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Timing the Market

- A Study on Successful Market Timing-

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Key words:	Market Timing, Financing Decision, Tradeoff Theory, Pecking Order, Stock Anomaly and Capital Structure
Purpose:	The purpose of this study is to clarify to what extent managers engage in successful market timing behavior in UK by issuing equity on the London Stock Exchange due to an information advantage, while investors fail to identify and compensate for this discrepancy.
Methodology:	A quantitative approach using regression analysis has been used.
Theoretical perspectives:	This paper has a theoretical perspective which defines financing decisions and behavioral finance within firms. The reason is to be able to extract indicators for successful market timing.
Empirical foundation:	All the seasoned equity offerings that have been made on the FTSE all non-financial list during 1999-2008 have been used for the empirical study.
Conclusions:	During the timeframe 1999-2008, the indicator *preference for equity* had a result supporting the presences of successful market timing behavior. However, the other two indicators, *equity ratio change* and *time since last quarterly report* did not support our theory, and as a result the findings must be considered inconclusive.

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Chapter 1 - Introduction

This chapter will give a general introduction to the subject of market timing. Further on, it will also introduce the research question for the thesis and its purpose. A disposition of the paper is also included.

1.1 Background

For a long period of time, researchers have attempted to identify and quantify what determines a firm financing decisions and what discrepancies between the companies and the market's expectations can affect these choices. Miller and Modigliani (1958) started the debate when they created their first cost of capital-model. The model later developed into what is today known as the trade off theory. However, many researchers have found this theory hard to accept due to its strict assumptions. Myers (1984) found that managers have a preference in which order to finance their investment opportunities, where internal equity was at the top of the list and external equity at the bottom.

Nonetheless, times change and more and more researchers have found behavioral explanations behind the choice of financing. One such explanation is that managers trying to benefit from over- or undervaluation's made by the capital market, this has come to be known as market timing. An implication of the market timing theory is that the issuance of seasoned equity offerings (SEO) should be an indicator that a firm will, after the issue, perform worse than the market expects.

Quite a few studies have been made on market timing, some grants support and others do not. Reasons for the divergences are that different

studies take different approaches. The search for conclusive evidence continues.

1.2 The Financing Decision Puzzle

Financing decisions and stock returns are fairly mature fields of study which have been analyzed in different settings and approaches. Starting with stock returns, there is a wide range of measures which are claimed to forecast or explain future stock movements. Fama (1970) stated that there is an efficient market, where stock returns on average are close to zero in the short-term and move randomly, with no predictability in the long-term. However, since the creation of the efficient market hypotheses, many researchers have attempted to define what causes the market to deviate from the efficiency assumption.

De Bondt and Thaler (1985) showed that past winners are tomorrow's losers, which indicates that the market overreacts to the actions of a company. Adding to overreactions by the market are SEOs (Loughran and Ritter 1995) and IPOs (Ritter 1991), where SEOs have positive abnormal returns pre-issue and reverts to negative abnormal returns post-issue. Same effects have been observed with mergers (Asquith 1983, Agrawal et al 1992) and new exchange listings (Dharan and Ikenberry 1995). Nevertheless, some articles argue that winners today are going to remain so in the future as well and vice versa. For instance, Michaely *et al.* (1995) shows that dividend initiations are usually done by firms with ongoing positive abnormal returns and that firms omitting dividends are firms with ongoing negative returns. Also stock splits (Dharan and Ikenberry 1995, Ikenberry *et al.* 1996) and spinoffs (Miles and Rosenfeld 1983, Cusatis *et al.* 1993) indicates increasing returns. Fama (1998) disagrees with these findings and claims that if they were true, it would be time to disregard the efficient market hypotheses.

The advocates of market timing theory, such as, Brau and Fawcett (2006) have shown that managers of firms going public try to time the market when the managers consider it to be the right conditions for both industry and market. When it comes to SEOs the studies have produced quite different results. Baker and Wurgler (2002) found that capital structure is the cumulative outcome of opportunities when firms try to time the capital market. However, Mahajan and Tartaroglu (2008) found evidence for the dynamic tradeoff theory and consider market timing to have a short term effect on leverage. Likewise Chan and Chang (2007) found evidence of dynamic tradeoff in their study of Asian companies. When Elliot *et al.* (2008) did their research, they found support for the market timing theory and that it had a long lasting effect on capital structure. They criticized Baker and Wurgler for using the B/M-ratio, since it has multiple interpretations, whereas growth opportunities and misvaluation are the main ones. Flannery and Rangan (2006) also posted evidence supporting the tradeoff theory, later; they showed that the divergence from the optimal capital structure is short-lived for firms that have suffered a shock in their leverage. Kayhan and Titman (2007) discovered that companies act as if they have a target debt ratio, while other factors, such as, growth opportunities and stock price lead to large discrepancies from this optimum. Kayhan and Titman assume that these divergences are due to manager's intuitive rationality.

Today it is hard to find an absolute way of measuring market timing and most relevant measures are hard to quantify, since they are based on behavior. Studying the research in this field shows a wide variety of differing conclusions. We therefore find it interesting to further contribute to the area of market timing by studying the connection between stock returns and financing decisions closer. Our ambition is to define and use a method more focused on indicators of behavior typical for market timing.

Also, since most of the studies made have been focused on financing decision in the US market, we want to be able to shed new light to the applicability of market timing theory on the UK market.

1.3 Purpose

The purpose of this study is to clarify to what degree managers engage in successful market timing behavior in UK by issuing equity on the London Stock Exchange due to an information advantage, while investors fail to identify and compensate for this discrepancy.

1.4 Target Audience

The target audience of this thesis is people with an understanding of corporate finance, such as academia and researchers within the field as well as managers and investors. Therefore there will be no explanation of terms and mechanisms which can be assumed to be widely understood by the audience.

1.5 Limitations

This study's purpose is to test successful market timing. Based on this, there will be no testing of market timing alone. Further on, we will not test for tradeoff theory and pecking order separately. So even if we are doing a study in financing decisions, it is limited to successful decisions within market timing and no other. Reasons for these limitations are mainly the time frame.

1.6 Disposition

The first chapter aims to give a brief introduction to the field of financing decisions in general with a bit more focus on market timing. It also describes the purpose of this study. The second chapter is the literature review, which describes the different theories within financing decisions. The third chapter describes and motivates the sample, calculations, methods used and their drawbacks. Chapter four presents the empirical research and its findings. The fifth chapter is a discussion regarding the findings. The sixth chapter contains conclusions and suggestions for further research.

Chapter 2 - Theory

This chapter will introduce the reader to theories that are considered relevant for the thesis. The main focus will be around financing decisions, capital structure and stock returns as an anomaly.

2.1 Tradeoff Theory

The capital structure of the firm and the issues, such as a firm's decision on how to finance the operations and on what level of leverage to use has been the focus of many studies in the past. One of the most influential and dominant theories is the tradeoff theory which was first described by Modigliani and Miller (1963) and is based on the idea that firms have an optimal capital structure determined by the cost and benefits of issuing debt or equity. According to Myers (1984), firms attempt to balance the value of interest tax shield against various adjusted costs, costs of bankruptcies and financial distress. Firms should therefore decide to exchange debt for equity or equity for debt in order to maximize the value of the firm. There is no generic optimal capital structure for all firms; every firm has its unique optimal structure with limited level of leverage. Therefore, the level of leverage depends on the marginal tax rate that the company has and, the cost of bankruptcy or financial distress.

The static tradeoff theory, also known as the one period model, would hold if the cost of the adjustments would be zero, because in the absence of adjustment costs the firm's current debt-to-value ratio is considered to be optimal. However, Myers argues that there must be lagged feedbacks into the costs, thus adjusting the optimum capital structure. He further argues that firms are not flexible enough to adjust quickly to random events that move them from the optimum. If the adjustment costs are

high the firm will deviate more from the targeted debt ratio, if they are low the firm will remain closer to the targeted ratio. In the tradeoff theory, debt is considered the more favorable financial instrument when financing, in relation to equity. When companies issue debt, they can use interest deductibility to create value for the shareholders. The increase of debt will increase the leverage and at the same time decrease the ratio of equity in the firm. In line with Modigliani and Millers second proposition, if the company has an increasing marginal tax rate, it gains more by borrowing.

According to Modigliani and Miller (1963) the cost of bankruptcy and financial distress cannot be considered in isolation. In order to fully understand the effects of these factors, tradeoff theory has to incorporate agency cost and moral hazard problems. Myers (1984) argues that there are two characteristics of financial distress that are worth paying attention to. The first characteristic is that firms with more intangible assets and growth opportunities issue less debt, compared to the firms with more tangible assets. Hence, the value lost due to financial distress is higher for the firms with intangible assets. The second characteristic is that firms with higher risk tend to borrow less, because they have a higher probability of default leading to higher financial distress costs.

In reality firms operate over many periods and analyzing capital structure from the static point of view is not sufficient. In the dynamic model, a firms financing does not depend solely on the targeted leverage, but on the expected financial margins in the next period as well.

The papers written by Kane *et al.* (1984), Brennan and Schwartz (1984) analyzed dynamic models that included uncertainty, bankruptcy cost and taxes. One disadvantage of these studies is that they do not take into consideration transaction cost. According to these papers, in case of financial distress firms could rapidly rebalance without incurring any cost. To avoid this rebalancing problem Fischer *et al.* (1989) introduced transaction cost into the model. According to them, as a result of the transaction cost, firms can allow its capital structure to drift within a certain range. The firms can pay existing debt with retained earnings,

and when the leverage range is achieved, the firm can recapitalize. On the other hand, if the firms have operational losses, debt will increase within the leverage range. Therefore the dynamic model adds more aspects which grant the trade-off theory more credibility than the original static model.

2.2 Pecking Order

Pecking order, compared to the static tradeoff theory, has no defined debt-to-value ratio or optimal capital structure considerations. It is perceived as a hierarchy of preference for ways of financing.

According to Myers (1984) firms prefer internal funds over external and the dividend ratio is adjusted to future investment opportunities. Nonetheless, dividend policies are sticky, which can give rise to the need for external financing. In those cases firms usually chose debt over external equity. One reason for the pecking order is that managers want to avoid the tough scrutiny of the capital market; hence it is better to rely on internal funds. When in a distressed situation and with external funds being the only options, Myers argues that firms will, if possible, issue debt before equity. This is because a company which wants to issue equity usually has to issue a higher number of shares since equity issues are usually done at a discount as compared to the market value. When the NPV of the investment is not high enough to justify this discount the firm will rather forgo the opportunity than reduce the shareholder's intrinsic value. From the company's perspective, the value of debt is not dependent on the manager's actions or information asymmetry in general.

According to Myers and Majluf (1984) if a firm has the possibility to invest in a positive NPV project, then the firm should always issue new equity if needed. However, this assumes an efficient capital market, where the firm would sell shares at a fair price on average. In their

theory, Myers and Majluf consider both asymmetric information and management actions to be beneficial for passive, present shareholders. This implies that managers prefer issuing debt before equity and that the stock price effect will be smaller when the firms uses debt. Regarding pecking order, Myers and Majluf claim managers are willing to abstain from SEOs half of the time and to issue equity the remaining time, reason being the assumed average gain/loss is zero.

2.3 Information Asymmetry

Any description of information asymmetry is best started with Akerlof (1970). He argues that all cars, good or bad, are sold at the same price. This is because it is only the seller who has the information necessary to understand the true value. The market will therefore assume all cars to be lemons and price them accordingly. Since good cars would then be underpriced this would lead to a non-existence of good cars on the market. This could also be true about companies doing a seasoned equity offering according to Korajczyk *et al.* (1991). If there would be the same asymmetric information about all firms, then all of them would be priced equally and the stock movement would be unaffected when doing an equity issue. This would deter all good companies from approaching the market apart from periods when the information asymmetry is as low as possible.

Further on, Leland and Pyle (1977) contributes with a discussion in their paper where they argue that entrepreneurs can take actions that raises confidence, which should lower the information asymmetry, thus raising the willingness of an investor to invest in the project/firm. This signaling effect could be derived from the insider's holdings and motivation to keep his share. The result of this should be a more fair valuation of the firm by the investors. A study made by Chazi and Tripathy (2007) found that the insider information of over-valuation outweighed the negative

signal of an equity issue. This is because insider sales run a higher risk of being influenced by cycles, which also gives rise to a higher tendency for insiders to sell at a more favorable share price.

Myers and Majluf (1984) then adds to the problem with semi-strong markets, where management has more information than investors and will avoid issuing new equity, which management would consider an act in the interest of old stockholders. Myers and Majluf sees information asymmetry as an unavoidable fact of life, which both managers and investors are aware of. In a different study made by Korajczyk *et al.* (1991) it is argued that information asymmetry cannot be a complete description of financing decisions. When firms release financial reports and other information, they are making the market better informed about themselves, hence, giving rise to opportunities for equity issues. Since outsiders now knows more, and does not lower the valuations to the same extent, the results are less significant price drops.

Giving weight to this argument, Korajczyk *et al.* points to two extreme cases. Both include the cost of delaying a project, cost of postponing an equity issue and the time value of retrieving more positive information. The first extreme is if investments cannot be delayed without being lost immediately. Better quality firms would then avoid making equity issues, leading to a lemons issues market for investors, where only the lower quality firms issue equity. This would result in an increasing price drop for issuing firms. The second extreme is when a firm does not have any cost in delaying a project. Then all firms acting in the shareholders interests would delay the equity issue until when the lowest information asymmetry is possible, thus creating a market where high quality firms issue close to financial releases and low quality firms issue all the time. However, these are two extremes and Korajczyk *et al.* expect the reality to be somewhere in between, as firms can receive either good or bad private information about their value. The firms in possession of bad information would issue immediately and the firms having good news will wait until the information is made public. The results their study find is that most equity issues is done within a short time frame after an

information releases and that there is a increasing decline in stock price the longer the firms wait.

Another point of view regarding information asymmetry is conveyed by Miller and Rock (1985) who discusses dividend announcements and their relation to lowering asymmetric information. They describe what they call dividend surprise; this is either a larger-than-expected or lower-than-expected dividend, which in turn gives a prediction of the future earnings. They connect this effect to a firm announcing that it will be using external financing and the following stock price reaction. The reaction is often negative, since the market expects internal funds to be sufficient, meaning external financing is perceived as bad news. Hence, firms announcing larger-than-expected dividends will have greater earnings and consequently a stock price increase. On the other hand, firms which need large external financing usually have lower-than-expected cash flows and earnings, followed by a negative dividend announcement.

2.4 Market Timing

A survey made by Brau and Fawcett (2006) found that CFOs tries to time the market when they are making an IPO, which is contradictory to Myers's study in 1984 which lay the foundation for the pecking order. Brau and Fawcett also found that companies which recognized themselves as undervalued when they issued equity seldom return to issue again.

Even Myers and Majluf (1984) suggest in their article that managers should try to time the market. They argue that managers which have financial slack avoid issuing equity to finance an investment opportunity. Thus managers are avoiding the risk of being forced to issue equity when undervalued, but can chose to do so when overvalued. The reason why firms have a tendency to prefer debt over equity is mostly determined by

information asymmetry regarding a firm's true value and as such the financing behavior of the firm. Therefore information asymmetry regarding risk is of little relevance and cannot, according to Myers and Majluf, be a reason for the debt-equity choice.

According to Baker and Wurgler (2002), equity market timing means that firms issue equity at high stock prices and repurchase at low. In other words, firms try to time the fluctuations of their stock price in relation to the cost of equity and in comparison to other capital and its costs. If managers have an incentive to benefit current shareholders, they will also do so at the cost of new and former shareholders. Baker and Wurgler find that market-to-book ratios from ten years earlier have an impact on the capital structure today, indicating that fluctuations in the market value strongly influence the capital structure. Their theory is stated as: *"Capital structure is the cumulative outcome of attempts to time the equity market"* (Baker and Wurgler 2002:3). They base their study on the assumption that either both managers and investors are rational, or managers think that investors are irrational. Baker and Wurgler find that book leverage after an issue first decreases and then starts to rise slightly. However, during this 10 year post-issue period they find that the market value increases quite strongly. The increase in asset is mostly derived from debt, then equity and last retained earnings, thus contradicting the pecking order. Higher market-to-book ratio usually results in higher net equity issues. Profitable firms tend to lower the leverage through retained earnings and larger firms usually issue less equity in comparison to assets. When firms have an opportunity to change its leverage through external financing, their valuation becomes the most important determinant. The findings where that a high market value leads to a reduction in leverage in the short-term, and that a historically high market value often comes with a low leverage.

The market timing theory does not require markets to be inefficient or that managers can forecast stock returns, it is rather the assumption that managers believe they can time the market. Baker and Wurgler also find that mispricing is the main reason for equity market timing, and further

on, the abnormal returns following the equity issue are greater than the announcement effect.

2.4.1 Financing Decisions

Most research papers on capital structure theory originate from Miller and Modigliani and a lot of attempts have been made to either prove or disprove their model. Taggart (1977) found a relationship between facing a financing deficit by using external financing and the market value of the company. Taggart then explained that the optimal capital structure is postponed by these decisions and gradual corrections towards the optimum are done in the long-term. The effect of timing strategies are somewhat uncertain, they can either postpone or speed-up the adjustments to an optimal capital structure.

A study made by Marsh (1982), indicated that small firms with high P/E-ratios and high gearing, have a higher tendency to issue equity. He argues for a managerial explanation, the first being that managers distrust against market efficiency and the second that managers feel more comfortable to approach the owners when the share price is more favorable. Marsh found that most firms remain around a long-term debt level; however, there are indications of short-term fluctuations arising from timing strategies and the general state of the capital markets.

Asquith and Mullins (1986) explain that their findings mainly support pecking order, but when a SEO is to be used, companies should try to time the market to reduce the adverse reduction in market value. Further on, a financing decision should be regarded as having the same signaling effect as the investment policy, the capital structure policy and the dividend policy, joint together. This signaling is also related to the one arising when doing stock repurchases, which on the contrary has a positive effect. Asquith and Mullins also suggest that managers have superior information compared to investors.

Not all studies find positive results for market timing. In an empirical research made by Jung *et al.* (1996) they tested the timing theory, agency theory and pecking order. They tested which of these theories best describes why firms issue equity and their financing decision. Jung *et al.* found in this study very little evidence for timing strategies. The strongest evidence was for agency theory and the stock market reaction suggest that many companies issuing equity were not expected to do so, and thus they received a negative reaction from investors.

Also in a paper made by Hovakimian *et al.* (2001) the results showed a divergence between reasons companies have when deciding on what way to finance. This article focused on a firms financing decision, both when raising capital or changing the capital structure. Hovakimian *et al.* found a separation between the decisions. When a firm can choose between retiring debt or repurchase stock, they have a tendency to re-leverage towards an optimal capital structure, thus basing their decision on capital structure. Contrary to this is when the company is to raise external capital. Then most firms take into consideration their current market value and if they perceive themselves as over- or undervalued. This will indicate that a firm with an investment opportunity will consider its market value before the capital structure. This empirical evidence is thus more in line with a dynamic trade-off model.

According to Myers (1984) market timing should not be possible if investors are rational. This is due to investors on average assuming that only overpriced firms issue equity, thus all companies doing a SEO are sending negative signals and will lose in value. Myers later on argues that a firm issuing equity should decrease in market value and the opposite is true for those that repurchase shares.

A research paper written by Walker and Yost (2008) found that firms whom are specific about what the funds from the SEO are going to be used for, generally have a more positive reaction from the market. In comparison firms that state a purpose of general use receive a more negative reaction. The reason for this, they argue, is that the market perceives companies that are more specific to have value creating

opportunities. On the other hand, firms with a general purpose are perceived by the market as value destroying. Walker and Yost argue that the general purpose issues have a higher tendency to come with managerial entrenchment and high agency costs attached. They also show that companies which are specific usually do not change their leverage, where as the non-specific do change it.

A different study by Kim and Weisbach (2008), focused on the use from the proceeds, found that firms center around three different motivations when raising equity through SEOs. The first is that the proceeds are to be used for financing of investments, leading to a large increase in assets and R&D. The second is transfer of wealth, where current shareholders benefits from selling overpriced equity to new shareholders at the time of the SEO. The third is that firms use the proceeds to increase their liquidity. Their results indicate that, of the amount raised in the SEO, a great majority goes to financing of investment and then as a transfer of wealth, and last to increase liquidity.

2.4.2 Stock Returns and Equity Offerings

Many studies find that companies doing either an IPO or SEO have to offer their shares at a discount. However, most of these are done in a short-term perspective and few go beyond initial returns or the day of the announcement. However, Baker and Wurgler (2000) did a study covering issues made 1928-1997 in which they found a pattern among firms making a SEO and a timing strategy. Their empirical findings demonstrate that firms which issue equity at the peak in a hot market[1] usually performed worse the coming year. According to Baker and Wurgler, this indicates that firms time the market when they issue equity or more precisely take advantage of inefficiencies in the market.

[1] A hot market is the period in time when the number of IPOs and SEOs have a high increase compared to the years before.

A different examination made by Asquith and Mullins (1986) proposes two views on the stock price effect following the announcement of a SEO. First view described is a downward sloping demand curve for a firm's shares, thus making them decrease when a higher quantity is offered. The second is that an efficient market does not consider numbers of shares but the underlying value, or a steady cash flow and therefore share price should not change because of an SEO. Asquith and Mullins find a significant negative effect on the share price at the announcement day. They also found a strong timing pattern, where on average the firms doing an SEO outperformed the market by 33% in a two year period prior to the issue while underperforming by 6% on average after the SEO.

In a different study made by Ritter (1991), analyzing the long-run return of IPOs he found that a share sold at a discount gained on average 16.4% the first day of trading. He also found that firms going public during a hot market underperformed in comparison to their industry, which suggests that on average in the long-run, an IPO cannot be seen as underpriced, but rather overpriced. Both because investors are overly optimistic about young firms with growth potential and that those firms try to time the "window of opportunity" which arise in the hot market. When Ritter divided the IPO firms into industries he only found three industries which outperformed their peers, these were financial institutions, drug companies and airlines. However, financial institutions had a mean age of 43 years, which far surpass the other industries. Ritter points to the result that if these are removed from the sample, the underperformance becomes even greater.

A more recent study made by Loughran and Ritter (1995) found that the underperformance of IPOs last for five years. More interestingly, companies doing an SEO also underperform on average. Loughran and Ritter also show that the firms issuing during a hot season usually underperform, while the companies issuing when there is little activity barley or not at all underperform the market. They also found that even if the period measured started a year after the SEO, the issuing firm still underperformed. Regarding what Loughran and Ritter found, a firm

announcing a SEO should lose approximately 33% on the day of announcement, and not 3% which is most often the case. So even if the firm was overvalued before the issue, it still remains so after as well. A study from the same period written by Speiss and Affleck-Graves (1995) reached the same conclusions, but also found that managers, due to more firm-specific information, could time the market when this was more beneficial. Jegadeesh (2000) found in his research that firms, issuing within two days before and one day after earnings being announced, performed even worse compared to firms outside these windows. He saw this as a biased expectation from the investors.

In a study done by Lucas and McDonald (1990) they find that, on average, firms which issue equity have an abnormal return before the issue. But a large part of the companies in their study had a negative return preceding the issue. They also found a negative announcement effect, but the following period appeared to have a normal return. They argue that firms which are undervalued will wait to issue equity until their price have been corrected compared to overvalued firms which would issue immediately. The reason being that managers know the market does not have enough information to price them correctly and wait in order to gain value.

Eckbo *et al.* (2000) offer some criticism to this argument. They argue that Loughran and Ritter did not measure enough factors for their control portfolio. According to Eckbo *et al.* firm making a SEO will lower its leverage, thus also reducing the risk of default and dependence of unexpected inflation. Because Loughran and Ritter do not give these risks a consideration in their β, it cannot result in a different way. However, the main difference between these approaches is that the underperformance is significantly lower. So by adjusting for the new risk characteristics and thus using a better control portfolio, Eckbo *et al.* consider themselves to have found a better measurement for SEOs performance. Another interesting aspect added by Eckbo *et al.* is that SEO firms increase their stock turnover, which usually is a sign of higher liquidity and lower risk, thus further adding to their theory.

Fama (1998), the father of the efficient market hypothesis, challenges the recent studies made within behavioral finance and stock returns. He consider most of the studies conducted on overreaction or underreaction to be lacking credibility, mostly because they cannot seem to agree on what creates the reaction and if it is an anomaly, and also the fact that most studies ignores chance. Because, even if past winners are today's losers and vice versa, the result of the study should not end in more over- or underreaction, which indicates efficient markets. Fama also argues that most of the studies are "splashy" when choosing the sample, in other words, "self-made results". He further questions if these studies can deliver a bigger picture that better explains the market than the efficient market hypothesis, which he claims they cannot do. He argues this is because the other studies get contradictory results and as mentioned, keeps a very narrow focus. Fama also shows that if there is an anomaly among companies making an SEO, then this can only be attributable to very small firms or else the variables have not been chosen correctly.

Given the criticism by Fama, Baker and Wurgler (2000) took a different approach and adjusted their tests of market timing for market efficiency. Since their result yielded negative returns for several occasions, they also concluded that market efficiency cannot be assumed because efficient markets have a return slightly above zero on average. Their study show that the equity share in SEO has the highest explanatory power for the coming year compared to the control variables which consist of dividend yield and market-to-book. Nonetheless, Baker and Wurgler point out that equity share by itself cannot disprove efficient market. Firstly, they consider the Modigliani and Miller effect, which explains changes in return when the leverage changes, but their results indicate that this only explains about 5% of the change in the equity share. Secondly, Baker and Wurgler consider investments and financing, where they measure the relation between the equity share and total investment, new issues and the equity issue. The relation between these variables is expected to be negative, but they find a slightly positive relationship. They interpret this result as equity share being the variable that contains the most information about future return, and not capital structure cost or

investments. This indicates the investment financed is more important than the level of investments. The last factor being tested is market timing. Baker and Wurgler find evidence for investor sentiment which is usually present during hot markets. The reasoning behind this is that when one firm is overvalued, there tend to be several others that are overvalued, and when firms are overvalued managers prefer to issue equity. However, this overvaluation tends to return to the efficient price, caused by arbitrage. The conclusion is that when investors are overly optimistic, managers time the market due to overvaluation, thus the increase of the equity share in new issues and the decrease when the cycle turns around.

2.5 Summary of Theories

Table 2.1: Summary of Theories

Theory:	Main Authors:
Static tradeoff	Modigliani & Miller (1958, 1963), Myers (1984)
Dynamic tradeoff	Kane *et al.* (1984), Brennan & Schwartz (1984), Fischer *et al.* (1989)
Pecking Order	Myers (1984), Myers & Majluf (1984)
Information Asymmetry	Akerlof (1970), Leland & Pyle (1977), Myers & Majluf (1984)
Market Timing	Baker & Wurgler (2002, 2002)
- Financing Decisions	Taggart (1977), Marsh (1982), Asquith & Mullins (1986)
- Stock Returns	Asquith & Mullins (1986), Lucas & McDonald (1990), Ritter (1991), Loughran & Ritter (1995)

Chapter 3 - Methodology

This chapter will explain our indicators and the rationale for choosing them. In this chapter there is also an explanation of the regression model that we are to use. It also gives reasons for our dataset, criticism, method, limitations and validity.

3.1 Introduction

The goal of this study is to find support for the existence of successful market timing behavior. The method to approach this objective will be by quantifying indicators of successful market timing and relate them to how well companies perform the coming twelve months after an SEO. The results will then be related to market timing theory and to what extent they support successful market timing behavior from companies issuing equity.

According to Kim and Weisbach (2008) there are three main motivations for companies to issue equity which have been used to distinct SEOs reasons to time the market from other reasons. The motivations are:

- To finance a profitable investment,
- To take advantage of a company overvaluation in order to transfer wealth from new shareholders to existing ones
- To increase the company's liquidity.

These are not mutually exclusive, but the type of market timing we are looking for is best described by the second one, transferring wealth to existing shareholders by using an information asymmetry advantage.

For these purposes we have defined the following criteria for successful market timing behavior:

- Management should, correctly, consider investors to be irrational by the definition that the company is being overvalued by the market.
- To be successful, the companies must be able to issue equity at a price where the signaling effect does not exceed the overvaluation.

We have chosen a deductive approach, in which we have formulated a hypothesis based on prior theories described in the previous chapter and some expanded reasoning which will be further explained when put into context. The hypothesis will then be tested against the collected data to see if we can find support for it.

3.2 Dataset

The dataset consists of SEO issues conducted by non-financial companies on the London Stock Exchange[2] for the period 1999-2008. The analysis of the SEOs requires us to collect data before and after the issues which gives us a data period of 1997-2009.

- A restriction in this sample is that companies with less than £10 million in their book value have been excluded due to them not being individually specified.
- We have also restricted the sample by removing issues by companies classified as financial. The reason to exclude financial companies is that they have a different regulatory

[2] The non financial specification used is Datastream FTSE all non-financial.

system compared to the other companies, and which has considerable impact on how they can be financed.

- From the initial sample we have also removed companies for which complete information on book value of equity, book value of debt, monthly stock return, and end of fiscal year period where not readily available
- Subsequent issues by companies which made additional equity issues within twelve months of the first issues have been removed since the model would give them more consideration than is justified.
- Also, in our measure of *equity preference*, nine outliers have been removed for reasons specified in 3.4.2.

In total 553 equity issues by non financial companies where reduced to 249.

3.3 Variables

The indicators require data on;

- *Book value of debt* (BVD), retrieved from the DataStream Worldscope data type '03251'[3]
- *Book value of equity* (BVE), retrieved from the DataStream Worldscope data type 'DWSE'[4]
- *Return index* (RI), retrieved from the DataStream data type 'RI'[5]

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3 LONG TERM DEBT represents all interest bearing financial obligations, excluding amounts due within one year.
4 COMMON SHAREHOLDERS DEBT represents common shareholders' investment in the company retrieved from the balance sheet.

- *End of fiscal period*, retrieved from the DataStream data type '05352'

Due to lack of information on quarterly reporting for all companies in the dataset for book value of equity and debt we consistently used yearly numbers. End of fiscal period was calculated using Datastream reporting of the last annual fiscal end date, and increasing them by three, six, and nine months. For purposes of manageability of data we used end of the month values as a basis for our calculations of return increases.

3.4 Indicators

We have built the following measures as indicators of market timing behavior.

3.4.1 Equity Ratio Change (ERCH)

The part of the model which includes equity ratio change is based on the idea that a company either attempt to stay around a target capital structure, or are changing it based on beneficial opportunities which might come their way.

The reasoning is based on Baker and Wurgler (2002) second assumption, where managers believe that investors are irrational, which would indicate successful market timing. The Baker and Wurgler (2002) study found support that capital structure is highly affected by attempts to time the market.

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5 The return index represents the theoretical aggregate growth in value of the constituents of the index. The index constituents are deemed to return an aggregate daily dividend which is included as an incremental amount to the daily change in price index.

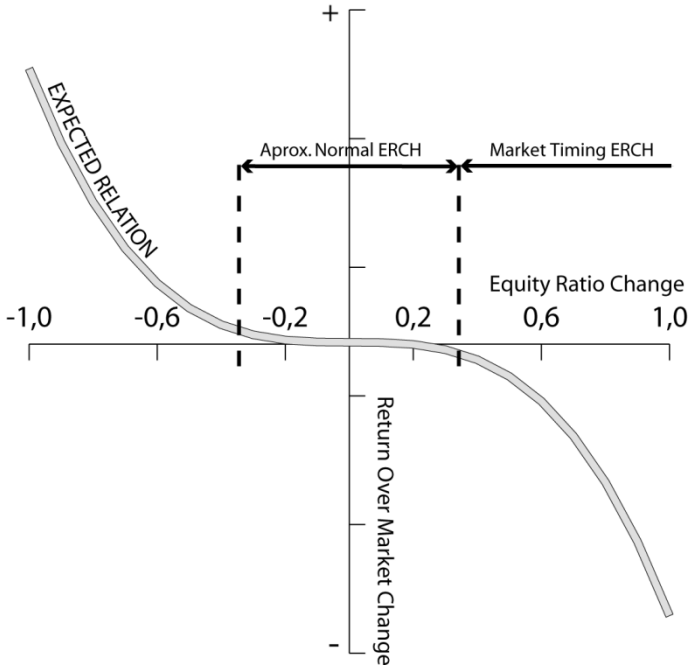
The change in equity ratio is calculated by subtracting prior year's equity ratio to the issuing year equity ratio. This measure will tell us if the company is using the issue to re-lever or as a support of an ongoing balanced financing strategy.

Eq. 3.1

$$Equity\ ratio\ change: \frac{BV\ Equity_{t0}}{BV\ Equity_{t0} + BV\ Debt_{t0}} - \frac{BV\ Equity_{t-1}}{BV\ Equity_{t-1} + BV\ Debt_{t-1}}$$

$$Where\ t_0\ is\ the\ reported\ issue\ fiscal\ year\ values$$

Fig. 3.1: Example of Successful Market Timing Behavior in Equity Ratio Change



Source: Created by the authors

We expect that, acting accordingly to market timing, issuing equity would, in annual total, increase share of equity in the firm. If the market timing behavior is on average successful it would lead to lower returns compared to the market during the next twelve months. More or less all companies issuing equity will to some extent change their capital

structure over a year. Therefore we will raise the ERCH-indicator to the 3rd power[6] in the regressions to better reflect the suggested impact of diversions due to deliberate management decisions.

3.4.2 Preference for Equity (PRE)

According to trade-off theory, preferably investments should be financed by debt until the leveraged risk makes debt more costly than equity. Also, pecking order claims a management preference for debt over equity when it comes to external financing. Going against these rationales and finance by external equity would indicate that the company is either trying to time the market or is in a position of liquidity needs.

Therefore we use the part of net refinancing which consist of equity for the issuing companies as an indicator of whether or not they have a preference for equity and if it had a negative effect on the companies return over the market return. The influences for this indicator can be found in Baker and Wurgler (2000), Loughran and Ritter (1995), Asquith and Mullins (1986), Lucas and McDonald (1990).

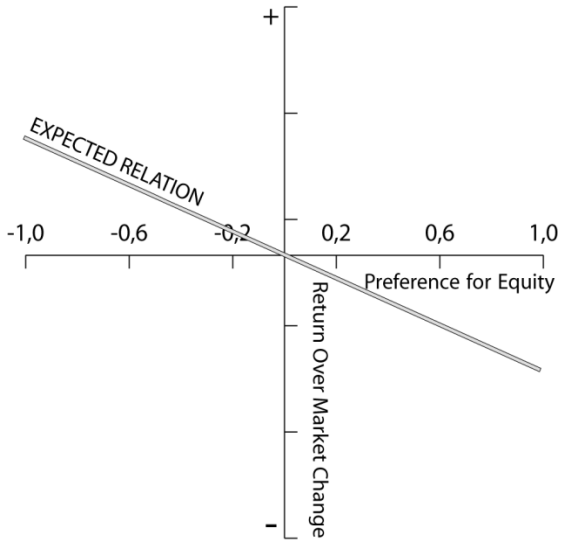
[6] Giving the regression an incremental effect at higher or lower levels of change.

We choose to compare the issue year's total equity financing as a part of absolute change in total financing to its debt equivalent and created the following indicator:

Eq. 3.2

$$Preference\ measure: \frac{\Delta BV\ Equity_{t0} - \Delta BV\ Debt_{t0}}{\sqrt{(\Delta BV\ Equity_{t0} + \Delta BV\ Debt_{t0})^2}}$$

Fig. 3.2: Example of Successful Market Timing Behavior in Preference for Equity



Source: Created by the authors

To clarify, these are our interpretations of the indicator PRE:

Table 3.1 Preference Indicator Interpretation	
Value of indicator	Possible interpretation
$\boldsymbol{Financing\ preference} > 0$	Preference for equity during issue year.
$\boldsymbol{Financing\ preference} < 0$	Preference for debt during issue year.
$\boldsymbol{Financing\ preference} > 1$	Strong preference for equity over debt (repayment of debt by increasing equity) during issue year.
$\boldsymbol{Financing\ preference} < \boldsymbol{-1}$	Strong preference for debt over equity (retirement of equity by increasing of debt) during issue year.

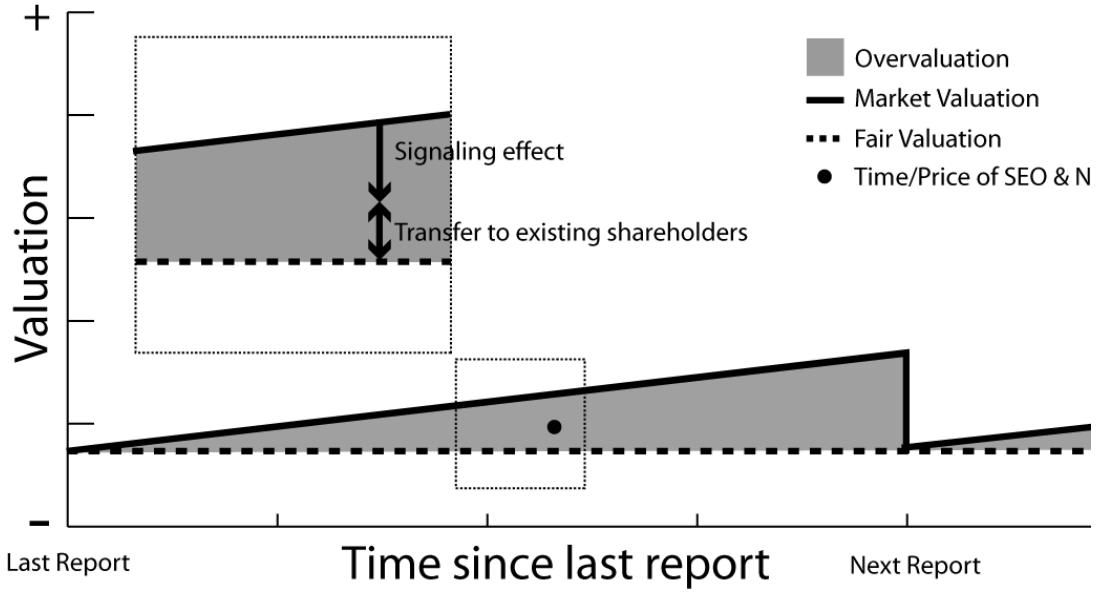
A flaw in this measure is that the companies might prefer debt financing but not have the option due to various reasons such as liquidity

problems, lack of collateral, etc. Another flaw is that if, for example, the increase in book value of equity roughly corresponds to the decrease in book value of debt the denominator will be very small and give a misrepresenting extreme value, which would bias our results. Thus, to make the dataset more representative we removed 9 observations lower than -4 or higher than 4.

3.4.3 Time Since Last Quarterly Report (TSLQR)

One reasonable assumption is that overvaluations are most likely to occur when publicly available information is non-current. Following this, companies who are not overvalued and issue equity to finance a promising investment opportunity in the future are more likely to issue equity shortly after a recent report to avoid sending the wrong signals to the market. On the other hand, companies who issue equity, mainly to gain from what they perceive as a temporary overvaluation are more likely to issue equity before a report can adjust the market's expectations.

Fig 3.3: An illustration of a company conducting in accordance with successful market timing.



Source: Created by the authors

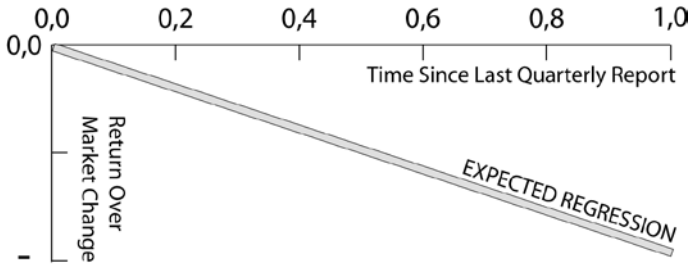
Jegadeesh (2000) found that companies issuing equity in a time period mainly consisting of the days before a report on average performed worse than their peers after the consecutive report. Korajczyk *et al.* (1991) and Chazi and Tripathy (2007) also made a case for this preference among firms.

Hence, the third indicator uses the time from the last quarterly report as an indicator for the diminishing value of the information available to the market. In other words we wanted to see whether companies which made issues further from the last quarterly reports were more or less likely to perform worse as compared to the market during the following year.

Eq. 3.3

$$Time\ Since\ Last\ Quarterly\ Report: \frac{Date\ of\ issue - End\ of\ last\ fiscal\ quarter}{3\ months}$$

Fig. 3.4 Example of Successful Market Timing Behavior in Time Since Last Quarterly Report



Source: Created by the authors

Flaws in this measure includes that some companies might have other information available which we cannot for practical and consistency reasons take into account in the model.

3.4.4 Change in Return Compared to the Market (ROM)

In order to compare the indicators to the following twelve months performance we are using a return index.

The return index (RI) is a measure used by DataStream to measure absolute aggregate value growth. It uses the daily increase in share price and a daily allocation of the dividend yield to create the index.

Our dataset uses the RI at the end of each month. The period of return used is the twelve months up to the issue to measure ingoing performance and the following twelve months to measure performance after the issue. A similar measure is created for FTSE all non-financial list to provide a measure for the stock's performance relative to the market. Lastly the company's performance relative to the market for the twelve pre-issue months is compared to the twelve post issue months to see the company's relative performance change.

Fama (1998) has criticized studies for not taking risk into account in their research. Baker and Wurgler (2000, 2002) defended not using risk adjustment, arguing that market timing situations describe inefficiency in the market, and therefore existing risk measures would bias the results. In line with the later argument there will be no risk adjustments made in our model.

Adjusting for the market's performance is done under the assumption that the company board and managers does not have information superior to the market on the future of the general economy but only on matters of the own company's future performance.

Eq. 3.4

Return over market:

$$\left(\frac{RI_{Company\ \ t+1}}{RI_{Company\ \ t0}} - \frac{RI_{Market\ \ t+1}}{RI_{Market\ \ t0}}\right) - \left(\frac{RI_{Company\ \ t0}}{RI_{Company\ \ t-1}} - \frac{RI_{Market\ \ t0}}{RI_{Market\ \ t-1}}\right)$$

3.5 Quantitative Analysis

The quantitative analysis of this study will test the hypothesis if the three indicators of our model *equity ratio change* (ERCH), *preference for equity* (PRE) and *time since last quarterly report* (TSLQR) are negatively related to *return over market* (ROM) in order to find support for successful market timing.

3.5.1 Regression Model

We will perform regression analysis[7] by Ordinary Least Square (OLS) method. Since our data is cross sectional we do not have to worry about autocorrelation.

The general regression models consists of the change in *the company's return compared to the market* (ROM) as the dependent indicator, whereas the independent variables will consist of the previously described indicators *equity ratio change* (ERCH) , *preference for equity* (PRE) and *time since quarterly report* (TSLQR). We will run four regressions in total, firstly regressing all independent indicators individually, equations are presented below:

$$ROM = \beta_1 + \beta_2 ERCH + \varepsilon \quad \text{Eq. 3.5}$$

$$ROM = \beta_1 + \beta_2 PRE + \varepsilon \quad \text{Eq. 3.6}$$

$$ROM = \beta_1 + \beta_2 TSLQR^3 + \varepsilon \quad \text{Eq. 3.7}$$

and finally we will regress all independent indicators jointly,

Eq. 3.8

[7] For statistical calculations EViews 6 was used

$$ROM = \beta_1 + \beta_2 ERCH + \beta_3 PRE + \beta_4 TSLQR + \varepsilon$$

3.5.2 Validity Testing

Compliance with the assumptions of the best linear unbiased estimator will be tested on the following:

- Normal distribution
- Heteroskedasticity
- Multicollinearity
- Model specification

Further details in chapter 4, appendix B and C.

3.6 Criticisms of the Methodology

Time matching problems – While the book-values in the regression is reported based on the fiscal year end dates, the return indexes are retrieved based on the month of the issues. This allows for an up to six month mismatching in time from issue to issue depending on when the issue is made and when the company ends its fiscal year. However, going to quarterly data for book values would lose a great deal of observations due to information not being available.

Time frame is not long enough – An equity issue made in order to finance a long term investment might affect returns negatively in the following few years until the investment starts to pay off. Apart from that, studies have shown that companies try to keep their dividends at an even level even through business and market cycles. Also the efficient

market hypothesis suggests that future earnings at equal or higher levels should be reflected in the share price before they are realized. Since the RI measure used is composed of both dividends and changes in equity prices the one year time frame is considered to be sufficient, which was also consider sufficient by Baker and Wurgler (2000). Also any information advantage the companies might have compared to the market is likely to be of diminishing nature, and show up the strongest in the short-term.

Survival bias – Our depending variable cannot take into account the companies which ceased to exist within one year after the issue. The removal of these companies from the dataset leads to a survivor bias which is likely to remove some of the companies that issue equity for market timing reasons. It is also reasonable to assume that it removes less than average of the companies which are using issues to finance investments and more of the companies which are issuing because they are in need of liquidity.

Risk reflection – As indicated by a company's historical beta value, different companies have a different sensitivity to changes in the market cycle. This could lead to a leveraging effect in our change in RI-measure for companies with comparably high or low betas. Previous studies involving market timing has been criticized by Fama (1998) for the same deficiency.

What is the RI measuring? – Another problem is to know if the decrease in return measures normalization after an overvaluation or the market's reactions to not being certain of what degree of information asymmetry that exists and what the SEOs signal. The answer is most likely that it is both to some extent but twelve months after an issue most unfounded signaling effects should be resolved.

3.7 Reliability

Apart from fulfilling the validity assumptions of the *ordinary least squares*-method described in 3.5.2 the main concern about this study is whether or not the study actually measures what is supposed to be measured.

Since market timing has a lot of elements of behavioral character, measuring it in a quantitative way becomes a game of definitions and subjective judgments. This being said, we believe the arguments presented for the suggested indicators show they can be used to indicate market timing behavior and the depending variable to measure relative performance.

The possibility to generalize the results to other markets is dependent on the similarities between them in regulations, traditions, conditions etc., which differ over time and jurisdictions. The results should be possible to generalize to similar markets, such as those existing in western countries with Anglo-American characteristics.

Chapter 4 - Empirical Results

This chapter will present our empirical findings. There will also be a presentation of the validity testing that has been made to prove our models robustness.

4.1 Regressions

This chapter reports and discusses the empirical result from the following regressions:

- the first regression has tested to which extent companies changed their capital structure in relation to the ROM
- the second regression has tested if the companies equity preference in relation to the ROM
- the third regression has tested if the time past from the quarterly report in relation to the ROM
- and the final multivariate regression model shows all the indicators mentioned above being tested jointly and if they have any power in explaining the changes in the ROM

4.1.1 Results from Univariate Regressions

The table 4.1 below contains a summary of statistics for the first three regressions.

Table 4.1 Univariate OLS regressions of indictors over ROM						
	Model 1		Model 2		Model 3	
	$ROM = \alpha + \beta * ERCH^3 + \varepsilon$		$ROM = \alpha + \gamma * PRE + \varepsilon$		$ROM = \alpha + \delta * TSLQR + \varepsilon$	
Variable	C	ERCH^3	C	PRE	C	TSLQR
Coefficient	-0.70216	0.002011	-0.66544	-0.32916	-1.1085	0.654112
t-statistic	-5.33489	10.18232	-4.08093	-2.1842	-3.6072	1.275326
P-value (one tail)	0	0	0.00005	0.014955	0.00019	0.101706
P-value (two tail)	0	0	0.0001	0.0299	0.0004	0.2034
Std. Error	0.131617	0.000198	0.16306	0.150701	0.307302	0.512898
R-squared	0.295654		0.018949		0.006595	
N	249		249		249	
Description: This table report results of three regression models. Model 1 represents regression of the return over market on the equity ratio change. Model 2 represent regression of the return over market on the preference for equity. Model 3 represents regression of the return over market on the time since last quarterly report. By using p-value of one tail* test the coefficient of ERCH and PRE are significant at 1 % and 5 % levels, whereas coefficient of TSLQR is insignificant at 1%, 5 % and 10 % percent.						

Model 1 in the table 4.1 contains the results of the univariate regression of the ERCH indicators association with ROM. The coefficient of the ERCH indicator is positively associated with the change in ROM in the next twelve months. The probability value (p-value) shows the coefficient is statistically significant, the degree of explanation in the model is the highest compared to the other two models. However, the direction of the coefficient shows the ERCH indicator is not consistent with the expected relation to ROM under the assumption of successful market timing behavior.

The results of model 2 are presented in table 4.1 and indicate an inverse relationship between the PRE and ROM. The value of the coefficient is statistically significant at 1 percent significant level and its direction indicates that the PRE is negatively associated with the ROM, which is in line with the assumptions under successful market timing behavior.

The final model in the table 4.1 shows the results of the regressions the TSLQR indicator with return over market. The coefficient of this model has a positive sign, but is not significantly different from zero.

4.1.2 Results from Multivariate Regressions

Table 4.2 presents the results of the multivariate regression, where the three indicators were tested jointly in the model. The result for the two indicators ERCH and PRE have similarity to result from the univariate regression and the coefficients have same direction as before and both are statistically significant at 1%. However the coefficient of the TSLQR becomes statistically significant and goes against what was expected if successful market timing was present.

Table 4.2 Multivariate OLS regressions of indictors over ROM

$$\mathbf{ROM} = \propto + \boldsymbol{\beta}_1 \mathbf{ERCH}^3 + \boldsymbol{\beta}_2 \mathbf{PRE} + \boldsymbol{\beta}_3 \mathbf{TSLQ} + \boldsymbol{\varepsilon}$$

Variable	Coefficient	t-statistic	Prob (one tail)	Prob (two tail)	Std. Error
C	-1.09644	-4.3481	0.00001	0.00002	0.252165
ERCH^3	0.002071	10.73005	0	0	0.000193
PRE	-0.42597	-3.40017	0.000393	0.0008	0.12528
TSLQR	1.053447	2.492148	0.00668	0.0134	0.422706
F-value	41.81457				
P-value	0				
R-squared	0.340469				
N	249				

Description: This table report results of the multivariate regression model. This model 1 represents regression of the return over market on the equity ratio change, preference for equity, and time since last quarterly report. By using p-value of one tail t-test the coefficient of all three indicators ERCH, PRE, and TLSQR are significant with 1 % and 5 % levels.

4.2 Validity Tests

In order to make sure the regressions and hypothesis testing results are valid, a number of test were performed. For more detailed results refer to the appendix.

- One of the assumptions of the least square method is that the residuals have to be normally distributed. According to Brooks (2002) if the sample is sufficiently large, the test statistic will asymptomatically follow the appropriate distribution even in the absence of error terms. Therefore due to our large sample the violation of normal distribution has no major implications.
- Heteroskedasticity in the model was not present. The White test with cross terms was performed indicating no support for presence of heteroskedasticity in the data.
- Misspecification of the model was tested using the RESET test which did not indicate any non-linearity.
- The final step was to test for multicollinearity. An implicit assumption of the OLS estimation is that the independent variables are not correlated with each other. Two methods have been used to detect multicollinearity in the model. In the first case a correlation matrix has been produced in table 4.3.

Table 4.3 Correlation matrix for indicators

Correlation	ROM	ERCH^3	PRE	TSLQR
ROM	1			
ERCH03	0.544665	1		
PRE	-0.13699	0.049532	1	
TSLQR	0.081208	-0.055286	0.104141	1

Description: This table report the correlation coefficient between the indicators used in the model. The value of the correlation coefficient between return over market and equity rate change is the highest compared to the other, but none of them can be considered to be highly correlated.

The results in the correlation matrix indicate the absence of the multicollinearity between the independent indicators. Another more precise method of detecting multicollinearity is by using *Klien's rule of thumb*.

Table 4.4 Klien's Rule of Thumb on multicollinearity		
Regression Models	R^2	Outcome
Model 4	0.340469	
Auxiliary Regression 1	0.006147	$R^2 > R^{2*}$
Auxiliary Regression 2	0.013912	$R^2 > R^{2*}$
Description: This table report the results of Klien's Rule of Thumb test. Model 4 represent the value of R^2 for regression in table 4.2. Auxiliary Regression 1 represents the regression of the equity ratio change on the preference for equity and time since last quarterly report. Auxiliary Regression 2 represents the regression of the preference for equity on the equity ratio change and time since last quarterly report. With this test we obtain values of R^{2*} from the two auxiliary regressions. Then, the values of R^{2*} from the auxiliary regressions are compared with R^2 from the Model 4. Since R^2 from the Model 4 is higher, it can be said that our model does not suffer from multicollinearity.		

The Klein's Rule of Thumb-*test* auxiliary regressions are presented on the table above also does not indicate a multicollinearity problem. From the methods used above it can be said that the independent variables are not closely related or *orthogonal* to one another (Gujarati, 2003).

Chapter 5 - Analysis

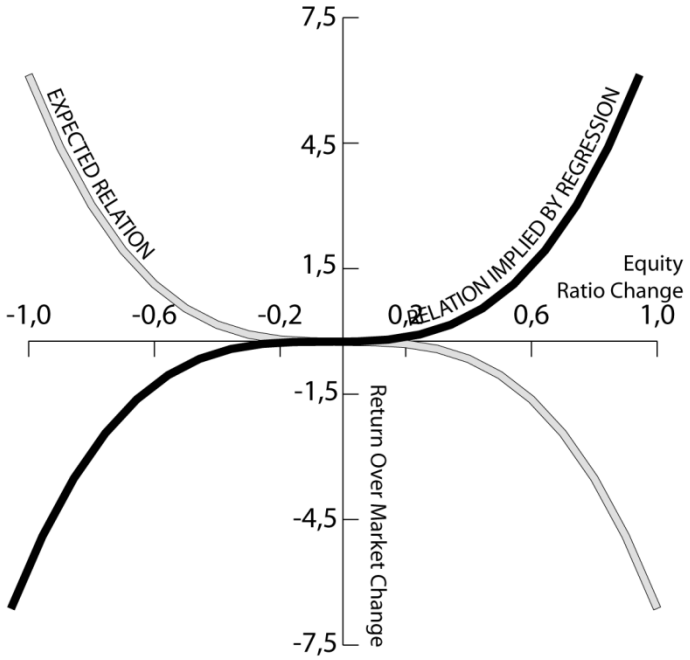
This chapter we will analyze the empirical results, both in relation to prior theories and the methodology. The aim is to explain our findings, their implications and put them into a larger context.

5.1 Equity Ratio Change

As argued in the methodology chapter, any significant *equity ratio change* was expected to be negatively related to the *return over market* in order to support successful market timing behavior. The empirical results showed quite the contrary. Companies who raised their equity ratio did not lower but increased their returns over market. Therefore we cannot find support for successful market timing by looking at the equity ratio change.

Table 5.1				
Variable	Coefficient	Prob(1 tail)	Prob (two tails)	Std. Error
ERCH^3	0.002071	0	0	0.000193

Fig. 5.1 Result from the Equity Ratio Change



Source: Created by the authors

A different aspect is that the dataset does not include companies which went out of business within twelve months after the issue. These excluded examples might have offered the most severe cases of overvaluation. The survivor bias would leave a disproportionate number of companies which did not issue for market timing reasons and hence alter the results of the study.

This finding can be related to the lemons market argument put forward by Korajczyk *et al.* (1991), that the market expects all firms who issue equity to have bad private information, and expects firms with good private information not to issue. However, this example is an extreme and it can be assumed that a part of the companies who went dead are what can be considered a lemon company, while assuming surviving ones not to be. This can be one of the reasons for the positive relation between increases in equity ratio and increasing stock return.

Another theory that might explain the increase in market value if the firm increases its equity ratio might be explained by Eckbo *et al.* (2000), who found that issuing firms do not underperform the market. They

argued that firms reduce risk in three different ways; risk of default, dependence of inflation and a higher liquidity. By lowering these risks the market might have a more positive valuation of the firm. Offering a further possible skewing of the sample, Kim and Weisbach (2008) showed that firms use the greater majority of the issues to finance investment opportunities, which usually gives a higher diversification in the revenue stream, thus lowering the risk even further.

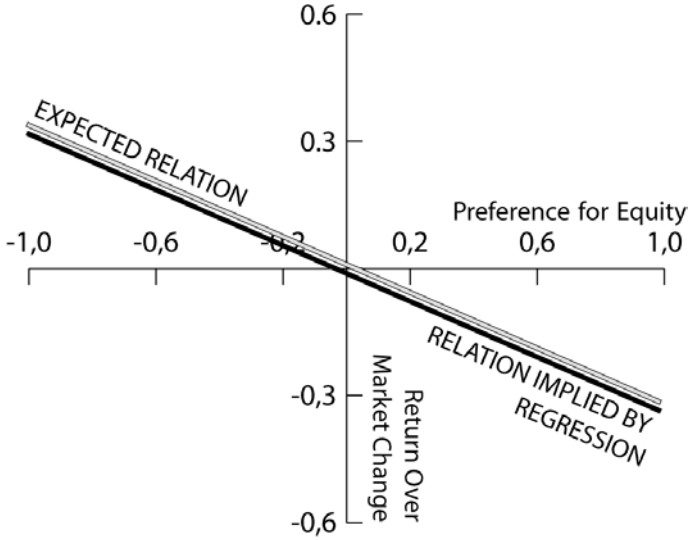
The dynamic tradeoff theory offers an explanation for the results. From the company's perspective, levering towards a higher equity ratio in most cases implies a higher cost of financing. A company aiming to act in the best interest of its financiers would therefore only issue equity if they would be able to produce sufficiently higher returns. However, since the model was built to test for successful market timing behavior no conclusions about tradeoff can be made.

5.2 Preference for Equity

In line with our prior expectations, the companies who had a higher preference for equity performed worse during the next twelve months. This supports the theory that managers can successfully time the market.

Table 5.2				
Variable	Coefficient	Prob(1 tail)	Prob (two tails)	Std. Error
PRE	-0.42597	0.000393	0.0008	0.12528

Fig 5.2 Result from the Preference for Equity



Source: Created by the authors

The result presented above in the diagram indicates what Baker and Wurgler (2000) found in their study, where a successful market timing behavior would support what managers perceive as investors not being fully rational.

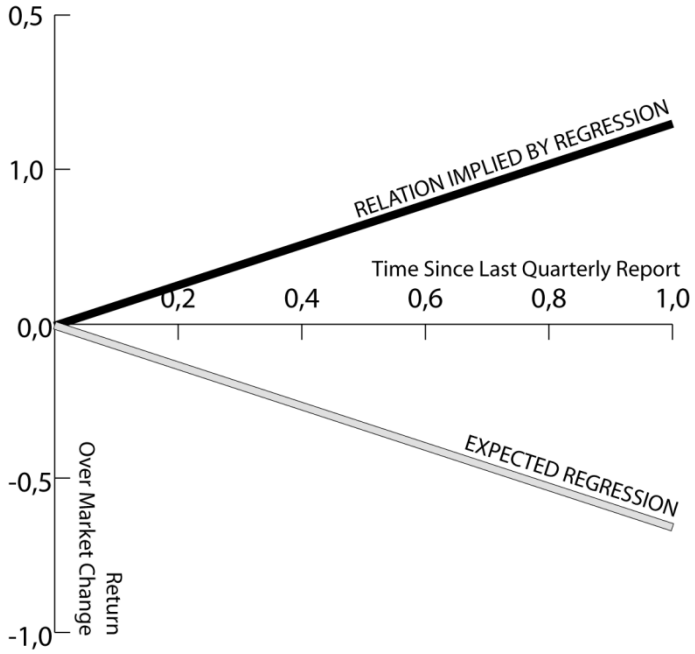
5.3 Time Since Last Quarterly Report

The interpretation of *successful market timing behavior* in this indicator would be; the longer between an information release and an issue the worse a company will perform in the future. This will happen due to the diminishing value of information over time and the information asymmetry would be adjusted as more information becomes public.

However, the results showed the opposite. Firms announcing an issue a short time after a report did worse compared to companies who issued further from one. These results contradict the "successful"-criteria of the *successful market timing behavior.*

Table 5.3				
Variable	Coefficient	Prob(1 tail)	Prob(two tails)	Std. Error
TSLQR	1.053447	0.00668	0.0134	0.422706

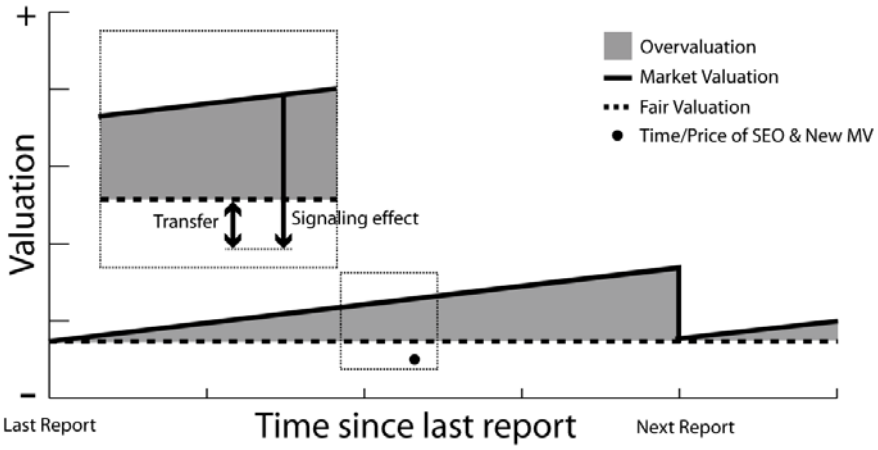
Fig. 5.3 Result from the Time Since Last Quarterly Report



Source: Created by the authors

One possible explanation can be found in the signaling theory. The market might interpret an issue made far from the latest report as much riskier than one made close after the issue. If the signaling effect is stronger than the overvaluation the company will become undervalued due to the issue. Over the next year more recent and relevant information becomes available and the company's value recovers. As indicated above in the figure 5.3, firms which make an equity issue might drop below their fair value, but start to transfer back over time.

Fig. 5.4 Result from the Time Since Last Quarterly Report



Source: Created by the Authors

Asquith and Mullins (1986) discuss signaling value of different policy decisions where financing decisions should have the strongest signaling effect. Thus, supporting the likelihood of signaling effects being stronger than overvaluations.

Chapter 6 - Conclusions

In this chapter we will give our conclusions based on the sections presented earlier in the thesis and there is also going to be a section giving suggestions for further research into the subject of market timing.

6.1 Conclusions

The purpose of this thesis has been to study successful market timing behavior in connection to SEOs on the London Stock Exchange and to see if investors fail to identify and correct these discrepancies.

In the creation of our indicators, *preference for equity* was the one which we considered intuitively most descriptive of market timing behavior. On its own it explained 1.9% of the variation, considering the amount of possible variables that could affect the ROM this value is definitely not negligible. *Preference for equity* gave the expected result and granted support to the existence of successful market timing behavior.

In our model *Equity Ratio Change* was the indicator which had the highest degree of explanation for the residuals but the trend of the indicator did not support successful market timing. In our study it would seem like dynamic tradeoff theory best explained the effect since it allows the firm to deviate from the target debt ratio, but usually re-lever back over the coming time period.

The third indicator, *Time Since Last Quarterly Report* was the indicator which had the smallest explanatory power and also no statistical significance on its own. In the context of the multivariate regression, *Time Since Last Quarterly Report* was statistically significant, but just

like *Equity Ratio Change,* the coefficient did not support successful market timing. We believe the most likely explanation to be a strong signaling theory effect, where signaling prevails over any eventual overvaluation.

To sum up our findings, we identified some support for successful market timing behavior but in the context of the overall study, the results must be considered to be inconclusive. The intuitive explanations for the results is that investors are overly cautious towards companies issuing SEOs with some of the characteristics we have studied and lower their values at the time of the issue, resulting in an undervaluation. When more information becomes available the investors adjusts the valuation upwards.

Our results would be of interest for investors who worry about information asymmetries in connections to SEOs, to whom our results indicate that, the information asymmetry actually work in their favor. However, a longer study and a larger set of variables would be needed to more thoroughly study the alternative effects. A new model would need to be constructed which included an ability to better separate motivations for issues and handle the companies which no longer were traded a year later.

Other researchers worth noting, with studies finding support for similar effects as those we identified; Kim and Weisbach (2008) who showed that firms making an SEO use the capital to finance investments, which gives an understanding of why the returns increase over the coming year. Kaylan and Titman (2007), whom found that firms act as if they have a target debt ratio, but allow themselves to deviate from it if investment opportunities arise. This argument is in line with the findings in the *equity ratio change* when tradeoff is the dominant determinant of financing decisions. Asquith and Mullins (1986) argue that signaling effects are stronger than overvaluations. Eckbo *et al.* (2000) finds that issues on general, outperforms the market because of the infused equity, this is in line with our *Equity Ratio Change* findings. But it should be

noted that, behavior indicators apart, our sample on average decreased their performance.

6.2 Suggestions for Further Research

Apart for the previously suggested extension of the model, we have the following recommendations for further research:

- In constructing our research we wanted to look at insider trading before a SEO as an indicator of market timing behavior. The logic being that, managers selling their private holdings, does not have to worry about sending signals to the market as strong as the actual SEO and therefore have an opportunity to capture value from an over valuation earlier than the company. We believe this to be a very strong indicator, the reason we did not use it was that the information needed was not readily available and manually collecting it would be beyond the timeframe of this study.
- Another study which would add to the field of market timing would be to conduct a qualitative study, where the firms CFOs for instance are asked what factors determine their choice when deciding on how to finance their company. As mentioned, the factors needed to describe market timing are difficult to objectively measure in a quantitative way and a qualitative study with interviews or a questionnaire would be able to give a more specific explanation on to what degree the companies try to time the market when deciding on a SEO.

Chapter 7 - Bibliography

7.1 Literature

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7.2 Data Sources

Datastream Advance 4.0, Thomson Financial Limited

London Stock Exchange Main Market Statistics

APPENDIX

Appendix A

Tables containing results from the four regression models

Table A1

Model 1						
ROM =	-0.702159826346 + 0.00201133761064*ERCH^3					
Method: Least Squares						
Sample: 1 249						
Included observations: 249						
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**		
C	-0.70216	0.131617	-5.33489	0		
ERCH^3	0.002011	0.000198	10.18232	0		
R^2	**Adjusted R^2**	**S.E. of regression**	**SSR**	**Log L**	**F-statistic**	**Prob(F-statistic)**
0.295654	0.292802	2.073776	1062.236	-533.925	103.6797	0

Table A2

Model 2						
ROM =	-0.665437784018 - 0.329160776505*PRE					
Method: Least Squares						
Sample: 1 249						
Included observations: 249						
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**		
C	-0.66544	0.16306	-4.08093	0.0001		
PRE	-0.32916	0.150701	-2.1842	0.0299		
R^2	**Adjusted R^2**	**S.E. of regression**	**SSR**	**Log L**	**F-statistic**	**Prob(F-statistic)**
0.018949	0.014977	2.447455	1479.538	-575.179	4.770736	0.029888

Table A3

Model 3						
ROM =	-1.1084998692 + 0.654112144804*TSLQR					
Method: Least Squares						
Sample: 1 249						
Included observations: 247						
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	Prob.		
C	-1.1085	0.307302	-3.6072	0.0004		
TSLQR	0.654112	0.512898	1.275326	0.2034		
R^2	**Adjusted R^2**	**S.E. of regression**	**SSR**	**Log L**	**F-statistic**	**Prob(F-statistic)**
0.006595	0.00254	2.469049	1493.57	-572.721	1.626456	0.203402

Appendix A continued

Table A4

Model 4						
ROM =	-1.09643925095 + 0.00207102877055*ERCH^3 - 0.425971994822*PRE + 1.05344677869*TSLQR					
Method: Least Squares						
Sample: 1 249						
Included observations: 247						
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**		
C	-1.09644	0.252165	-4.3481	0		
ERCH^3	0.002071	0.000193	10.73005	0		
PRE	-0.42597	0.12528	-3.40017	0.0008		
TSLQR	1.053447	0.422706	2.492148	0.0134		
R^2	**Adjusted R^2**	**S.E. of regression**	**SSR**	**Log L**	**F-statistic**	**Prob(F-statistic)**
0.340469	0.332327	2.020059	991.5947	-522.134	41.81457	0

Appendix B

Tables containing results from the White test for presence of heteroscedasticity

Table B1

Model 1 Heteroskedasticity Test: White						
F-statistic	0.141864	**Prob. F(2,246)**		0.8678		
Obs*R-squared	0.286858	**Prob. Chi-Square(2)**		0.8664		
Scaled explained SS	1.985094	**Prob. Chi-Square(2)**		0.3706		
Dependent Variable: RESID^2						
Method: Least Squares						
Sample: 1 249						
Included observations: 249						
Coefficient	**Std. Error**	**t-Statistic**	**Prob.**			
C	4.248579	1.02422	4.14811	0		
ERCH^3	0.005611	0.012017	0.466965	0.6409		
(ERCH^3)^2	4.99E-07	1.16E-06	0.430474	0.6672		
R^2	**Adjusted R^2**	**S.E. of regression**	**SSR**	**Log L**	**F-statistic**	**Prob(F-statistic)**
0.001152	-0.006969	16.08711	63663.6	-1043.533	0.141864	0.86781

Table B2

Model 2 Heteroskedasticity Test: White						
F-statistic	0.219274	**Prob. F(2,246)**		0.8033		
Obs*R-squared	0.443105	**Prob. Chi-Square(2)**		0.8013		
Scaled explained SS	6.553722	**Prob. Chi-Square(2)**		0.0377		
Dependent Variable: RESID^2						
Method: Least Squares						
Sample: 1 249						
Included observations: 249						
Coefficient	**Std. Error**	**t-Statistic**	**Prob.**			
C	6.533351	2.440993	2.676513	0.0079		
PRE	0.703527	2.09809	0.335318	0.7377		
PRE^2	-0.705828	1.100318	-0.641476	0.5218		
R^2	**Adjusted R^2**	**S.E. of regression**	**SSR**	**Log L**	**F-statistic**	**Prob(F-statistic)**
0.00178	-0.006336	32.74765	263812.5	-1220.526	0.219274	0.803259

Table B3

Model 3 Heteroskedasticity Test: White						
F-statistic	0.009756	**Prob. F(2,244)**		0.9903		
Obs*R-squared	0.019751	**Prob. Chi-Square(2)**		0.9902		
Scaled explained SS	0.279985	**Prob. Chi-Square(2)**		0.8694		
Dependent Variable: RESID^2						
Method: Least Squares						
Sample: 1 249						
Included observations: 249						
Coefficient	**Std. Error**	**t-Statistic**	**Prob.**			
C	6.77363	5.60509	1.208478	0.228		
TSLQR	-3.410211	27.1238	-0.125728	0.9001		
TSLQR^2	2.867152	26.91965	0.106508	0.9153		
R^2	**Adjusted R^2**	**S.E. of regression**	**SSR**	**Log L**	**F-statistic**	**Prob(F-statistic)**
0.00008	-0.008116	32.65789	260235.2	-1210.032	0.009756	0.990292

Appendix B continued

Table B4

Model 4 Heteroskedasticity Test: White						
F-statistic	1.279429	**Prob. F(9,237)**		0.2487		
Obs*R-squared	11.44467	**Prob. Chi-Square(9)**		0.2465		
Scaled explained SS	70.93815	**Prob. Chi-Square(9)**		0		
Dependent Variable: RESID^2						
Method: Least Squares						
Sample: 1 249						
Included observations: 249						
Coefficient	**Std. Error**	**t-Statistic**	**Prob.**			
C	8.766803	2.605502	3.364727	0.0009		
ERCH^3	0.000299	0.018516	0.01614	0.9871		
(ERCH^3)^2	1.85E-07	3.78E-06	0.04902	0.9609		
(ERCH^3)*PRE	0.000259	0.02946	0.00879	0.993		
(ERCH^3)*TSLQR	0.002632	0.060226	0.043704	0.9652		
PRE	4.034982	1.607331	2.510362	0.0127		
PRE^2	-0.267282	0.504687	-0.5296	0.5969		
PRE*TSLQR	-4.082687	2.850656	-1.432192	0.1534		
TSLQR	-22.97492	12.14318	-1.892003	0.0597		
TSLQR^2	19.18399	12.01847	1.59621	0.1118		
R^2	**Adjusted R^2**	**S.E. of regression**	**SSR**	**Log L**	**F-statistic**	**Prob(F-statistic)**
0.046335	0.01012	14.32364	48624.51	-1002.866	1.279429	0.248735

Description: Table B1, B2, B3 and B4 report the White test result for heteroskedasticty. In this test cross terms are included as well; therefore it was tested not just for pure heteroscedasticity but for error specification. The results for the four models indicated that the null hypothesis cannot be rejected; all the coefficients of interest are insignificant. Hence, our model does not suffer from heteroscedasticity.

Table B5

Model 4 Heteroskedasticity Test: White without cross terms						
F-statistic	0.489903	**Prob. F(3,243)**		0.6896		
Obs*R-squared	1.484922	**Prob. Chi-Square(3)**		0.6858		
Scaled explained SS	9.204072	**Prob. Chi-Square(3)**		0.0267		
Dependent Variable: RESID^2						
Method: Least Squares						
Sample: 1 249						
Included observations: 249						
Coefficient	**Std. Error**	**t-Statistic**	**Prob.**			
C	5.392016	1.516074	3.556566	0.0005		
(ERCH^3)^2	-3.20E-08	1.33E-07	-0.240775	0.8099		
PRE^2	-0.102144	0.467029	-0.218711	0.8271		
TSLQR^2	-3.462043	2.979041	-1.162133	0.2463		
R^2	**Adjusted R^2**	**S.E. of regression**	**SSR**	**Log L**	**F-statistic**	**Prob(F-statistic)**
0.006012	-0.00626	14.44166	50680.45	-1007.98	0.489903	0.689608

Description: This table report result the White test result for heteroskedasticity. This is model 4 where cross terms are not included. Even though cross terms are not included, this does not change our results. The result indicates that the null hypothesis cannot be rejected, and the value of coefficient of interest is insignificant.

Appendix C

Tables containing results from the RESET test (Ramsey test)

Table C1

RESET Ramsey Test								
Model 1					**Model 2**			
Number of fitted terms 1					**Number of fitted terms 1**			
	Coefficient	**Std. Error**	**t-Statistic**	**Prob.**		**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	-0.6696	0.1346	-4.9740	0.0000	**C**	-1.0214	0.4488	-2.2757	0.0237
ERCH^3	0.0002	0.0017	0.0910	0.9276	**PRE**	-0.6493	0.4051	-1.6027	0.1103
FITTED^2	-0.0419	0.0369	-1.1349	0.2575	**FITTED^2**	0.6465	0.7594	0.8513	0.3954
F-statistic	1.2881	Prob. F(1,246)		0.2575	**F-statistic**	0.7248	Prob. F(1,246)		0.3954
Log likelihood ratio	1.3004	Prob. Chi-Square(1)		0.2541	**Log likelihood ratio**	0.73254	Prob. Chi-Square(1)		0.3921
Number of fitted terms 2					**Number of fitted terms 2**			
C	-0.2112	0.5089	-0.4150	0.6785	**C**	0.3478	0.8441	0.4120	0.6807
ERCH^3	0.0009	0.0019	0.5079	0.612	**PRE**	0.0365	0.5396	0.0677	0.9461
FITTED^2	-0.9934	1.0192	-0.9747	0.3307	**FITTED^2**	-3.5875	2.3405	-1.5328	0.1266
FITTED^3	-0.0446	0.0478	-0.9342	0.3511	**FITTED^3**	-1.9692	1.0303	-1.9113	0.0571
F-statistic	1.0801	Prob. F(2,245)		0.3412	**F-statistic**	2.1928	Prob. F(2,245)		0.1138
Log likelihood ratio	2.1858	Prob. Chi-Square(2)		0.3352	**Log likelihood ratio**	4.4179	Prob. Chi-Square(2)		0.1098

Table C2

RESET Ramsey Test								
Model 3					**Model 4**			
Number of fitted terms 1					**Number of fitted terms 1**			
	Coefficient	**Std. Error**	**t-Statistic**	**Prob.**		**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.26554	5.57231	0.04765	0.96200	**C**	-1.0321	0.2648	-3.8969	0.0001
TSLQR	-0.56143	4.94874	-0.11345	0.90980	**ERCH^3**	0.0007	0.0017	0.4473	0.6550
FITTED^2	-1.17698	4.76585	-0.24696	0.80510	**PRE**	-0.4051	0.1281	-3.1632	0.0018
F-statistic	0.0610	Prob. F(1,244)		0.8051	**TSLQR**	0.9737	0.4346	2.2405	0.0260
Log likelihood ratio	0.0617	Prob. Chi-Square(1)		0.8038	**FITTED^2**	-0.0296	0.0369	-0.8007	0.4241
Number of fitted terms 2					**F-statistic**	0.6412	Prob. F(1,242)		0.4241
C	-41.2690	47.2954	-0.8726	0.3838	**Log likelihood ratio**	0.6536	Prob. Chi-Square(1)		0.4188
TSLQR	30.8013	35.80776	0.8602	0.3905	**Number of fitted terms 2**	-1.0160	0.5148	-1.9738	0.0495
FITTED^2	62.2077	71.83145	0.8660	0.3873	**C**	-1.0160	0.5148	-1.9738	0.0495
FITTED^3	26.9087	30.42742	0.8844	0.3774	**ERCH^3**	0.0007	0.0017	0.4445	0.6571
F-statistic	0.4215	Prob. F(2,243)		0.6565	**PRE**	-0.3981	0.2302	-1.7295	0.0850
Log likelihood ratio	0.8554	Prob. Chi-Square(2)		0.652	**TSLQR**	0.9557	0.6581	1.4523	0.1477
					FITTED^2	-0.0424	0.3560	-0.1192	0.9052
					FITTED^3	-0.0006	0.0162	-0.0364	0.9710
					F-statistic	0.3199	Prob. F(2,241)		0.7265
					Log likelihood ratio	0.6549	Prob. Chi-Square(2)		0.7207

Description: Tables C1 and C2 report results from the RESET test. In this case it was tested if the non-linearity is present in the models. The four models were tested and the results indicate that the null hypothesis cannot be rejected and the values of coefficients are statistically insignificant. Therefore it can be said that our model does not suffer from non-linearity. The regressions were done with two fitted terms.