	25.063	24.268	0.0347
				(-1.33)	(-0.87)					(0.59)						
MVA	SEO	734	734	0.00188	0.00188	36.72***	685.7***	0.483	494	0.252	591.9***	0.476	0.460	-	-	0.544
				(0.02)	(0.03)					(1.04)						
	SEO+1	791	791	**0.109****	**0.109*****	32.97***	660.1***	0.455	530	**0.656*****	599.7***	1.779	1.727	-	-	0.531
				(2.34)	**(2.87)**					**(2.95)**						
	SEO+2	752	752	**0.0846****	**0.0846****	37.40***	701.0***	0.482	504	**0.330***	579.8***	0.076	0.073	-	-	0.542
				(2.12)	**(2.37)**					**(1.66)**						
	SEO+3	649	649	0.0488	0.0488	22.34***	476.5***	0.423	431	**0.598*****	361.1***	0.767	0.738	-	-	0.462
				(0.90)	(1.19)					**(2.84)**						
	SEO+4	533	533	0.0516	0.0516	54.87***	511.1***	0.490	338	**0.592*****	444.0***	1.390	1.326	-	-	0.570
				(0.97)	(1.25)					**(3.39)**						
	SEO+5	440	440	0.0663	0.0663	39.12***	456.0***	0.509	266	**0.575*****	368.4***	0.268	0.251	-	-	0.587
				(1.08)	(1.52)					**(2.92)**						
Tobin's q Ratio	SEO	963	963	0.0797	**0.0797***	4.592***	84.84***	0.0810	652	-0.193	89.87***	2.470	2.411	-	-	0.100
				(0.92)	**(1.71)**					(-0.45)						
	SEO+1	950	950	**0.134****	**0.134****	27.23***	156.1***	0.141	647	**-0.855***	85.58***	2.491	2.431	-	-	0.0828
				(2.26)	**(2.28)**					**(-1.74)**						
	SEO+2	935	935	0.0842	**0.0842***	67.15***	315.1***	0.252	635	-0.615	96.86***	1.421	1.384	-	-	0.113
				(0.97)	**(1.74)**					(-1.35)						
	SEO+3	820	820	0.0319	0.0319	54.23***	272.3***	0.249	533	-0.151	61.48***	1.360	1.320	-	-	0.0956
				(1.06)	(0.67)					(-0.57)						
	SEO+4	680	680	0.0464	0.0464	197.7***	279.3***	0.291	441	-0.371	54.66***	2.024	1.950	-	-	0.0817
				(1.45)	(0.99)					(-1.20)						
	SEO+5	589	589	0.0621	0.0621	488.3***	335.2***	0.363	347	0.0793	52.70***	0.492	0.469	-	-	0.136
				(1.59)	(1.10)					(0.42)						
t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01																

hypothesis 3 for the offering year, but reject hypothesis 3 for years 2 and 3 after offering, denoting that the degree of equity market timing with larger proceeds has a positive effect on stock returns in an SEO year; however, they suffer from a deterioration of equity yields in the short term. This is consistent with the findings for the ROE ratio.

In contrast, the equity proceeds ratio significantly positively influences the MVA value from the first to fifth years after SEO issuance at least at the 90% confidence level in the IV models. Hence, these findings strongly affirm hypothesis 3, recommending that timers with higher proceeds increase the MVA value from 1 until 5 years after an SEO. This is consistent with Healy and Palepu (1990), who found that there is no evidence of a decrease in firm performance after SEO allocation.

Likewise, there is a positive influence of the degree of equity market timing as measured by the equity proceeds ratio on Tobin's q ratio from an SEO year to 2 years later. As shown in table 4.38, the parameters of the equity proceeds ratio have a significantly positive sign on Tobin's q ratio in an issuing year and 1 and 2 years after allocation at least at the 90% confidence level in the GLS model. Interestingly, there is a conflicting result in year 1 after issuance between OLS and GLS models on the one hand and the IV models on the other since the OLS and GLS models provide a positive sign of coefficient for these variables, while the IV model reports a negative direction. However, this model does not suffer from the endogenous problem as the values *"Durbin (score) Chi2"* and "*Wu-Hausman F"* are insignificant. Therefore, the coefficients of the OLS model is more consistent than that of the IV model (Larcker & Rusticus, 2010), so the effect of the level of equity market timing has a positive impact on Tobin's q in year 1 post-SEO issuance. Thus, the positive effect supports hypothesis 3, suggesting that timing firms with huge proceeds tend to enhance their Tobin's q ratio in the short term. This is consistent with Healy and Palepu (1990) as well.

In short, there are different results for the effect of the level of equity market timing with the equity proceeds ratio on firm performance, depending on each measurement. However, there is a reduction in accounting-based performance in the short and long term with the higher equity proceeds ratio, while there is an unclear result for the association between market-based performance and the equity proceeds ratio.

c.) Corporate bond issuance

Table 4.39[72] presents the empirical results for the impact of the degree of debt market timing on firm value and performance generated by the OLS, GLS and IV (2SLS) regressions for companies allocating corporate bonds in the Thai bond market from 2001 to 2014. The explained variable is firm performance calculated by two major approaches, namely accounting-based and market-based procedures. In addition, the main explanatory variable is the degree of debt market timing as captured by the debt proceeds ratio. Overall, accounting-based performance and Tobin's q ratio decrease with a higher debt proceeds ratio, while the MVA value reduces with larger debt proceeds only in year 1 post-offering, and then it increases with a higher debt proceeds ratio in later years.

Regarding accounting-based performance and Tobin's q ratio, the coefficients of the debt proceeds ratio have a significantly negative sign on ROA and ROE in year 2 after issuance at the 90% confidence level in the IV model. Additionally, the debt proceeds ratio significantly negatively associates with Tobin's q ratio in years 2, 3 and 4 after offering, at least at the 95% confidence level in the IV models. This argues against hypothesis 4, suggesting that the degree of debt market timing with huge proceeds has a negative influence on the ROA, ROE and Tobin's q ratios. However, these findings are consistent with Song (2009), who states that debt timing firms are unable to enhance firm performance as evaluated by Tobin's q ratio.

Conversely, the parameters of the debt proceeds ratio have a significantly negative sign on the MVA value 1 year after offering at the 99% confidence level in the OLS and GLS models. On the other hand, the coefficients of the debt proceeds ratio have a positive direction on the MVA value in years 3, 4 and 5 after issuance at least at the 90% confidence level in the OLS and GLS models. Hence, these findings reject hypothesis 4 in the short term, but affirm it in the long term, indicating that the level of debt market timing with the debt proceeds ratio has a negative impact on the MVA value 1 year after offering, yet a positive influence on the MVA value in years 3, 4 and 5 after allocation. This is consistent with Bougatef and Chichti (2011), who found that there is a positive relationship between debt market timing and firm performance in Tunisian corporations, while debt market timing negatively influences firm performance in French companies.

[72] VIF values: Max: 2.08, Min: 1.47 and Mean: 1.86.

Table 4.39: The regressions for the influence of the degree of debt market timing on firm performance (Accounting-Based)

Y	Period	OLS and GLS Regressions X = Debt Proceed Ratio							IV (2SLS) Regression X = Debt Proceed Ratio							
		N		*Debt Proceed Ratio*		*F*	*Wald Chi2*	R^2	*N*	*Debt Proceed Ratio*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
ROA	CB	171	171	0.00208	0.00208	19.52***	212.3***	0.554	154	0.0797	193.7***	0.436	0.389	-	-	0.556
				(0.05)	(0.03)					(0.69)						
	CB+1	171	171	-0.0299	-0.0299	6.219***	113.9***	0.400	155	-0.139	104.1***	0.502	0.449	-	-	0.398
				(-0.35)	(-0.27)					(-0.71)						
	CB+2	169	169	0.0684	0.0684	7.271***	100.6***	0.373	154	**-0.389***	85.62***	7.094***	6.615**	26.117	23.690	0.311
				(1.07)	(0.58)					**(-1.78)**						
	CB+3	127	127	0.0391	0.0391	6.231***	118.3***	0.482	114	-0.0815	121.1***	0.861	0.738	-	-	0.513
				(0.47)	(0.34)					(-0.50)						
	CB+4	102	102	0.0457	0.0457	4.050***	110.7***	0.521	90	-0.100	110.1***	1.187	0.975	-	-	0.548
				(0.58)	(0.35)					(-0.58)						
	CB+5	80	80	-0.0205	-0.0205	6.27***	117.5***	0.595	71	-0.0417	117.7***	0.114	0.087	-	-	0.624
				(-0.26)	(-0.17)					(-0.29)						
ROE	CB	170	170	0.00479	0.00479	8.940***	161.3***	0.487	153	0.373	149.5***	1.732	1.557	-	-	0.485
				(0.03)	(0.03)					-1.14						
	CB+1	171	171	0.0220	0.0220	4.171***	83.51***	0.328	155	-0.0813	82.15***	0.114	0.102	-	-	0.346
				(0.13)	(0.10)					(-0.22)						
	CB+2	169	169	0.0511	0.0511	3.726***	88.13***	0.343	154	**-0.653***	80.37***	5.654**	5.221**	26.324	23.917	0.301
				(0.40)	(0.26)					**(-1.80)**						
	CB+3	127	127	-0.0427	-0.0427	4.698***	92.54***	0.422	114	-0.199	100.6***	0.383	0.327	-	-	0.467
				(-0.27)	(-0.22)					(-0.71)						
	CB+4	102	102	-0.0301	-0.0301	3.417***	95.21***	0.483	90	-0.237	99.99***	0.831	0.681	-	-	0.523
				(-0.23)	(-0.15)					(-0.87)						
	CB+5	80	80	-0.0907	-0.0907	4.45***	83.35***	0.510	71	-0.111	84.25***	0.257	0.196	-	-	0.544
				(-0.76)	(-0.46)					(-0.48)						
ROIC	CB	172	172	-0.0281	-0.0281	16.44***	195.6***	0.532	155	-0.0494	168.2***	0.018	0.016	-	-	0.520
				(-0.54)	(-0.31)					(-0.32)						
	CB+1	171	171	-0.0111	-0.0111	7.092***	111.7***	0.395	155	-0.269	98.14***	1.416	1.272	-	-	0.378
				(-0.12)	(-0.08)					(-1.10)						
	CB+2	169	169	0.0366	0.0366	4.885***	88.42***	0.343	154	-0.401	79.52***	3.823*	3.488*	24.196	21.623	0.311
				(0.43)	(0.25)					(-1.56)						
	CB+3	127	127	0.0267	0.0267	4.830***	102.0***	0.445	114	-0.236	102.0***	2.321	2.016	-	-	0.462
				(0.26)	(0.18)					(-1.13)						
	CB+4	102	102	0.0462	0.0462	2.943***	110.6***	0.520	90	-0.132	106.3***	0.703	0.575	-	-	0.540
				(0.46)	(0.26)					(-0.55)						
	CB+5	80	80	-0.0537	-0.0537	7.29***	136.8***	0.631	71	-0.101	140.7***	0.100	0.076	-	-	0.665
				(-0.49)	(-0.33)					(-0.54)						

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 4.39: The regressions for the influence of the degree of debt market timing on firm performance (Market-Based) (Cont.)																
Y	Period	OLS and GLS Regressions X = Debt Proceed Ratio							IV (2SLS) Regression X = Debt Proceed Ratio							
		N		*Debt Proceed Ratio*		*F*	*Wald Chi2*	R^2	*N*	*Debt Proceed Ratio*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
Stock's Returns	CB	169	169	-0.688	-0.688	2.164***	30.43**	0.153	153	-1.418	28.98**	0.283	0.252	-	-	0.156
				(-0.92)	(-0.80)					(-0.95)						
	CB+1	171	171	0.935	0.935	1.982**	24.97*	0.127	155	1.750	25.86**	0.393	0.351	-	-	0.138
				(1.36)	(0.90)					(0.94)						
	CB+2	171	171	-0.551	-0.551	1.177	16.88	0.0898	155	-0.422	14.18	0.023	0.021	-	-	0.0834
				(-1.34)	(-0.55)					(-0.23)						
	CB+3	128	128	-0.0879	-0.0879	3.166***	22.42	0.149	114	-0.572	25.84**	0.000	0.000	-	-	0.186
				(-0.20)	(-0.08)					(-0.35)						
	CB+4	104	104	0.440	0.440	2.103**	29.67**	0.222	91	-1.304	21.86	2.566	2.147	-	-	0.174
				(1.02)	(0.41)					(-0.86)						
	CB+5	82	82	-0.0822	-0.0822	1.929**	8.331	0.0922	72	0.910	9.471	1.479	1.153	-	-	0.107
				(-0.15)	(-0.07)					(0.60)						
MVA	CB	159	159	1.263	1.263	20.82***	283.2***	0.640	143	4.363	254.8***	1.376	1.224	-	-	0.636
				(1.12)	(0.92)					(1.54)						
	CB+1	155	155	**-3.371*****	**-3.371*****	35.44***	346.7***	0.691	142	**-3.652***	339.6***	0.034	0.030	-	-	0.708
				(-5.24)	**(-2.88)**					**(-1.84)**						
	CB+2	153	153	-2.581	-2.581	21.16***	252.4***	0.623	139	-1.231	244.7***	0.104	0.091	-	-	0.638
				(-0.52)	(-0.56)					(-0.18)						
	CB+3	116	116	**10.78***	10.78	13.23***	151.0***	0.566	106	16.31	152.3***	0.430	0.362	-	-	0.589
				(1.70)	(1.61)					(1.38)						
	CB+4	91	91	**13.22***	**13.22***	10.76***	115.5***	0.559	82	19.53	111.9***	0.470	0.375	-	-	0.576
				(1.69)	**(1.74)**					(1.62)						
	CB+5	70	70	**16.42***	**16.42****	7.196***	139.9***	0.667	62	9.721	113.9***	0.000	0.000	-	-	0.648
				(1.71)	**(2.01)**					(0.91)						
Tobin's q Ratio	CB	172	172	-0.683	-0.683	8.629***	148.4***	0.463	155	-1.866	143.1***	0.802	0.717	-	-	0.477
				(-0.89)	(-0.87)					(-1.41)						
	CB+1	171	171	-0.411	-0.411	5.506***	87.42***	0.338	155	-2.568	87.39***	0.976	0.875	-	-	0.353
				(-0.46)	(-0.37)					(-1.27)						
	CB+2	169	169	-1.182	-1.182	3.951***	98.54***	0.368	155	**-9.145*****	82.27***	13.514***	13.181***	18.418	16.991	0.217
				(-1.36)	(-0.93)					**(-3.30)**						
	CB+3	127	127	**-2.143***	-2.143	6.786***	105.6***	0.454	114	**-4.643****	106.0***	1.527	1.317	-	-	0.475
				(-1.98)	(-1.48)					**(-2.20)**						
	CB+4	102	102	-2.058	-2.058	5.250***	115.7***	0.532	90	**-6.519*****	124.2***	4.305**	3.667*	29.816	25.762	0.566
				(-1.56)	(-1.16)					**(-2.80)**						
	CB+5	80	80	-2.337	-2.337	4.83***	90.61***	0.531	71	-3.963	84.75***	0.000	0.000	-	-	0.546
				(-1.39)	(-1.06)					(-1.49)						
t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01																

In brief, there are different outcomes for the effect of the degree of debt market timing on firm performance, depending on the method of firm performance calculation. However, there is an identical result for firm performance as estimated by the ROA, ROE and Tobin's q ratios, whereas the MVA value provides an opposing finding.

4.5.4.2.2 Cost of separate sources

a.) IPO issuance

We employ the OLS, GLS and IV (2SLS) regressions to inspect the influence of the level of equity market timing on cost of equity for IPO firms in Thailand from 2000 to 2014. The estimated results are provided in table 4.40.[73] The dependent variable is cost of equity estimated by three dissimilar measurements, namely the CAPM, Gordon and implied cost of equity methods. The main explanatory variable is the degree of equity market timing as captured by the equity proceeds ratio. Overall, the level of equity market timing with larger proceeds has a negative influence on cost of equity in the short and long term.

Starting with the Gordon model, the coefficients of the equity proceeds ratio have a significantly negative direction on cost of equity in years 2 and 3 after going public at the 90% confidence level in the OLS and IV models, respectively. Next, based on implied cost of equity with literature form, the equity proceeds ratio significantly negatively associates with cost of equity in from the IPO year to 3 years later at least at the 90% confidence level in the GLS and IV models. Likewise, the parameters of the equity proceeds ratio have a significantly negative direction on the implied cost of equity with the modified pattern at the 90% level in the OLS and IV models.

As a result, the findings from the Gordon and implied cost of equity methods strongly confirm hypothesis 1, indicating that timing firms with lager proceeds are successful at minimizing cost of equity in the short and long term. This is consistent with Chang et al. (2008) and Chang et al. (2010a), who found that there is a negative relationship between equity market timing and cost of equity. Therefore, the level of equity market timing with larger proceeds has a negative effect on cost of equity.

[73] VIF values: Max: 4.31, Min: 2.64 and Mean: 3.91.

Table 4.40: The regressions for the influence of degree of IPO market timing on cost of equity

Y	Period	OLS and GLS Regressions X = Equity Proceed Ratio							IV (2SLS) Regression X = Equity Proceed Ratio							
		N		*Equity Proceed Ratio*		*F*	*Wald Chi2*	R^2	*N*	*Equity Proceed*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
CAPM	IPO	253	253	0.000450 (0.02)	0.000450 (0.01)	19.75***	1486.9***	0.855	158	0.0745 (1.03)	1115.4***	0.391	0.345	-	-	0.876
	IPO+1	223	223	0.00542 (0.24)	0.00542 (0.31)	5.281***	56.96***	0.203	149	0.0546 (0.96)	34.67***	1.795	1.585	-	-	0.156
	IPO+2	198	198	0.00743 (0.38)	0.00743 (0.47)	2.870***	30.42***	0.133	132	0.0511 (0.95)	24.49	1.199	1.036	-	-	0.128
	IPO+3	183	183	-0.00724 (-0.43)	-0.00724 (-0.42)	15.42***	44.74***	0.196	117	-0.0193 (-0.49)	39.06***	0.001	0.001	-	-	0.252
	IPO+4	177	177	-0.00463 (-0.28)	-0.00463 (-0.26)	3.784***	39.81***	0.184	115	-0.0442 (-1.11)	43.28***	0.001	0.001	-	-	0.282
	IPO+5	162	162	0.0292 (1.49)	0.0292 (1.58)	3.399***	40.17***	0.199	107	0.0345 (0.84)	31.17**	0.054	0.044	-	-	0.234
Gordon Dividend Growth Model	IPO	247	247	0.0857 (0.28)	0.0857 (0.26)	7.440***	86.99***	0.260	156	-0.0250 (-0.04)	86.07***	0.343	0.302	-	-	0.355
	IPO+1	219	219	-0.417 (-0.95)	-0.417 (-0.76)	2.294***	9.178	0.0402	140	-1.958 (-1.32)	15.07	1.197	1.044	-	-	0.0776
	IPO+2	193	193	**-0.673*** **(-1.81)**	-0.673 (-1.34)	1.310	19.10	0.0901	121	-0.0603 (-0.04)	28.47**	1.631	1.394	-	-	0.192
	IPO+3	180	180	-0.862 (-1.32)	-0.862 (-1.36)	1.293	17.97	0.0908	115	**-2.967*** **(-1.92)**	22.32	0.310	0.259	-	-	0.169
	IPO+4	175	175	-0.788 (-1.24)	-0.788 (-1.21)	1.523*	22.99	0.116	114	-1.302 (-0.86)	19.74	0.058	0.048	-	-	0.149
	IPO+5	144	144	-0.0464 (-0.10)	-0.0464 (-0.11)	1.162	18.44	0.114	94	-0.505 (-0.60)	17.94	0.000	0.000	-	-	0.163
Average 4 ICC Methods (Literature)	IPO	251	251	**-0.130***** **(-3.36)**	**-0.130***** **(-3.10)**	2.420***	40.43***	0.139	159	**-0.281***** **(-2.79)**	31.84**	1.346	1.195	-	-	0.168
	IPO+1	251	251	**-0.134***** **(-2.85)**	**-0.134**** **(-2.54)**	3.296***	41.54***	0.142	159	**-0.270**** **(-2.13)**	49.48***	0.565	0.500	-	-	0.243
	IPO+2	222	222	-0.146 (-1.63)	**-0.146*** **(-1.88)**	1.512*	33.84***	0.132	140	**-0.324**** **(-2.12)**	38.34***	0.000	0.000	-	-	0.248
	IPO+3	197	197	-0.132 (-1.35)	**-0.132*** **(-1.73)**	1.672*	35.28***	0.152	131	**-0.503**** **(-2.17)**	22.67	1.340	1.158	-	-	0.130
	IPO+4	183	183	0.0139 (0.11)	0.0139 (0.13)	1.252	31.77**	0.148	116	-0.0612 (-0.31)	38.00***	0.000	0.000	-	-	0.247
	IPO+5	176	176	-0.0282 (-0.15)	-0.0282 (-0.24)	5.411***	34.89***	0.165	113	0.306 (1.37)	44.23***	0.394	0.329	-	-	0.279
Average 4 ICC Methods (Modified)	IPO	249	249	**-0.0672*** **(-1.70)**	-0.0672 (-1.46)	3.420***	52.12***	0.173	158	**-0.191*** **(-1.74)**	60.35***	0.423	0.373	-	-	0.279
	IPO+1	222	222	-0.0677 (-1.14)	-0.0677 (-1.06)	1.436	15.36	0.0647	141	-0.244 (-1.44)	17.92	0.001	0.001	-	-	0.132
	IPO+2	197	197	-0.0869 (-0.95)	-0.0869 (-1.04)	1.087	19.58	0.0904	123	-0.182 (-0.85)	15.70	0.397	0.337	-	-	0.138
	IPO+3	183	183	-0.0408 (-0.61)	-0.0408 (-0.66)	3.051***	45.16***	0.198	116	-0.172 (-1.24)	39.36***	0.161	0.135	-	-	0.255
	IPO+4	175	175	0.114 (1.47)	0.114 (1.56)	2.580***	40.89***	0.189	113	0.142 (0.95)	41.67***	0.234	0.195	-	-	0.267
	IPO+5	137	137	0.141 (1.00)	0.141 (1.42)	1.654*	42.68***	0.238	85	-0.150 (-0.83)	43.81***	3.616**	2.932*	23.428	18.264	0.320

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

b.) SEO issuance

Table 4.41[74] presents the empirical results for the influence of the degree of equity market timing on cost of equity for SEO corporations in Thailand from 2000 to 2014. The estimated outcomes are produced by the OLS, GLS and IV (2SLS) regressions. The cost of equity is the explained variable as estimated in three different ways, including the CAPM, Gordon and implied cost of equity procedures. The level of equity market timing is the main explanatory variable detected by the equity proceeds ratio. Overall, the degree of equity market timing with larger proceeds has a positive effect on cost of equity in the short and long term.

Regarding the CAPM model, the coefficients of the equity proceeds ratio have a significantly positive sign on cost of equity in an offering year and 5 years later at the 95% confidence level in the OLS models. Also, according to the Gordon model, the parameter of the equity proceeds ratio has a significantly positive direction on cost of equity 1 year after offering at the 99% confidence level in the IV model. Similarly, the equity proceeds ratio significantly positively impacts on implied cost of equity with the literature version from an SEO year to 4 years after issuance and the modified pattern from an SEO year to 3 years later at least at the 90% confidence level, in the IV and OLS regressions. Hence, these findings strongly reject hypothesis 1, suggesting that timing firms with larger proceeds suffer from increase cost of equity after SEO issuance. This opposes the statements by Chang et al. (2008) and Chang et al. (2010a); however, this has also been documented by Asquith and Mullins (1986), who state that stock allocation is *"a negative signalling"* that these firms are overvalued in their stocks. Therefore, when investors recognise this signal, they require a higher required rate of returns to compensate for the higher risk from the high value of a company's stocks. As the required rate of returns of investors is the cost of equity of firms, this leads to an increase in cost of equity for SEO firms from the offering year to 4 years later.

However, there is are vague results for the effect of the degree of equity market timing on implied cost of equity with the literature version in year 5 after SEO issuance. As shown in table 4.41, the parameters of the equity proceeds ratio have a significantly positive direction on cost of equity in year 5 after offering at the 95% confidence level in the OLS and GLS models, but have a significantly negative direction at the 95% confidence level in the IV model. Therefore, there is a conflicting outcome between the

[74] VIF values: Max: 5.40, Min: 2.75 and Mean: 3.38.

Table 4.41: The regressions for the influence of degree of SEO market timing on cost of equity

Y	Period	OLS and GLS Regressions X = Equity Proceed Ratio							IV (2SLS) Regression X = Equity Proceed Ratio							
		N		*Equity Proceed Ratio*		*F*	*Wald Chi2*	R^2	*N*	*Equity Proceed*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
CAPM	SEO	898	898	**0.00368****	**0.00368***	28.80***	365.2**	0.289	612	**0.0248***	326.0***	1.076	1.046	-	-	0.344
				(2.07)	**(1.75)**					**(1.83)**						
	SEO+1	802	802	-0.000916	-0.000916	18.87***	112.3***	0.123	531	0.00567	93.11***	0.017	0.017	-	-	0.151
				(-0.67)	(-0.42)					(0.42)						
	SEO+2	665	665	-0.000656	-0.000656	7.894***	73.37***	0.0994	426	-0.00354	103.3***	1.587	1.526	-	-	0.191
				(-0.46)	(-0.31)					(-0.32)						
	SEO+3	567	567	-0.000896	-0.000896	6.114***	47.47***	0.0773	341	0.0102	81.70***	0.025	0.024	-	-	0.199
				(-0.60)	(-0.41)					(0.99)						
	SEO+4	484	484	-0.00137	-0.00137	5.442***	76.03***	0.136	279	0.0117	98.08***	2.586	2.442	-	-	0.251
				(-0.68)	(-0.64)					(1.38)						
	SEO+5	456	456	**0.00234****	0.00234	8.926***	133.5***	0.227	268	-0.0375	139.2***	2.617	2.465	-	-	0.320
				(2.39)	(1.13)					(-1.21)						
Gordon Dividend Growth Model	SEO	883	883	0.0162	0.0162	5.548***	124.0***	0.123	596	0.0964	90.66***	0.168	0.163	-	-	0.131
				(0.44)	(0.21)					(0.18)						
	SEO+1	792	792	0.0715	0.0715	3.744***	98.42***	0.111	530	**1.576*****	103.7***	3.341*	3.242*	19.717	19.242	0.142
				(1.08)	(0.96)					**(3.00)**						
	SEO+2	655	655	-0.0448	-0.0448	3.990***	118.9***	0.154	419	0.0894	105.5***	0.158	0.151	-	-	0.200
				(-1.01)	(-0.62)					(0.21)						
	SEO+3	559	559	-0.000735	-0.000735	3.300***	97.64***	0.149	336	0.363	100.5***	0.022	0.021	-	-	0.234
				(-0.02)	(-0.01)					(0.28)						
	SEO+4	481	481	-0.000542	-0.000542	3.723***	103.5***	0.177	278	0.362	85.83***	0.163	0.152	-	-	0.236
				(-0.02)	(-0.01)					(1.21)						
	SEO+5	432	432	-0.0113	-0.0113	3.427***	108.2***	0.200	249	1.818	73.24***	2.693	2.526	-	-	0.197
				(-0.33)	(-0.15)					(1.35)						
Average 4 ICC Methods (Literature)	SEO	925	925	0.000199	0.000199	3.680***	59.70***	0.0606	622	**0.197*****	39.11***	16.035***	15.956***	18.126	17.709	0.057
				(0.03)	(0.03)					**(3.97)**						
	SEO+1	935	935	0.0196	**0.0196****	4.954***	81.64***	0.0803	626	**0.411*****	101.7***	31.586***	32.255***	11.046	10.670	0.232
				(1.23)	**(2.47)**					**(6.22)**						
	SEO+2	819	819	0.0169	**0.0169****	7.495***	87.06***	0.0961	533	**0.172*****	98.51***	5.199**	5.073**	25.795	25.225	0.117
				(1.59)	**(2.10)**					**(3.21)**						
	SEO+3	676	676	**0.00951***	0.00951	1.516*	30.43**	0.0431	426	0.0522	56.59***	1.113	1.068	-	-	0.108
				(1.95)	(1.26)					(1.35)						
	SEO+4	580	580	**0.0144****	0.0144	4.584***	83.63***	0.126	346	-0.0552	57.97***	0.592	0.562	-	-	0.140
				(2.27)	(1.62)					(-1.24)						
	SEO+5	495	495	**0.0210****	**0.0210****	2.417***	38.03***	0.0713	284	**-0.0800****	73.43***	2.021	1.900	-	-	0.196
				(2.01)	**(2.18)**					**(-2.21)**						
Average 4 ICC Methods (Modified)	SEO	895	895	-0.000728	-0.000728	5.312***	89.50***	0.0909	735	**0.187*****	66.71***	9.463***	9.339***	15.421	15.130	0.096
				(-0.11)	(-0.11)					**(3.03)**						
	SEO+1	802	802	0.0175	**0.0175****	9.590***	71.34***	0.0817	526	**0.225*****	67.39***	8.366***	8.210***	25.930	25.356	0.0705
				(0.97)	**(2.51)**					**(5.04)**						
	SEO+2	667	667	0.0133	**0.0133***	6.865***	56.65***	0.0783	426	**0.159*****	60.95***	5.534**	5.370**	20.648	19.815	0.0860
				(1.00)	**(1.70)**					**(3.56)**						
	SEO+3	578	578	**0.0115*****	0.0115	8.346***	42.08***	0.0679	347	0.0409	44.80***	0.745	0.708	-	-	0.109
				(2.93)	(1.49)					(1.14)						
	SEO+4	501	501	0.00641	0.00641	3.304***	44.59***	0.0817	288	-0.0293	38.31***	1.788	1.687	-	-	0.111
				(0.96)	(0.75)					(-0.86)						
	SEO+5	428	428	-0.00476	-0.00476	2.052***	41.33***	0.0881	246	-0.196	62.40***	1.433	1.336	-	-	0.187
				(-1.04)	(-0.51)					(-1.54)						

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

OLS and GLS models on the one hand and the IV model on the other. However, the values of *"Durbin (score) Chi2"* and *"Wu-Hausman F"* are insignificant, therefore our model does not suffer from the problem of endogeneity. Consequently, the parameters produced by the OLS model are more consistent than those of the IV model (Larcker & Rusticus, 2010), so the level of equity market timing with higher proceeds has a positive influence on cost of equity in year 5 after offering, refuting hypothesis 1 and suggesting that SEO timing firms with higher proceeds tend to increase cost of equity in year 5 after issuance.

Summing up, the findings reveal that SEO timing firms with larger proceeds tend to suffer from an increase in cost of equity from the offering year to 5 years later.

c.) Corporate bond issuance

Table 4.42[75] demonstrates the empirical results of the impact of the level of debt market timing on cost of debt after taxes in corporations that allocated corporate bonds in the Thai bond market from 2001 to 2014. We employ the OLS, GLS and IV (2SLS) regressions to generate the estimated results, while the dependent variable is cost of debt after taxes measured using two methods, including the Bloomberg dataset and the interest expense ratio. In addition, the main explanatory variable is the level of debt market timing detected with the debt proceeds ratio. Briefly, the degree of debt market timing with the debt proceeds ratio has a positive effect on cost of debt after taxes in the short term, but a negative influence in the long term, based on the Bloomberg database.

According to the Bloomberg approach, the coefficients of the debt proceeds ratio have a significantly positive sign on cost of debt after taxes in year 2 after allocation at the 90% confidence level in the OLS model. This goes against hypothesis 2, denoting that cost of debt after taxes in year 2 after offering increases with greater debt proceeds. This is consistent with the claim of Song (2009) that debt market timers are unsuccessful at decreasing cost of capital. In contrast, the parameters of the debt proceeds ratio have a significantly negative sign on cost of debt after taxes at the 99% confidence level in the IV model. This verifies hypothesis 2, indicating that the degree of debt market timing with the debt proceeds ratio has a negative effect on cost of debt after taxes in year 5 after offering. This affirms the statement of Graham and Harvey (2001) that managers tend to time the debt market to minimize cost of capital.

[75] VIF values: Max: 6.24, Min: 1.94 and Mean: 3.11.

Table 4.42: The regressions for the influence of degree debt market timing on cost of debt after taxes

Y	Period	OLS and GLS Regressions X = Debt Proceed Ratio							IV (2SLS) Regression X = Debt Proceed Ratio							
		N		*Debt Proceed Ratio*		*F*	*Wald Chi2*	R^2	*N*	*Debt Proceed*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
Bloomberg	CB	168	168	-0.0148	-0.0148	2.262***	41.54***	0.198	151	-0.0282	41.09***	0.781	0.692	-	-	0.206
				(-0.85)	(-0.77)					(-0.92)						
	CB+1	126	126	-0.000876	-0.000876	2.699***	37.79***	0.231	112	0.00492	36.60***	0.028	0.023	-	-	0.247
				(-0.07)	(-0.04)					(0.14)						
	CB+2	102	102	**0.0235***	0.0235	25.81***	47.99***	0.320	90	0.0162	65.99***	0.155	0.125	-	-	0.426
				(1.67)	(1.01)					(0.54)						
	CB+3	81	81	0.0104	0.0104	1.87**	37.95***	0.319	72	0.0242	34.74***	0.605	0.458	-	-	0.333
				(0.62)	(0.44)					(0.90)						
	CB+4	64	64	0.0110	0.0110	2.39**	51.99***	0.448	54	0.0405	47.44***	0.634	0.440	-	-	0.477
				(0.55)	(0.46)					(1.57)						
	CB+5	53	53	-0.0363	-0.0363	2.566***	23.71*	0.309	44	**-0.762***	52.46***	0.066	0.040	-	-	0.548
				(-0.15)	(-0.22)					**(-3.47)**						
Interest Expenses	CB	168	168	0.0129	0.0129	4.547***	76.81***	0.314	151	-0.0312	89.16***	0.744	0.659	-	-	0.367
				(0.67)	(0.33)					(-0.42)						
	CB+1	125	125	0.148	0.148	2.645***	67.92***	0.352	111	0.00259	90.45***	0.239	0.147	-	-	0.449
				(0.66)	(0.74)					(0.01)						
	CB+2	100	100	-0.127	-0.127	4.475***	28.27**	0.220	89	-0.366	31.30**	0.821	0.661	-	-	0.249
				(-0.68)	(-0.67)					(-1.13)						
	CB+3	79	79	-0.0244	-0.0244	1.87**	38.15***	0.326	70	-0.191	59.02***	1.382	1.048	-	-	0.451
				(-0.10)	(-0.11)					(-0.67)						
	CB+4	62	62	0.331	0.331	1.718*	36.69***	0.372	53	-0.429	115.9***	1.418	0.990	-	-	0.684
				(0.80)	(0.97)					(-1.11)						
	CB+5	53	53	0.258	0.258	2.591***	74.87***	0.586	44	-0.134	102.2***	0.302	0.187	-	-	0.699
				(0.62)	(0.80)					(-0.36)						

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

In brief, debt market timers with large proceeds are unsuccessful at reducing cost of debt after taxes in the short term, but they are successful in doing so in the long term, according to the Bloomberg definition.

4.5.4.2.3 Weighted average cost of capital (WACC)

a.) IPO issuance

Table 4.43[76] illustrates the empirical findings for the influence of the level of equity market timing on WACC for IPO corporations in Thailand from 2000 to 2014. The OLS, GLS and IV (2SLS) regressions are employed to generate the estimated results regarding this issue. WACC is the dependent variable and is evaluated by the cost of debt after taxes from the Bloomberg database and the cost of equity is calculated with three different procedures including the CAPM, Gordon and implied cost of equity models. In addition, the main explanatory variable is the level of equity market timing captured by the equity proceeds ratio. Interestingly, the results for the WACC model are heterogeneous with the model of cost of equity. In addition, there are dissimilar outcomes between the three measurements of cost of equity.

Beginning with the CAPM method, the coefficients of the equity proceeds ratio have a significantly positive sign on WACC in an IPO year and 2 and 5 years later at the 90%, 95% and 99% confidence levels in the OLS, IV and IV models, respectively. This rejects hypothesis 1, suggesting that timing corporations with large proceeds tend to raise WACC in the issuing year and 2 and 5 years post-offering. This contrasts with the statement by Baker and Wurgler (2002) and Alti (2006), who claim that firms tend to time the equity market to minimize cost of capital.

On the other hand, based on the Gordon model, the level of equity market timing with the equity proceeds ratio significantly negatively impacts on WACC in years 2, 3 and 4 after going public at the 90%, 99% and 90% confidence levels in the OLS, IV and GLS models, respectively. This confirms hypothesis 1, suggesting that timers with high proceeds reduce WACC in years 2, 3 and 4 after IPO issuance. This is consistent with the assertion by Baker and Wurgler (2002).

However, regarding the implied cost of equity approach with both the literature and modified versions, the parameters of the equity proceeds ratio have a significantly

[76] VIF values: Max:5.83, Min:2.64 and Mean: 3.87

Y	Period	OLS and GLS Regressions X = Equity Proceed Ratio							IV (2SLS) Regression X = Equity Proceed Ratio							
		N		*Equity Proceed Ratio*		*F*	*Wald Chi2*	R^2	*N*	*Equity Proceed*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
CAPM	IPO	253	253	**0.0389***	0.0389	13.51***	1251.6***	0.832	158	0.107	1002.6***	0.359	0.317	-	-	0.864
				(1.71)	(1.20)					(1.52)						
	IPO+1	223	223	0.0242	0.0242	4.973***	69.69***	0.238	141	0.0640	37.45***	2.104	1.848	-	-	0.184
				(1.42)	(1.59)					(1.59)						
	IPO+2	198	198	**0.0242***	**0.0242***	5.624***	38.03***	0.161	124	**0.0850****	18.22	3.591*	3.132*	20.289	17.020	0.0593
				(1.82)	**(1.94)**					**(2.35)**						
	IPO+3	183	183	0.00948	0.00948	6.009***	37.15***	0.169	117	0.00866	26.74*	0.069	0.058	-	-	0.185
				(0.68)	(0.65)					(0.26)						
	IPO+4	177	177	0.0164	0.0164	3.888***	52.91***	0.230	115	0.00335	32.26**	0.407	0.341	-	-	0.218
				(1.27)	(1.11)					(0.10)						
	IPO+5	162	162	**0.0384****	**0.0384****	2.561***	35.77***	0.181	107	**0.103*****	29.98**	2.307	1.939	-	-	0.193
				(1.99)	**(2.20)**					**(2.73)**						
Gordon Dividend Growth Model	IPO	246	246	0.0803	0.0803	6.544***	80.87***	0.247	155	0.0528	83.42***	0.136	0.119	-	-	0.350
				(0.28)	(0.28)					(0.09)						
	IPO+1	219	219	-0.362	-0.362	1.665*	8.238	0.0363	140	-1.619	15.27	1.478	1.291	-	-	0.0743
				(-0.94)	(-0.83)					(-1.39)						
	IPO+2	193	193	**-0.551***	-0.551	1.321	22.37	0.104	121	-0.0224	31.98**	1.467	1.252	-	-	0.210
				(-1.86)	(-1.45)					(-0.02)						
	IPO+3	180	180	-0.696	-0.696	1.210	16.71	0.0849	115	**-2.978*****	27.87**	1.466	1.240	-	-	0.185
				(-1.23)	(-1.42)					**(-2.68)**						
	IPO+4	175	175	**-0.794***	**-0.794***	1.331	29.51**	0.144	114	-0.744	22.79	0.075	0.063	-	-	0.173
				(-1.70)	**(-1.73)**					(-0.64)						
	IPO+5	131	131	-0.166	-0.166	1.038	14.36	0.0988	90	-0.451	14.99	0.002	0.002	-	-	0.147
				(-0.39)	(-0.48)					(-0.77)						
Average 4 ICC Methods (Literature)	IPO	252	252	**-0.0776*****	**-0.0776****	2.534***	34.67***	0.121	157	**-0.172****	34.24***	1.461	1.297	-	-	0.165
				(-2.62)	**(-2.44)**					**(-2.21)**						
	IPO+1	223	223	-0.0529	-0.0529	1.514*	28.32***	0.113	140	-0.111	33.17**	0.093	0.080	-	-	0.194
				(-1.34)	(-1.24)					(-1.01)						
	IPO+2	198	198	-0.0348	-0.0348	1.083	20.27	0.0929	123	0.00445	34.01***	1.642	1.407	-	-	0.215
				(-0.68)	(-0.74)					(0.04)						
	IPO+3	183	183	-0.0655	-0.0655	1.455	33.04**	0.153	116	-0.0662	37.81***	0.225	0.189	-	-	0.255
				(-0.92)	(-1.33)					(-0.77)						
	IPO+4	176	176	0.0639	0.0639	1.242	24.80*	0.123	114	-0.0255	29.16**	0.150	0.125	-	-	0.202
				(0.61)	(0.93)					(-0.21)						
	IPO+5	161	173	0.0495	-0.0618	7.372***	38.45***	0.223	106	**0.236****	64.89***	0.373	0.307	-	-	0.383
				(0.51)	(-0.92)					**(2.09)**						
Average 4 ICC Methods (Modified)	IPO	246	246	-0.0280	-0.0280	2.694***	41.12***	0.143	156	-0.0943	50.24***	0.348	0.306	-	-	0.241
				(-0.92)	(-0.76)					(-1.07)						
	IPO+1	220	220	0.0127	0.0127	1.618*	16.42	0.0695	140	-0.106	27.54*	0.887	0.772	-	-	0.153
				(0.33)	(0.31)					(-0.99)						
	IPO+2	196	196	-0.0190	-0.0190	1.168	22.12	0.101	123	-0.00305	29.48**	0.348	0.295	-	-	0.194
				(-0.37)	(-0.40)					(-0.02)						
	IPO+3	182	182	0.00483	0.00483	2.020**	27.02*	0.129	116	-0.0564	40.05***	0.472	0.396	-	-	0.252
				(0.09)	(0.11)					(-0.65)						
	IPO+4	174	174	0.0508	0.0508	5.916***	42.47***	0.196	113	**0.193****	46.56***	2.150	1.823	-	-	0.270
				(0.92)	(1.04)					**(2.08)**						
	IPO+5	123	123	**0.249***	**0.249*****	2.468***	42.20***	0.255	81	0.125	52.12***	1.823	1.105	-	-	0.410
				(1.96)	**(3.74)**					(1.02)						

Table 4.43: The regressions for the influence of degree of IPO market timing on WACC

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

negative sign on WACC in an IPO year at least at the 95% confidence level. This confirms hypothesis 1, suggesting that firms that go public and earn larger proceeds tend to decrease WACC in the offering year. In contrast, the coefficients of the equity proceeds ratio have a significantly positive direction on WACC with the modified version in years 4 and 5 following issuance in the IV and GLS models at the 95% and 99% confidence levels, respectively. This argues against hypothesis 1, suggesting that companies that conduct initial stock and obtain higher proceeds suffer from an increase in WACC in years 4 and 5 after going public. This finding is consistent with the statement of Alti (2006) that the effect of equity market timing appears only in the short term since firms have a propensity to rebalance their capital structure after equity market timing to reach the target capital structure. Hence, this implies that the benefit of equity market timing supports a minimization of cost of capital in the short term.

In short, there are different results for the effect of the level of equity market timing with larger proceeds between the three calculations of cost of equity. The cause of these different results may be the dissimilar concepts for the cost of equity estimation since the CAPM method relies on historical information, while the implied cost of equity procedure depends on forward information. Moreover, the Gordon model in this study assumes that the short-term and long-term growth rates are constant, whereas the implied cost of equity approach, including GLS and CT, assumes that the growth rate is inconstant in the short term. Therefore, there are non-identical results in this study.

b.) SEO issuance

Table 4.44[77] provides the empirical results for the effect of the degree of equity market timing on WACC for SEO companies in the Thai stock market from 2000 to 2014. We employ the OLS, GLS and IV (2SLS) regressions to produce the estimated results. The explained variable is WACC measured by the cost of debt after taxes from the Bloomberg database and cost of equity is measured using three methods, namely the CAPM, Gordon and implied cost of equity approaches. Moreover, the main explanatory variable is the level of equity market timing as measured by the equity proceeds ratio. Overall, there is a positive association between the level of equity market timing and WACC. Interestingly, the results are quite identical to the outcomes of the cost of equity model.

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[77] VIF values: Max: 6.24, Min: 1.67 and Mean: 4.10.

Table 4.44: The regressions for the influence of degree of SEO market timing on WACC

Y	Period	OLS and GLS Regressions X = Equity Proceed Ratio							IV (2SLS) Regression X = Equity Proceed Ratio							
		N		*Equity Proceed Ratio*		*F*	*Wald Chi2*	R^2	*N*	*Equity Proceed*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
CAPM	SEO	898	898	**0.00616***** **(4.09)**	**0.00616***** **(3.56)**	22.23***	383.1***	0.299	612	**0.0218*** **(1.85)**	273.6***	1.625	1.581	-	-	0.299
	SEO+1	803	803	-0.000489 (-0.44)	-0.000489 (-0.30)	57.98***	302.9***	0.274	531	0.00988 (0.96)	173.3***	0.094	0.091	-	-	0.247
	SEO+2	664	664	-0.000413 (-0.30)	-0.000413 (-0.25)	15.53***	197.0***	0.229	425	**0.0166*** **(1.85)**	159.6***	0.583	0.559	-	-	0.274
	SEO+3	567	567	-0.000564 (-0.36)	-0.000564 (-0.33)	8.470***	130.0***	0.186	341	**0.0201**** **(2.34)**	121.2***	0.920	0.874	-	-	0.263
	SEO+4	484	484	-0.00112 (-0.79)	-0.00112 (-0.62)	5.919***	108.1***	0.183	279	**0.0240***** **(3.37)**	121.8***	7.750***	7.457***	20.369	19.059	0.277
	SEO+5	455	455	-0.000306 (-0.30)	-0.000306 (-0.16)	5.278***	104.3***	0.186	267	-0.0202 (-0.73)	132.9***	1.323	1.240	-	-	0.322
Gordon Dividend Growth Model	SEO	869	869	0.0222 (0.66)	0.0222 (0.36)	5.118***	137.2***	0.136	596	0.176 (0.41)	108.5***	0.445	0.432	-	-	0.151
	SEO+1	774	774	0.0507 (1.11)	0.0507 (0.88)	3.641***	117.1***	0.131	526	**1.071***** **(2.65)**	123.0***	2.282	2.209	-	-	0.178
	SEO+2	638	638	-0.0362 (-0.98)	-0.0362 (-0.66)	3.917***	133.3***	0.173	413	0.0840 (0.26)	124.9***	0.193	0.184	-	-	0.231
	SEO+3	542	542	-0.000525 (-0.02)	-0.000525 (-0.01)	3.727***	121.7***	0.183	330	-0.0679 (-0.07)	122.8***	0.184	0.174	-	-	0.270
	SEO+4	455	455	-0.00884 (-0.33)	-0.00884 (-0.16)	3.550***	127.7***	0.219	271	**0.430**** **(1.99)**	126.2***	1.576	1.480	-	-	0.313
	SEO+5	415	415	0.00215 (0.08)	0.00215 (0.04)	3.709***	149.7***	0.265	255	**2.824**** **(2.15)**	89.44***	6.651***	6.347**	17.140	16.214	0.152
Average 4 ICC Methods (Literature)	SEO	898	898	0.00239 (0.67)	0.00239 (0.49)	2.566***	34.98***	0.0375	618	**0.113***** **(3.39)**	37.27***	9.823***	9.675***	18.719	18.304	0.052
	SEO+1	804	804	0.0152 (1.25)	**0.0152***** **(2.77)**	3.717***	37.85***	0.0450	648	**0.212***** **(4.35)**	55.72***	9.650***	9.508***	16.537	16.185	0.167
	SEO+2	665	665	0.0149 (1.51)	**0.0149***** **(2.85)**	10.22***	25.84*	0.0374	426	**0.157***** **(4.96)**	51.48***	12.307***	12.137***	25.527	24.796	0.0152
	SEO+3	562	562	0.00644 (1.40)	0.00644 (1.35)	1.334	23.49	0.0401	426	**0.115***** **(3.72)**	38.17***	12.006***	11.804***	11.806	11.287	0.114
	SEO+4	478	478	**0.00639**** **(2.38)**	0.00639 (1.30)	4.548***	53.22***	0.100	281	-0.00132 (-0.07)	49.09***	0.124	0.116	-	-	0.149
	SEO+5	453	453	**0.00838***** **(4.05)**	0.00838 (1.46)	7.398***	43.25***	0.0872	268	**-0.177*** **(-1.84)**	40.22***	2.028	1.906	-	-	0.0977
Average 4 ICC Methods (Modified)	SEO	900	900	0.000168 (0.04)	0.000168 (0.04)	3.987***	46.90***	0.0495	616	0.0431 (1.37)	38.15***	1.997	1.945	-	-	0.0290
	SEO+1	806	806	0.0117 (0.96)	**0.0117**** **(2.37)**	8.629***	44.90***	0.0528	535	**0.165***** **(4.99)**	45.10***	9.688***	9.534***	27.477	26.961	0.0102
	SEO+2	668	668	0.0132 (1.05)	**0.0132**** **(2.56)**	9.096***	48.95***	0.0683	429	**0.140***** **(4.83)**	45.78***	7.079***	6.896***	27.891	27.258	0.0616
	SEO+3	571	571	**0.00941*** **(1.94)**	**0.00941*** **(1.81)**	8.000***	33.66***	0.0557	430	**0.0908***** **(2.81)**	36.16***	4.481***	4.328***	10.205	9.724	0.0377
	SEO+4	489	489	0.00438 (1.05)	0.00438 (0.86)	5.124***	66.15***	0.119	284	0.0229 (1.19)	64.15***	0.000	0.000	-	-	0.188
	SEO+5	416	416	-0.00450 (-1.35)	-0.00450 (-0.76)	3.078***	35.51***	0.0786	247	**-0.156**** **(-2.02)**	37.01***	1.400	1.305	-	-	0.116

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Starting with the CAPM model, there is a significantly positive direction for the coefficients of the equity proceeds ratio on WACC in an SEO year and 2, 3 and 4 years later at least at the 90% confidence level in the IV model. Likewise, based on the Gordon model, the coefficients of the equity proceeds ratio have a significantly positive sign on WACC in years 1, 4 and 5 post-offering at the 99%, 95% and 95% confidence levels in the IV model, respectively. In addition, the parameters of the equity proceeds ratio have a significantly positive direction on WACC calculated by the implied cost of equity method with the literature version from the SEO year to 4 years after offering, at least at the 95% confidence level in the IV and OLS models and for the adjusted version in the 1 to 3 years after SEO issuance, at the 99% confidence level in the IV models.

Therefore, the results of a positive effect reject hypothesis 1, indicating that SEO market timers with larger proceeds have a propensity to suffer from an increase in WACC from the SEO year for the 4 subsequent years. This opposes the statement of Baker and Wurgler (2002) and Alti (2006) that the reason for equity market timing is a reduction of cost of capital. However, our findings imply that equity issuance is a negative signal regarding the high value of firm stocks (Asquith & Mullins, 1986). Hence, investors desire to earn a higher required rate of returns from holding stocks of these companies, effecting an increase in cost of equity as well as overall cost of capital for the firm.

However, there are mixed results for year 5 post-offering between the OLS and IV models in the implied cost of equity technique. As exhibited in table 4.44, the parameters of the equity proceeds ratio have a significantly positive association with WACC with the literature form in year 5 after SEO allocation at the 99% confidence level in the OLS model. Conversely, the coefficients of the equity proceeds ratio have a significantly negative direction on WACC with the literature and modified versions in year 5 post-issuance at the 90% and 95% confidence levels, respectively, in the IV models. However, as the values of "*Durbin (score) Chi2*" and "*Wu-Hausman F*" are insignificant, these models do not suffer from the problem of endogeneity and the coefficients of the OLS model are more consistent than the IV model (Larcker & Rusticus, 2010). Hence, the degree of equity market timing with the equity proceeds ratio has a positive effect on WACC in year 5 after an SEO allocation.

Briefly, SEO timing corporations with huge proceeds suffer from the enhancement of WACC from an SEO year until 5 years later.

c.) Corporate bond issuance

We conduct the OLS, GLS and IV (2SLS) regressions to explore the influence of the level of debt market timing on WACC for companies that allocated corporate bonds in the Thai bond market from 2001 to 2014. The estimated outcomes are provided in table 4.45.[78] The dependent variable is WACC as evaluated by cost of debt after taxes with the Bloomberg dataset and the cost of equity is calculated in three different ways, namely the CAPM, Gordon and implied cost of equity models. Additionally, the main explanatory variable is the level of debt market timing detected with the equity proceeds ratio. Overall, there are different findings for the impact of debt market timing on WACC, depending upon each measurement of cost of equity.

According to the CAPM method, the level of debt market timing with larger proceeds significantly positively relates to WACC from the issuing year to 3 years later, at least at the 95% confidence level in all models. This argues against hypothesis 2, suggesting that WACC increases with larger equity proceeds. This is consistent with the statement by Song (2009) that debt market timers fail to decrease their cost of capital.

On the other hand, the degree of debt market timing with the debt proceeds ratio has a significantly negative effect on WACC based on the Gordon model in year 5 after offering at the 95% confidence level in the IV model. This supports hypothesis 2, suggesting that debt market timers with large proceeds tend to accomplish a reduction in WACC in year 5 after offering. This supports the claim by Graham and Harvey (2001) that the purpose of debt market timing is the minimizing of cost of capital.

In contrast, the findings demonstrate that there is a significantly negative sign for the coefficients of the equity proceeds ratio on WACC as estimated by implied cost of equity with the literature and modified versions in an offering year at the 95% and 90% confidence levels in the IV models, respectively. This confirms hypothesis 2, denoting that the companies that offer corporate bonds and gain larger proceeds succeed in the reduction of WACC in an offering year. Conversely, the degree of debt market timing with the debt proceeds ratio significantly positively influences WACC in years 2 (literature), 4 (literature) and 5 (modified) after offering at the 90% confidence level in the OLS, OLS and IV models, respectively. This confutes hypothesis 2, suggesting that timing corporations with greater proceeds suffer from an increase in WACC in years 2, 4 and 5 after offering. Therefore, debt market timers with higher proceeds are successful at

[78] VIF values: Max: 6.25, Min: 1.93 and Mean: 3.16.

decreasing WACC only in the issuing year; however, they suffer from an increase in WACC in years 2, 4 and 5 post-issuances. This is consistent with Bougatef and Chichti (2011), who found both an increase and decrease in the firm performance of debt market timers.

Summing up, there are different findings for the influence of the level of debt market timing with larger proceeds on WACC, depending on the method of estimation of cost of equity. However, debt market timers suffer from an increase in WACC after offering based on the CAPM method. On the other hand, they successfully reduce WACC in the long term according to the Gordon model. Conversely, timing firms can achieve a reduction in WACC only in offering year, but they suffer from an increase in WACC in the short and long term after issuance.

Table 4.45: The regressions for the influence of degree of debt market timing on WACC																
Y	Period	OLS and GLS Regressions X = Debt Proceed Ratio							IV (2SLS) Regression X = Debt Proceed Ratio							
		N		*Debt Proceed Ratio*		*F*	*Wald Chi2*	R^2	*N*	*Debt Proceed*	*Wald Chi2*	*Durbin (score) Chi2*	*Wu-Hausman F*	*Sargan (score) Chi2*	*Basmann Chi2*	R^2
		OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*	*IV*
CAPM	CB	169	169	**0.143**** **(2.35)**	**0.143**** **(2.47)**	10.47***	137.2***	0.448	152	**0.201**** **(2.16)**	139.0***	1.394	1.240	-	-	0.473
	CB+1	125	125	**0.244***** **(7.91)**	**0.244***** **(4.01)**	12.61***	98.16***	0.440	111	**0.281**** **(2.51)**	91.22***	0.501	0.422	-	-	0.463
	CB+2	103	103	**0.189***** **(5.62)**	**0.189***** **(3.01)**	9.122***	49.06***	0.323	90	**0.246***** **(2.64)**	47.16***	2.334	1.917	-	-	0.323
	CB+3	81	81	**0.202***** **(5.64)**	**0.202***** **(3.39)**	3.33***	67.40***	0.454	72	**0.169**** **(2.33)**	59.19***	0.169	0.127	-	-	0.453
	CB+4	63	63	0.0751 (1.61)	0.0751 (1.03)	2.186**	40.66***	0.392	54	-0.0135 (-0.14)	33.51***	0.110	0.075	-	-	0.383
	CB+5	54	54	0.181 (0.32)	0.181 (0.37)	2.78***	64.96***	0.546	44	0.935 (1.11)	46.12***	0.887	0.555	-	-	0.510
Gordon Dividend Growth Model	CB	167	167	0.188 (0.24)	0.188 (0.12)	1.098	27.27**	0.140	150	-1.485 (-0.58)	30.27**	0.478	0.422	-	-	0.163
	CB+1	122	122	0.163 (0.13)	0.163 (0.06)	0.517	17.20	0.124	109	-6.428 (-1.33)	15.08	2.395	2.045	-	-	0.0723
	CB+2	101	101	-0.210 (-0.37)	-0.210 (-0.17)	0.884	23.05	0.186	89	-2.268 (-1.22)	26.08*	1.591	1.292	-	-	0.210
	CB+3	82	82	0.329 (0.67)	0.329 (0.23)	0.551	13.24	0.139	72	-0.836 (-0.44)	12.86	0.455	0.343	-	-	0.148
	CB+4	61	61	-0.409 (-0.82)	-0.409 (-0.53)	1.054	34.65***	0.362	52	-0.528 (-0.55)	35.43***	1.825	1.273	-	-	0.401
	CB+5	42	42	-0.542 (-0.04)	-0.542 (-0.05)	1.258	62.63***	0.599	34	**-26.94**** **(-2.36)**	74.91***	2.628	1.424	-	-	0.685
Average 4 ICC Methods (Literature)	CB	169	169	**-0.117**** **(-2.09)**	-0.117 (-1.05)	2.601***	29.36**	0.148	152	**-0.407**** **(-2.17)**	26.83**	2.904*	2.610	14.076	11.736	0.113
	CB+1	126	126	0.0882 (1.65)	0.0882 (0.57)	6.675***	16.63	0.117	112	0.0409 (0.16)	14.97	0.037	0.031	-	-	0.119
	CB+2	102	102	**0.132*** **(1.80)**	0.132 (1.23)	3.500***	37.44***	0.269	90	0.0973 (0.67)	36.87***	0.188	0.151	-	-	0.296
	CB+3	81	81	-0.0280 (-0.37)	-0.0280 (-0.25)	1.36	27.47**	0.253	72	0.0285 (0.21)	27.79**	0.020	0.015	-	-	0.279
	CB+4	64	64	**0.0936*** **(1.89)**	0.0936 (0.98)	1.26	27.38**	0.300	54	0.112 (0.89)	22.77*	1.328	0.933	-	-	0.289
	CB+5	53	53	1.393 (1.07)	1.393 (1.18)	5.819***	50.51***	0.488	44	0.860 (0.44)	26.59**	0.153	0.094	-	-	0.377
Average 4 ICC Methods (Modified)	CB	168	168	**-0.199***** **(-3.19)**	**-0.199*** **(-1.74)**	3.497***	39.28***	0.189	152	**-0.367*** **(-1.94)**	33.27***	1.181	1.049	-	-	0.168
	CB+1	124	124	0.0873 (1.64)	0.0873 (0.56)	7.412***	26.19*	0.174	111	-0.0453 (-0.18)	23.29	0.361	0.303	-	-	0.171
	CB+2	100	100	0.0528 (0.89)	0.0528 (0.50)	7.668***	48.69***	0.327	88	-0.0833 (-0.56)	50.62***	2.422	1.981	-	-	0.357
	CB+3	79	79	-0.0453 (-0.74)	-0.0453 (-0.42)	2.02**	41.24***	0.343	70	0.00211 (0.02)	40.30***	0.103	0.077	-	-	0.365
	CB+4	62	62	-0.0930 (-1.68)	-0.0930 (-0.95)	1.517	32.05***	0.341	53	-0.0845 (-0.67)	22.24	0.058	0.039	-	-	0.295
	CB+5	39	39	0.369 (0.16)	0.369 (0.30)	3.122***	44.90***	0.535	31	**2.650*** **(1.81)**	47.47***	1.515	0.720	-	-	0.601

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

The summary of results and findings for this chapter

Table 4.46: Summary results of the tested hypothesis of the effect of market timing on cost of separate source												
The presence of market timing												
Order	**Hypothesis**	**Expected Result**	**Strategy**	**Method**	**OLS&GLS, ATE and IV**						**Support/ Reject Hypothesis**	**Overall**
					t	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**		
H1	The presence of equity market timing on cost of equity	-	**IPO Results**									
			HOT Equity	CAPM							NA	Support
				Gordon model		-**	+**	-*		-*	Support	
				ICC (Literature)					-***		Support	
				ICC (Modified)		-*	-**		-***		Support	
			Economic Boom	CAPM	+**	-*					Reject => Support	Reject => Mixed
				Gordon model			+*		+***		Reject	
				ICC (Literature)	+*					-**	Reject => Support	
				ICC (Modified)	+**		-*			-**	Reject => Support	
			SEO Results									
			HOT Equity	CAPM	-***		-*	-**	-**		Support	Support (S) => Mixed (L)
				Gordon model		-*	-**			+**	Support => Reject	
				ICC (Literature)	-***	-***	-***		+***		Support => Reject	
				ICC (Modified)	-***	-***	-*			-**	Support	
			Economic Boom	CAPM	-***	-**	-*	-***			Support	Mixed
				Gordon model		+**	-*	-*			Reject=> Support	
				ICC (Literature)					+**	+***	Reject	
				ICC (Modified)					+*		Reject	
H3	The presence of debt market timing on cost of debt	-	**Corporate Bond Results**									
			HOT Proceed	Bloomberg			+**		+***	+**	Reject	Reject
				Interest Expense						+**	Reject	
			Median Interest Rate	Bloomberg		-***					Support	Support
				Interest Expense		-*	-*				Support	
The degree of market timing												
Order	**Hypothesis**	**Expected Result**	**Strategy**	**Method**	**OLS&GLS, ATE and IV**						**Support/ Reject Hypothesis**	**Overall**
					t	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**		
H2	The degree of equity market timing on cost of equity	-	**IPO Results**									
			Equity Proceed Ratio	CAPM							NA	Support
				Gordon model			-*	-*			Support	
				ICC (Literature)	-***	-***	-**	-**			Support	
				ICC (Modified)	-*						Support	
			SEO Results									
			Equity Proceed Ratio	CAPM	+**					+**	Reject	Reject
				Gordon model		+***					Reject	
				ICC (Literature)	+***	+***	+***	+*	+**	+**	Reject	
				ICC (Modified)	+***	+***	+***	+***			Reject	
H4	The degree of debt market timing on cost of debt	-	**Corporate Bond Results**									
			Debt Proceed Ratio	Bloomberg			+*			-***	Reject => Support	Reject => Support
				Interest Expense							NA	

Table 4.47: Summary results of the tested hypothesis of the effect of market timing on WACC

The presence of market timing

Order	Hypothesis	Expected Result	Strategy	Method	OLS&GLS, ATE and IV t	t+1	t+2	t+3	t+4	t+5	Support/ Reject Hypothesis	Overall
H1	The presence of equity market timing on cost of capital	-	**IPO Results**									
			HOT Equity	CAPM							NA	Support
				Gordon model		-*	+**	-*		-**	Support	
				ICC (Literature)				-**	-***		Support	
				ICC (Modified)			-***	-***	-***		Support	
			Economic Boom	CAPM	+**	-**					Reject => Support	Reject => Support
				Gordon model			+*		+**	-**	Reject => Support	
				ICC (Literature)	+*					-*	Reject => Support	
				ICC (Modified)	+**						Reject	
			SEO Results									
			HOT Equity	CAPM	-***			-**	-**	+*	Support => Reject	Support => Reject
				Gordon model			-**			+*	Support => Reject	
				ICC (Literature)	-***	-***	-***	-**	+*		Support => Reject	
				ICC (Modified)	-***	-***	-***	-**			Support	
			Economic Boom	CAPM	-**			-***			Support	Mixed
				Gordon model		+**	-**	-*	-**		Reject => Support	
				ICC (Literature)			-**		+**		Support => Reject	
				ICC (Modified)							NA	
H3	The presence of debt market timing on cost of capital	-	**Corporate Bond Results**									
			HOT Proceed	CAPM	-*		+*	+***	-*		Support => Reject => Support	Mixed
				Gordon model					+***		Reject	
				ICC (Literature)		+*		-**		-***	Reject => Support	
				ICC (Modified)			-*	-*	-*	-*	Support	
			Median Interest Rate	CAPM		+***	+**				Reject	Reject
				Gordon model		-*		-*			Support	Support
				ICC (Literature)			-*				Support	
				ICC (Modified)					-*		Support	

The degree of market timing

Order	Hypothesis	Expected Result	Strategy	Method	OLS&GLS and IV t	t+1	t+2	t+3	t+4	t+5	Support/ Reject Hypothesis	Overall
H2	The degree of equity market timing on cost of capital	-	**IPO Results**									
			Equity Proceed Ratio	CAPM	+*		+**			+***	Reject	Mixed
				Gordon model			-*	-***	-*		Support	
				ICC (Literature)	-***					+**	Support => Reject	
				ICC (Modified)					+**	+***	Reject (L)	
			SEO Results									
			Equity Proceed Ratio	CAPM	+***		+*	+**	+***		Reject	Reject
				Gordon model		+***			+**	+**	Reject	
				ICC (Literature)	+***	+***	+***	+***	+**	+***	Reject	
				ICC (Modified)		+***	+***	+***		-**	Reject => Support	
H4	The degree of debt market timing on cost of capital	-	**Corporate Bond Results**									
			Debt Proceed Ratio	CAPM	+**	+***	+***	+***			Reject	Mixed
				Gordon model						-**	Support (L)	
				ICC (Literature)	-**		+*		+*		Support => Reject	
				ICC (Modified)	-***					+*	Support => Reject	

Table 4.48: Summary results of the tested hypothesis of the effect of market timing on firm performance

The presence of market timing

Order	Hypothesis	Expected Result	Strategy	Method	OLS&GLS, ATE and IV: t	t+1	t+2	t+3	t+4	t+5	Support/ Reject Hypothesis	Overall
				IPO Results								
H5	The presence of equity market timing on firm performance	+	HOT Equity	ROA				-**		-*	Reject	Accounting-based: Reject
				ROE				-*		-*	Reject	
				ROIC				-*		-*	Reject	
				Returns					+***		Support	Market-based: Mixed
				MVA			-**		-*		Reject	
				Tobin's q						+*	Support	
			Economic Boom	ROA		+*	+**	+***	+***	+**	Support	Accounting-based and Returns: Support
				ROE		+**		+*	+**	+*	Support	
				ROIC		+*	+***	+**	+*		Support	
				Returns		+**	+**				Support	
				MVA	-***	-**					Reject	Reject
				Tobin's q	-***	-***	-**	-***	-*		Reject	
				SEO Results								
			HOT Equity	ROA							NA	Accounting-based: NA
				ROE							NA	
				ROIC							NA	
				Returns	-**	+***		+**	-*	+**	Mixed	Market-based: Mixed
				MVA	-*	-**					Reject	
				Tobin's q				+**	+**	+*	Support	
			Economic Boom	ROA							NA	Mixed
				ROE	-*	+**		-*			Mixed	
				ROIC							NA	
				Returns	-**	+***		+**			Support => Reject	
				MVA	-*	-**	-*	+*	-**	-*	Reject	
				Tobin's q				+**			Support	
				Corporate Bond Results								
H7	The presence of debt market timing on firm performance	+	HOT Proceed	ROA	+**	+**	+**	+**	+***	+***	Support	Support
				ROE	+***	+**	+***	+***	+**	+**	Support	
				ROIC	+**		+**	+*	+***	+***	Support	
				Returns	+***	-**	+***			+**	Support	
				MVA	+**		+*			+**	Support	
				Tobin's q	+*		+*	+*	+***	+***	Support	
			Median Interest Rate	ROA	+**	+*	+***	+*	+***	+***	Support	Support
				ROE	+***	+**	+***	+**	+***	+***	Support	
				ROIC	+**		+**	+*	+**	+**	Support	
				Returns	+*	+***	-**			+***	Support	
				MVA		+**			+*	+***	Support	
				Tobin's q		+**	+***	+*	+***	+**	Support	

Table 4.48: Summary results of the tested hypothesis of the effect of market timing on firm performance (Cont.)

The degree of market timing

Order	Hypothesis	Expected Result	Strategy	Method	OLS&GLS and IV						Support/ Reject Hypothesis	Overall
					t	t+1	t+2	t+3	t+4	t+5		
H6	The degree of equity market timing on firm performance	-	**IPO Results**									
			Equity Proceed Ratio	ROA	+***				-**	-**	Support => Reject	Accounting-based and Returns: Support => Reject
				ROE		-**			-**	-***	Reject	
				ROIC		-***	-***		-*	-**	Reject	
				Returns		-***	-*		-*	-*	Reject	
				MVA	+***	+***	+***	+*	+**		Support	Support
				Tobin's q	+***	+***	+***	+**	+***	+*	Support	
			SEO Results									
			Equity Proceed Ratio	ROA			-**	-***			Reject	Accounting-based and Returns: Support => Reject
				ROE	+***		-**	-**	-*		Support => Reject	
				ROIC	-***		-**	-***			Reject	
				Returns	+***		-*	-**			Support => Reject	
				MVA		+***	+**	+***	+***	+***	Support	Support
				Tobin's q	+*	+**	+*				Support	
H8	The degree of debt market timing on firm performance	-	**Corporate Bond Results**									
			Debt Proceed Ratio	ROA			-*				Reject	Reject
				ROE			-*				Reject	
				ROIC							NA	
				Returns							NA	
				MVA		-***		+*	+*	+**	Reject => Support	Reject => Support
				Tobin's q			-***	-**	-***		Reject	Reject

4.6 Discussion of the findings

The purpose of this chapter is to investigate the effect of the presence and degree of equity and debt market timings on cost of separate source, cost of capital, and firm performance in the stock and bond markets in Thailand. The discussion of our findings is illustrated in this section.

4.6.1 Equity market timing and cost of capital

4.6.1.1 The presence of equity market timing and cost of equity

We investigate the effect of the existence of equity market timing on cost of equity. This study uncovers strong evidence that there are different results between IPO and SEO events. Moreover, the strategy of equity market timing and the procedure of the cost of equity estimation significantly influence the outcomes.

For the case of IPOs, this study supports the statement of Chang et al. (2008) and Chang et al. (2010a) that equity market timing negatively influences implied cost of equity in the case of the hot equity strategy in the short and long term, but only for some years post-IPO issuance in the case of the economic boom strategy. According to section 4.5.4.1, this study reveals that the presence of equity market timing with the hot equity strategy has a negative impact on cost of equity in the short and long term. Furthermore, the existence of equity market timing with the economic boom strategy for IPO issuance has a positive effect on cost of equity in the year of going public, and then there is a negative association between them 1 year later based on the CAPM method and 2 and 5 years later regarding implied cost of equity measurements. However, the existence of equity market timing with the economic boom strategy has a positive effect on cost of equity as calculated by the Gordon model in the years 2 and 4 after IPO allocation, which is against the assertion of Chang et al. (2008) and Chang et al. (2010a).

For SEOs, this study discloses that the existence of equity market timing with the hot equity strategy has a negative influence on cost of equity as estimated by the CAPM and implied cost of equity methods with the modified version in the short and long term. While, there is a negative association between the two factors only in the short term, there is a positive association in the long term based on the Gordon model and implied cost of equity approach with the literature version. However, regarding the economic boom strategy, the presence of equity market timing has a negative effect on cost of equity as measured by the CAPM method from an SEO year until 3 years later, whereas there is a positive relationship between them in the first year, and then a negative effect appears in years 2 and 3 after SEO issuance based on the Gordon model. Conversely, there is a positive relationship between them in the long term based on the implied cost of equity approach. Therefore, our findings support the statement of Chang et al. (2008) and Chang et al. (2010a) in the case of hot equity strategy with the CAPM and implied cost of equity methods with the modified version in the short and long term, yet only in the short term based on the Gordon model and implied cost of equity approach with the literature version. Moreover, in the case of the economic boom strategy, our findings support the claim of Chang et al. (2008) and Chang et al. (2010a) only for the model of cost of equity estimated by the CAPM method from an SEO year to 3 years later and the Gordon model only for years 2 and 3 after selling follow-on stocks.

Regarding the previous literature in the context of the association between equity market timing and cost of equity, several research studies claim that corporations tend to time the equity market to minimize cost of capital during a period of a good condition of the stock market (Baker & Wurgler, 2002; Alti, 2006; Guney & Iqbal-Hussain, 2010). However, there are significantly few research studies that investigate this in this context. To the best of our knowledge, only Chang et al. (2008) and Chang et al. (2010a) examined this issue and found that there is a negative association between equity market timing and implied cost of equity. This implies that firms are successful at timing the stock market and reducing cost of equity. However, this study supports their findings only in some cases, especially in the case of IPO with the hot equity strategy. It is likely that there are four crucial causes for the non-identical results between this study and those of Chang et al. (2008) and Chang et al. (2010a), consisting of the capturing of equity issuance, the measurement of equity market timing, the method of cost of equity estimation, and the type of data.

Firstly, this study and their studies have a different classification of equity allocation since they combine both IPO and SEO stock issuances as total equity allocation in their models, while we separately analyse the two events in different models as IPO and SEO events as they have dissimilar characteristics including size of allocation, types of issuance, regulation of offering, purpose of financing and so on. Hence, we do not pool both events into the same model, and there are several research studies in the context of equity issuance that separate between IPO and SEO events in their studies, such as Loughran and Ritter (1995), Brav et al. (2000) and Kim and Weisbach (2008).

Secondly, they capture equity market timing with the covariance between external capital financing and the market-to-book ratio, following Baker and Wurgler (2002) and Kayhan and Titman (2007), while we detect the presence of equity market timing with hot equity, following Alti (2006), and economic boom, which is a new variable offered to the literature to capture equity market timing.

Thirdly, there is a difference in the method of cost of equity calculation. They employ only the forward-looking procedure with the average of four implied cost of equity methods to evaluate cost of equity, whereas we measure the cost of equity in three different ways in terms of backward and forward-looking approaches including the CAPM method, Gordon model and the average of four implied cost of equity procedures with both the literature and modified versions. Furthermore, Frank and Shen (2016) claim that there are different results for cost of equity as estimated by either historical or forward information methods, so we employ both groups of measurements to investigate in this study to shed further light on the findings from various perspectives since it is likely that each corporation uses a different procedure to measure their cost of equity.

Finally, they used panel data from 1984 to 2004, while we employ cross-sectional data from the year of equity issuance to 5 years later as the nature of IPO and SEO events is cross-sectional (Guney & Iqbal-Hussain, 2010). Consequently, this leads to dissimilar findings between our study and previous studies.

Therefore, this study is the first to provide separate evidence between IPO and SEO events and employ two different strategies to capture the presence of equity market timing, namely the hot equity and economic boom strategies, to examine the effect of timing on cost of equity. Furthermore, we are the first work to use both backward and forward-looking methods and use a cross-sectional analysis from an equity allocating year to 5 years later to explore new evidence in this context. Moreover, this study provides strong evidence that there are different influences of the presence of equity market timing on cost of equity, depending on the strategy and measurement employed by firm managers. Thus, before a firm decides to time the equity market, they should consider the strategy of equity market timing and the method of estimating cost of equity which they use in their companies in order to achieve their target objective.

4.6.1.2 The presence of equity market timing and cost of capital

We also investigate the impact of the presence of equity market timing on overall cost of capital. This study provides strong evidence that the influence of the presence of equity market timing on overall cost of capital is quite similar to cost of equity; however, the effect that appears in overall cost of capital is more obvious than for cost of equity.

Based on the case of IPO, timing firms during a period of a hot equity market succeed at reducing overall cost of capital in the short and long term, while timers when the economy is in a boom phase suffer from an increase in overall cost of capital at the beginning of going public, yet they receive a decrease in overall cost of capital later. Interestingly, if firms use a backward-looking method to calculate their cost of equity, they can quickly achieve the aim of a reduction of overall cost of capital 1 year after going public. On the other hand, if they employ a forward-looking approach to estimate cost of equity, they may spend more time achieving their aim of a diminution of overall cost of capital, until year 5 after conducting IPO stocks. As the forward-looking procedure includes factors relating to "time-varying" in the estimation cost of equity, while the backward-looking approach excludes this factor (Frank & Shen, 2016), there are the different findings between the two methods.

In the case of SEOs, our findings illustrate that timers in a hot equity market are successful at diminishing overall cost of capital in the short term, but they suffer from an increase in overall cost of capital in the long term. Conversely, there are mixed findings for the effect of the existence of equity market timing with the economic boom strategy on overall cost of capital, depending on the measurement of cost of equity. Our findings show that the presence of equity market timing with the economic boom strategy has a negative impact on overall cost of capital in the short and long term according to the CAPM method. In contrast, there is a positive influence of the existence of equity market timing with the economic boom strategy on overall cost of capital in year 1 post-SEO allocation, and then a negative impact appears 4 years after an SEO event based on the Gordon model. On the other hand, there is a negative effect of the presence of equity market timing with the economic boom strategy on overall cost of capital in the short term, while there is a positive influence in the long term.

Regarding the previous literature in the context of the influence of equity market timing on overall cost of capital, it is surprising that even though several research studies posit that the main purpose of equity market timing is minimizing the overall cost of capital (Baker & Wurgler, 2002; Alti, 2006; Guney & Iqbal-Hussain, 2010), there is no research study directly investigating this issue. Although Chang et al. (2008) and Chang et al. (2010a) studied in this context, they concentrated only on cost of equity; however, overall cost of capital not only contains equity financing, but also consists of other sources of funds, including debt and preferred stock financings. Hence, we are the first study exploring whether there is an effect of equity market timing on overall cost of capital; however, the direction of influence is non-identical, depending on the strategy of equity market timing and the procedure of cost of equity evaluation, which can dramatically contribute to the literature in this context.

Furthermore, although there is no research study focusing on this issue, this study should be documented as being conducted in the context of market timing and capital structure. In the cases of IPO with the hot equity strategy and SEO with the economic boom strategy (only the CAPM model), the negative effect of the existence of equity market timing on overall cost of capital in the short and long term supports the statement of Baker and Wurgler (2002), Bougatef and Chichti (2010) and Kaya (2013c) that equity market timing has an effect on capital structure in the short and long term. In other words, the benefit of equity market timing remains until the long term, thus it affects a reduction in the overall cost of capital of firms until the long term as well.

At the same time, in the case of SEO with the hot equity and economic boom strategies (only for the implied cost of equity method with the literature version), the negative influence of the presence of equity market timing occurs only in the short term, and then there is a positive effect in the long term, agreeing with the claim of Alti (2006), Hovakimian (2006), Kayhan and Titman (2007), Huang and Ritter (2009) and Brendea (2012) that equity market timing impacts capital structure only in the short term, and then the timing firms rebalance their capital structure to reach their target capital structure. Therefore, our findings confirm this assertion as when firms are successful at timing the equity market, they can minimize their overall cost of capital in the short term. After that, they are required to rebalance their capital structure to reach their target capital structure and it is likely that the cost of rebalancing is high because of the increase in the cost of other sources of funds. As a result, they suffer from an increase of overall cost of capital in the long term.

Furthermore, in case of IPO with the economic boom strategy and SEO with the economic boom strategy (only the Gordon model), the positive impact of the presence of equity market timing on overall cost of capital appears in the short term, and then there is a negative effect between them in the long term. This agrees with Asquith and Mullins (1986), who claim that equity issuance is a negative signal to investors, so they require higher returns to compensate for the additional risk. After that, when the negative signal is diluted, firms are successful at reducing their overall cost of capital in the long term.

4.6.1.3 The degree of equity market timing and cost of equity

For IPOs, this study shows that firms that go to public and earn large proceeds are successful at decreasing the cost of equity in the short term until 3 years later. This finding is also explained by Alti (2006), Hovakimian (2006), Kayhan and Titman (2007), Huang and Ritter (2009) and Brendea (2012), namely that equity market timing impacts the capital structure only in the short term. Therefore, this implies that IPO timing firms with huge proceeds are successful at reducing their cost of equity in the short term.

On the other hand, in the case of SEOs, our findings exhibit that the level of equity market timing with the equity proceeds ratio has a positive influence on cost of equity. This rejects the claims in the previous literature in the context of equity market timing and capital structure, such as Baker and Wurgler (2002) and Alti (2006), that the motivation for equity market timing is a minimizing of cost of capital. However, our finding was also documented by Thuwajaroenpanich (2002), Çelik and Akarim (2012) and Chen et al. (2013), who claim that equity market timing is unable to explain capital structure. Hence, this may imply that equity market timing cannot support a decrease in cost of equity of firms, although these firms obtain more proceeds. Moreover, our finding suggests that they suffer from the increase of cost of equity in the short and long term after conducting follow-on equity as well. Likewise, an increase in cost of equity after SEO allocation was documented by Asquith and Mullins (1986), who assert that equity issuance seems to be "a negative signalling" that informs outside investors about the overvaluation of firms. Thus, this effects a deterioration in firm performance post-SEO issuance, reflecting the fundamental value of corporations (Loughran & Ritter, 1997). Consequently, investors tend to require higher returns as a compensation for taking the risk of underperformed SEOs after offering, whereby the required rate of returns of investors is the cost of equity of corporations.

Interestingly, there is no study investigating the relationship between the degree of equity market timing in terms of the proceeds ratio and cost of equity. Although Chang et al. (2008) and Chang et al. (2010a) examined in this context, they estimated equity market timing by the covariance between external capital financing and the market-to-book ratio. However, several research studies claim that equity proceeds substantially influence equity market timing, such as Alti (2006) and Guney and Iqbal-Hussain (2010). Therefore, this study is the first to explore the impact of the degree of equity market timing with the equity proceeds ratio on cost of equity; thus, it contributes significantly to the existing literature.

4.6.1.4 The degree of equity market timing and cost of capital

We also consider the effect of the level of equity market timing on overall cost of capital. This study reveals evidence that in the case of IPO there are different influences of the level of equity market timing, as calculated by the equity proceeds ratio, on WACC, depending on the method of cost of equity estimation. In contrast, in the case of SEO there is a significantly positive impact of the level of equity market timing with the equity proceeds ratio on WACC in the short and long term.

Regarding IPO events, our finding show that firms that go public and gain higher proceeds suffer from an increase in overall cost of capital based on the CAPM method, agreeing with Thuwajaroenpanich (2002), Çelik and Akarim (2012) and Chen et al. (2013), who posit that there is no association between equity market timing and capital structure, and Ritter (1991), Jain and Kini (1994) and Cai and Wei (1997), who state that a deterioration of firm performance appears in IPO corporations after going public. In contrast, there is a negative influence of the degree of equity market timing on WACC in the short and long term based on the Gordon model, supporting the assertion of Baker and Wurgler (2002), Bougatef and Chichti (2010) and Kaya (2013c). However, the level of equity market timing negatively influences WACC in the short term, while there is a negative relationship between them in the long term based on the implied cost of equity procedure, verifying the assertions by Alti (2006), Hovakimian (2006), Kayhan and Titman (2007), Huang and Ritter (2009) and Brendea (2012). Thus, there are non-identical relationships between the degree of equity market timing and overall cost of capital, depending on the method of cost of equity calculation. Additionally, although IPO timing firms are successful at diminishing their cost of equity, this does not mean that they accomplish a decrease in overall cost of capital since there are non-identical results between cost of equity and overall cost of capital in some cases of IPO events. Hence, IPO firms should conduct a careful analysis before deciding on equity market timing with larger proceeds.

Conversely, in the case of SEO allocation, this study demonstrates that the level of equity market timing as evaluated by the equity proceeds ratio has a positive effect on overall cost of capital in the short and long term. However, our finding supports the claims by Thuwajaroenpanich (2002), Çelik and Akarim (2012) and Chen et al. (2013) that there is no relationship between equity market timing and capital structure as well as the mention by Loughran and Ritter (1995), Loughran and Ritter (1997) and Hertzel et al.

(2002) regarding poor performance after SEO allocation. Moreover, it is interesting that SEO firms with high proceeds fail to reduce cost of equity and overall cost of capital.

However, there is no study examining directly this issue, since most of them investigate only from the aspects of firm performance and make implications from the results of firm performance. However, firm performance not only relies on cost of capital, it also depends on cash flow, earnings, dividends, stock price and so on. Consequently, this study is the first to directly test the effect of the degree of equity market timing on overall cost of capital. This is a meaningful contribution in the context of equity market timing.

4.6.2 Debt market timing and cost of capital

4.6.2.1 The presence of debt market timing and cost of debt after taxes

This study provides strong evidence that the presence of debt market timing with the hot proceeds strategy has a positive effect on cost of debt after taxes, while there is a negative influence of the existence of debt market timing with the median interest rate strategy on cost of debt after taxes. Regarding the prior literature, no research study has directly investigated the relationship between them as they only imply this issue though an examination in terms of firm performance, consisting of Song (2009) and Bougatef and Chichti (2011), although several research studies mention that the core purpose of debt market timing is a diminution of cost of capital (Graham & Harvey, 2001; Baker et al., 2003; Barry et al., 2008; Song, 2009). Hence, this study is the first to explore the influence of the presence of debt market timing on cost of debt after taxes, which therefore dramatically contributes to the existing literature on debt market timing.

Furthermore, our finding offers the novel perspective that timing corporations during a period of high volume in debt proceeds tend to suffer from an increase in cost of debt after taxes, supporting the statement of Song (2009) that debt timers are unsuccessful at reducing their cost of capital. This implies that although firms attempt to issue corporate bonds to gain more proceeds, as debt security may lead to additional risk, such as bankruptcy cost, the require rate of returns for debtholders increases to compensate for the incremental risk from debt financing. In contrast, debt market timers, when they recognise a relatively low interest rate, are successful at decreasing cost of debt after taxes, affirming the claim of Graham and Harvey (2001) that firm executives tend to time the debt market when they recognize a comparatively low interest rate to minimize cost of capital. Moreover, this implies that the influence of the reduction in interest expense overcomes the effect of a decrease of a tax shield from debt market timing.

4.6.2.2 The presence of debt market timing and cost of capital

We also examine the impact of the presence of debt market timing on overall cost of capital. Our findings illustrate that there are mixed results of the influence of the existence of debt market timing on overall cost of capital, depending on each strategy of debt market timing and the approach of cost of equity evaluation. In the case of debt market timing with the hot proceeds strategy, this study reveals evidence that debt market timers are successful at reducing their overall cost of capital in the year of corporate bond issuance and 4 years later, based on the CAPM method. Simultaneously, regarding the implied cost of equity procedure, our findings show that debt market timers suffer from an increase in overall cost of capital only in the allocating year; however, they can achieve the purpose of a reduction in overall cost of capital in the year after a corporate bond offering. Thus, the decrease of overall cost of capital regarding the CAPM and implied cost of equity techniques support the statement of Graham and Harvey (2001) that managers prefer to time the debt market when the interest rate is comparably low to reduce the overall cost of capital. In contrast, debt market timers suffer from an increase of overall cost of capital in year 4 after corporate bond issuance based on the Gordon model. However, this finding was also documented by Song (2009), who posits that debt market timers are unsuccessful at minimizing overall cost of capital.

In the case of the median interest rate strategy, this study provides strong evidence that there are opposing findings of the impact of the presence of debt market timing on overall cost of capital between the backward and forward-looking procedures of cost of equity estimation. According to the backward-looking method with the CAPM model, our findings show that the presence of debt market timing has a positive influence on WACC in the short term, supporting Song (2009). In contrast, based on the forward-looking approach with the Gordon model and the implied cost of equity method, there is a negative impact of the existence of debt market timing on overall cost of capital in the short and long term, confirming the claim by Graham and Harvey (2001).

Consequently, this study reports both negative and positive involvements between the presence of debt market timing and WACC. This is consistent with the evidence of Bougatef and Chichti (2011), who found both effects in firms with different nationalities. However, Song (2009) and Bougatef and Chichti (2011) did not directly investigate the effect of debt market timing on overall cost of capital, although they made implications from focusing on firm performance rather than on WACC. Moreover, Graham and Harvey (2001) studied in the context of capital structure. Therefore, this study is a pioneer study exploring the influence of the presence of debt market timing on overall cost of capital, which is an immense contribution to the existing literature on debt market timing.

4.6.2.3 The degree of debt market timing and cost of debt after taxes

Our results present that there is a positive effect of the level of debt market timing in the short term. However, the degree of debt market timing negatively relates to cost of debt after taxes in the long term. As a result, our results support the statements by Bougatef and Chichti (2011). Additionally, our findings assert the claim of Song (2009) in the short term and the statement of Graham and Harvey (2001) in the long term. Again, there is no research study examining the association between the level of debt market timing and cost of debt after taxes. Hence, we are the first study exploring how corporations that issue corporate bonds and gain large proceeds are unsuccessful at reducing cost of debt after taxes in the short term; however, they are successful at decreasing cost of debt after taxes in the long term, which is the novel evidence enhancing the existing literature on debt market timing.

4.6.2.4 The degree of debt market timing and cost of capital

We investigate the impact of the degree of debt market timing on overall cost of capital. This study discloses that there are non-identical findings, depending on the approach of cost of equity evaluation. Beginning with the CAPM method, our findings show that there is a positive influence of the level of debt market timing as estimated by the debt proceeds ratio on WACC from the year of corporate bond allocation until 3 years later, supporting the assertion by Song (2009). On the other hand, the level of debt market timing with the debt proceeds ratio has a negative impact on WACC in the long term based on the Gordon model, supporting Graham and Harvey (2001). However, our findings based on implied cost of equity approach show that timing companies with huge debt proceeds achieve a decrease in WACC only in the year of issuance, whereas they experience an increase in WACC in years 2, 4 and 5 after allocation. This affirms the statement by Bougatef and Chichti (2011), who found two forms of evidence for different countries.

Consequently, the success or failure of minimizing overall cost of capital through debt market timing with higher proceeds depends on the measurement employed by firm managers. As each method relies on a different perspective in its estimation, especially the backward and forward-looking methods, which are quite different because of the time-varying factor (Frank & Shen, 2016), this may lead to non-identical results between them. Thus, firms that decide to time the debt market to decrease overall cost of capital should be concerned regarding the measurement of cost of equity to avoid any mistakes in their decision-marking. However, there has been no research study examining the effect of the level of debt market timing on overall cost of capital. Hence, this study is the first work showing that there is an association between the degree of debt market timing with the debt proceeds ratio on WACC, yet the direction between them is different, depending on the measurement of cost of equity.

4.6.3 Equity market timing and firm value and performance

4.6.3.1 The presence of equity market timing and firm value and performance

This study provides strong evidence that there are different results between IPO and SEO events. Furthermore, each strategy differently affects firm performance, while the direction of the effect depends on the method of firm performance measurement.

In the case of IPO, our findings demonstrate that the presence of equity market timing with the hot equity strategy has a negative influence on accounting-based performance in years 3 and 5 after going public and the MVA value in years 2 and 4 post-IPO issuance. The deterioration of the accounting-based performance of IPO firms after going public supports the claim by Ritter (1991) that IPO corporations suffer from a decrease in firm performance after going public while firms that issue initial stocks during a period of a high number of IPO allocations are those that suffer the most from underperformance. Moreover, they stated that the reason for the poor performance for IPO firms is that they accomplish taking advantage of a window of opportunity in the stock market, thus their performance subsequently declines to reflect the fair value of firms. Additionally, our findings were also documented by Jain and Kini (1994), who found that corporations that go public suffer from a decrease of operating performance after IPO issuance for three main reasons, namely the increase of the agency problem between existing and new shareholders, earnings management, and taking advantage in a period of the high value of corporations. Furthermore, our findings confirm the claims by Loughran and Ritter (1995), Cai and Wei (1997) and Mikkelson et al. (1997) that there is underperformance by IPO companies after going public, while Purnanandam and

Swaminathan (2004) state that IPO corporations with overvalued stocks suffer from lower yields in the long term.

In contrast, there is a positive effect of the presence of equity market timing on annually stock returns in year 4 after IPO issuance and Tobin's q ratio in year 5 after going public. Although these findings do not support the previous literature, consisting of Ritter (1991), Jain and Kini (1994), Loughran and Ritter (1995), Cai and Wei (1997) and Mikkelson et al. (1997). However, they investigated in the context of the effect of going public on firm performance, whereby they did not directly concentrate on the effect of equity market timing on firm performance. Thus, we offer new evidence that IPO market timers in a hot period are successful at increasing stock returns and Tobin's q in the long term.

Moving on to the case of going public with the economic boom strategy, this study shows that the results are quite divergent from the hot equity strategy. Surprisingly, IPO timing firms with the economic boom strategy can accomplish an increase in their accounting-based performance and annual stock returns. This rejects Ritter (1991), Jain and Kini (1994), Loughran and Ritter (1995), Cai and Wei (1997) and Mikkelson et al. (1997). Again, these prior studies examined the association of IPO allocation and firm performance rather than in the context of equity market timing and firm performance. Hence, this study provides the novel perspective that equity market timers, when the economy is booming, succeed at raising their accounting-based performance and annual stock returns after going public in the short and long term.

On the other hand, our results illustrate that IPO timing firms with the economic boom strategy suffer from a downturn in market-based performance with the MVA value and Tobin's q ratio. However, this is consistent with the findings of the previous literature, as shown above. It is likely that the cause of underperformance is that investors overestimate the future profitability of young corporations (Ritter, 1991) since there is significant inside information of IPO companies because they have only just transformed from private to public firms and have begun to disclose firm information to the public (Sah & Seagraves, 2012).

Moreover, the positive effect on accounting-based performance and the negative influence on market-based performance also support the statement by Graham et al. (2005) that the crucial factor considered by outside investors is "earnings" rather than "cash flow". Moreover, they claim that the objective of a firm in the short term is "target earnings", while "maximizing shareholder wealth" is their goal in the long term. Hence, it is possible that timing corporations with the economic boom strategy are eager to reach into their "target earnings" as this is the key factor that is of substantial concern to the investors. Moreover, it is likely that this action by managers conceals the reason for their attempt to present good performance, namely in order to gain a bonus or extra salary or to maintain their job (Degeorge et al., 1999). Furthermore, when we checked the information of the firms that allocated equity from 2000 to 2014 in Form 56-1 annual report submitted to the SEC,[79] it is obvious that some companies reported in part of dividend policy that they have the target dividend per annum in terms of "% of their net income before extraordinary items". Therefore, another reason for equity market timing and success at increasing accounting-based performance is that they prefer to enhance their earnings to achieve their target for dividend payments as well.

Most importantly, based on our findings of IPO issuance for both the hot equity and economic boom strategies, there is an involvement between the presence of equity market timing and firm performance, although the direction of the association is dissimilar, depending on strategy of equity market timing and the measurement of firm performance. This opposes the assertion by Sah and Seagraves (2012) that there is no difference in firm performance between timers and non-timers with IPO clustering. It is more likely that the non-identical results between this study and theirs may be a result from the different measurements of equity market timing. We capture equity market timing with the hot equity and economic boom strategies, whereas they detect it with IPO clustering of REIT.

In the case of SEO, our findings report that there are similar results between the hot equity and economic boom strategies, namely that the existence of equity market timing has a negative influence on firm performance in an SEO year. This indicates that firms that time when the stock market is hot and the economy is booming suffer from poor performance in the SEO year, especially in terms of stock returns and MVA value. In addition, our findings affirm the statement of the prior literature, including Hansen and Crutchley (1990), Loughran and Ritter (1997), Clarke et al. (2001) and Hertzel et al. (2002), that SEO companies tend to underperform after conducting follow-on equity. The negative effect in the offering year indicates that outside investors recognize the SEO allocation as "a negative signalling" (Asquith & Mullins, 1986) regarding the overvalued

[79] This form is available on the SEC, Thailand's official website (www.sec.or.th).

stocks of firms; therefore, they respond to the bad news by selling the stocks of these companies. Therefore, firm performance regarding stock returns and MVA are immediately destroyed in an issuing year.

In contrast, there are mixed results of the effect of the existence of equity market timing with the hot equity and economic boom strategies on firm performance in the years after SEO allocation, depending on the measurement of firm performance. Our findings show that the presence of equity market timing has a negative impact on MVA in only the short term for the hot equity strategy and in the short and long term for the economic boom strategy. However, this confirms the previous literature, as shown above. Furthermore, it is likely that managers being "overoptimistic" regarding the future returns of a new project may lead to a poor performance after SEO allocation (Loughran & Ritter, 1997). For instance, firm executives expect that their new project will create a positive NPV for the corporate value; on the other hand, they provide a negative NPV to firm value. Therefore, this may be another cause of the diminution in the firm value of timing firms.

Surprisingly, based on Tobin's q ratio and stock returns, our findings show that the existence of equity market timing with the hot equity and economic boom strategies has a positive influence on Tobin's q ratio and equity yields. In contrast, this rejects the prior literature, as shown above. However, they focused only on the association between equity issuance and firm performance and implied that the reason for poor performance after SEO allocation is equity market timing, and they did not directly examine the issue of the effect of equity market timing on firm performance. Even through Sah and Seagraves (2012) studied the relationship between IPO market timing and operating performance, they investigated in terms of IPO clustering. Therefore, our findings offer the novel outlook that SEO timing firms with the hot equity and economic boom strategies are successful at enhancing Tobin's q ratio and stock returns. Moreover, we are the first study to provide evidence of the influence of equity market timing when the stock market is hot and the economy is booming on firm performance, which is a meaningful contribution to the literature on equity market timing.

4.6.3.2 The degree of equity market timing and firm value and performance

We investigate the impact of degree of equity market timing on firm performance. This study reports that there is an influence of level of equity market timing as estimated by equity proceeds ratio on firm performance; however, the direction of the effect is different, depending on the method of firm performance estimation. Our findings demonstrate that firms which issue IPO and SEO stocks and obtain larger proceeds increase their accounting-based performance and stock returns only in the allocating year. Conversely, they suffer from a decline of these performances in the following years, particularly in the of IPO firms, whereby the downward trend of these performances remains until 5 years after going public. Therefore, the negative effect supports the claims of the previous literature both in the case of IPO, including Ritter (1991), Loughran and Ritter (1995) and Cai and Wei (1997) and in the case of SEO, consisting of Asquith and Mullins (1986), Loughran and Ritter (1997), and Hertzel et al. (2002), that equity allocation is a negative signalling of corporations that their stocks are overvalued and they are timing the equity market to earn this benefit. Consequently, their market stock price declines later to reach the intrinsic value of firm stocks. Moreover, this is quite obviously seen in terms of the reduction of accounting-based performance, thus it is possible that timing firms may attempt to conduct "earnings management" before IPO and SEO to persuade outside investors to buy their new stocks (Jain & Kini, 1994; Loughran & Ritter, 1997). Therefore, when they are successful at timing the equity market, their earnings decrease to reflect their real earnings.

On the other hand, our results show that there is a positive effect of the degree of equity market timing as evaluated by the equity proceeds ratio on MVA and Tobin's q ratio with IPO and SEO allocations. This indicates that timing corporations with huge proceeds achieve an increase in market-based performance as measured by MVA and Tobin's q ratio. Although this is inconsistent with the statement by the previous literature, as shown above, this study offers the new perspective that firms which allocate equity and gain higher proceeds are successful tot improving MVA and Tobin's q ratio. It is likely that they can use the proceeds obtained from equity market timing to invest in new projects which produce a positive NPV, leading to the creation of firm value, contesting the assertion by Loughran and Ritter (1997). Again, as the prior literature focuses only on the context of the influence of equity allocation on firm performance, we are the first study to provide strong evidence that there is a relationship of the degree of equity market timing with higher proceeds on firm performance.

4.6.4 Debt market timing and firm value and performance

4.6.4.1 The presence of debt market timing and firm value and performance

This study reveals strong evidence that debt market timers with the hot proceeds and median interest rate strategies accomplish an enhancement of firm performance in both accounting- and market-based performances. This contests the statement of Song (2009), indicating that debt market timers are successful at increasing their firm performance in the short and long term. However, our findings support Bougatef and Chichti (2011) that Tunisian companies achieve an improvement of their firm performance from debt market timing when the interest rate is relatively low.

In a comparison between this study and that of Bougatef and Chichti (2011), there are two main differences, namely the measurement of debt market timing and the type of data analysis. They capture debt market timing with the covariance between the interest rate and debt financing, developed from Baker and Wurgler (2002), while we detect the presence of debt market timing with a dummy variable that is equal to 1 if firms issue corporate bonds during a period of a high volume of proceeds in the bond market or a comparably low interest rate, and 0 otherwise. Moreover, they measure firm performance with the logarithm of market stock price, whereas we calculate firm performance in two different ways, including accounting-based and market-based performances. In terms of the type of data analysis, they use panel data to investigate this issue as their main explanatory variable is a continuing variable, while we employ cross-sectional data of corporate bond offerings to inspect in this context as our explanatory variable is the dummy variable capturing the timing of the debt market.

Hence, this study is the first work to explore the effect of debt market timing captured by hot proceeds and median interest rate on firm performance with a cross-sectional analysis from the offering year to 5 years later. In addition, we measure firm performance in various ways, namely both accounting and market-based performances, in the field of debt market timing. Most importantly, this study shows that debt market timers in a period of hot proceeds and a low interest rate are successful at enhancing their performance in the short and long term. Moreover, it is likely that timing corporations succeed at timing the debt market as debt market timing does not rely on information asymmetry, but depends instead on public information such as the interest rate (Baker et al., 2003). Therefore, they do not exploit new shareholders with the overvaluation of stocks. Also, it is possible that debt issuance is a "positive signalling" of the undervalued stocks of firms (Harris & Raviv, 1990), hence the performance of these firms increases after conducting debt offering in response in this good news.

4.6.4.2 The degree of debt market timing and firm value and performance

We examine the influence of the degree of debt market timing on firm performance. Our findings illustrate that there are conflicting results between accounting-based performance & Tobin's q ratio and the MVA value. Based on accounting-based performance and Tobin's q ratio, the level of debt market timing with the debt proceeds ratio has a negative effect on firm performance. However, these findings support the statement by Song (2009) that debt market timers are unsuccessful at improving their firm performance as measured by Tobin's q ratio. On the other hand, regarding the MVA value, there is a negative effect of the degree of debt market timing as estimated by the debt proceeds ratio on the MVA value only in year 1 post-bond allocation, while there is a positive involvement between them in years 3, 4 and 5 after offering. This confirms Bougatef and Chichti (2011) who find both positive and negative influences of the level of debt market timing on market stock price in different countries. Consequently, the level of debt market timing with the debt proceeds ratio relates to firm performance; however, the direction of the effect is different, depending on the measurement of firm performance used by firm managers.

In short, there is an influence of equity and debt market timing on the cost of separate sources of funds, overall cost of capital and firm value and performance. However, the direction of the influence is non-identical, depending on the strategy of market timing and the approach of cost of equity, cost of debt and firm performance estimation employed by firm managers when deciding to time the equity and bond markets.

4.7 Practical implications

It is well-known that one reason for equity and debt market timing is to minimize the overall cost of capital (Graham & Harvey, 2001; Baker & Wurgler, 2002; Alti, 2006; Song, 2009). However, the existing evidence is insufficient to indicate whether firms can achieve this purpose, especially when timing the debt market. Furthermore, most existing research studies investigate in the area of the influence of security allocation on firm performance, while they do not directly investigate the impact of timing the market on cost of capital and firm performance. Furthermore, the success or failure of a reduction in cost of capital and enhancement of firm performance resulting from market timing contributes a comprehension of the hiding intentions of firm managers regarding their decision-making in their capital structure policy. Therefore, our findings in this chapter reveal an association between timing the equity and debt markets and cost of capital and firm performance to provide several implications for firm managers, their stakeholders, including existing shareholders, debtholders and outside investors and regulators or policy makers.

Beginning with the contribution to implications for executives, firm managers can understand from our findings that market timing is a policy of capital structure relating to the cost of separate sources of funds, overall cost of capital and firm performance. However, the success or failure of timing the equity and debt markets to minimize cost of capital and improve performance depends on the strategy of market timing. In addition, the method of evaluation of cost of capital and firm performance is extremely crucial. As different strategies and measurements lead to non-identical effects on cost of capital and firm performance, if they employ an inappropriate strategy or approach for their corporations, this may effect a failure when using a market timing policy in their capital structure. Most importantly, if firm managers do not pay attention to these factors prior to their decision-marking when implementing the market timing policy, they may suffer from the opposite impact, namely an increase in cost of capital and a diminution of firm performance. This situation represents the worst case as well as an outcome they do not desire for their companies as it can lead to business bankruptcy. Consequently, this study is a guidance for corporate managers in choosing the appropriate strategy and method of calculation before employing a market timing policy. Additionally, this study offers a caution to firm managers that market timing is not always successful at reducing cost of capital and increasing firm performance, as such a policy can lead to an increase in cost of capital and the destruction of corporate performance as well. Hence, if they decide to implement this policy, they should consider its potential effects before making their decision.

Next is the contribution of the implication for company stakeholders; there are three main groups, consisting of existing shareholders, debtholders and outside investors. From the perspective of existing shareholders, if firms in which they hold stocks decide to employ a market timing policy, then the existing shareholders, who are the firm owners, should recognize the impact of using this policy on cost of capital and firm performance, since they are the group directly experiencing this effect. Thus, this study is also a guidance for existing shareholders to recognise the impact from implementing a market timing policy to be aware of the results thereof and protect themselves from negative effects if the strategy selected in the boardroom leads to an increase in cost of capital or damages firm performance. Therefore, they can use their voting rights in the boardroom to avoid this strategy. From the view of debtholders, the influence of timing the market also involves them, since if firms conduct a policy that causes an increase in cost of capital or diminishes firm performance, this means that the risk to debtholders also increases. Consequently, our findings serve as counsel, informing the debtholders of the need to be aware of the effect of market timing policies on their risk level to prevent the use of a damaging strategy (i.e. an unsuccessful market timing policy) or prepare for the subsequent result. From the aspect of outside investors who are looking to invest in equity or bond securities, our findings are an instruction that supports investment in suitable securities according to their objectives. Simultaneously, this study aims to prevent them from buying securities which may lead to an increase in their risk and lead to their loss in the future.

Finally, contributing to the implications for regulators or policy makers, our findings inform the regulators of stock and bond markets, including the Stock Exchange of Thailand (SET), the Security and Exchange Committee (SEC) and the Thai Bond Market Association (ThaiBMA), and that policy maker, which is the Bank of Thailand (BOT), that companies can employ some strategies to time the equity and bond markets to decrease their cost of capital and increase firm performance. Therefore, this study is a direction for regulators to monitor the behaviour of firms during a period when they suspect there is a situation that may convince companies to time the market, especially in the case of certain strategies that accomplish the objective of market timing, and to set more rigid rules to protect against these actions. Moreover, this study is a guidance for policy makers to recognise the effect of some policy issuances, particularly the policy of the interest rate, which may offer a window of opportunity in debt market timing. Hence, they should make thorough considerations before releasing a new policy.

4.8 Limitations and recommendation for further research studies

As the stock market in Thailand is an emerging market and the bond market is quite small and inactive, our sample is small, especially for corporate bond issuance. Therefore, we suggest that further research interested in the context of market timing, cost of capital and firm performance investigate in various countries or larger markets to obtain a greater sample size. Moreover, forecasted data of Thai companies were unavailable for the analysis, for approximately 70% of our sample. Therefore, we were unable to use the forecast approach to estimate implied cost of equity following several of the previous literatures, and it was essential that the perfect foresight method is employed instead of the forecast procedure. This may have led to the problem of bias in our measurements, since firm managers cannot recognize the precise future information in advance in real life. Consequently, we suggest that future studies, if the forecast data are more available for Thai corporations or they are using other countries for their samples, should attempt to use the analysis' forecast data for the estimation of implied cost of equity in order to compare with our results based on perfect foresight method.

4.9 Conclusion

This chapter contains four major objectives to investigate how the existence and level of equity market timing impact on cost of equity and overall cost of capital and how the presence and degree of debt market timing affect cost of debt and overall cost of capital. Moreover, our purpose was to explore how the existence and level of equity and debt market timing influence firm value and performance. Interestingly, we are the first study investing the effect of equity market timing on overall cost of capital and the influence of debt market timing on cost of debt after taxes and overall cost of capital. Overall, there is an effect of market timing of both the stock and bond markets on cost of capital and firm performance in Thailand; however, there are different influences, depending on the strategy of market timing and the measurement of cost of capital and firm performance implemented by firm managers.

To begin with the first objective, we employed the presence of equity market timing with the hot equity strategy following Alti (2006) and the economic boom strategy and the degree of equity market timing with the equity proceeds ratio to inspect the effect of each strategy on cost of equity and overall cost of capital. In addition, we estimated cost of equity in three different ways, consisting of the CAPM method, Gordon model and implied cost of equity approach covering both backward and forward-looking procedures. The OLS, GLS, ATE (2-step) and IV (2SLS) regression methods were employed to investigate this issue and the models were separately produced between IPO and SEO events due to the non-identical characteristics of them. Our empirical results in the case of IPOs exhibit that the presence of equity market timing with hot equity has a negative effect on cost of equity and overall cost of capital in the short and long term. Simultaneously, the degree of equity market timing with the equity proceeds ratio has a negative influence on cost of equity in the short and long term, yet there is a mixed effect on overall cost of capital. In contrast, the existence of equity market timing with the economic boom strategy has a positive effect on cost of equity and overall cost of capital in the year of going public; however, the effects in the following years are dissimilar, depending on the method of cost of equity calculation.

In the case of SEO, this study shows that timing companies in a hot equity market can accomplish a decrease in cost of equity and overall cost of capital in the short term until 3 years after issuance. However, the influence in the long term is quite mixed for cost of equity but is positive for overall cost of capital. On the other hand, the impact of the presence of equity market timing with the economic expansion strategy is non-identical, depending on the procedure of cost of equity calculation. Regarding CAPM, timing firms during a period of economic expansion are successful at reducing the cost of equity and overall cost of capital in the short and long term. While, they suffer from an increase in cost of equity and WACC only in the first year after SEO issuance, they obtain a minimization of cost of equity and WACC in the following years based on the Gordon model. Conversely, they suffer from an increase in cost of equity and WACC in the long term, whereas they succeed reducing WACC in the short term following the implied cost of equity approach. On the other hand, timing corporations with large proceeds suffer from an increase in cost of equity and overall cost of capital in the short and long term.

According to the examination of the influence of the existence and level of debt market timing on cost of debt and overall cost of capital for the second research question, we employed the existence of debt market timing with hot proceeds strategy following Doukas et al. (2011) and the median interest rate strategy and the degree of debt market timing with the debt proceeds ratio to investigate in this issue. Moreover, the OLS, GLS, ATE (2-step) and IV (2SLS) regression methods were implemented to investigate in the context of this question. This study reveals strong evidence that debt market timers with the hot proceeds strategy are unsuccessful at diminishing cost of debt after taxes, while debt market timers with the median interest rate strategy are successful at minimizing cost of debt after taxes. On the other hand, debt market timers with huge proceeds fail to decrease cost of debt after taxes in the short term, yet they achieve it in the long term.

However, there is different effect on overall cost of capital, depending on the approach of cost of equity calculation. In the case of the hot proceeds strategy, debt timers accomplish a reduction in WACC in an offering year and 5 years later based on the CAPM approach. While they experience an increase in WACC only in year 1 after allocation, they succeed at minimizing WACC in the following years until 5 years according to the implied cost of equity method. On the other hand, they suffer from an enhancement of WACC in the long term according to the Gordon model. In the case of the median interest rate strategy, there are conflicting results between backward and forward-looking approaches of the cost of equity estimation. The empirical results show that timers cannot achieve a decrease in WACC based on the backward-looking method with the CAPM approach, while they can accomplish a reduction in WACC based on the forward-looking method with the Gordon and implied cost of equity procedures. Furthermore, in the case of the degree of debt market timing with the debt proceeds ratio, debt timing firms suffer from an increase of WACC in the short and long term according to the CAPM approach, whereas they are successful in the long term based on the Gordon model. In contrast, they achieve their aim of a decrease in WACC only in the issuing year, yet they suffer from a rise in WACC in the years later.

The third purpose of this chapter was to investigate the impact of the presence and degree of equity market timing on firm value and performance. Regarding OLS, GLS, ATE (2-step) and IV (2 SLS) regression models, this study provides evidence that there is involvement between equity market timing and firm performance; however, the direction of this association is dissimilar between IPO and SEO allocations. For IPOs, the empirical results demonstrate that the presence of equity market timing with the hot equity strategy has a negative impact on accounting-based performance and the MVA value, while there is a positive relationship between this strategy on annual stock returns and Tobin's q ratio in the long term. On the other hand, there is a positive effect of the presence of equity market timing with the economic boom strategy on accounting-based performance and annual equity yields, whereas this strategy has a negative effect on market-based performance with the MVA value and Tobin's q ratio. However, the degree of equity market timing with the equity proceeds ratio has a positive influence on accounting-based performance and equity returns only in an IPO year, while a negative impact appears in the subsequent years until 5 years post-IPO allocation. Conversely, there is a positive effect of the equity proceeds ratio on the MVA value and Tobin's q ratio.

Furthermore, in the case of SEO, this study discloses that the presence of equity market timing with the hot equity and economic boom strategies has a negative effect on firm performance in an offering year; however, there is a mixed influence of these strategies on firm performance in the following years, depending on the method of firm performance calculation. The empirical results show that there is a positive association between them based on Tobin's q ratio, while a negative relation appears between them regarding the MVA value. In contrast, there is a varied involvement between them from year to year until 5 years according to stock returns per annum. In contrast, the degree of equity market timing with the equity proceeds ratio has a positive effect on accounting-based performance and stock returns only in an allocating year; however, there is a negative relationship between them in the post-offering years until 4 years. On the other hand, the degree of equity market timing with the equity proceeds ratio has a positive impact on the MVA value and Tobin's q ratio in the short and long term.

Finally, the OLS, GLS, ATE (2-step) and IV (2SLS) regression models provide strong evidence, fulfilling the fourth objective of this chapter. The empirical results show that debt market timers during a period of hot proceeds and a moderately low interest rate are successful at improving both accounting and market-based performances in the short and long term. However, there are mixed results for the effect of the degree of debt market timing with higher proceeds on firm performance. Based on the MVA value, there is a negative influence of the level of debt market timing with the debt proceeds ratio on firm performance only in the first year after allocation; however, the positive impact appears in years 3, 4 and 5 post-bond issuances. On the other hand, this study reveals that the level of debt market timing with larger proceeds has a negative effect on accounting-based performance and Tobin's q ratio.

Consequently, this study demonstrates that there is an influence of the presence and degree of market timing in both the stock and bond markets in Thailand on cost of capital and corporate value and performance. However, the effect is different, depending on the type of security issued and the strategy selected by firm managers in market timing. In addition, the measurement of cost of capital and firm performance is crucial, since different methods provide dissimilar impacts between them, and if managers are less concerned with this issue, they may take wrong financing decisions. Therefore, this study provides guidance for firm managers, existing shareholders, outside investors, debtholders, regulators, policy makers and other stakeholders related to the decision to employ market timing in the capital structure policy of firms to compresence the effect of market timing on cost of capital and firm performance. In addition, they can prepare and protect themselves from implementing some strategies that can have a negative effect on their benefit.

CHAPTER 5:

Conclusions, Recommendations and Future Research

5.1 Overview of this chapter

This thesis analyses in the context of market timing, which is a novel theory of capital structure that has recently been of interest to researchers in corporate finance. This study contains three empirical studies. The first empirical study investigates the existence and determinants of equity market timing with IPO and SEO events in Thailand. The second empirical study examines the presence and determinants of debt market timing with corporate bond issuance in Thailand. Finally, the third empirical study inspects the effect of both equity and debt market timing on cost of capital and firm value and performance in Thailand.

Mainly secondary data were used in this study, whereby several database sources were employed in the investigations of the three empirical studies, including the DataStream, Bloomberg, Thomson ONE, SETSMART databases, the SET's Fact Books, the Form 56-1 annual report of firms submitted to the SEC as well as the SET's, ThaiBMA's and BOT's official websites. Most importantly, several data needed to be gathered by hand collection since these are unavailable in the global databases, especially for small listed companies. Besides, many regression models were implemented to explore the evidence in each empirical study, consisting of the OLS, GLS, probit, ATE (2-step) and IV (2SLS) regression methods.

Based on the three empirical studies, this thesis reveals that market timing is one strategy in the capital structure policy of Thai companies to raise new capital with equity and debt securities. Moreover, it has been shown that the determinants of equity and debt market timing are different. Hereby, ownership structure and board composition are the crucial factors in deciding the timing in stock and bond markets. In addition, there is an influence of market timing on cost of capital and firm value and performance, yet the effect is non-identical and depends on the type of issued securities among IPOs, SEOs and corporate bonds as well as the strategy of market timing employed by the firm managers and the approach of cost of capital and firm performance's evaluation.

5.2 Summary of major findings

As this study contains three empirical studies, the main findings of each empirical study are given in the following.

5.2.1 The determinants of equity market timing: evidence from IPOs and SEOs in Thailand

The first empirical chapter mainly investigates whether there is equity market timing in Thailand with IPO and SEO offerings and what the determinants of the presence and degree of equity market timing are (chapter 2). This study provides strong evidence that there is equity market timing in Thailand, both in IPO and SEO events, since our results confirm three indicators of testing in the presence of equity market timing. The first indicator is that we can capture many hot firms from IPO and SEO allocations following Alti (2006). Moreover, there is evidence that hot firms gain more equity proceeds than cold firms, affirming the second indicator by Alti (2006). In particular, we also found that hot companies tend to maintain their proceeds as cash, supporting the claim of Kim and Weisbach (2008) that if companies issue equity security and keep the proceeds as cash, they prefer to time the equity market. As a result, this study presents strong evidence that there is equity market timing in Thailand with IPO and SEO issuances.

Based on the examination of the determinants of equity market timing, we find that the determinants of the probability and degree of equity market timing are different between IPO and SEO events. In the case of IPOs, our empirical results reveal that ownership concentration and board size positively influence the probability of equity market timing. On the other hand, institutional ownership and board independence have a negative effect on the probability of equity market timing. Meanwhile, stock overpricing and audit committee on the board have mixed directions of the influence on the likelihood of equity market timing, depending on the strategy of equity market timing. However, there is no association between managerial ownership and women on the board on the propensity of timing the equity market. Furthermore, our findings report that the degree of IPO market timing increases with equity overpricing, higher managerial ownership, higher audit committee on the board and larger board size. However, institutional ownership, ownership concentration, board independence and women on the board do not impact on the degree of IPO market timing.

Moving on to the case of SEOs, our empirical results exhibit that the probability of equity market timing increases with stock overpricing, higher institutional and foreign ownerships, women and audit committee on the board. In contrast, the chance of equity market timing declines with higher ownership concentration and board independence, whereas the magnitude of the board has mixed effects on the propensity of equity market timing. However, managerial ownership does not influence the likelihood of SEO market timing. In addition, we find that equity overpricing, managerial ownership, foreign ownership, audit committee on the board and board size have a negative impact on the level of SEO market timing with larger proceeds. However, institutional ownership, ownership concentration, board independence and women on the board do not influence the degree of equity market timing with larger proceeds. Furthermore, our findings disclose evidence that institutional and foreign shareholders as well as independent and women directors on the board have a positive effect on the level of equity market timing with multiple SEO issuances. Conversely, ownership concentration has a negative effect on the degree of equity market timing with multiple SEO issuances. On the other hand, stock overpricing, managerial ownership, board size and audit committee on the board do not have an impact on the level of equity market timing with allocating SEO stocks several times.

Consequently, the significant factors that affect equity market timing are different between IPO and SEO issuances. Moreover, the type of equity market timing seems to be a crucial indicator, leading to non-identical determinants of equity market timing.

5.2.2 The determinants of debt market timing: evidence from corporate bonds in Thailand

The second empirical study proposes to examine whether there is debt market timing in Thailand with corporate bond issuance and what the determinants of the existence and level of debt market timing are (chapter 3). This study reveals that there is debt market timing in Thailand with corporate bond allocation, whereby we detect the existence of debt market timing with four indicators. The first indicator is that we capture several timers from corporate bond issuance following Doukas et al. (2011). In addition, we also found that timers obtain larger proceeds and pay a lower interest rate than non-timers, confirming the second and third indicators. Furthermore, there is strong evidence for the fourth indicator, namely that timers preserve the bond proceeds as cash, affirming the statements by Blanchard et al. (1993), Loughran and Ritter (1997) and Kim and Weisbach (2008) that timing firms retain the proceeds from security offering as cash due to market timing. Therefore, it is clear that there is debt market timing in Thailand with corporate bond issuance.

According to the investigation into the determinants of the presence and degree of debt market timing, our findings disclose that the determinants of the probability and degree of debt market timing are non-identical. Regarding the likelihood of debt market timing, our empirical results uncover evidence that expected interest rate, institutional ownership, board size, women and audit committee on the board positively relate to the probability of debt market timing. In contrast, the propensity of debt market timing declines with higher current interest rate, higher managerial ownership and board independence. Meanwhile, foreign ownership and ownership concentration provide mixed directions of the effect on the propensity of debt market timing.

Regarding the degree of debt market timing, our findings present that institutional ownership, ownership concentration, board independence and board size positively influence the degree of debt market timing. Conversely, current interest rate, managerial and foreign ownership levels have a negative involvement in the level of debt market timing. However, the expected interest rate has mixed effects on the level of debt market timing, depending on the measurement between the debt proceeds ratio and the quantity of bond allocation. In contrast, women and audit committee on the board do not have a relationship with the level of debt market timing.

As a result, there are different determinants between the presence and degree of debt market timing. However, our findings provide strong evidence that interest rate, ownership structure and board composition associate with debt market timing.

5.2.3 Market timing, cost of capital and firm performance: evidence from Thailand

The third empirical study inspects the influence of the presence and degree of equity and debt market timing on cost of separate source, overall cost of capital and firm value and performance (chapter 4). This study finds evidence that there is an effect of the presence and degree of equity and debt market timing on cost of separate source, WACC and firm performance; however, the impact is different, depending on the purpose of capital increment, the strategy of timing the market and the measurement of cost of capital and firm performance. The summary of the findings for each strategy as given in the following.

Starting with equity market timing with IPO allocation, there are three strategies of equity market timing, consisting of hot equity, economic boom and the equity proceeds ratio. In the case of hot equity strategy, we find that timing firms with this strategy are successful at reducing cost of equity and WACC in the short and long term. However, there are mixed results for corporate performance since they fail to enhance accounting-based performance and the MVA value; on the other hand, they can achieve an increase in stock returns and Tobin's q ratio.

In the case of the economic boom strategy, our results report that timing companies fail to reduce cost of equity and WACC in the IPO year; however, there are mixed results in the following years. Also, there are mixed results for these corporations regarding firm performance after timing the equity market. Timers are successful at improving accounting-based performance and stock returns; however, they are unable to raise the MVA value and Tobin's q ratio by timing the IPO market.

In the case of the proceeds ratio strategy, we find that timers with larger proceeds tend to decrease cost of equity in the short and long term, yet there is a mixed influence on WACC. However, they can succeed to ameliorate the accounting-based performance and stock returns only in the IPO year; in contrast, they suffer from a deterioration of these performance in the subsequent years until 5 years later. Conversely, they accomplish an increase in the MVA value and Tobin's q ratio after timing the IPO market.

Moving on to equity market timing with SEO issuance, three strategies are employed to investigate their effects on the cost of capital and firm performance, namely hot equity, economic boom and proceeds ratio. Regarding the hot equity strategy, our results exhibit that timing firms with this strategy are successful at decreasing cost of equity and WACC only in the short-term until 3 years post-offering, whereas there are mixed results for cost of equity, although the failure emerges for WACC in the long term. Interestingly, they suffer from underperformance in the SEO year, while mixed results appear in the following years.

In the case of the economic boom strategy, our findings show that there are mixed results for equity market timing with this strategy on the cost of equity and WACC. Conversely, it appears that timers during a period of economic expansion suffer from a decline in corporate performance in the SEO year; however, there are mixed results in the following years after an SEO offering.

For the proceeds ratio strategy, we find that timing corporations with larger proceeds suffer from an increase in cost of equity and WACC in the short and long term. However, there are mixed findings for the performance of timing firms. Interestingly, timers with this strategy are successful at improving their accounting-based performance and stock returns only in the SEO year; however, they show a downward trend of these performances in the subsequent years until 4 years after allocation, while they can accomplish an increase in MVA and Tobin's q in the short and long term.

Next, regarding debt market timing, three strategies were used to examine the effect on cost of capital and firm performance, namely the hot proceeds, median interest rate and proceeds ratio strategies. With regards to the hot proceeds strategy, our findings illustrate that timers with this strategy fail to reduce cost of debt after taxes; however, this does not mean that they suffer from an increase in WACC as there are mixed results. Surprisingly, they are successful at enhancing their performance.

In contrast, our findings demonstrate that debt timing firms with the median interest rate strategy can achieve a minimization of cost of debt after taxes, while there are mixed effects for WACC, depending on the measurement of cost of equity estimation. However, they are successful at improving their performance after timing the debt market.

Finally, for the strategy of debt market timing with huge proceeds, we find that debt timing firms with this strategy suffer from an increase of cost of debt after taxes only in the short term, whereas they can accomplish a decrease of this cost in the long term. However, there are mixed influences of this strategy on WACC, depending on the procedure of cost of equity evaluation. Likewise, mixed results appear in the effect of this strategy on corporate performance since timing corporations fail to increase accounting-based performance and Tobin's q ratio, while they show a deterioration of the MVA value in only the first year after offering, yet they are successful at enhancing the MVA value in the long term.

Consequently, the effect of equity and debt market timing on cost of separate source, overall cost of capital and corporate performance is different, depending on the type of security issued, the aim of financing, the strategy of market timing and the method of cost of capital and firm performance estimation. However, market timing theory can offer both good and bad strategies to reach the corporate objectives of the reduction of cost of capital and the increase of corporate performance.

5.3 Summary of the practical implications

As stated, this thesis consists of three mainly empirical studies, and deeply detailed implications for practitioners are provided in the section on the practical implications for each empirical chapter. This section provides the brief implications of all three empirical studies, which are separated into four groups in the following.

5.3.1 Corporate managers

Firm executives can recognize from this study that there is a period of a window of opportunity in the stock market which offers the possibility to earn more equity proceeds and minimize cost of capital. This study provides three options of taking advantage of a good condition of the stock market, both in terms of macro and micro conditions, including a hot equity market, economic expansion and a bullish stock market. Furthermore, the level of equity proceeds and the number of equity issuances are involved with the level of timing the equity market.

In addition, firm managers can recognize that another alternative is taking the benefit from a window of opportunity in the debt market to gain more debt proceeds, reduce interest expenses and decrease cost of capital. This study also offers four choices in timing the debt market with corporate bond allocation, namely in a hot debt market, a hot proceeds period, and extremely and moderately low interest rate periods. Again, the level of debt proceeds and the quantity of corporate bond issuance are associated with taking advantage of the debt market as well.

Moreover, our findings can be considered as guidance for managers regarding which factor is crucial in their consideration prior to their decision-making when implementing equity and debt market timing strategies in their capital structure policy, as each factor has a different influence, which can be seen in section 5.2. In addition, our findings support managers in recognizing that the factors relating to timing the IPO and SEO markets are non-identical and that the vital factors of equity and debt market timings are different. Hence, they should consider separately between IPO and SEO issuances and equity and debt market timings.

Additionally, our findings offer a caution for firm executives that both equity and debt market timing can lead to either the success and failure of their objective in the reduction of cost of capital and enhancement of firm performance, depending on many factors, such as the type of security, the strategy of market timing and the measurement of cost of capital and firm performance. Therefore, they should analyse these factors before employing market timing in their capital structure policy, because if they fail in timing the market, this may, in the worst case, lead to the bankruptcy of firms.

5.3.2 Existing shareholders

This study informs existing shareholders that market timing is one strategy that managers may include in the capital structure policy of the firms of which they are owners. Moreover, from this study they can recognize the crucial determinants which motivate the firms employing this strategy. Therefore, they can concentrate on these factors to monitor the actions of firm managers. Additionally, this study is an instruction to existing shareholders that market timing theory can contain both good and bad strategies, since this policy can support obtaining the objectives of firms, namely maximizing shareholder wealth, if the managers are successful at timing the market. On the other hand, this strategy can also destroy firm performance if they fail to time the market. Our findings also provide evidence for which strategy can lead to the success or failure of the decrease of cost of capital and the increase of firm performance. Consequently, if firms tend to employ a strategy which may be damaging, they can prevent the usage of this strategy by managers via their voting rights in the boardroom.

5.3.3 Outside investors

Regarding the aspect of outside investors, our findings offer a caution to them in the decision to select appropriate securities. In the case of equity market timing, the main cause of timing equity market is asymmetric information between insiders and outsiders; therefore, if investors choose to invest in companies that tend to employ this policy, they may suffer from buying overvalued stocks. Therefore, if they prefer not to lose any benefit, they should avoid investment in timing corporations. However, this study reveals that these firms can both succeed and fail to reduce cost of capital and enhance firm performance in the years after offering. Thus, this study supports them in choosing suitable stocks for their purposes. In the case of debt market timing, even though this strategy does not rely on asymmetric information but rather depends on public information, this policy can contain both good and bad strategies. Therefore, this study is a counsel to outside investors regarding the selection of appropriate securities.

5.3.4 Regulators or policy makers

This study is a signal to regulators or policy makers regarding the behaviour of firms when implementing market timing theory in their capital structure policy in order to support them in the development of the efficiency of the stock and bond markets. For instance, they may specify rigorous regulations to monitor and prevent the behaviour of these firms in employing market timing theory, or they can exert more effort to promote and improve the corporate governance mechanism in companies. We are well aware that it is difficult to eliminate this type of behaviour from the stock and bond markets, since such behaviour also appears in developed markets. However, we believe that our findings can alleviate this problem and enhance the efficiency of the stock and bond markets as much as possible.

5.4 Caution for practitioners

As our findings demonstrate that market timing policy can lead to success and failure of the reduction of cost of capital and increase firm performance. Therefore, this study notes that when firms fail and are unable to earn a benefit from timing the equity and debt markets, the stakeholders will not obtain a benefit from such a strategy either. On the other hand, they may suffer from the drawbacks stemming from the implementation of a market timing strategy with results that are in direct contrast to their objective. Consequently, even if the market offers a window of opportunity, this does not mean that every firm is able to successfully time the market as this depends on several factors. Hence, firm managers should be careful when deciding to employ this theory in their capital structure policy.

5.5 Summary of the limitations

The great barrier of this study is the data collection due to the difficulty of accessing the data, which leads to the following limitations of this study.

The main limitation of the first empirical study is the unavailability of lagged data for IPO firms, which may be the cause of the endogenous problem and the different results between the IPO and SEO events. Moreover, the data on SEO issuances required three sources to be combined, which may have led to the problem of missing data from the cross-checked data. Additionally, it is difficult to gain data on family ownership in Thailand, although family ownership is a crucial factor in Thailand, since the data are available only in the short term. Thus, it was necessary to collect the data by hand by matching the surnames and checking the relationships among shareholders. Although this information is available in the Form 56-1 annual report, several companies do not report this detail. Therefore, this is a large barrier in obtaining information for this variable, and this is why this variable is excluded from this thesis.

The core limitation of the second empirical study is the access to corporate bond offering data in the OTC market since we were only able to obtain the data of this market from 2006 to 2014. Therefore, the missing data of the OTC market from 2001 to 2005 is a limitation of this study on debt market timing. In addition, the small sample size for bond market, which is due to less activity in the Thai bond market, is another limitation of this empirical chapter.

The main limitation of the final empirical chapter is the missing earnings forecast data about Thai companies; thus, we were unable to use the forecasted method in the calculation of implied cost of equity, and the perfect foresight approach was instead used to deal with this problem.

Consequently, the major limitation of this study is the lack of availability of data in Thailand, meaning that there are still some issues regarding a gap in the context of market timing and further research studies are required to fill these gaps.

5.6 Recommendations for further research

As shown in the above section, the main limitation of this study is the lack of availability of data since this study focuses on an emerging country. Therefore, we suggest that further researchers interested in this context attempt to investigate in other markets with easier access to data in order to support the robustness of this study.

Furthermore, there is an interesting factor, which may be the political factor, since recent research studies have claimed that there is a relationship between political connection and capital structure, such as Charumilind et al. (2006), Claessens et al. (2008) and Boubakri et al. (2012); however, this factor has been ignored in the field of market timing. At the beginning of the study, we attempt to address this gap, yet we found a problem regarding access to the political data; therefore, we recommend that further research studies use this variable to investigate in the context of market timing.

Also, the degree of bankruptcy risk is another interesting variable, since there is evidence that low bankruptcy cost leads to high leverage (Rajan & Zingales, 1995). Furthermore, Castanias (1983) found that companies with a high bankruptcy risk prefer to finance with less debt. Therefore, it is possible that if a firm has a low probability of bankruptcy, it may tend to time the debt market, while debt market timing may be more attractive than equity market timing. However, this issue is still being ignored by researchers, thus we suggest the further research studies employ the “Z-score”, which is the indicator of corporate bankruptcy risk according to Altman (1968), to investigate the involvement with the market timing.

In addition, even though market timing theory consists of both equity and debt market timing, the reasons for timing the two markets are dissimilar, based on the definition of them, as seen in section 1.2. Therefore, there is no association between equity and debt market timing since equity market timing is dependent on stock mispricing (information asymmetry) and the condition of the stock market, whereas debt market timing relies on the interest rate (public information) and the condition of the debt market.

However, the main sources of capital contain both equity and debt and managers need to decide between them. Hence, it is possible that if there is a window of opportunity in a market, the firms choose to time only in this market and ignore the other market. Therefore, it is likely that there is an indirect involvement between equity and debt market timing. Moreover, firms may decide to time only one market, or both markets if the window of opportunity occurs in both markets at the same time. Thus, this issue still poses questions, which future research studies could answer in deeper detail.

5.7 Conclusion

This thesis provides strong evidence from three aspects to shed light on market timing theory in terms of both equity and debt market timing.

The first empirical study shows that there is the presence of equity market timing in Thailand with IPO and SEO issuances from 2000 to 2014. In addition, we provide evidence that equity mispricing, ownership structure and board composition have an association with the presence and level of equity market timing. However, there are different effects between IPO and SEO events.

The second empirical study confirms the existence of debt market timing in Thailand with corporate bond allocation from 2001 to 2014. Furthermore, this study illustrates that the level of interest rate, ownership structure and board composition have an involvement with the presence and degree of debt market timing. However, the directions of the effect for these factors are dissimilar for each strategy.

The third empirical study shows that the presence and level of both equity and debt market timing have an impact on cost of separate source, overall cost of capital and firm value and performance. However, their influence is non-identical and depends on the type of securities, including IPO, SEO and corporate bond, the strategy of market timing implemented by firm managers, and the procedure of measuring cost of capital and firm performance.

In conclusion, this thesis creates several contributions, both in terms of theory and practical aspects. In the aspect of theory, we offer a new measurement of equity and debt market timings, explore their crucial factors, employ a new regression method with more efficient and consistent results, and reveal their influence on cost of capital and firm performance. In the aspect of practical implication, we provide guidance to all stakeholders relating to the implementation of the market timing strategy by firms to comprehend the causes and effects of this strategy and enable them to prepare in order to protect their benefits. Also, this study informs regulators and policy makers to support them to improve the efficiency of the stock and bond markets in Thailand. Therefore, this thesis offers not only theoretical, but also practical aspects in the context of market timing.

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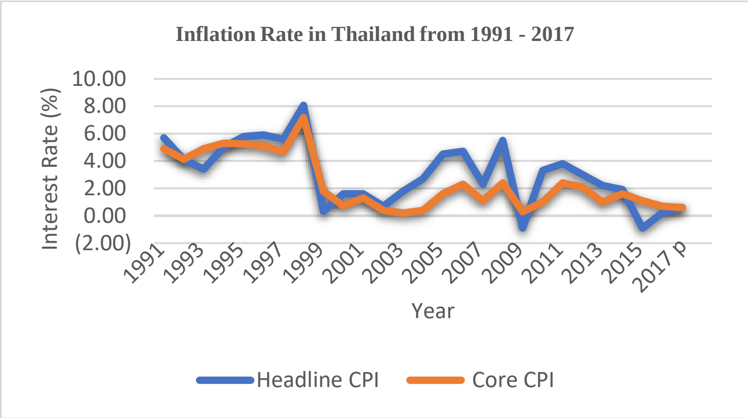
Appendix A: Additional information from chapter 1

Other information about Thailand



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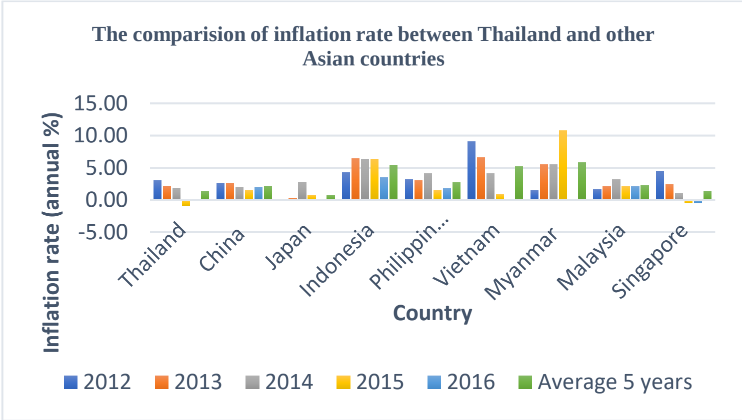

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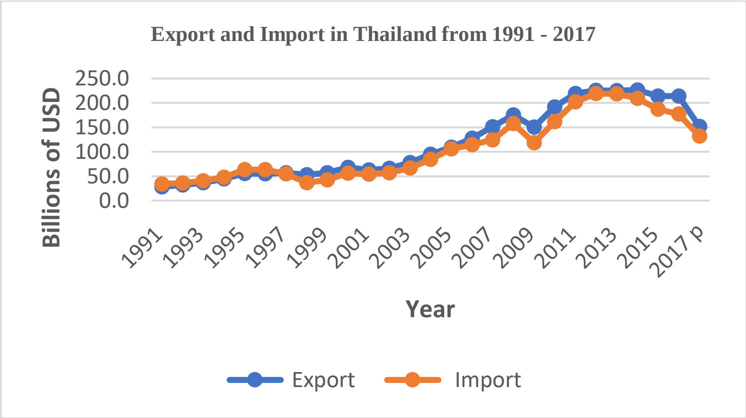

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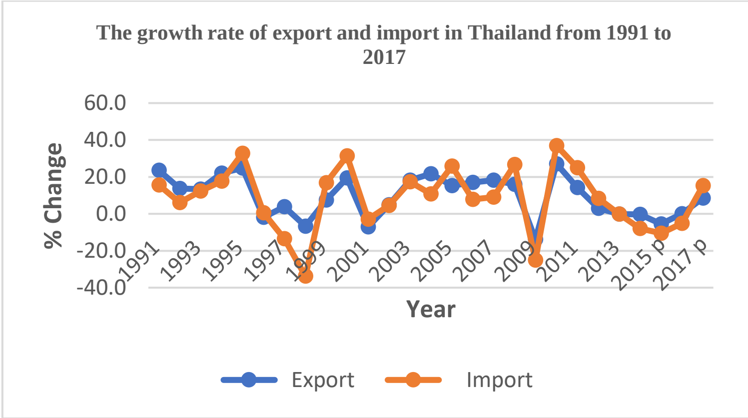

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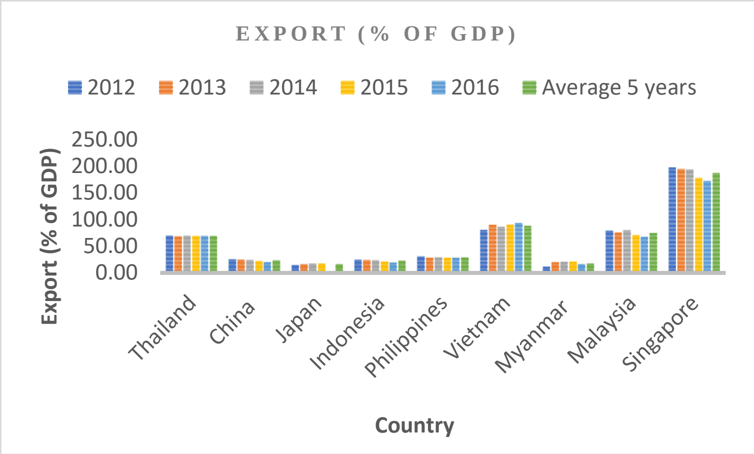

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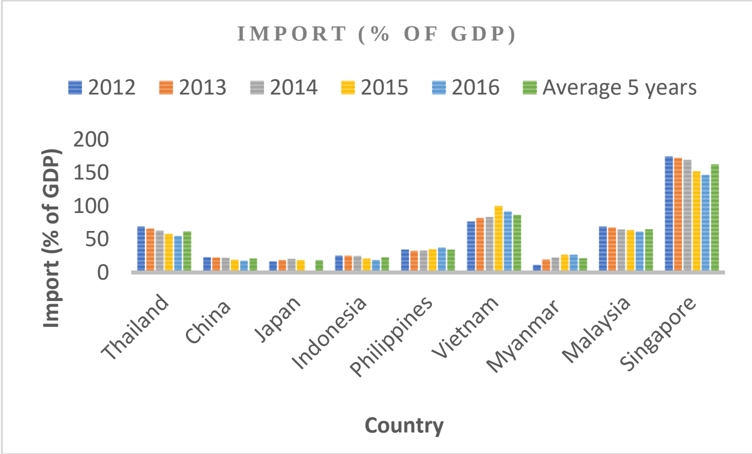

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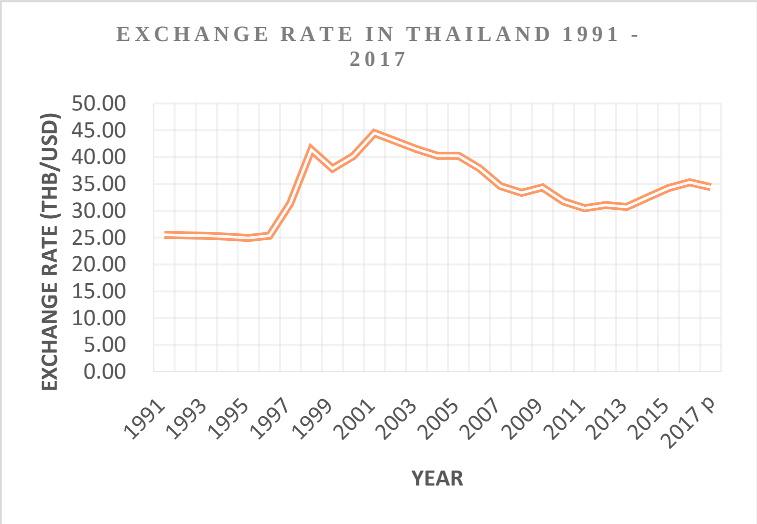

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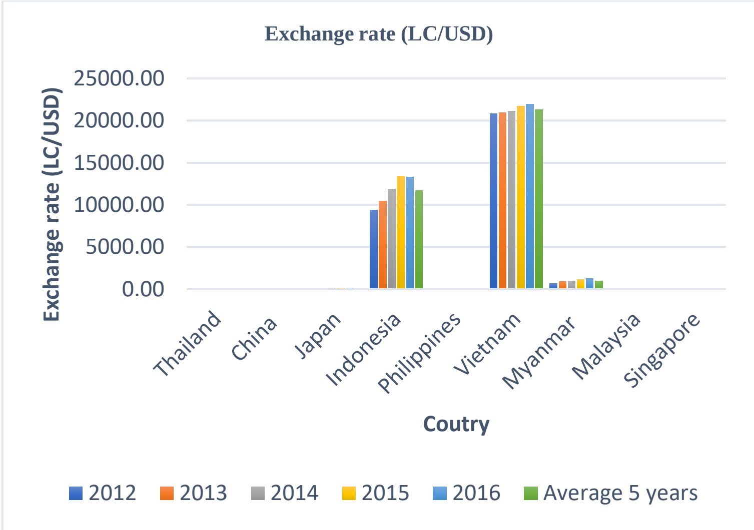

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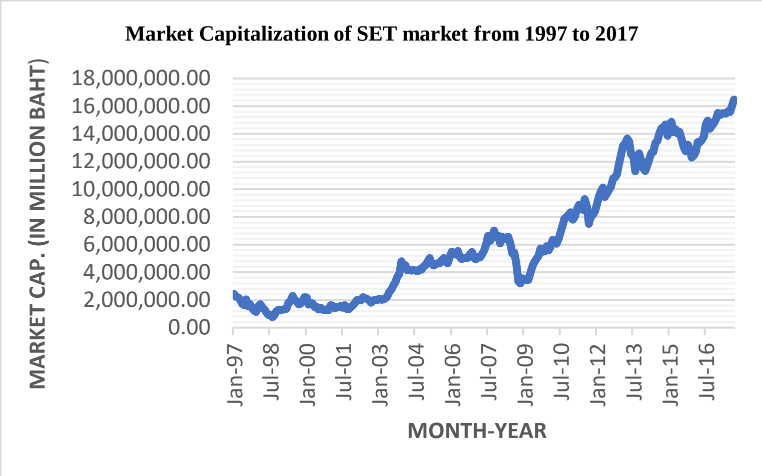
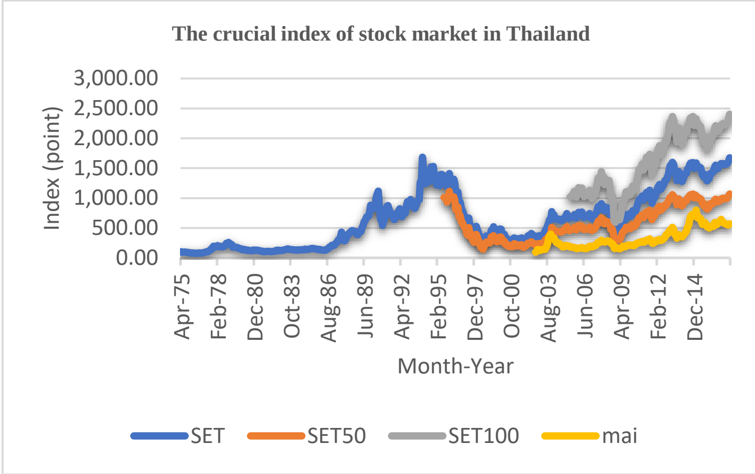
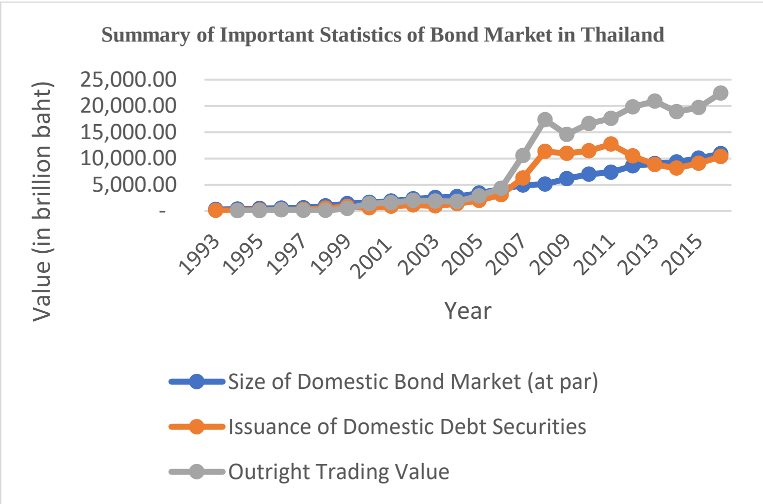


Source: The official website of the SET (SET, 2017d)



Source: The official website of the SET (SET, 2017d)



Source: The official website of the ThaiBMA (ThaiBMA, 2017)

Table A1.1: The balance sheet of Thai listed companies in 2014

Liabilities	%
Accounts Payable	9.26
ST Debt & Current Portion of LT Debt	14.41
Other Accrued Expense	1.83
Income Tax	0.40
Other Current Liabilities	7.14
Current Liabilities - Total	**32.66**
Long Term Debt	**11.96**
LT Debt Exclude Capitalized Leases	8.21
Capitalized Lease Obligations	0.77
Deferred Taxes	-0.09
Deferred Taxes - Credit	0.77
Deferred Taxes - Debit	0.86
Other Liabilities	**3.18**
Liabilities - Total	**46.24**

Source: Thomson ONE database

Table A1.2: The industry groups and sectors in the stock market in Thailand		
# Group	**Industry groups**	**Sectors**
Group 1	Ago & Food industry	**2 sectors:** - Agribusiness - Food & Beverage
Group 2	Customer Products	**3 sectors:** - Fashion - Home & office Products - Personal Product & Pharmaceuticals
Group 3	Financials	**3 sectors:** - Banking - Financial & Securities - Insurance sectors
Group 4	Industrials	**6 sectors:** - Automotive - Industrial Materials & Machine - Packaging - Paper & Printing Materials - Petrochemicals & Chemicals - Steel
Group 5	Property & Construction	**4 sectors:** - Construction Materials - Construction Services - Property Development - Property Fund & Real Estate Investment Trusts
Group 6	Resources	**2 sectors:** - Energy & Utilities - Mining
Group 7	Services	**6 sectors:** - Commerce - Health Care Services - Media & Publishing - Professional Services - Tourisms & Leisure - Transportation & Logistics
Group 8	Technology	**2 sectors:** - Electronic Components - Information & Communication Technology

Source: The official website of the SET (SET, 2017b)

Appendix B: Additional information from chapter 2

Table A2.1 Summary the number of previous research studies		
Topic	**Authors**	**The number of research studies**
Equity market timing	Baker and Wurgler, 2002 Thuwajaroenpanich, 2002 Limpaphayom and Ngamwutikul, 2004 Alti, 2006 Hovakimian, 2006 Elliott et al., 2007 Kayhan and Timan, 2007 Chang et al., 2008 Elliott et al., 2008 Huang and Ritter, 2009 Bougatef and Chichti, 2010 Bozanic, 2010 Chang et al., 2010 DeAngelo et al., 2010 Guney and Iqbal-Hussain, 2010 Brendea, 2012 Chong et al., 2012 Celik and Akarim, 2013 Chen et al. 2013 Kaya, 2013 Arosa et al., 2014 Bonaime et al., 2014 Plotnicki and Szyszka, 2014 Qian, 2014 Bilinsk and Mohamed, 2015 Dittmar and Field, 2015 Huang et al., 2016 Hovakimian and Hu, 2016	28

Source: Author, based on the literature review

The key scholars of equity market timing

Scholar	Topic	Name of Journal	Focus of research	Country	Time period	Method	Finding
Baker and Wurgler (2002)	Market Timing and Capital Structure	Journal of Finance	-This paper examined whether equity market timing impacts on capital structure. - If there is relationship between them, is there correlation in short or long term?	All Compustat firms	1968-1999	The regression model	-They found that there is significantly negative relationship leverage and historical market valuation estimated by market-to-book ratio. -They indicated that there is correlation between them in long term more than 10 years.
Alti (2006)	How persistent is the impact of market timing on capital structure?	Journal of Finance	-This research studied that market timing relates with capital structure or not. -They definite hot and cold markets with volume each month in IPO issuing.	All of firms in COMPUSATA and SDC	1971-1999	The regression model	-This paper concluded that there is negative impact on market timing and leverage only in short term (2 years). –Hot market firms financed with equity considerably, however they increased leverage rapidly after IPO.
Hovakimian (2006)	Are Observed Capital Structures Determined by Equity Market Timing?	Journal of Finance and Quantitative Analysis	-This paper tested whether there is negative relationship between historical market-to-book ratios and leverage in long term.	All firms in Compustat	1983 - 2002.	The OLS regression analysis model	-This paper concluded that there is significant negative impact between historical market-to-book ratios and leverage but not in long term which they concluded that it imply that firms perceive about growth opportunity because it do not current M/B.
Kayhan and Titman (2007)	Firms' histories and their capital structures	Journal of Financial Economics	-This research investigated whether cash flow, capital expenditures and historical equity price effect on leverage ratio.	All firms in the Compustat Industrial Annual Files	1960 - 2003	The Tobit and OLS regression model	-The result demonstrated that the historical equity price impacts the capital structure, however this effect has short- term and then the capital structure rebalance to target leverage according to the trade-off theory.

Chang et al (2008)	Market Timing and the Cost of Equity	N/A	-This paper examined the relevance of equity market timing and implied cost of equity.	All firms in Compustat/CRSP database	1981-2004	The regression analysis model	-They found that firms who issue more equity when equity market is good have lower expected cost of equity.
Huang and Ritter (2009)	Testing Theories of Capital Structure and Speed of Adjustment	Journal of Finance and Quantitative Analysis	-This research explored whether if the equity risk premium (ERP) is low, a corporate finances with large proportion of financing deficit and then how many years which firms spend for the rebalance their capital structure.	US	1963-2001	The fixed effect regression	-They found that when the equity risk premium (ERP) is low, a corporate fund with huge equity issuance; however, the speed of rebalance their capital is fair.
Guney and Iqbal-Hussain (2010)	Capital Structure and IPO Market Timing in the UK	N/A	-This paper tested that how market timing impact on capital structure.	UK	1979-2008	The regression analysis model	-They demonstrated that there is negatively correlated between market timing and capital structure but this relationship has only short term.
Bougatef et. al (2010)	Equity Market Timing and Capital Structure: Evidence from Tunisia and France	International Journal of Business Performance Management	-This paper investigated that decision of debt and equity issues relate with market timing or not. - This paper used net equity issues as one proxy in debt market condition.	Tunisian and French	2000-2008	The panel data regression model	-They showed that high market t book ratio connect with high equity financing. - They found that there is negative relevance between leverage and market timing. - Moreover, there is long term impact between them over 8 years.
Bozanic (2010)	Managerial motivation and timing of open market share repurchases	Review of Quantitative Finance and Accounting	-This paper investigates when and why managers repurchase shares in the open market. - Do managers decide to repurchase shares when they perceive their stock price to be low?	US	2004–2006	The regression model	- The paper finds evidence that firms which make repurchases are jointly timing their repurchases to perceived undervaluation and as well as the availability of cash flows sufficient to finance the repurchase.
Chang et al (2010)	Conglomerate Structure and Capital Market Timing	Financial Management	-This paper examined the effects of keiretsu structure on capital market-timing.	Japan	1977-2004	The regression model	-This study found that past market conditions relate the capital structure of keiretsu firms more than of unaffiliated firms. - The decision to issue equity is more correlated with market conditions for keiretsu members than unaffiliated firms.

Butler et al (2011)	Corporate financing decisions, managerial market timing, and real investment	Journal of Financial Economics	-This paper investigated whether underperformance-firm after their equity issuance is predicted by market timing and investment base theories. - This paper examined whether market timing theory can predict future stock return.	All firms in CRSP and Compustat databases	1971-2008	The cross-sectional regression model	-This paper found that the amount of net financing is crucial factor for future stock return yet the combination between debt and equity is not.
Chong et al (2012)	Long-term adjustment of capital structure : evidence from Singapore, Hong Kong and Taiwan	Singapore Economic Review	-This research tested the financing behavior among trade-off theory, pecking order and market timing.	Singapore, Hong Kong and Taiwan	1980-2003	The regression model	-There is only market timing and pecking order significantly. - They also found long term evidence in market timing.
Brendea (2012)	Testing the impact of market timing on the Romanian firms' capital structure	Procedia Economics and Finance	-This paper investigated whether market timing influences to capital structure in Romanian firms.	Romanian	2004-2011	The panel data regression model	-This paper showed that when the market valuation of firms is high, the equity is financed increasingly but the effect has only in short term.
Kaya (2013)	The long-run impact of IPO market timing on capital structure	Investment Management and Financial Innovations	-This research explored about the impact of market timing on capital structure, especially long term. -She classified the market timing as hot, neutral and cold months.	All of firms in SDC	1981-2004	The regression model	-This study found that the firms try to time the market with waiting for Hot market. They issue more equity in Hot market in order to reduce the cost of capital. –Both Hot and cold market companies raise the leverage level after IPO but after 3 years the cold market firms stop while Hot market companies still continue to increase their leverage. -Therefore, there is effect in long term for HOT market company.

Celik and Akarim (2013)	Does Market Timing Drive Capital Structure? Empirical Evidence from an Emerging Market	International Journal of Economics and Financial Issues	-This research purposed to study that how the market timing affects capital structure in IPO issuing from ISE database.	Turkey	1999-2008	The regression model	-This paper concluded that market timing theory is not appropriate for Turkey firms although they found that the book leverage decreased considerably in IPO period and increased after IPO year.
Arosa et al (2014)	The Impact of Culture on Market Timing in Capital Structure Choices	Research in International Business and Finance	-This paper exploded the market timing in capital structure with investigating the connection between stock return and capital structure in international countries.	36 countries (US, UK, and Japan cover 48% of data)	2001–2011	The regression model	-This paper concluded that firms relate market timing with reducing their leverage when stock price go up. - Firms in countries with high uncertainty avoidance and high power distance have lower market leverage ratios which it means culture dimension have effect to decrease market timing.

Source: Author, based on the literature review

Appendix C: Additional information from chapter 3

The effect of inflation rate on debt market timing

a. Perfect foresight method

Table A3.1: The results for the effect of inflation on debt market timing (Perfect Foresight method)

Y / X	(1) HOT_ Debt	(2) HOT_ Debt	(3) HOT_ Debt	(4) HOT_ Debt	(5) HOT_ Debt	(6) HOT_ Debt	(7) HOT_ Proceed	(8) HOT_ Proceed	(9) HOT_ Proceed	(10) HOT_ Proceed	(11) HOT_ Proceed	(12) HOT_ Proceed	(13) Proceeds/ TA	(14) Proceeds/ TA	(15) Proceeds/ TA	(16) Proceeds/ TA	(17) Proceeds/ TA	(18) Proceeds/ TA
	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model
	Probit	Probit	Probit	Probit	Probit	Probit	Probit	Probit	Probit	Probit	Probit	Probit	OLS	OLS	GLS	GLS	OLS	OLS
Expected Inflation t (Perfect)	0.139	0.166	-	-	-	-	0.532***	0.451***	-	-	-	-	-0.000544	-0.00124	-0.000544	-0.00124	-	-
	(1.19)	(1.37)	-	-	-	-	(3.79)	(3.94)	-	-	-	-	(-0.43)	(-0.81)	(-0.25)	(-0.56)	-	-
Expected Inflation t+1 (Perfect)	-	-	-0.131	-0.231**	-	-	-	-	0.000226	-0.0241	-	-	-	-	-	-	0.00377	0.00421*
	-	-	(-1.15)	(-2.05)	-	-	-	-	(0.00)	(-0.28)	-	-	-	-	-	-	(1.65)	(1.80)
Expected Inflation t+2 (Perfect)	-	-	-	-	0.181	0.171	-	-	-	-	-0.00590	-0.0549	-	-	-	-	-	-
	-	-	-	-	(1.11)	(0.89)	-	-	-	-	(-0.06)	(-0.56)	-	-	-	-	-	-
Other core explanatory variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed industry effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-4.944	-1.465	-1.998	3.077	-3.989	-0.800	-18.16**	-13.15**	-12.60**	-5.277	-12.56**	-4.925	0.280**	0.325	0.280**	0.325**	0.211*	0.254
	(-0.77)	(-0.21)	(-0.30)	(0.40)	(-0.64)	(-0.11)	(-2.56)	(-2.02)	(-1.97)	(-0.90)	(-2.06)	(-0.85)	(2.00)	(1.51)	(2.52)	(2.51)	(1.81)	(1.38)
N	145	148	145	148	145	148	145	148	145	148	145	148	143	146	143	146	143	146
Wald chi2	58.20***	51.52***	55.69***	55.98***	55.07***	49.76***	55.44***	60.22***	47.25**	46.99**	47.35**	47.22**	-	-	159.0***	157.7***	-	-
Pseudo R2	0.3426	0.3767	0.3422	0.3864	0.3418	0.3721	0.3292	0.3145	0.2555	0.2572	0.2555	0.2582	-	-	-	-	-	-
F	-	-	-	-	-	-	-	-	-	-	-	-	0.491	0.740	-	-	0.544	0.660
R2	-	-	-	-	-	-	-	-	-	-	-	-	0.526	0.519	-	-	0.540	0.536
Mean VIF	-	-	-	-	-	-	-	-	-	-	-	-	2.42	2.51	-	-	2.49	2.57

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table A3.1: The results for the effect of inflation on debt market timing (Perfect Foresight method) (Cont.)

Y / X	(19) Proceeds/ TA	(20) Proceeds/ TA	(21) Proceeds/ TA	(22) Proceeds/ TA	(23) Proceeds/ TA	(24) Proceeds/ TA	(25) # Bond Issuance	(26) # Bond Issuance	(27) # Bond Issuance	(28) # Bond Issuance	(29) # Bond Issuance	(30) # Bond Issuance	(31) # Bond Issuance	(32) # Bond Issuance	(33) # Bond Issuance	(34) # Bond Issuance	(35) # Bond Issuance	(36) # Bond Issuance
	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model
	GLS	GLS	OLS	OLS	GLS	GLS	OLS	OLS	GLS	GLS	OLS	OLS	GLS	GLS	OLS	OLS	GLS	GLS
Expected Inflation t (Perfect)	-	-	-	-	-	-	-0.0166	-0.0138	-0.0166	-0.0138	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	(-1.03)	(-0.80)	(-0.88)	(-0.72)	-	-	-	-	-	-	-	-
Expected Inflation t+1 (Perfect)	0.00377**	0.00421**	-	-	-	-	-	-	-	-	0.0389**	0.0379**	0.0389**	0.0379**	-	-	-	-
	(2.07)	(2.35)	-	-	-	-	-	-	-	-	(-2.22)	(-2.15)	(-2.48)	(-2.48)	-	-	-	-
Expected Inflation t+2 (Perfect)	-	-	0.00312	0.00271	0.00312	0.00271	-	-	-	-	-	-	-	-	0.00831	0.00987	0.00831	0.00987
	-	-	(1.39)	(1.24)	(1.39)	(1.32)	-	-	-	-	-	-	-	-	(0.52)	(0.62)	(0.47)	(0.56)
Other core explanatory variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed industry effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.211*	0.254**	0.261**	0.273	0.261**	0.273**	-0.561	-0.430	-0.561	-0.430	0.0390	-0.107	0.0390	-0.107	-0.721	-0.764	-0.721	-0.764
	(1.86)	(2.04)	(1.99)	(1.43)	(1.99)	(2.16)	(-0.52)	(-0.37)	(-0.59)	(-0.39)	(0.04)	(-0.10)	(0.04)	(-0.10)	(-0.67)	(-0.67)	(-0.76)	(-0.71)
N	143	146	143	146	143	146	145	148	145	148	145	148	145	148	145	148	145	148
Wald chi2	167.9***	168.6***	-	-	-	160.7***	-	-	42.37*	45.34**	-	-	49.24**	52.68***	-	-	41.65*	45.07**
Pseudo R2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F	-	-	0.490	0.689	-	-	2.789***	2.805***	-	-	3.214***	3.197***	-	-	3.005***	2.634***	-	-
R2	-	-	0.534	0.524	-	-	0.226	0.235	-	-	0.254	0.263	-	-	0.223	0.233	-	-
Mean VIF	-	-	2.52	2.61	-	-	2.4	2.47	-	-	2.47	2.52	-	-	2.5	2.57	-	-

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

b. Forecast method

Table A3.2: The results for the effect of inflation on debt market timing (Forecast data)

Y / X	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	HOT_Debt	HOT_Debt	HOT_Debt	HOT_Debt	HOT_Proceed	HOT_Proceed	HOT_Proceed	HOT_Proceed	Proceeds/ TA	Proceeds/ TA	Proceeds/ TA	Proceeds/ TA
	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model
	Probit	Probit	Probit	Probit	Probit	Probit	Probit	Probit	OLS	OLS	GLS	GLS
Expected Inflation t+1 (Forecast)	-73.23*	-96.15**	-	-	-19.05	-42.18	-	-	0.0522	0.193	0.0522	0.193
	(-1.72)	(-2.50)	-	-	(-0.53)	(-1.20)	-	-	(0.07)	(0.26)	(0.07)	(0.28)
Expected Inflation t+2 (Forecast)	-	-	7.509	-13.26	-	-	-0.236	-4.783	-	-	-	-
	-	-	(0.27)	(-0.50)	-	-	(-0.01)	(-0.24)	-	-	-	-
Other core explanatory variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed industry effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.764	5.474	-4.500	1.459	-11.62*	-3.180	-12.58**	-5.326	0.273**	0.294	0.273**	0.294**
	(-0.11)	(0.69)	(-0.70)	(0.20)	(-1.78)	(-0.52)	(-2.04)	(-0.92)	(2.09)	(1.38)	(2.31)	(2.23)
N	145	148	145	148	145	148	145	148	143	146	143	146
Wald chi2	58.18***	60.38***	56.03***	51.42***	49.33**	47.60**	47.27**	47.08**	-	-	158.9***	157.2***
Pseudo R2	0.3504	0.3914	0.3349	0.3675	0.2567	0.2631	0.2555	0.2571	-	-	-	-
F	-	-	-	-	-	-	-	-	0.468	0.649	-	-
R2	-	-	-	-	-	-	-	-	0.526	0.519	-	-
Mean VIF	-	-	-	-	-	-	-	-	2.56	2.64	-	-

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table A3.2: The results for the effect of inflation on debt market timing (Forecast data) (Cont.)

Y / X	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
	Proceeds/ Total Assets	Proceeds/ Total Assets	Proceeds/ Total Assets	Proceeds/ Total Assets	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance
	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model
	OLS	OLS	GLS	GLS	OLS	OLS	GLS	GLS	OLS	OLS	GLS	GLS
Expected Inflation t+1 (Forecast)	-	-	-	-	-9.360	-7.100	-9.360	-7.100	-	-	-	-
	-	-	-	-	(-1.23)	(-0.96)	(-1.50)	(-1.20)	-	-	-	-
Expected Inflation t+2 (Forecast)	1.361**	1.511**	1.361***	1.511***	-	-	-	-	-7.631*	-7.376*	-7.631**	-7.376**
	(1.99)	(2.13)	(3.26)	(3.60)	-	-	-	-	(-1.84)	(-1.71)	(-2.07)	(-1.99)
Other core explanatory variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed industry effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.00997	0.00469	0.196*	0.228*	-0.109	-0.206	-0.109	-0.206	-0.200	-0.206	-0.200	-0.206
	(0.60)	(0.22)	(1.79)	(1.87)	(-0.10)	(-0.17)	(-0.11)	(-0.19)	(-0.19)	(-0.20)	(-0.21)	(-0.19)
N	143	146	143	146	145	148	145	148	145	148	145	148
Wald chi2	-	-	181.3***	184.0***	-	-	44.27**	46.55**	-	-	46.86**	49.83***
Pseudo R2	-	-	-	-	-	-	-	-	-	-	-	-
F	0.593	0.677	-	-	2.813***	2.679***	-	-	3.158***	3.083***	-	-
R2	0.559	0.558	-	-	0.234	0.239	-	-	0.244	0.252	-	-
Mean VIF	2.47	2.55	-	-	2.54	2.6	-	-	2.44	2.5	-	-

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

The effect of the interest rate dummy variable on debt market timing

Table A3.3: The results for the effect of low interest rest dummy variables on debt market timing (Current interest rate)

Y / X	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	HOT_Debt	HOT_Debt	HOT_Debt	HOT_Debt	HOT_Proceed	HOT_Proceed	HOT_Proceed	HOT_Proceed	Proceeds/ TA	Proceeds/ TA	Proceeds/ TA	Proceeds/ TA
	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model
	Probit	Probit	Probit	Probit	Probit	Probit	Probit	Probit	OLS	OLS	GLS	GLS
Extremely Low Interest Rate Dummy	0.159	-0.0429	-	-	0.186	0.391	-	-	0.0359**	0.0381***	0.0359***	0.0381***
	(0.31)	(-0.08)	-	-	(0.45)	(0.98)	-	-	(2.51)	(2.64)	(4.52)	(4.86)
Median Low Interest Rate Dummy	-	-	0.352	0.377	-	-	0.370	0.455*	-	-	-	-
	-	-	(1.18)	(1.23)	-	-	(1.35)	(1.66)	-	-	-	-
Other Core Explanatory Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Industry Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-4.046	1.055	-4.960	1.564	-12.48**	-5.066	-13.17**	-5.202	0.288**	0.376**	0.288***	0.376***
	(-0.64)	(0.15)	(-0.76)	(0.22)	(-2.06)	(-0.90)	(-2.17)	(-0.93)	(2.25)	(2.03)	(2.79)	(3.22)
N	145	148	145	148	145	148	145	148	143	146	143	146
Wald Chi2	58.03***	54.28***	58.73***	53.24***	47.15**	46.94**	47.66**	49.56**	-	-	202.0***	206.2***
Pseudo R2	0.335	0.3664	0.3421	0.3748	0.2563	0.2607	0.2649	0.2707	-	-	-	-
F	-	-	-	-	-	-	-	-	0.632	0.694	-	-
R2	-	-	-	-	-	-	-	-	0.585	0.585	-	-
Mean VIF	-	-	-	-	-	-	-	-	2.48	2.57	-	-

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table A3.3: The results for the effect of low interest rest dummy variables on debt market timing (Current interest rate) (Cont.)

Y / X	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
	Proceeds/ Total Assets	Proceeds/ Total Assets	Proceeds/ Total Assets	Proceeds/ Total Assets	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance
	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model
	OLS	OLS	GLS	GLS	OLS	OLS	GLS	OLS	OLS	GLS	GLS	OLS
Extremely Low Interest Rate Dummy	-	-	-	-	-0.00398	-0.00904	-0.00398	-0.00904	-	-	-	-
	-	-	-	-	(-0.05)	(-0.11)	(-0.05)	(-0.12)	-	-	-	-
Median Low Interest Rate Dummy	0.00486	0.00517	0.00486	0.00517	-	-	-	-	0.0424	0.0334	0.0424	0.0334
	(0.86)	(0.91)	(0.89)	(0.96)	-	-	-	-	(0.81)	(0.65)	(0.90)	(0.72)
Other Core Explanatory Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Industry Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.276*	0.311	0.276**	0.311**	-0.679	-0.658	-0.679	-0.658	-0.684	-0.597	-0.684	-0.597
	(1.95)	(1.50)	(2.51)	(2.49)	(-0.63)	(-0.60)	(-0.71)	(-0.62)	(-0.63)	(-0.55)	(-0.72)	(-0.57)
N	143	146	143	146	145	148	145	148	145	148	145	148
Wald Chi2	-	-	160.5***	159.0***	-	-	41.37*	44.68**	-	-	42.41*	45.34**
Pseudo R2	-	-	-	-	-	-	-	-	-	-	-	-
F	0.472	0.676	-	-	2.907***	2.679***	-	-	2.911***	2.685***	-	-
R2	0.529	0.521	-	-	0.585	0.585	-	-	0.226	0.235	-	-
Mean VIF	2.42	2.5	-	-	2.48	2.57	-	-	2.4	2.46	-	-

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

The effect of the lagged 6-month interest rate variable on debt market timing

Table A3.4: The results for the effect of low interest rest dummy variables on debt market timing (Lagged 6-month interest rate)

Y / X	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	HOT_Debt	HOT_Debt	HOT_ Proceed	HOT_ Proceed	Proceeds/Total Assets	Proceeds/Total Assets	Proceeds/Total Assets	Proceeds/Total Assets	# Bond Issuance	# Bond Issuance	# Bond Issuance	# Bond Issuance
	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model	CFO Model	CEO Model
	Probit	Probit	Probit	Probit	OLS	OLS	GLS	GLS	OLS	OLS	GLS	GLS
Extremely Low Interest Rate Dummy	1.273**	1.266*	0.132	0.0539	0.0223**	0.0235**	0.0223***	0.0235***	-0.0345	-0.0220	-0.0345	-0.0220
	(2.01)	(1.88)	(0.35)	(0.14)	(2.19)	(2.26)	(3.14)	(3.29)	(-0.54)	(-0.34)	(-0.54)	(-0.34)
Median Low Interest Rate Dummy	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-
Other Core Explanatory Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Industry Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-3.406	2.681	-12.83**	-5.694	0.264**	0.280	0.264**	0.280**	-0.658	-0.618	-0.658	-0.618
	(-0.52)	(0.39)	(-2.14)	(-1.01)	(2.07)	(1.49)	(2.48)	(2.32)	(-0.61)	(-0.57)	(-0.69)	(-0.59)
N	145	148	145	148	143	146	143	146	145	148	145	148
Wald Chi2	58.63***	52.59***	48.04**	47.32**	-	-	179.7***	179.6***	-	-	41.74*	44.82**
Pseudo R2	0.3684	0.3962	0.2561	0.257	-	-	-	-	-	-	-	-
F	-	-	-	-	0.522	0.578	-	-	2.972***	2.688***	-	-
R2	-	-	-	-	0.557	0.552	-	-	0.224	0.232	-	-
VIF	-	-	-	-	2.45	2.53	-	-	2.43	2.49	-	-

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table A3.5 Summary the number of previous research studies

Topic	Authors	The number of research studies
Debt market timing	Graham and Harvey, 2001 Baker et al, 2003 Korkeamaki and Moore, 2004 Faulkender, 2005 Butler et al, 2006 Dutordoir and Gucht, 2007 Barry et al, 2009 Antoniou et al, 2009 Song, 2009 Doukas et al, 2011 Bougatef and Chichti, 2011 Zhou et al, 2012 Kaya, 2013a Kaya, 2013b	14

Source: Author, based on the literature review

The key scholars of debt market timing

Scholar	Topic	Name of Journal	Focus of research	Country	Time period	Method	Finding
Graham and Harvey (2001)	The theory and practice of corporate finance: evidence from the field	Journal of Financial Economics	- This paper surveied the 392 CFOs about the cost of capital, capital budgeting, and capital structure.	CFOs in the 1998 Fortune 500 list	1999	Survey	- They found strong evident that executives attempt to time interest rates by issuing debt when they feel that market interest rates are particularly low.
Baker et al (2003)	The maturity of debt issues and predictable variation in bond return	Journal of Financial Economics	-This paper examined whether the maturity of new debt issuance can predict excess bond returns.	US	1953–2000	The regression model	-They said that firms use debt market condition in an attempt to intend the lowest-cost maturity but they cannot investigate whether companies are able to be successful reducing the cost of capital as it is difficult to estimate asymmetry information.
Faulkender (2005)	Hedging or Market Timing? Selecting the Interest Rate Exposure of Corporate Debt	The Journal of Finance	-This paper tested whether firms are hedging or timing the market when selecting the interest rate exposure of their new debt issuances.	The chemical industry from SDC Platinum	1994 - 1999	The probit regressions	- This paper found strong evidence that the increase of the yield curve is a key proxy of whether a company's newly issued debt securities are fixed or floating.
Butler (2006)	Can managers successfully time the maturity structure of their debt?	The Journal of Finance	-This paper investigated that firm's manager can time market with selecting the duration of their debt issuances. -They explored the correlation between the fragment of companies with a net increase in long term debt and future excess bond return.	All firm in Compustat	1976–2002	The regression analysis	- This paper provided the result that firms cannot succeed to time the debt market since there is uncorrelated between the fragment of incremental long-term debt and future excess bond return.
Barry et al (2009)	Interest rate changes and the timing of debt issues	Journal of Banking and finance	- This paper examined the relation between the changes of interest rate and floating and fixed-rate debt issuances. - This paper examine whether managers are successful in this forward-looking sense.	US	1970-2006	The logistic regression model	-This paper found that managers cannot achieve to time debt market with selecting the types of debt in issuing.

Song (2009)	Does debt market timing increase firm value?	Applied Economics	- This research examines differences in firm's value between non-timers and timers to test whether firms who time debt market can enhance company's value. .	US	1983 – 1997	The multivariate regression	-This paper concluded that there is no difference of firm's value between non-timers and timers so timing debt market cannot crease firm's value.
Antoniou, Zhao and Zhou (2009)	Corporate debt issues and interest rate risk management: Hedging or market timing?	Journal of Financial Markets	-This paper examines whether companies can issue debt for hedging purpose or timing market.	UK	1986– 2004	The probit regression model	-They found that firms decide to issue debt depending on debt market condition since the purpose is reducing cost of capital more than hedging interest rate exposures.
Doukas et al (2011)	'Hot' Debt Markets and Capital Structure	European Financial Management	-This tested that firms issue debt in hot market related with capital structure.	US	1970– 2006	The regression analysis model	-They found that firms issue more debt in hot- than cold-debt market periods. -Also, high adverse selection costs companies issue considerably more debt when market conditions are perceived as hot. -They claimed that there is long term effect of hot debt market timing more than 5 years.
Bougatef and Chichti (2011)	Timing of debt issues: Evidence from a panel of Tunisian and French firms	Economics Bulletin	- This paper explored the relation of market timing decisions on debt issues employing a panel of Tunisian and French listed companies.	Tunisian and French	2000 - 2008	The regression analysis (Fixed effect) model	- This paper found that Tunisian firms achieve to increase their values by issuing debt when future interest rates will rise while French firms cannot be successful to minimize their overall cost of capital.
Zhou eat al (2012)	Market timing of corporate debt issuance: prediction or reaction?	Applied Financial Economics	-This paper investigates whether managers can time the debt market successfully. -They examine the relationship between corporate debt issuance and debt market condition variables.	US	1970- 2006	The VAR regression model	-They found that there is negative relationship between the debt issuance and the lagged interest rate-related variables. This result implied that firms are not successful in time the debt market. -They concluded that managers no have inside information to take advantage from debt market.

Kaya (2013)	Historical interest rates and debt market timing: evidence from the private placement market	Investment Management and Financial Innovations	- This paper investigated the timing behaviour in US private placement market and then links it with the capital structure of borrowing companies.	US	1984-2004	The regression analysis model	-This paper found that firms borrow the considerable number when the yield is low but the effect of debt market timing on leverage only 2 years.
Kaya (2013)	Do corporate borrowers crowd out each other in the bond markets?	Investment Management and Financial Innovations	- This study examines whether corporate bond issuers crowd out other bond issuers in the U.S.	US	1984-2004	The regression analysis model	-This paper claimed that firms have a tendency to borrow in smaller numbers when the market is crowed and crowed impact does not affect to capital structure in long term.

Source: Author, based on the literature review

Appendix D: Additional information from chapter 4

Table A4.1: The key papers on market timing and cost of capital									
Author (s)	**Title**	**Focus of research**	**Sample/ Country**	**Perio d**	**Method**	**Dependent variables**	**Explanatory variables**	**Findings**	**Journal/ Conference**
Chang et al. (2008)	*"Market Timing and the Cost of Equity"*	-This study examined whether executives time the equity market in past with issuing more equity financing during the favorable period can be lower implied cost of equity capital than non-timers who do not allocate more stocks when the stock market is in good condition.	-All firms in Compustat/CRSP merged file **Exclude:** 1. Utility firms 2. Financial firms -A final sample of 24,740 firm-year observations (3,881 firms)	1981 to 2004	1. OLS	**1. Implied cost of equity capital = the** average of the four cost of capital estimates (i.e., CT, GLS, OJ, and MPEG) estimated at month +4 after the end of fiscal year t minus with the risk-free rate, measured by the yield of 10-year treasury bonds at the end of the fourth month after the fiscal year-end.	**1. Market-timing activity (*MTCov*)** = the covariance between external financing (*EF*) and the market-to-book ratio (*MB*) in the past scaled by the average total assets. **Control variables:** 1. The sensitivity to market movements (*Beta*). 2. The logarithm of the market value of common equity *(Log(MV)*. 3. Book-to-market equity (*LogBM*) = the logarithm of the ratio of the book value of equity to the market value of equity 4. The leverage ratio (*Leverage*) = the ratio of long-term debt to total assets at the end of fiscal year t. **Control for forecast data** 5. Momentum (*MMT*) = the logarithm of one plus the compounded returns over the twelve months before month m+4. 6. Analyst signed forecasts error (*Ferr*) = the actual earnings minus the consensus forecast for the forthcoming fiscal year scaled by stock price. 7. The analyst forecast of long term earnings growth (*Fltg*) **Industry and year fixed effects** 8. The industry risk premium (*IndRP)* = the median risk premium, estimated in the previous year, of all firms in the 49 industries defined by Fama and French (1997). 9. Year dummies	-The timers who allocate more equity financing when the stock market is favorable can be successful in lower cost of equity capital than non-timers. -The companies with larger proportion of institutional investors can gain higher benefit from timing in stock market than others.	NA

Source: Author, based on the literature review

Table A4.2: The key papers on market timing and firm value and performance									
Author (s)	**Title**	**Focus of research**	**Sample/ Country**	**Period**	**Method**	**Dependent variables**	**Explanatory variables**	**Findings**	**Journal/ Conference**
Song (2009)	*"Does debt market timing increase firm value"*	-This study investigates whether debt market timers are able successful to enhance firm valuation than non-timers.	-Public debt issues of U.S. firms (SDC database)	1983 to 1997	- Mean - Median - Cumulative abnormal returns (CARs) around announcement dates - Multivariate regression (year -1 to year +3) and (year -1 to +5)	1. Change in Tobin's q	**1. Dummy** variable which capture debt market timing in 3 approaches: **1.1 "*A Naive Strategy*"** = the timer is a company who issue long-term debt when term spreads are lower than historical period. **1.2 "*A Complex Strategy*"** = timer is a firm who issue long-term debt when excess bond yields are lower than historical period. **1.3 "*A Timing Strategy*"** = timer is a corporation who allocate debt which has the same maturity with the maturity of predicted excess bond yields. **Control variables** 1. Log of assets 2. Change in leverage 3. Dividend payout ratio 4. Dummy for investment grade bonds 5. Inside ownership	-The corporations have an incentive to select the maturity of debt to take the benefit of interest rate, yet they are not able to be successful to increase their firm valuation.	Applied Economics
Bougatef and Chichti (2011)	*"Timing of debt issues: Evidence from a panel of Tunisian and French firms"*	-This study inspects whether the firms who time debt market can success to raise their firm valuation.	Tunisian and French listed firms	2000 and 2008	1. OLS pooled regression 2, Fixed effect regression 3. Random effect regression	1. Natural log of stock price	**1.** Weighted interest rate ratio; $Interest_{dwa,t} = (\sum_{s=0}^{t} \frac{d_{is}}{\sum_{r=0}^{t} d_{ir}}) * Interest_t$ **Control variables** 1. **Profitability** = EBIT/Total assets 2. **Market to book ratio** = Book debt plus market value of equity divided by total assets. 3. **Market** = annual growth rate of market index	-The corporations in Tunisian are successful to enhance their company's value, while French are not able to increase the firm performance.	Economics Bulletin

Source: Author, based on the literature review

Example of the full version for the OLS and GLS regression models

1. Performance model

Table A4.3: the example of full version for performance model with OLS&GLS regression methods

Y / X	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	ROA t	ROA t	ROA t+1	ROA t+1	ROA t+2	ROA t+2	ROA t+3	ROA t+3	ROA t+4	ROA t+4	ROA t+5	ROA t+5
	OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*
HOT Equity	0.00127	0.00127	0.00243	0.00243	-0.00237	-0.00237	0.00443	0.00443	0.0256	0.0256	0.0142	0.0142
	(0.52)	(0.50)	(0.21)	(0.22)	(-0.15)	(-0.14)	(0.19)	(0.24)	(1.19)	(1.22)	(0.83)	(0.70)
Firm Size t	0.000419	0.000419	0.0160	0.0160**	0.0220*	0.0220*	0.0192	0.0192	0.00782	0.00782	0.0259*	0.0259*
	(0.17)	(0.23)	(1.42)	(2.00)	(1.65)	(1.76)	(1.22)	(1.44)	(0.54)	(0.52)	(1.96)	(1.80)
Profitability t	0.853***	0.853***	0.596***	0.596***	0.507***	0.507***	0.387***	0.387***	0.487***	0.487***	0.366***	0.366***
	(14.13)	(71.56)	(7.77)	(10.63)	(6.27)	(6.34)	(4.05)	(4.44)	(4.02)	(5.09)	(2.92)	(3.88)
Leverage t	-0.0107**	-0.0107**	0.0412*	0.0412*	0.0354	0.0354	0.0767**	0.0767**	0.117**	0.117***	0.00331	0.00331
	(-2.27)	(-2.01)	(1.82)	(1.80)	(1.08)	(0.99)	(1.97)	(2.07)	(2.45)	(2.92)	(0.06)	(0.09)
Dividend Payout t	0.000122	0.000122	0.0212*	0.0212*	0.0442**	0.0442**	0.0389*	0.0389*	0.0334	0.0334	0.00597	0.00597
	(0.04)	(0.04)	(1.67)	(1.72)	(2.19)	(2.31)	(1.77)	(1.87)	(1.26)	(1.46)	(0.22)	(0.27)
Asset Tangibility t	0.00886**	0.00886	0.0630**	0.0630**	0.120**	0.120***	0.114**	0.114**	0.121**	0.121**	0.0728	0.0728
	(2.13)	(1.50)	(2.45)	(2.47)	(2.54)	(3.00)	(2.22)	(2.56)	(2.32)	(2.49)	(1.53)	(1.57)
Cash t	0.0282*	0.0282***	0.120**	0.120***	0.115	0.115**	0.113	0.113*	0.165**	0.165**	0.129*	0.129*
	(1.92)	(3.48)	(2.22)	(3.43)	(1.53)	(2.11)	(1.14)	(1.94)	(2.36)	(2.45)	(1.89)	(1.95)
Capital Expenditure t	-0.00282	-0.00282	0.0662	0.0662	0.0420	0.0420	-0.0796	-0.0796	-0.0656	-0.0656	-0.0341	-0.0341
	(-0.33)	(-0.24)	(1.52)	(1.32)	(0.73)	(0.54)	(-0.91)	(-0.96)	(-0.81)	(-0.70)	(-0.36)	(-0.38)
Nominal GDP Growth t	0.0855	0.0855**	-0.0565	-0.0565	-0.190	-0.190	0.145	0.145	-0.134	-0.134	-0.162	-0.162
	(1.16)	(2.40)	(-0.37)	(-0.36)	(-0.67)	(-0.80)	(0.51)	(0.52)	(-0.57)	(-0.43)	(-0.70)	(-0.55)
Constant	0.0278	0.0278**	-0.162**	-0.162***	-0.233**	-0.233**	-0.297**	-0.297***	-0.320**	-0.320***	-0.390***	-0.390***
	(0.83)	(2.05)	(-2.02)	(-2.75)	(-2.19)	(-2.52)	(-2.07)	(-2.91)	(-2.49)	(-2.79)	(-2.82)	(-3.53)
N	278	278	275	275	272	272	243	243	218	218	202	202
Wald chi2	-	6094.1***	-	180.5***	-	75.39***	-	59.04***	-	70.00***	-	66.84***
F	344.1***	-	10.94***	-	5.223***	-	4.212***	-	3.298***	-	4.418***	-
R2	0.956	-	0.396	-	0.217	-	0.195	-	0.243	-	0.249	-
VIF	2.97	-	2.97	-	3.21	-	2.91	-	2.71	-	2.85	-

2. Cost of separate source of funds model

Table A4.4: the example of full version for cost of individual source of funds model with OLS&GLS regression methods

Y / X	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	CAPM t	CAPM t	CAPM t+1	CAPM t+1	CAPM t+2	CAPM t+2	CAPM t+3	CAPM t+3	CAPM t+4	CAPM t+4	CAPM t+5	CAPM t+5
	OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*
HOT Equity	0.00625	0.00625	-0.00420	-0.00420	-0.00271	-0.00271	-0.00186	-0.00186	-0.00581	-0.00581	0.00164	0.00164
	(0.87)	(0.63)	(-0.72)	(-0.82)	(-0.58)	(-0.64)	(-0.38)	(-0.40)	(-1.21)	(-1.21)	(0.31)	(0.34)
Market-to-Book Ratio t	-0.000582	-0.000582	-0.000756**	-0.000756	-0.000254	-0.000254	0.000362*	0.000362	-0.000281	-0.000281	-0.000202	-0.000202
	(-1.45)	(-0.48)	(-2.43)	(-1.27)	(-1.12)	(-0.55)	(1.75)	(0.75)	(-1.03)	(-0.57)	(-0.87)	(-0.42)
Profitability t	-0.0652**	-0.0652	-0.0168	-0.0168	-0.0178	-0.0178	-0.0522**	-0.0522**	-0.0149	-0.0149	-0.00407	-0.00407
	(-2.25)	(-1.40)	(-0.76)	(-0.70)	(-0.82)	(-0.92)	(-2.23)	(-2.46)	(-0.57)	(-0.69)	(-0.16)	(-0.18)
Firm Size t	-0.0121*	-0.0121*	-0.00413	-0.00413	0.00300	0.00300	0.000359	0.000359	0.00572	0.00572*	0.00771*	0.00771**
	(-1.78)	(-1.72)	(-0.86)	(-1.13)	(0.80)	(1.00)	(0.09)	(0.11)	(1.40)	(1.68)	(1.93)	(2.16)
Leverage t	-0.0190	-0.0190	-0.00102	-0.00102	0.00101	0.00101	-0.00117	-0.00117	-0.000899	-0.000899	0.000553	0.000553
	(-1.43)	(-0.91)	(-0.11)	(-0.10)	(0.14)	(0.12)	(-0.13)	(-0.13)	(-0.08)	(-0.10)	(0.06)	(0.06)
Dividend Payout t	-0.00742	-0.00742	-0.00390	-0.00390	0.00298	0.00298	0.00512	0.00512	0.00161	0.00161	0.0116**	0.0116**
	(-0.68)	(-0.66)	(-0.73)	(-0.68)	(0.68)	(0.64)	(0.98)	(1.03)	(0.30)	(0.32)	(1.98)	(2.21)
Capital Expenditure t	-0.0240	-0.0240	-0.0542***	-0.0542***	-0.0386**	-0.0386**	-0.0697***	-0.0697***	-0.0564***	-0.0564***	-0.0225	-0.0225
	(-0.77)	(-0.58)	(-2.81)	(-2.67)	(-2.45)	(-2.30)	(-4.68)	(-3.86)	(-3.60)	(-3.04)	(-1.19)	(-1.22)
Firm Beta t	0.0501***	0.0501***	0.00122**	0.00122*	0.000412	0.000412	-0.000659	-0.000659	-0.00100***	-0.00100*	-0.000489	-0.000489
	(11.51)	(37.69)	(2.09)	(1.89)	(0.66)	(0.83)	(-1.37)	(-1.26)	(-3.06)	(-1.83)	(-1.04)	(-0.90)
Market Movement t	0.0257***	0.0257*	0.00215	0.00215	-0.00256	-0.00256	-0.0177***	-0.0177***	0.0143**	0.0143**	-0.0235***	-0.0235***
	(2.63)	(1.90)	(0.33)	(0.32)	(-0.48)	(-0.45)	(-3.02)	(-2.96)	(2.07)	(2.22)	(-3.49)	(-3.67)
Nominal GDP Growth t	-0.245	-0.245	-0.445***	-0.445***	-0.195**	-0.195**	0.124	0.124	-0.321***	-0.321***	0.208**	0.208**
	(-1.41)	(-1.55)	(-4.82)	(-4.96)	(-2.55)	(-2.43)	(1.57)	(1.47)	(-3.25)	(-3.42)	(2.13)	(2.22)
Constant	0.137***	0.137***	0.139***	0.139***	0.0723***	0.0723***	0.0631**	0.0631**	0.0734***	0.0734***	0.0393	0.0393
	(3.41)	(2.61)	(4.12)	(4.70)	(2.80)	(3.00)	(2.33)	(2.37)	(2.77)	(2.62)	(1.31)	(1.37)
N	261	261	231	231	206	206	191	191	184	184	169	169
Wald Chi2	-	1514.7***	-	61.30***	-	32.40**	-	49.85***	-	40.11***	-	39.69***
F	18.85***	-	6.050***	-	3.290***	-	9.048***	-	4.394***	-	3.380***	-
R2	0.853	-	0.210	-	0.136	-	0.207	-	0.179	-	0.190	-
VIF	3.76	-	3.92	-	3.65	-	4.3	-	4.22	-	2.64	-

3. Cost of capital model

Table A4.5: the example of full version for cost of capital model with OLS&GLS regression methods

Y / X	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	CAPM t	CAPM t	CAPM t+1	CAPM t+1	CAPM t+2	CAPM t+2	CAPM t+3	CAPM t+3	CAPM t+4	CAPM t+4	CAPM t+5	CAPM t+5
	OLS	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*	*OLS*	*GLS*
HOT Equity	0.00897	0.00897	-0.00235	-0.00235	-0.00268	-0.00268	0.00441	0.00441	-0.00257	-0.00257	0.000615	0.000615
	(1.16)	(0.94)	(-0.46)	(-0.54)	(-0.67)	(-0.78)	(1.31)	(1.15)	(-0.61)	(-0.65)	(0.13)	(0.13)
Market-to-Book Ratio t	0.0000821	0.0000821	-0.0000321	-0.0000321	0.000241	0.000241	0.000644**	0.000644	-0.0000227	-0.0000227	0.0000836	0.0000836
	(0.21)	(0.07)	(-0.09)	(-0.06)	(0.79)	(0.65)	(2.09)	(1.61)	(-0.12)	(-0.06)	(0.41)	(0.18)
Profitability t	-0.0264	-0.0264	0.0163	0.0163	0.0181	0.0181	-0.0146	-0.0146	0.0107	0.0107	0.0391*	0.0391*
	(-0.97)	(-0.59)	(0.94)	(0.80)	(1.19)	(1.16)	(-0.86)	(-0.82)	(0.47)	(0.60)	(1.76)	(1.81)
Firm Size t	-0.0151**	-0.0151**	-0.00658*	-0.00658**	-0.000109	-0.000109	-0.00341	-0.00341	-0.000680	-0.000680	0.00114	0.00114
	(-2.27)	(-2.22)	(-1.71)	(-2.11)	(-0.04)	(-0.05)	(-1.08)	(-1.28)	(-0.19)	(-0.24)	(0.35)	(0.33)
Leverage t	-0.0387***	-0.0387*	-0.0184**	-0.0184**	-0.0125**	-0.0125*	-0.0199***	-0.0199***	-0.0113	-0.0113	-0.00883	-0.00883
	(-2.87)	(-1.91)	(-2.46)	(-2.04)	(-2.19)	(-1.83)	(-2.69)	(-2.66)	(-1.47)	(-1.49)	(-1.04)	(-0.96)
Dividend Payout t	-0.00877	-0.00877	-0.00321	-0.00321	0.00356	0.00356	0.00478	0.00478	0.00696	0.00696*	0.00624	0.00624
	(-0.79)	(-0.81)	(-0.67)	(-0.66)	(0.93)	(0.94)	(1.04)	(1.16)	(1.53)	(1.65)	(1.18)	(1.24)
Capital Expenditure t	-0.0323	-0.0323	-0.0361*	-0.0361**	-0.0199	-0.0199	-0.0506***	-0.0506***	-0.0428***	-0.0428***	-0.0185	-0.0185
	(-1.11)	(-0.81)	(-1.96)	(-2.08)	(-1.55)	(-1.47)	(-4.62)	(-3.35)	(-3.73)	(-2.79)	(-1.07)	(-1.04)
Firm Beta t	0.0444***	0.0444***	0.00113**	0.00113**	0.000238	0.000238	-0.000222	-0.000222	-0.000785***	-0.000785*	-0.000907**	-0.000907*
	(10.66)	(34.55)	(2.24)	(2.05)	(0.50)	(0.59)	(-0.53)	(-0.51)	(-2.61)	(-1.73)	(-2.21)	(-1.74)
Market Movement t	0.0144	0.0144	0.00146	0.00146	0.00396	0.00396	0.0000815	0.0000815	0.00527	0.00527	-0.0193***	-0.0193***
	(1.39)	(1.10)	(0.27)	(0.26)	(0.98)	(0.87)	(0.02)	(0.02)	(1.09)	(0.99)	(-3.17)	(-3.14)
Nominal GDP Growth t	-0.112	-0.112	-0.348***	-0.348***	-0.201***	-0.201***	-0.104	-0.104	-0.231**	-0.231***	0.121	0.121
	(-0.70)	(-0.73)	(-4.16)	(-4.55)	(-2.85)	(-3.11)	(-1.40)	(-1.46)	(-2.48)	(-2.98)	(1.30)	(1.34)
Constant	0.145***	0.145***	0.142***	0.142***	0.0783***	0.0783***	0.0949***	0.0949***	0.0978***	0.0978***	0.0679***	0.0679**
	(3.66)	(2.86)	(5.26)	(5.62)	(4.31)	(4.02)	(4.42)	(4.27)	(4.01)	(4.22)	(2.64)	(2.46)
N	261	261	231	231	206	206	191	191	184	184	169	169
Wald Chi2	-	1275.1***	-	65.90***	-	35.52***	-	39.86***	-	49.34***	-	29.81**
F	11.67***	-	5.015***	-	5.549***	-	4.316***	-	4.023***	-	2.478***	-
R2	0.830	-	0.222	-	0.147	-	0.173	-	0.211	-	0.150	-
VIF	3.76	-	3.92	-	3.65	-	4.3	-	4.22	-	2.64	-

Example of the full version for the ATE (2-step) regression models

1. Performance model

Table A4.6: the example of full version for performance model with ATE (2-step) regression method

X \ Y	(1) ROA t	(2) ROA t+1	(3) ROAt+2	(4) ROAt+3	(5) ROA t+4	(6) ROA t+5
main						
Firm Size t	-0.00333	0.0119	0.0165	0.0163	0.0115	0.00765
	(-0.89)	(1.33)	(0.95)	(1.23)	(0.77)	(0.53)
Profitability t	0.674***	0.372***	0.419***	0.419***	0.431***	0.404***
	(25.22)	(5.81)	(3.37)	(4.36)	(4.19)	(3.84)
Leverage t	-0.0115	-0.00311	0.00392	0.0428	0.0470	-0.0352
	(-1.18)	(-0.13)	(0.09)	(1.28)	(1.32)	(-1.03)
Dividend Payout t	-0.00824	0.00977	0.0656***	0.0539***	0.0552***	0.0129
	(-1.55)	(0.77)	(2.67)	(2.80)	(2.60)	(0.64)
Asset Tangibility t	-0.0102	0.0264	0.0122	0.00285	0.0546	0.0791
	(-0.85)	(0.92)	(0.22)	(0.06)	(1.01)	(1.45)
Cash t	0.0448***	0.125***	0.0955	-0.0132	0.0433	-0.00975
	(2.59)	(3.02)	(1.17)	(-0.20)	(0.58)	(-0.14)
Capital Expenditure t	-0.0174	0.0201	0.0713	-0.0786	-0.225**	-0.259**
	(-0.70)	(0.34)	(0.62)	(-0.84)	(-1.96)	(-2.13)
Nominal GDP Growth t	-0.0751	-0.100	-0.0452	-0.210	-0.102	-0.251
	(-1.09)	(-0.61)	(-0.14)	(-0.80)	(-0.36)	(-0.92)
HOT Equity	-0.00451	-0.0240	-0.0549	-0.0632	-0.00933	-0.0210
	(-0.36)	(-0.80)	(-0.95)	(-1.42)	(-0.20)	(-0.42)
Constant	0.0117	-0.0697	-0.148	-0.0891	-0.158	-0.00108
	(0.39)	(-0.96)	(-1.05)	(-0.78)	(-1.22)	(-0.01)
hazard						
lambda	0.00508	-0.00105	0.0162	0.0114	-0.00483	0.00118
	(0.64)	(-0.06)	(0.44)	(0.40)	(-0.16)	(0.04)
N	165	166	165	145	127	120
chi2	864.4***	62.98***	26.65**	37.06***	39.80***	37.99***
rho	0.201	-0.0174	0.138	0.134	-0.0555	0.0143
sigma	0.0253	0.0604	0.117	0.0848	0.0870	0.0822

2. Cost of separate source of funds model

Table A4.7: the example of full version for cost of individual source of funds model with ATE (2-step) regression method

X \ Y	(1) CAPM t	(2) CAPM t+1	(3) CAPM t+2	(4) CAPM t+3	(5) CAPM t+4	(6) CAPM t+5
main						
Market-to-Book Ratio t	-0.000108	-0.000937	-0.000433	0.000221	-0.000524	-0.000430
	(-0.10)	(-1.56)	(-0.89)	(0.45)	(-1.07)	(-0.88)
Profitability t	-0.0633	-0.0199	-0.0415	-0.0490	-0.00918	-0.00606
	(-1.07)	(-0.59)	(-1.48)	(-1.64)	(-0.31)	(-0.20)
Firm Size t	-0.00325	-0.00166	0.00438	0.00752*	0.00851**	0.00926**
	(-0.39)	(-0.35)	(1.06)	(1.76)	(2.01)	(2.13)
Leverage t	-0.0275	0.0000603	0.00684	0.00916	0.0113	0.00817
	(-1.16)	(0.00)	(0.62)	(0.82)	(1.01)	(0.71)
Dividend Payout t	-0.0124	-0.000330	0.00247	0.00659	0.000103	0.0109*
	(-1.00)	(-0.05)	(0.40)	(1.07)	(0.02)	(1.70)
Capital Expenditure t	0.0351	-0.0334	-0.0316	-0.0779***	-0.0677***	-0.0364
	(0.74)	(-1.24)	(-1.30)	(-2.98)	(-2.59)	(-1.34)
Firm Beta t	0.0451***	0.00176**	0.000776	-0.000560	-0.000463	0.0000232
	(31.24)	(2.23)	(1.21)	(-0.87)	(-0.73)	(0.04)
Market Movement t	0.0265*	0.00223	-0.00277	-0.0164**	0.0157*	-0.0181**
	(1.69)	(0.26)	(-0.35)	(-2.06)	(1.91)	(-2.18)
Nominal GDP Growth t	-0.315*	-0.356***	-0.156	0.141	-0.313***	0.189
	(-1.68)	(-3.02)	(-1.43)	(1.27)	(-2.67)	(1.57)
HOT Equity	0.0156	-0.0142	-0.00623	0.000685	-0.00992	-0.00365
	(0.56)	(-0.93)	(-0.53)	(0.05)	(-0.78)	(-0.27)
_Constant	0.125**	0.143***	0.0791**	0.0355	0.0727**	0.0462
	(1.97)	(3.81)	(2.42)	(1.03)	(2.13)	(1.21)
hazard						
lambda	-0.0111	0.00568	0.000396	-0.00158	0.00381	0.00460
	(-0.62)	(0.57)	(0.05)	(-0.18)	(0.45)	(0.51)
N	157	140	123	116	114	106
chi2	1102.4***	34.47***	23.07	35.14***	37.85***	27.06**
rho	-0.196	0.184	0.0162	-0.0646	0.157	0.189
sigma	0.0568	0.0308	0.0245	0.0244	0.0243	0.0244

3. Cost of capital model

Table A4.8: the example of full version for cost of capital model with ATE (2-step) regression method

Y	(1)	(2)	(3)	(4)	(5)	(6)
X	CAPM t	CAPM t+1	CAPM t+2	CAPM t+3	CAPM t+4	CAPM t+5
main						
Market-to-Book Ratio t	0.000384	-0.000204	0.0000470	0.000478	-0.000320	-0.000251
	(0.36)	(-0.38)	(0.12)	(1.15)	(-0.77)	(-0.56)
Profitability t	-0.0280	0.00203	0.00833	-0.00246	0.00720	0.0446
	(-0.48)	(0.07)	(0.37)	(-0.10)	(0.28)	(1.56)
Firm Size t	-0.00908	-0.00559	0.000466	0.00118	0.000784	0.00328
	(-1.12)	(-1.30)	(0.14)	(0.32)	(0.21)	(0.79)
Leverage t	-0.0478**	-0.0206*	-0.00658	-0.0105	-0.000664	0.0000707
	(-2.06)	(-1.72)	(-0.74)	(-1.10)	(-0.07)	(0.01)
Dividend Payout t	-0.0179	-0.00303	0.00297	0.00893*	0.00871	0.0119**
	(-1.49)	(-0.47)	(0.60)	(1.69)	(1.62)	(1.96)
Capital Expenditure t	0.0223	-0.0122	-0.0114	-0.0615***	-0.0584**	-0.0514**
	(0.48)	(-0.51)	(-0.58)	(-2.76)	(-2.56)	(-2.03)
Firm Beta t	0.0413***	0.00167**	0.000297	-0.000388	-0.000537	-0.000484
	(29.34)	(2.37)	(0.58)	(-0.71)	(-0.98)	(-0.81)
Market Movement t	0.0198	0.00685	0.00636	0.000420	0.00648	-0.0118
	(1.29)	(0.88)	(1.01)	(0.06)	(0.92)	(-1.53)
Nominal GDP Growth t	-0.201	-0.327***	-0.187**	-0.0375	-0.139	0.135
	(-1.10)	(-3.11)	(-2.13)	(-0.40)	(-1.35)	(1.19)
HOT Equity	0.0214	-0.00358	-0.00791	-0.00342	-0.0162	-0.0133
	(0.79)	(-0.26)	(-0.83)	(-0.31)	(-1.44)	(-1.03)
_Constant	0.142**	0.144***	0.0893***	0.0746**	0.0971***	0.0738**
	(2.28)	(4.32)	(3.41)	(2.53)	(3.23)	(2.04)
hazard						
lambda	-0.0156	-0.00157	0.00243	0.00453	0.0112	0.0124
	(-0.89)	(-0.18)	(0.38)	(0.62)	(1.52)	(1.46)
N	157	140	123	116	114	106
chi2	969.8***	34.82***	13.28	25.06*	31.94**	21.57
rho	-0.281	-0.0569	0.124	0.217	0.520	0.530
sigma	0.0556	0.0275	0.0197	0.0209	0.0215	0.0233

Example of the full version for the IV (2SLS) regression model

1. Performance model

Table A4.9: the example of full version for performance model with IV (2SLS) regression method

Y	(1)	(2)	(3)	(4)	(5)	(6)
X	ROA t	ROA t+1	NI_ROAt+2	NI_ROAt+3	NI_ROA t+4	NI_ROA t+5
HOT Equity	-0.000449	-0.0318	-0.0567	-0.105**	-0.0634	-0.105*
	(-0.03)	(-0.97)	(-0.89)	(-2.03)	(-1.17)	(-1.81)
Firm Size t	-0.00301	0.0117	0.0174	0.0153	0.00855	0.00504
	(-0.82)	(1.33)	(1.01)	(1.14)	(0.57)	(0.34)
Profitability t	0.673***	0.376***	0.426***	0.451***	0.460***	0.443***
	(24.56)	(5.71)	(3.32)	(4.41)	(4.28)	(3.91)
Leverage t	-0.0111	-0.00286	0.00594	0.0469	0.0533	-0.0200
	(-1.14)	(-0.12)	(0.13)	(1.36)	(1.46)	(-0.54)
Dividend Payout t	-0.00815	0.0108	0.0681***	0.0622***	0.0599***	0.0199
	(-1.45)	(0.81)	(2.62)	(2.98)	(2.72)	(0.91)
Asset Tangibility t	-0.00928	0.0246	0.0117	-0.0128	0.0255	0.0233
	(-0.77)	(0.85)	(0.21)	(-0.26)	(0.44)	(0.37)
Cash t	0.0454***	0.124***	0.0953	-0.0293	0.0248	-0.0379
	(2.63)	(3.01)	(1.17)	(-0.42)	(0.32)	(-0.49)
Capital Expenditure t	-0.0179	0.0210	0.0716	-0.0593	-0.174	-0.131
	(-0.72)	(0.35)	(0.62)	(-0.61)	(-1.39)	(-0.89)
Nominal GDP Growth t	-0.0840	-0.0822	-0.0387	-0.121	-0.0183	-0.136
	(-1.20)	(-0.49)	(-0.12)	(-0.44)	(-0.06)	(-0.47)
Constant	0.0267	0.0858	-0.0886	0.0145	0.0770	0.188
	(0.69)	(0.93)	(-0.49)	(0.10)	(0.50)	(1.23)
N	166	167	166	146	128	121
Chi2	880.9***	71.34***	27.10***	39.25***	48.63***	41.70***
R2	0.841	0.308	0.140	0.182	0.253	0.176
Rmse	0.0251	0.0602	0.117	0.0868	0.0881	0.0867
Durbin (score) chi2	0.065	0.044	0.179	1.545	0.964	2.926
Wu-Hausman F	0.058	0.039	0.160	1.369	0.834	2.553*
Sargan (score) chi2	-	-	-	-	-	21.425
Basmann chi2	-	-	-	-	-	18.289

2. Cost of separate source of funds

Table A4.10: the example of full version for cos of individual source model with IV (2SLS) regression method						
Y	(1)	(2)	(3)	(4)	(5)	(6)
X	CAPM t	CAPM t+1	CAPM t+2	CAPM t+3	CAPM t+4	CAPM t+5
HOT Equity	0.0246	-0.0116	-0.00615	0.00130	-0.00441	0.00288
	(0.84)	(-0.72)	(-0.50)	(0.11)	(-0.36)	(0.22)
Market-to-Book Ratio t	-0.000371	-0.000851	-0.000427	0.000189	-0.000491	-0.000386
	(-0.33)	(-1.41)	(-0.88)	(0.39)	(-1.01)	(-0.79)
Profitability t	-0.0709	-0.0206	-0.0414	-0.0497*	-0.0109	-0.00839
	(-1.17)	(-0.61)	(-1.47)	(-1.65)	(-0.36)	(-0.27)
Firm Size t	-0.00390	-0.00113	0.00442	0.00737*	0.00915**	0.00980**
	(-0.48)	(-0.24)	(1.12)	(1.83)	(2.29)	(2.35)
Leverage t	-0.0276	-0.0000138	0.00686	0.00891	0.0110	0.00755
	(-1.15)	(-0.00)	(0.62)	(0.79)	(0.98)	(0.66)
Dividend Payout t	-0.0155	0.000463	0.00256	0.00616	0.000293	0.0112*
	(-1.18)	(0.06)	(0.41)	(0.99)	(0.05)	(1.73)
Capital Expenditure t	0.0340	-0.0317	-0.0313	-0.0799***	-0.0667**	-0.0354
	(0.71)	(-1.19)	(-1.29)	(-3.00)	(-2.52)	(-1.27)
Firm Beta t	0.0453***	0.00172**	0.000773	-0.000546	-0.000460	0.0000295
	(30.92)	(2.17)	(1.21)	(-0.85)	(-0.72)	(0.05)
Market Movement t	0.0266*	0.00282	-0.00276	-0.0163**	0.0162**	-0.0175**
	(1.69)	(0.33)	(-0.35)	(-2.06)	(1.97)	(-2.09)
Nominal GDP Growth t	-0.336*	-0.364***	-0.156	0.138	-0.330***	0.171
	(-1.78)	(-3.09)	(-1.43)	(1.25)	(-2.80)	(1.41)
Constant	0.113	0.131***	0.0615	0.00707	0.0260	-0.0101
	(1.32)	(2.69)	(1.52)	(0.17)	(0.64)	(-0.24)
N	158	141	124	117	115	107
Chi2	1087.7***	35.55***	25.00*	38.60***	41.29***	29.92**
R2	0.873	0.201	0.171	0.247	0.266	0.219
Rmse	0.0570	0.0306	0.0244	0.0243	0.0241	0.0241
Durbin (score) chi2	0.852	0.120	0.002	0.066	0.003	0.002
Wu-Hausman F	0.754	0.104	0.001	0.055	0.003	0.002
Sargan (score) chi2	-	-	-	-	-	-
Basmann chi2	-	-	-	-	-	-

3. Cost of capital model

Table A4.11: the example of full version for cos of capital model with IV (2SLS) regression method						
Y	(1)	(2)	(3)	(4)	(5)	(6)
X	CAPM t	CAPM t+1	CAPM t+2	CAPM t+3	CAPM t+4	CAPM t+5
HOT Equity	0.0235	-0.000269	-0.00427	-0.00953	-0.0158	-0.0139
	(0.82)	(-0.02)	(-0.43)	(-0.90)	(-1.46)	(-1.12)
Market-to-Book Ratio t	0.000106	-0.000257	0.0000640	0.000594	-0.000110	0.00000379
	(0.10)	(-0.47)	(0.16)	(1.41)	(-0.26)	(0.01)
Profitability t	-0.0326	-0.000114	0.00675	0.00137	0.00991	0.0491*
	(-0.55)	(-0.00)	(0.30)	(0.05)	(0.37)	(1.66)
Firm Size t	-0.0103	-0.00564	0.000866	0.00143	0.00202	0.00481
	(-1.30)	(-1.35)	(0.27)	(0.41)	(0.57)	(1.20)
Leverage t	-0.0479**	-0.0207*	-0.00680	-0.00920	0.000321	0.00147
	(-2.05)	(-1.73)	(-0.76)	(-0.94)	(0.03)	(0.13)
Dividend Payout t	-0.0206	-0.00397	0.00305	0.0107**	0.0111**	0.0147**
	(-1.61)	(-0.58)	(0.61)	(1.96)	(2.02)	(2.36)
Capital Expenditure t	0.0205	-0.0127	-0.0105	-0.0531**	-0.0465**	-0.0370
	(0.44)	(-0.53)	(-0.54)	(-2.30)	(-1.98)	(-1.39)
Firm Beta t	0.0415***	0.00171**	0.000295	-0.000443	-0.000595	-0.000547
	(29.08)	(2.41)	(0.57)	(-0.80)	(-1.06)	(-0.89)
Market Movement t	0.0191	0.00701	0.00669	-0.000170	0.00571	-0.0129
	(1.25)	(0.91)	(1.07)	(-0.02)	(0.78)	(-1.61)
Nominal GDP Growth t	-0.202	-0.336***	-0.196**	-0.0198	-0.131	0.146
	(-1.10)	(-3.18)	(-2.24)	(-0.21)	(-1.26)	(1.26)
Constant	0.161*	0.157***	0.0760**	0.0537	0.0611*	0.0220
	(1.92)	(3.61)	(2.34)	(1.50)	(1.69)	(0.55)
N	158	141	124	117	115	107
Chi2	960.4***	35.72***	13.53	26.48*	32.73**	21.74
R2	0.858	0.202	0.103	0.153	0.176	0.112
Rmse	0.0555	0.0275	0.0196	0.0211	0.0213	0.0231
Durbin (score) chi2	0.844	0.174	0.005	1.836	2.441	2.634
Wu-Hausman F	0.746	0.150	0.004	1.562	2.082	2.221
Sargan (score) chi2	-	-	-	-	-	-
Basmann chi2	-	-	-	-	-	-

Mean difference test between timers and non-timers

1. Performance

1.1 IPO samples

Table A4.12: Mean value difference test of firm performance for IPO samples

Variable	Period	HOT Equity					Economic Boom				
		Timers		Non-Timers	t-value (difference)		Timers		Non-Timers	t-value (difference)	
					Equal variance	Unequal variance				Equal variance	Unequal variance
ROA	IPO	0.083	<	0.081	0.228	0.212	0.086	>	0.078	1.009	1.004
	IPO+1	0.065	>	0.063	0.167	0.179	**0.075**	>	**0.053**	**2.160****	**2.130****
	IPO+2	0.036	<	0.043	-0.370	-0.396	0.041	>	0.035	0.426	0.431
	IPO+3	0.033	>	0.027	0.314	0.284	**0.431**	>	**0.012**	**2.153****	**2.150****
	IPO+4	0.032	>	0.012	1.059	0.967	0.035	>	0.018	1.033	1.066
	IPO+5	0.027	<	0.029	-0.111	-0.121	**0.038**	>	**0.012**	**1.770***	**1.759***
ROE	IPO	0.093	<	0.097	-0.316	-0.300	0.102	>	0.085	1.479	1.458
	IPO+1	0.070	<	0.083	-0.793	-0.881	**0.089**	>	**0.054**	**2.453****	**2.410****
	IPO+2	0.089	>	0.057	0.951	1.303	0.078	<	0.083	-0.170	-0.167
	IPO+3	0.049	>	0.035	0.506	0.454	0.061	>	0.028	1.385	1.385
	IPO+4	1.095	>	0.978	1.095	0.978	0.047	>	0.036	0.485	0.495
	IPO+5	0.042	>	0.033	0.303	0.308	0.047	>	0.030	0.700	0.712
ROIC	IPO	0.149	>	0.133	1.072	1.028	0.151	>	0.138	1.003	1.003
	IPO+1	0.106	>	0.094	0.777	0.784	**0.115**	>	**0.089**	**2.012****	**2.003****
	IPO+2	0.075	<	0.078	-0.132	-0.137	0.083	>	0.068	0.854	0.868
	IPO+3	0.057	>	0.055	0.067	0.064	**0.077**	>	**0.031**	**1.888***	**1.878***
	IPO+4	0.059	>	0.027	1.140	1.140	0.051	<	0.053	-0.112	-0.121
	IPO+5	0.046	<	0.070	-0.807	-1.140	0.056	>	0.045	0.451	0.478
Stock's Returns	IPO+1	0.052	<	0.063	-0.136	-0.140	**0.116**	>	**-0.012**	**1.862***	**1.872***
	IPO+2	0.018	>	-0.029	0.5899	0.6204	-0.006	<	0.021	-0.395	-0.394
	IPO+3	-0.061	<	-0.013	-0.521	0.550	-0.023	>	-0.082	0.731	0.734
	IPO+4	**-0.013**	>	**-0.247**	**2.174****	**1.850***	-0.062	>	-0.073	0.124	0.125
	IPO+5	**0.005**	<	**0.153**	**-1.642**	**-1.825***	0.065	>	0.003	0.800	0.790
MVA (in Million Baht)	IPO	3.041	>	2.904	0.114	0.121	2.525	<	3.538	0.969	0.951
	IPO+1	3.219	>	2.723	0.467	0.475	2.587	<	3.683	-1.193	-1.157
	IPO+2	3.707	<	5.123	-0.851	-0.682	3.255	<	5.007	-1.213	-1.143
	IPO+3	5.242	>	5.234	0.003	0.003	3.597	<	7.203	-1.676*	-1.574
	IPO+4	3.694	<	4.344	-0.344	-0.311	3.925	>	3.733	0.119	0.117
	IPO+5	5.044	>	1.704	1.152	1.591	3.845	<	4.869	-0.415	-0.392
Tobin's q	IPO	1.389	>	1.323	0.564	0.612	**1.204**	<	**1.562**	**-3.608*****	**-3.525*****
	IPO+1	**1.551**	>	**1.316**	**1.732***	**2.026****	**1.332**	<	**1.679**	**-2.990*****	**-2.901*****
	IPO+2	1.488	>	1.380	0.643	0.677	1.440	<	1.486	-0.317	-0.312
	IPO+3	1.526	>	1.333	0.879	0.944	1.343	<	1.642	-1.583	-1.514
	IPO+4	1.398	>	1.300	0.369	0.370	1.324	<	1.445	-0.541	-0.520
	IPO+5	**1.319**	>	**0.939**	**2.304****	**2.762*****	1.184	<	1.297	0.799	0.748

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

1.2 SEO samples

Table A4.13: Mean value difference test of firm performance for SEO samples											
Variable	Period	HOT Equity					Economic Boom				
		Timers		Non-Timers	t-value (difference)		Timers		Non-Timers	t-value (difference)	
					Equal variance	Unequal variance				Equal variance	Unequal variance
ROA	SEO	0.019	<	0.030	-1.043	-1.037	0.023	<	0.023	-0.030	-0.031
	SEO+1	0.017	>	0.015	0.232	0.234	0.016	<	0.017	-0.092	-0.091
	SEO+2	0.007	<	0.008	-0.007	-0.008	0.001	<	0.013	-1.236	-1.177
	SEO+3	0.017	>	0.007	0.575	0.641	0.002	<	0.025	-1.377	-1.333
	SEO+4	0.001	>	0.001	0.012	0.012	-0.007	<	0.009	-1.171	-1.143
	SEO+5	0.017	>	0.011	0.499	0.534	0.011	<	0.019	-0.681	-0.678
ROE	SEO	0.110	<	0.111	-0.037	-0.037	0.072	<	0.134	-1.451	-1.583
	SEO+1	0.023	>	0.014	0.670	0.663	0.032	>	0.012	1.627	1.627
	SEO+2	0.013	<	0.013	-0.065	-0.065	0.005	<	0.019	0.980	0.980
	SEO+3	0.015	<	0.017	-0.110	-0.110	**-0.005**	<	**0.035**	**-2.214****	**-2.214****
	SEO+4	0.036	>	0.005	1.535	1.469	0.030	>	0.023	0.344	0.344
	SEO+5	**0.083**	>	**0.026**	**1.741***	**1.997****	0.074	>	0.056	0.602	0.602
ROIC	SEO	0.069	<	0.073	0.232	0.223	0.077	>	0.066	0.700	0.714
	SEO+1	0.049	>	0.041	0.772	0.757	0.050	>	0.043	0.6656	0.6678
	SEO+2	0.039	>	0.028	0.8819	0.8683	0.025	<	0.042	-1.5187	-1.443
	SEO+3	0.036	>	-0.067	1.283	0.953	0.035	>	-0.024	0.7692	0.9139
	SEO+4	0.043	<	0.043	-0.036	-0.035	0.044	>	0.043	0.106	0.107
	SEO+5	0.050	>	0.049	0.105	0.110	0.054	>	0.047	0.639	0.642
Stock's Returns	SEO	0.155	<	0.187	-0.778	-0.775	**0.125**	<	**0.192**	**-1.664***	**-1.631**
	SEO+1	0.123	>	0.100	0.542	0.544	0.150	>	0.087	1.547	1.542
	SEO+2	**-0.124**	<	**-0.061**	**-1.656***	**-1.696***	**-0.143**	<	**-0.071**	**-1.941**	**-1.923****
	SEO+3	**0.022**	>	**-0.084**	**2.698*****	**-2.690*****	0.023	>	-0.040	1.638	1.632
	SEO+4	0.063	<	0.122	-1.558	-1.581	0.078	<	0.092	-0.385	-0.384
	SEO+5	**-0.036**	>	**-0.140**	**2.662*****	**2.642*****	**-0.106**	<	**-0.045**	**-1.657***	**-1.656***
MVA (in Million Baht)	SEO	6.666	>	7.554	-0.550	-0.531	**5.152**	<	**8.135**	**-1.9038***	**-1.995****
	SEO+1	8.350	<	10.033	-0.896	-0.841	**5.931**	<	**10.917**	**-2.742*****	**-2.994*****
	SEO+2	8.697	<	9.609	-0.474	-0.450	**6.402**	<	**10.707**	**-2.301****	**-2.509****
	SEO+3	8.221	<	11.059	-1.304	-1.184	**6.260**	<	**11.280**	**-2.396****	**-2.641****
	SEO+4	**8.137**	<	**14.439**	**-2.336****	**-1.985****	**5.812**	<	**13.844**	**-3.196*****	**-3.375*****
	SEO+5	8.868	<	13.696	-1.527	-1.346	**5.758**	<	**14.290**	**-2.883*****	**3.070*****
Tobin's q	SEO	1.135	<	1.144	-0.151	0.150	1.087	<	1.169	-1.390	-1.408
	SEO+1	1.300	<	1.318	-0.25	-0.24	1.251	<	1.340	-1.234	-1.271
	SEO+2	1.222	<	1.307	-1.254	-1.188	**1.172**	<	**1.302**	**-1.980****	**-2.093****
	SEO+3	1.198	<	1.211	-0.172	-0.165	1.208	>	1.196	0.171	0.173
	SEO+4	1.135	<	1.176	-0.551	-0.525	1.111	<	1.178	-0.972	-0.981
	SEO+5	1.153	<	1.166	-0.125	-0.121	1.114	<	1.189	0.779	0.776

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

1.3 Corporate bond samples

Table A4.14: Mean value difference test of firm performance for corporate bond samples											
Variable	Period	HOT Proceed					Median Interest Rate				
		Timers		Non-Timers	t-value (difference) Equal variance	t-value (difference) Unequal variance	Timers		Non-Timers	t-value (difference) Equal variance	t-value (difference) Unequal variance
ROA	CB	0.061	>	0.040	2.956***	2.909***	0.058	>	0.048	1.497	1.470
	CB+1	0.058	>	0.045	1.793*	1.743*	0.060	>	0.044	2.122**	2.032**
	CB+2	0.061	>	0.052	1.134	1.080	0.066	>	0.046	2.611***	2.656***
	CB+3	0.061	>	0.051	0.925	0.822	0.065	>	0.047	1.905*	1.918*
	CB+4	0.062	>	0.059	0.226	0.196	0.078	>	0.045	2.952***	2.903***
	CB+5	0.062	<	0.063	-0.057	-0.049	0.077	>	0.048	2.275**	2.229**
ROE	CB	0.101	>	0.065	2.879***	2.833***	0.098	>	0.075	1.826*	1.783*
	CB+1	0.096	>	0.073	1.675*	1.611	0.101	>	0.068	2.430**	2.337**
	CB+2	0.101	>	0.083	1.427	1.369	0.108	>	0.075	2.677***	2.708***
	CB+3	0.097	>	0.076	1.285	1.136	0.102	>	0.074	1.960*	1.963*
	CB+4	0.102	>	0.088	0.685	0.571	0.123	>	0.073	2.890***	2.873***
	CB+5	0.099	>	0.095	0.184	0.160	0.120	>	0.076	2.385**	2.357**
ROIC	CB	0.096	>	0.071	2.720***	2.690***	0.092	>	0.080	1.336	1.314
	CB+1	0.091	>	0.080	1.080	1.050	0.093	>	0.078	1.593	1.536
	CB+2	0.092	>	0.079	1.359	1.317	0.096	>	0.076	2.044**	2.054**
	CB+3	0.090	>	0.082	0.651	0.594	0.093	>	0.079	1.172	1.174
	CB+4	0.092	<	0.094	0.110	0.098	0.109	>	0.076	2.161**	2.109**
	CB+5	0.093	<	0.099	-0.305	-0.271	0.113	>	0.077	2.018**	1.960**
Stock's Returns	CB	0.176	>	-0.034	3.257***	3.152***	0.129	>	0.064	1.007	0.997
	CB+1	0.075	>	0.049	0.432	0.431	0.094	>	0.028	1.149	1.142
	CB+2	0.074	>	-0.024	1.761*	1.760*	0.079	>	-0.012	1.676*	1.641
	CB+3	0.075	<	0.109	-0.453	-0.413	0.065	<	0.097	-0.479	-0.474
	CB+4	0.024	<	0.130	-1.329	-1.422	0.071	>	0.045	0.339	0.341
	CB+5	0.072	>	-0.108	1.952*	2.239**	0.118	>	-0.078	2.273**	2.327**
MVA (in Million Baht)	CB	78.632	>	44.632	2.264**	2.434**	67.924	>	63.634	0.288	0.289
	CB+1	82.403	>	45.498	2.331**	2.421**	76.176	>	59.366	1.074	1.090
	CB+2	84.408	>	37.477	2.983***	3.156***	76.637	>	55.318	1.361	1.368
	CB+3	93.715	>	56.415	1.847*	2.060**	83.825	>	78.471	0.281	0.281
	CB+4	102.828	>	73.550	1.119	1.105	112.141	>	73.790	1.574	1.556
	CB+5	115.077	>	83.547	0.954	1.003	143.249	>	68.150	2.505**	2.427**
Tobin's q	CB	1.225	>	1.075	2.020**	2.076**	1.207	>	1.121	1.166	1.187
	CB+1	1.205	>	1.097	1.463	1.429	1.199	>	1.121	1.069	1.067
	CB+2	1.237	>	1.067	1.977**	2.013**	1.246	>	1.086	1.923*	1.961*
	CB+3	1.281	>	1.215	0.529	0.541	1.306	>	1.186	1.046	1.066
	CB+4	1.300	<	1.365	0.377	0.361	1.473	>	1.157	2.002**	1.960*
	CB+5	1.314	<	1.324	-0.043	-0.042	1.464	>	1.154	1.438	1.420
t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01											

2 Cost of separate source

2.1 IPO samples

Table A4.15: Mean value difference test of cost of equity for IPO samples

Variable	Period	HOT Equity					Economic Boom				
		Timers		Non-Timers	t-value (difference) Equal variance	t-value (difference) Unequal variance	Timers		Non-Timers	t-value (difference) Equal variance	t-value (difference) Unequal variance
CAPM	IPO	0.114	>	0.111	0.108	0.144	0.118	>	0.107	0.535	0.559
	IPO+1	**0.093**	<	**0.103**	**-1.715***	**-1.628**	**0.092**	<	**0.100**	**-1.685***	**-1.669***
	IPO+2	0.089	<	0.094	-1.294	-1.257	0.090	<	0.091	-0.344	-0.345
	IPO+3	0.093	<	0.098	-1.053	-0.978	0.094	>	0.094	0.239	0.239
	IPO+4	**0.099**	<	**0.110**	**-2.113****	**-2.088****	0.100	<	0.104	-1.117	-1.097
	IPO+5	0.105	<	0.109	-0.766	-0.751	0.106	<	0.106	-0.101	-0.102
Gordon Dividend Growth Model	IPO	-0.008	<	0.078	-0.795	-0.771	-0.009	<	0.039	-0.510	-0.502
	IPO+1	0.149	<	0.246	-0.675	-0.586	0.213	>	0.122	0.731	0.747
	IPO+2	0.012	>	-0.008	0.153	0.159	0.077	>	-0.086	1.471	1.539
	IPO+3	0.062	<	0.164	-0.643	-0.537	0.098	>	0.067	0.230	0.234
	IPO+4	0.183	>	0.146	0.222	0.214	0.230	>	0.090	0.987	1.015
	IPO+5	**0.016**	<	**0.208**	**-1.785***	**-1.556**	0.104	>	-0.006	1.208	1.248
Average 4 ICC Methods (Literature)	IPO	0.111	<	0.118	-0.578	-0.581	**0.122**	>	**0.102**	**1.771***	**1.786***
	IPO+1	0.128	<	0.135	-0.440	-0.408	0.130	>	0.130	0.015	0.015
	IPO+2	0.150	<	0.157	-0.277	-0.264	0.152	<	0.152	-0.012	-0.012
	IPO+3	0.167	>	0.143	1.099	1.338	0.158	<	0.167	0.460	0.438
	IPO+4	0.148	<	0.197	-1.557	-1.338	0.157	<	0.161	0.147	0.145
	IPO+5	0.158	<	0.170	-0.346	-0.394	**0.128**	<	**0.209**	**-2.740*****	**-2.450****
Average 4 ICC Methods (Modified)	IPO	0.139	<	0.150	-0.733	-0.661	**0.156**	>	**0.126**	**2.377****	**2.405****
	IPO+1	0.144	<	0.163	-1.084	-0.980	0.142	<	0.157	-0.964	-0.939
	IPO+2	0.167	<	0.204	-1.570	-1.314	0.169	<	0.185	-0.766	-0.745
	IPO+3	0.163	<	0.177	-0.799	-0.797	0.159	<	0.176	-1.138	-1.114
	IPO+4	**0.163**	<	**0.216**	**-2.626*****	**-2.582****	0.172	<	0.180	0.423	0.430
	IPO+5	0.194	<	0.211	-0.565	-0.582	0.190	<	0.209	0.754	0.731

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

2.2 SEO samples

Table A4.16: Mean value difference test of cost of equity for SEO samples

Variable	Period	HOT Equity					Economic Boom				
		Timers		Non-Timers	t-value (difference) Equal variance	t-value (difference) Unequal variance	Timers		Non-Timers	t-value (difference) Equal variance	t-value (difference) Unequal variance
CAPM	SEO	0.103	<	0.105	-0.687	-0.690	**0.095**	<	**0.109**	**-5.629*****	**-5.620*****
	SEO+1	0.102	<	0.104	-0.454	-0.465	**0.098**	<	**0.106**	**-3.200*****	**-3.155*****
	SEO+2	**0.101**	<	**0.107**	**-1.898***	**-1.917***	**0.099**	<	**0.106**	**-2.554****	**-2.568****
	SEO+3	0.105	<	0.108	-1.086	-1.108	**0.099**	<	**0.110**	**-3.868*****	**-3.962*****
	SEO+4	**0.109**	<	**0.117**	**-2.281****	**-2.280****	0.110	<	0.113	-1.008	-1.010
	SEO+5	0.114	<	0.117	-0.958	-1.007	0.114	<	0.115	-0.555	-0.555
Gordon Dividend Growth Model	SEO	0.488	>	0.415	0.835	0.862	0.443	<	0.469	-0.315	-0.313
	SEO+1	0.402	<	0.424	-0.246	-0.240	0.487	>	0.350	1.572	1.535
	SEO+2	**0.349**	<	**0.536**	**-1.874****	**-1.655***	**0.317**	<	**0.493**	**-1.895***	**-1.912***
	SEO+3	0.341	<	0.415	-0.778	-0.743	0.287	<	0.426	-1.576	-1.613
	SEO+4	0.428	>	0.479	0.446	0.424	0.361	<	0.514	-1.430	-1.443
	SEO+5	**0.493**	>	**0.207**	**2.526****	**2.690*****	0.349	<	0.467	-1.098	-1.105
Average 4 ICC Methods (Literature)	SEO	0.106	<	0.107	-0.179	-0.173	0.105	<	0.106	-0.148	-0.150
	SEO+1	0.104	<	0.108	-0.409	-0.382	0.112	>	0.103	0.933	0.947
	SEO+2	0.113	>	0.106	0.760	0.763	**0.120**	>	**0.104**	**1.760***	**1.719***
	SEO+3	0.123	>	0.120	0.332	0.332	0.125	>	0.119	0.743	0.737
	SEO+4	**0.155**	>	**0.114**	**3.217*****	**3.430*****	**0.157**	>	**0.127**	**2.429****	**2.369****
	SEO+5	0.153	>	0.146	0.462	0.470	0.154	>	0.149	0.351	0.351
Average 4 ICC Methods (Modified)	SEO	0.119	>	0.110	1.239	1.270	0.119	>	0.113	0.800	0.773
	SEO+1	0.120	<	0.124	-0.570	-0.542	0.119	>	0.124	0.659	0.675
	SEO+2	0.137	<	0.135	-0.198	-0.196	0.136	>	0.136	0.011	0.011
	SEO+3	0.147	<	0.155	-0.709	-0.691	0.153	>	0.147	0.623	0.621
	SEO+4	0.159	>	0.159	0.005	0.005	0.167	>	0.151	1.367	1.361
	SEO+5	0.172	<	0.175	0.174	0.174	0.174	<	0.176	-0.179	-0.179

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

2.3 Corporate bond samples

Table A4.17: Mean value difference test of cost of debt for corporate bond samples

Variable	Period	HOT Proceed					Median Interest Rate				
		Timers		Non-Timers	t-value (difference) Equal variance	t-value (difference) Unequal variance	Timers		Non-Timers	t-value (difference) Equal variance	t-value (difference) Unequal variance
Bloomberg	CB	**0.038**	>	**0.034**	**2.662*****	**2.642*****	0.037	>	0.036	0.710	0.704
	CB+1	0.038	>	0.037	0.406	0.403	**0.036**	<	**0.040**	**-2.627*****	**-2.638*****
	CB+2	**0.038**	>	**0.034**	**2.196****	**2.070****	0.036	<	0.038	1.238	1.246
	CB+3	0.037	<	0.038	-0.374	-0.429	0.038	>	0.037	0.288	0.286
	CB+4	0.037	>	0.034	1.377	1.388	0.037	>	0.036	0.399	0.399
	CB+5	0.037	>	0.033	1.632	1.540	0.035	<	0.035	-0.084	-0.085
Interest Expenses	CB	0.031	>	0.029	0.751	0.713	0.030	<	0.031	-0.194	-0.194
	CB+1	0.033	<	0.034	-0.246	-0.228	0.032	<	0.036	-1.466	-1.451
	CB+2	0.032	<	0.032	-0.077	-0.074	0.030	<	0.033	-1.408	-1.427
	CB+3	0.032	<	0.035	-1.162	-1.118	0.033	>	0.032	0.354	0.353
	CB+4	0.032	<	0.038	1.502	1.219	0.035	>	0.032	0.806	0.806
	CB+5	0.033	<	0.036	0.579	0.548	0.037	>	0.032	1.085	1.084

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

3. Weighted average cost of capital (WACC)

3.1 IPO samples

Table A4.18: Mean value difference test of WACC for IPO samples

Variable	Period	HOT Equity					Economic Boom				
		Timers		Non-Timers	t-value (difference) Equal variance	t-value (difference) Unequal variance	Timers		Non-Timers	t-value (difference) Equal variance	t-value (difference) Unequal variance
CAPM	IPO	0.104	>	0.096	0.355	0.506	0.108	>	0.096	0.655	0.683
	IPO+1	0.083	<	0.087	-0.883	-0.845	0.081	<	0.087	-1.623	-1.604
	IPO+2	0.077	<	0.079	-0.787	-0.752	0.078	>	0.077	0.333	0.341
	IPO+3	0.078	>	0.076	0.493	0.526	0.079	>	0.076	0.939	0.963
	IPO+4	0.080	<	0.084	-0.974	-0.967	0.081	>	0.081	0.040	0.042
	IPO+5	0.082	<	0.085	-0.653	-0.681	0.084	>	0.082	0.484	0.506
Gordon Dividend Growth Model	IPO	0.000	<	0.088	-0.933	-0.909	-0.009	<	0.056	-0.792	-0.774
	IPO+1	0.137	<	0.229	-0.802	-0.697	0.192	>	0.120	0.724	0.742
	IPO+2	0.087	<	0.093	-0.617	-0.594	**0.090**	>	**-0.045**	**1.607**	**1.713***
	IPO+3	0.112	>	0.106	0.457	0.444	0.144	>	0.074	0.656	0.692
	IPO+4	0.117	<	0.118	0.075	0.072	0.210	>	0.074	1.348	1.464
	IPO+5	0.115	>	0.108	0.578	0.649	0.097	>	0.025	0.982	0.984
Average 4 ICC Methods (Literature)	IPO	0.087	<	0.093	-0.617	-0.594	**0.096**	>	**0.081**	**1.828***	**1.848***
	IPO+1	0.112	>	0.106	0.457	0.444	0.111	>	0.110	0.068	0.068
	IPO+2	0.117	<	0.118	-0.075	-0.072	0.115	<	0.121	-0.568	-0.560
	IPO+3	0.115	>	0.108	0.578	0.649	0.116	>	0.111	0.459	0.451
	IPO+4	**0.105**	<	**0.148**	**-2.358****	**-1.8948***	0.111	<	0.121	-0.683	-0.688
	IPO+5	0.104	<	0.116	-0.744	-0.746	**0.092**	<	**0.128**	**2.547****	**2.345****
Average 4 ICC Methods (Modified)	IPO	0.114	<	0.126	-1.039	-0.857	**0.128**	>	**0.105**	**2.359***	**2.412***
	IPO+1	0.116	<	0.122	-0.539	-0.493	0.116	<	0.120	-0.405	-0.408
	IPO+2	0.125	<	0.144	-1.398	-1.158	0.127	<	0.133	-0.484	-0.482
	IPO+3	0.120	>	0.120	0.011	0.012	0.115	<	0.126	-1.055	-1.019
	IPO+4	**0.115**	<	**0.152**	**-2.757*****	**-2.583****	0.122	<	0.126	-0.392	-0.400
	IPO+5	0.125	<	0.147	-1.196	-1.249	0.126	<	0.135	-0.584	-0.549

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

3.2 SEO samples

Table A19: Mean value difference test of WACC for SEO samples

Variable	Period	HOT Equity					Economic Boom				
		Timers		Non-Timers	t-value (difference) Equal variance	t-value (difference) Unequal variance	Timers		Non-Timers	t-value (difference) Equal variance	t-value (difference) Unequal variance
CAPM	SEO	0.085	>	0.085	0.139	0.140	0.079	<	0.089	-4.470***	-4.482***
	SEO+1	0.083	<	0.084	-0.494	-0.502	0.080	<	0.085	-2.193**	-2.212**
	SEO+2	0.080	<	0.085	-2.449**	-2.513**	0.079	<	0.083	-1.849*	-1.868*
	SEO+3	0.081	<	0.087	-2.511**	-2.515**	0.078	<	0.087	-3.586***	-3.669***
	SEO+4	0.083	<	0.089	-2.102**	-2.079**	0.084	<	0.085	-0.507	-0.507
	SEO+5	0.086	<	0.089	-1.030	-1.042	0.085	<	0.087	-0.673	-0.673
Average 4 ICC Methods (Literature)	SEO	0.406	>	0.361	0.639	0.654	0.373	<	0.399	-0.382	-0.380
	SEO+1	0.335	<	0.372	-0.516	-0.497	0.392	>	0.313	1.146	1.137
	SEO+2	0.289	<	0.447	-2.033**	-1.794*	0.257	<	0.415	-2.180**	-2.219**
	SEO+3	0.298	<	0.352	-0.703	-0.660	0.246	<	0.368	-1.703*	-1.773*
	SEO+4	0.362	<	0.394	-0.344	-0.330	0.295	<	0.439	-1.719*	-1.747*
	SEO+5	0.395	>	0.219	1.949*	1.997**	0.287	<	0.397	-1.313	-1.323
Average 4 ICC Methods (Modified)	SEO	0.081	>	0.080	0.171	0.168	0.080	<	0.081	-0.108	-0.111
	SEO+1	0.081	<	0.090	-1.321	-1.170	0.083	<	0.085	-0.393	-0.409
	SEO+2	0.086	<	0.095	-1.476	-1.333	0.084	<	0.092	-1.297	-1.314
	SEO+3	0.096	<	0.097	-0.047	-0.045	0.101	>	0.092	1.336	1.311
	SEO+4	0.107	>	0.088	2.533**	2.587**	0.101	>	0.100	0.019	0.019
	SEO+5	0.105	>	0.100	0.655	0.651	0.101	<	0.107	-0.770	-0.770
Average 4 ICC Methods (Literature)	SEO	0.085	>	0.080	0.925	0.930	0.085	>	0.081	0.784	0.757
	SEO+1	0.085	<	0.091	-1.049	-0.973	0.085	<	0.089	-0.700	-0.722
	SEO+2	0.094	<	0.094	-0.406	-0.387	0.093	<	0.096	-0.503	-0.506
	SEO+3	0.099	<	0.107	-1.048	-1.018	0.103	>	0.101	0.370	0.369
	SEO+4	0.103	<	0.103	-0.008	-0.007	0.103	>	0.103	0.116	0.116
	SEO+5	0.116	>	0.112	0.392	0.393	0.113	<	0.118	-0.636	-0.636

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01

3.3 Corporate bond samples

Table A4.20: Mean value difference test of WACC for corporate bond samples

Variable	Period	HOT Proceed					Median Interest Rate				
		Timers		Non-Timers	t-value (difference) Equal variance	t-value (difference) Unequal variance	Timers		Non-Timers	t-value (difference) Equal variance	t-value (difference) Unequal variance
CAPM	CB	0.091	<	0.102	2.043**	1.987**	0.099	>	0.090	1.732*	1.755*
	CB+1	0.090	>	0.081	1.554	1.698*	0.093	>	0.081	2.616***	2.683***
	CB+2	0.086	<	0.090	-0.703	-0.683	0.091	>	0.084	1.374	1.373
	CB+3	0.088	>	0.084	0.595	0.579	0.090	>	0.084	1.117	1.107
	CB+4	0.089	<	0.100	-1.408	-1.286	0.093	>	0.093	0.031	0.031
	CB+5	0.090	<	0.096	-0.783	-0.761	0.097	>	0.087	1.321	1.321
Gordon Model (Dividend)	CB	0.231	<	0.274	-0.362	-0.346	0.300	>	0.180	1.035	1.034
	CB+1	0.328	>	0.284	0.233	0.248	0.313	>	0.235	0.495	0.528
	CB+2	0.178	>	0.124	0.573	0.636	0.145	<	0.175	-0.333	-0.340
	CB+3	0.162	<	0.304	-1.245	-1.154	0.180	<	0.226	-0.427	-0.437
	CB+4	0.120	>	0.026	1.257	1.325	0.075	<	0.096	-0.284	-0.286
	CB+5	0.177	<	0.324	-0.918	-0.985	0.136	<	0.295	-1.131	-1.129
Average 4 Methods (Literature)	CB	0.090	<	0.093	-0.332	-0.320	0.095	>	0.085	1.286	1.302
	CB+1	0.094	>	0.081	1.257	1.314	0.092	>	0.085	0.666	0.698
	CB+2	0.087	>	0.079	0.868	0.855	0.084	<	0.085	-0.107	-0.107
	CB+3	0.081	<	0.088	-0.784	-0.724	0.080	<	0.087	-0.718	-0.724
	CB+4	0.082	>	0.076	0.762	0.724	0.077	<	0.084	-0.812	-0.806
	CB+5	0.080	>	0.073	0.397	0.362	0.066	<	0.087	-1.304	-1.311
Average 4 Methods (Modified)	CB	0.095	>	0.094	0.133	0.125	0.098	>	0.089	1.048	1.065
	CB+1	0.097	>	0.094	0.256	0.288	0.102	>	0.088	1.436	1.498
	CB+2	0.096	<	0.097	-0.094	-0.089	0.100	>	0.094	0.771	0.785
	CB+3	0.089	<	0.097	-0.766	-0.659	0.090	<	0.093	-0.379	-0.388
	CB+4	0.089	>	0.089	0.008	0.007	0.084	<	0.094	-1.025	-1.017
	CB+5	0.097	<	0.112	-0.810	-0.642	0.098	<	0.103	-0.302	-0.314

t statistics in parentheses: * p<0.1, ** p<0.05, *** p<0.01