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**THE IMPACT OF INSTITUTIONAL QUALITY ON
IPOS OVERSUBSCRIPTION: EVIDENCE IN MALAYSIA**



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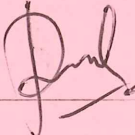
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Abstrak

Tujuan utama kajian ini adalah untuk mengkaji kesan kualiti institusi ke atas terlebih langganan dalam tawaran awam awal (TAA) yang tersenarai di Bursa Malaysia dari tempoh 2000 hingga 2016. Kajian ini terdiri daripada enam pembolehubah kawalan untuk mengawal kualiti institusi terhadap terlebih langganan. Banyak kajian telah mengkaji hubungan antara kualiti institusi dan terlebih langganan mengenai harga rendah TAA. Kajian ini memenuhi jurang untuk menentukan kualiti institusi pada oversubscription kerana kajian sebelumnya membuktikan terlebih langganan adalah penting kepada harga rendah TAA. Enam dimensi kualiti institusi yang dikumpulkan daripada Petunjuk Tata Pemerintahan Dunia (WGI) yang terdiri daripada suara dan kebertanggungjawaban, keberkesanan kerajaan, kestabilan politik dan ketiadaan keganasan / keganasan, kualiti pengawalseliaan, kedaulatan undang-undang, dan kawalan rasuah. Asimetri maklumat dan teori isyarat digunakan untuk menggambarkan hubungan kualiti institusi terhadap terlebih langganan. Kajian ini menggunakan analisis regresi berganda keratan rentas untuk menguji seluruh hipotesisnya. Menganalisis data 392 TAA di Malaysia, hasilnya menunjukkan bahawa suara dan akauntabiliti, dan kawalan korupsi adalah penting untuk terlebih langganan sementara kualiti pengawalseliaan adalah negatif dan signifikan ke atas terlebih langganan. Walau bagaimanapun, keberkesanan kerajaan, kestabilan politik dan peraturan undang-undang menunjukkan tidak signifikan terhadap terlebih langganan. Kadar pertumbuhan KDNK, saiz firma dan tawaran IPO menawarkan pengaruh signifikan terhadap terlebih langganan. Kajian ini boleh menyumbang kepada manfaat pelabur apabila membuat keputusan pelaburan. Hasilnya mungkin memberi amaran kepada pengawal selia untuk melaksanakan dasar yang baik untuk meningkatkan pasaran TAA. Penyelidikan masa depan boleh menilai kualiti institusi mengenai terlebih langganan yang melibatkan di rantau Asia, negara-negara membangun dan negara maju malah fokus di Malaysia.

Kata kunci: Tawaran Awam Awal, Kualiti Institusi, terlebih langganan, analisis keratan rentas

Abstract

The major purpose of this study is to examine the impact of institutional quality on oversubscription of initial public offerings (IPOs) listed in Bursa Malaysia from period of 2000 to 2016. This study exists of six controls variable for controlling the institutional quality on oversubscription. Numerous studies have examined the relationship between institutional quality and oversubscription on IPOs underpricing. This study fills the gap to determine the institutional quality on oversubscription as previous studies prove the oversubscription is significant to underpricing. The six dimension of institutional quality collected from World Governance Indicators (WGI) which consists of voice and accountability, government effectiveness, political stability and absence of violence/terrorism, regulatory quality, rule of law, and control of corruption. The information asymmetry and signaling theory are employed to illustrate the relationship of institutional quality to oversubscription. This study employs cross-sectional multiple regression analysis to test for its entire hypothesis. Analyzing the data of 392 IPOs in Malaysia, the result reveals that voice and accountability, and control of corruption are positive significant to oversubscription while regulatory quality is negative significant on oversubscription. However, government effectiveness, political stability and rule of law show insignificant to oversubscription. The GDP growth rate, firm size and IPOs offer price significant influence the oversubscription. This study could contribute to benefit investors when making investment decision. The results may alert the regulators to implement the sound policies to enhance the IPO market. Future research could examine the institutional quality on oversubscription involve in Asian region, developing and developed countries instead focus in Malaysia.

Keywords: Initial Public Offering, Institutional Quality, Oversubscription, cross-sectional analysis

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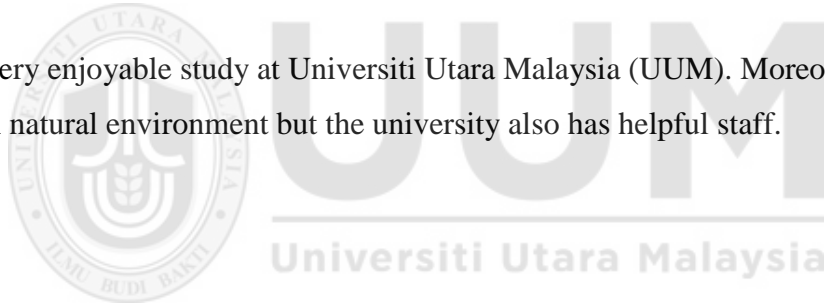


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List of Abbreviations

ACE market	Access, Certainty, Efficiency market
CONCORR	Control of Corruption
DPRIVATE	Dummy for Private Placement
EXC_RATE	Real Effective Exchange Rate
GDP	Gross Domestic Product Growth Rate (%)
GOV	Government Effectiveness
IPOs	Initial Public Offerings
JB	Jarque-Bera
KLCI_INDEX	Kuala Lumpur Composite Index
LAW	Rule of Law
MKTCAP	Market Capitalization
OLS	Ordinary Least Square
OSR	Oversubscription Ratio
POLITICAL	Political Stability
PRICE	Offer Price
REGULATORY	Regulatory Quality
REITs	Real Estate Investment Trust
SC	Securities Commission
UK	United Kingdom
US	United States
VIF	Variance Inflation Factor
VOICE	Voice and Accountability

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CHAPTER ONE

INTRODUCTION

1.1 Research Background

Numerous of studies have conducted the research on initial public offering (IPO) performance across several countries including in Asia countries. When the entire firm's business involves in the new project or product development and expanding their operation, firms apply for the finance either through loans or IPOs to raise the capitals to pay the debt (Jenkinson, 1990). The better way is through issuing IPOs. Initial public offerings (IPOs) defined as a process of a private company performed its new security sold to the public for the first time which listed in the primary market (Albada & Yong, 2017; Brealey et al. 2008). When first time issues all new securities in public, the IPO is expected to generate the liquid secondary market for a shareholder to cash out their equity (Mohd Rashid, 2014). The Malaysia market is selected in this study as the issues of IPOs are smaller than as compared to other developed countries.

Based on Lee (2016), Bank Negara of Malaysia decided to lower the overnight policy rate (OPR) to 3% from 3.25% mentioned it will boost the stock market. The OPR reduction benefits the stock market which the base lending rate decrease will motivates the investors to have more funds to invest and increase the economic growth. Angelini and Foglia (2018) mentioned that IPO volume also expected to be high when economic

growth due to the increase in output and expansionary demand in the market. According to Bursa Malaysia Bhd CEO Datuk Seri Tajuddin Atan that there will be a higher number of initial public offerings as backed by stronger economic fundamentals will create the public offering by oversubscribed (Ratna, 2017).

Before the subscription is taken place, in Asian, Fung et al. (2004) mentioned that investors have to make advance payment for the IPO subscription selected until the process of IPO share allocation is completed, similar in Malaysia studied by Tajuddin et al. (2015). However, the funds pay in advanced are locked-up for one to three weeks. Fung et al. (2004) illustrated the lengthy process and opportunity costs of funds for IPO effectively reduce the investors' actual IPO returns and affect the pricing. Pricing of the IPOs can either be done through fixed price or book-building mechanism. Neupane and Poshakwale (2012) mentioned that the transparency of the IPO mechanism generated demand through bidding for the offer price range. More than that, this makes the IPO pricing based on market demand to better guidance for the new issuer's valuation. Malaysia uses a fixed price mechanism in the IPO market instead of a book-building mechanism that applies in US, UK, Japan, and other countries. Fixed price mechanism allows the investment banks underwriter or issuer to set the IPO's offer price within a week to two months. Although, the final offer price must get approval from the Malaysia Securities Commission (SC) to ensure the price in the fair before listing (Abdul-Rahim & Yong, 2010; Tajuddin et al. 2015). The duration of the setting offer price provides the potential investors to grab the chance to attain more information before subscribing to the shares.

When IPOs are available to the open market, the IPOs investor' may gain the trade to sell the securities at the opening price, vary on stock demand by investors. Therefore, higher demand attempt to push up the IPOs price and subsequent initial return (Jelic et al. 2001; Agarwal et al. 2008; Mohd Rashid et al. 2014; Low & Yong 2011). Furthermore, based on empirical findings in Malaysia for the new issuance IPO listed on market by Jelic et al. (2001) stated analysis long term performance is vital as higher oversubscription about 27 times and higher of underpricing. The higher oversubscription may lead to a higher initial return, but the Malaysia IPOs will fall to underperform in the long run if disappears of the over-optimism and confident of investors. Studies of Chowdhry and Sherman (1996) manifested that when existing information leakage during the issuance of IPOs it assumes that the level of oversubscription to explain the underpricing. Furthermore, the existence of information asymmetry when informed investors have more superior knowledge than uninformed investors regarding the IPO fair value. Thus informed investors have highly subscribed to the underpricing than uninformed investors consequences in winner's curse problem occurs.

To summarize, the information asymmetry which explained the winner's curse problem and whereby related and affect the IPOs underpricing. Empirical studies in Malaysia's majority examined the determinants of IPO underpricing in the short term which calculated the first day of return. Empirical evidence from Agarwal et al., (2008), Mohd Rashid et al., (2014) and Low and Yong (2011) determined and conclude the higher level of oversubscription will lead to higher initial return or IPOs underpricing. In addition, prior research from other countries employed the important of governance or institutional

quality affect the IPOs underpricing (Autore et al. 2014; Boulton et al. 2011; Rahbar & Ranjbar, 2015; Ajmal, 2018). Autore et al. (2014) argue that good quality of institutional creates a higher underpricing of IPO and may lead to oversubscription. However, the relationship between institutional quality and IPO demand yet to be empirical proven. The motivation of the present study is to bridge the gap whereby to provide empirical research on the influence of institutional quality with IPO oversubscription.

1.2 Malaysia Stock Market

Malaysia Stock Exchange known as Malaysia stock market was established in 1960 which acts as a platform for listed companies to perform their business activities. Malaysia consists of two listing boards which are the Main Market and ACE Market. The ACE market allows the new and start-up companies for raising more capital through going public compared to the Main market with a large and high amount of companies. Companies are listed to either of both markets depend on their core business operation. Malaysia stock market is well developed from both domestic institutional investors in a large portion and a nearly quarter from foreign institutional investors in Malaysia stock exchange. Malaysia categories as one of the advanced growing and highest in the total number of 904 public listed companies among Asia countries at year end of 2016. Additionally, listed companies have to follow all the rules and regulations on the daily business trading and the listing requirement set by the Securities Commission (SC) Malaysia.

Malaysia as well developing market has a second higher market capitalization in ASEAN (Capital Market Malaysia, 2017). In year 2016, the total stock market capitalization in Malaysia contained more than USD 359 billion or approximately RM 1.67 trillion whilst has ranked for 24st in the stock market around the world (Index Mundi, 2016; SC Malaysia, 2016). The total fund rise from IPOs was RM 1.03 billion which is lower than in year 2015 of RM3.88 billion. The market capitalization of listed companies in Malaysia was 121.3% of GDP in 2016 as compared to 129.19% in 2015 due to the decrease of issued IPO listed in the market and contributes to a lower percentage of market capitalization. It indicates that the stock market contributes significantly to Malaysia's GDP. Figure 1.1 stands for the number of IPOs listed to the total number of the listed firms from 2000 to 2016. The Malaysia IPOs market shows a trend of decreasing start from 2010. This study reports a lower average oversubscription ratio of 29.74 times for a sample of 392 IPOs firms in the year 2000 to 2016 as compared to the study of Low and Yong (2011) 33.59 times for a sample of 368 IPOs firms in the year 2000 to 2007. Low and Yong (2013) stated that high oversubscription may lead to higher underpricing thus influence the IPO performance. Thus, the effective government might increase the country's economic growth and influencing the IPO oversubscription.



Figure 1.1: Number and percentage of IPOs to the total number of listed firm over period of 2000 to 2016.

Source: Bursa Malaysia:

https://www.bursamalaysia.com/listing/listing_resources/ipo/listing_statistic

1.3 Problem Statement

Based on the empirical studies of Albada and Yong (2017) mentioned that puzzling of the empirical research mostly related to IPOs underpricing. The findings of the IPOs underpricing may induce the attraction of the researchers to develop more empirical research's regarding in explaining this puzzling phenomenon. Previous studies have examined the institutional quality or country-level governance quality toward the IPO underpricing (Engelen & van Essen, 2008; Boulton et al. 2011; Autore et al. 2014; Gonzalez et al. 2018). Some of the studies involve subscription rate in determining the IPO underpricing (Chowdhry & Sherman, 1996; Fung et al. 2004; Sahoo, 2014, 2015; Sochi & Islam, 2018). These findings show subscription rate has positive significant to IPO underpricing. However, no empirical studies carried out to determine the

institutional quality of the oversubscription of IPOs. Thus, the present study is a concern about whether institutional quality has an impact on the oversubscription of IPOs.

Voice and accountability are organization reflections of the extent to which citizens have the rights involved in selecting their government, as well as the liberty in an association, expression, and social media (Kaufmann et al., 2009). Numerous studies access the determinant like voice and accountability towards stock market performance and an initial public offering. Asongu (2012) and Boadi and Amegbe (2017) found a positive relationship to the stock market. The high degree of voice and accountability provide a safe institutional background and positively influence the transparency and stability of the business environment (Satta et al. 2017). These provide a high confidence level to attract the investors as believe in ability to have good return without loose in wealth. Therefore, this condition should lead to the oversubscription of the IPOs in the market.

In Asian region, Malaysia is one of the economic growing countries that researchers should attempt to conduct an empirical study on government performance as government effectiveness reflects government capability to formulate and enact sound policies to enhance the stability of a state. Cooray (2009) suggested different levels of institutional quality on economic growth mentioned that high quality of governance able to enhance the public stock capital, poor for degenerate the growth. Several studies have access to the determinant of government effectiveness on stock market performance and IPO performance. Djankov et al. (2003) stated that government credibility significant affect stock market returns, which contrast with Boadi and Amegbe (2017) there is negative

insignificant relationship on stock market performance. Engelen and van Essen (2008) illustrated the low effectiveness of government lead to higher IPO underpricing. The higher underpricing was caused by information asymmetry. Boulton et al. (2011) emphasized that IPO underpricing is influenced by elevated private benefits of control which is closely linked to asymmetric information of firms listing. Thus, higher of information asymmetry create higher underpricing whilst higher underpricing of IPO may lead to high oversubscription (Autore et al. 2014). Therefore, this study fills the gap in examining the direct relation of political stability towards IPO oversubscription which yet to be proven.

Political stability can affect the investor's investment decisions in investment. The phenomena of political instability in several countries and its negative effect on each country's economic performance prompted the economist's attention (Zaiane, 2018). Empirical evidence from Kim and Mei (2001) in Hong Kong stated that the happen of political events have influenced the stock market movement. Boutchkova et al. (2012) showed that political risk led to financial volatility in stock markets. Besides, the political election can reflect the political stability of the country. In Malaysia, Liew and Rowland (2016) represented market volatility as the political risk during the election to determine the relationship with the stock market return. It revealed political risk has no significant in the year 1995, 1999, and 2004 while negative significant in the year 2008 and 2013 on stock market return respectively. The negative relation indicated lower political instability (high political stability) has better (low) stock market performance and subsequently affects the higher (lower) demand rate in IPOs. The significant changes of

political must be examined towards the IPOs market. Thus, identify the direct relation between political stability on IPOs oversubscription is needed.

Besides, a good regulatory can be used as instruments or repository to harness the nation and reference to stakeholders and interested parties to improve the competitiveness and productivity in private-sector and economic growth. The changes of regulatory will affect the stock market or IPOs underpricing. Cheung et al. (2009) stated that china regulators change the regulations of governing the listing companies and aimed to improve market transparency and to provide better investor protection. The result mentioned that the regulatory framework has significantly to IPO underpricing but changes in the regulatory framework have reduced the impact on IPO underpricing due to discretion in determined issue price. Government or particular authority responsible to confirm the good quality of regulation to better protects and increase the confidence level of investors. Thus, a better regulatory quality tends to increase the underpricing and demand for the higher IPO underpriced to create the oversubscription. This study tends to fill the gap in the literature by determining the relationship of regulatory quality on IPO oversubscription.

Moreover, the rule of law in a country is to confirm the market economy to function effectively. The rule of law on securities can control the public market which the public business ownership likes shares of stocks and debts to promote the public investment and to enhance the economy (Bufford, 2006). La Porta et al. (1997) express that countries with a better legal system provide better protection for investors. Autore et al. (2014)

found that countries that enforce insider trading laws have positive significant to IPO underpricing in developed countries but negative relations in emerging countries. Engelen and van Essen (2008) found that the rule of law has negatively significant on IPO underpricing. The comprehensive legal system secured and minimize the threat to investors as well as encountered with lower ex-ante uncertainty increase the confidence level of investors and acquired new issues with lower underpricing and expected to affect the demand for IPOs. Hence, this study will provide empirical support on the influence of the rule of law on IPO demand based on the underlying theory of information asymmetry.

Lastly, the control of corruption reflects the extent to which public power or elites is drilled or capture for the private gain in both petty and grand form of corruption as well as for its own private interest. Numerous studies have concerned on the topic of corruption in many aspects such as determine to economic growth of countries, stock market performance, financial intermediate, and IPOs. For instance, Uddin et al (2019) illustrated that increasing the control of corruption reduce the bank exposure to risk thus improve the bank stability. Goh et al. (2015) stated the idea from (Caron, Ficici & Ritcher 2012) corruption caused by weak or failure of corporate governance. Corruption diminishes the public trust and ruined the confidence level of foreign investors in Malaysia. Nwankwo (2014) revealed that corruption negatively affect economic growth infer increased corruption rate reduces the development of the country as weak legal system. Moreover, Hearn (2014) mentioned that higher level of corruption control lead to more underpricing as investors required the higher underpriced to gain more return due to the higher information asymmetry (higher uncertainties). Accordingly, the high demand

for the IPOs by investors caused underpricing. Thus, this study fills the gap by examining the relation of control of corruption on IPOs oversubscription.

1.4 Research Questions

Research questions in this research are developed based on the problem statement stated in the former part.

1. Does voice and accountability has a significant impact on IPO oversubscription?
2. Does political stability has a significant impact on IPO oversubscription?
3. Does government effectiveness has a significant impact on IPO oversubscription?
4. Does regulatory quality has a significant impact on IPO oversubscription?
5. Does rule of law has a significant impact on IPO oversubscription?
6. Does control of corruption has a significant impact on IPO oversubscription?

1.5 Research Objectives

The main objective of this research is to examine the impact of institutional quality (voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption) on IPO oversubscription. The six objectives of this research specifically show as following:

1. To determine the impact of voice and accountability on IPO oversubscription
2. To determine the impact of political stability on IPO oversubscription
3. To determine the impact of government effectiveness on IPO oversubscription
4. To determine the impact of regulatory quality on IPO oversubscription

5. To determine the impact of rule of law on IPO oversubscription
6. To determine the impact of control of corruption on IPO oversubscription

1.6 Scope of the study

In this study, the samples of IPOs selected are those IPOs that first time listing in Bursa Malaysia across the period of 2000 to 2016. The selected IPOs are listed on the Main Board and Second Board and merged to become the Main Market and the MESDAQ market becomes ACE market after August of 2009 respectively. The data on IPOs are gathered through World Bank Data, Bursa Malaysia website and Data Stream from the library, firm's prospectus and annual reports of Bursa Malaysia. The data applied in the present are multiple cross-sectional data.

This study undertakes the aim in examining the impact of institutional quality (voice and accountability, political stability, government effectiveness, regulatory quality, rule of law and control of corruption) with controlling six variables on IPO oversubscription in Malaysia. The final samples 392 of IPOs are selected out of 552 IPOs from 2000 to 2016. This study excludes the involve all types of firms or companies which excluded companies contain outliers, companies that are restricted the offer to sell to Bumiputera investors, qualified employees, restricted from public issues, tender offer, and special issues which similar to the study by Abdul Rahim (2008) as to evade from meaningless outcomes. The financial companies that include banks or financial services, insurance companies, and real estate investment trust (REITs) also not counted in the final sample.

1.7 Significant and Contribution of the study

There have numerous of research on determinant for IPO oversubscription but no studies focus on institutional quality on IPO oversubscription. Present of this study intentions to discuss the contribution of the relationship between institutional quality with IPOs oversubscription with controlling the six variables to investors, issuers, regulators, and the body of literature.

1.7.1 Investors

This study may have contribution to local or foreign investors in strategizing and directing investment decision on IPOs. Information regarding institutional quality has an important role in affecting market sentiment in IPO market. Government effectiveness reflect the countries good in regulate it policies, rule of law, and better control for corruption contribute to present study in affecting investors subscribed to IPO. In Malaysia, information asymmetry phenomena considered high as lack of institutional development and investor protection (Hammer & Bardhan, 2000; La Portal et al. 2000). Government inefficient creates information asymmetry lead to uncertainties. Investors tend to investment in the effective government as high transparency and lower asymmetric information. This situation signaling investors tend to have high confidence will have higher demand for IPO listing firms if the positive relation between government effectiveness and IPO oversubscription. Therefore the information reflects investor sentiment is essential to investors in making decisions. Moreover, investor also advices to concern the control variables (macroeconomic factors and firm specific factors) in this study as show the significant relation to IPO.

1.7.2 Issuers

This study may benefits to issuer firms as the country level of institutional quality contribute significant result to the IPOs based on literature narrative. Mostly, issuing firm tend to offer the lower price to create the underpricing to gain the return. Thus the offer prices show the negative relation as lower offer price lead to high demand for IPOs. Issuing firms (IPO firms) must have high market sentiment react to the institutional quality as exist of certain risky in market. For instance, the regulatory quality by Ajmal (2018) and control of corruption by Hearn (2014) have importantly affected the IPO underpricing. Agbiboa (2012) cited the Olowu (1993) illustrated that continuous increase of corruption level due to diversion from understanding the problems and focusing in remedy. Thus, issuing firm must has appropriate tactics for encounter to those country level governance quality. Issuing firm can listed their company in the country which have higher and better in institutional quality to affirm the sustainability in the market.

1.7.3 Regulators

Regulators are government agencies that the statutory bodies and regulatory commissions that responsible for generating, retain, and enforce regulatory and sound policies. Malaysia regulatory bodies such as the Securities Commission regulate and enforce the regulation to ensure the developing of capital market like for issuance of IPO in market and sustaining the market growth. Cheung et al (2009) state that a high quality of regulatory framework has significant effects on IPO underpricing but changes in the regulatory framework have reduced the impact on IPO underpricing due to discretion in determining issue price between issuer and underwriter. For instance, better regulatory

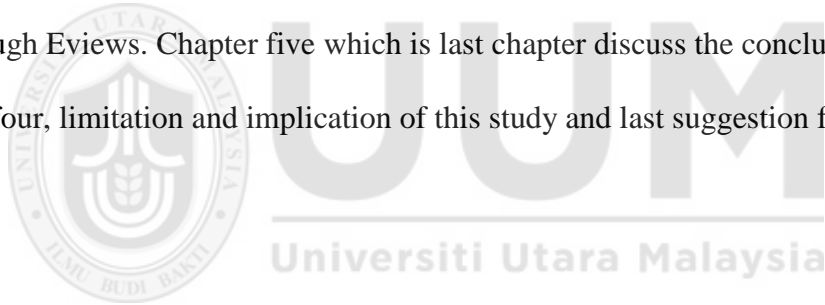
quality tends to increase the underpricing and demand for the higher IPO underpriced will create oversubscriptions which align with signaling theory which investors with higher confidence level tend to subscribed for more IPOs. In addition, Uddin et al (2019) mentioned that most of emerging countries facing the low institutional quality due to the risk in political and corruption. Regulatory authorities should pay more concern and has the policy relate to individual, business entity, interest and professional organization take the preventive precaution against the impact of institutional quality on demand of IPOs.

1.7.4 Current body of Literature

This study contributes to the body of literature which emphasize that important of the six dimension of institutional quality on IPO oversubscription. There is no empirical evidence prove that impact of institutional quality to IPO oversubscription specifically in IPO market. Based on previous literature review, the high demand or oversubscription in IPO will lead to the higher IPO underpricing as positive relationship. Moreover, the information asymmetry explained the relationship of poor quality of institutional tend to have higher information asymmetry which affect to high IPOs underpricing. This information asymmetry can applied to explain the relation of institutional quality on IPO oversubscription. Higher level of institutional quality has lower information asymmetry it may signal the higher confidence level of investor in acquire for high demand of IPOs. However, lower quality of institutional tend to have higher uncertainties will signal investors a negative return are to be expected reduce the oversubscription (Mohd Rashid et al. 2014).

1.8 Organization of the study

This study is comprised of five chapters. Chapter one consists background of the study, short introduction in Malaysia Stock Market, problem statement, research objective and research question and last the significant and contribution of the study. Chapter two in this study is literature review will discuss the IPO oversubscription in developed, developing countries and in Malaysia. Furthermore, institutional quality and control variables relate toward IPOs has been highlight and discuss based on previous empirical evidence. Chapter three will deliberate and develop the hypotheses based on chapter two, explain the data description, measurement of all variables, and the methodology used in this study. Chapter four will explain the results and findings obtained from methodology run through Eviews. Chapter five which is last chapter discuss the conclusion of results in chapter four, limitation and implication of this study and last suggestion for future study.



CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter comprises the literature from past research and evidence on the institutional quality that influences the initial public offering (IPO). There consists of 4 sections in this chapter. The first section illuminates the dependent variable of the research. The second section discusses on the key institutional quality (voice and accountability, political stability, government effectiveness, regulatory quality, rule of law and control of corruption) on the oversubscription ratio on IPO. The third section will illustrate the theories related to IPO oversubscription. The next section describes the macroeconomic variables and firm-level specific variables that influence the IPO oversubscription ratio. On top of that, hypothesis development will also embed in this chapter. Lastly, there will be a short conclusion about this chapter.

2.2 Oversubscription of IPOs

Initial public offering (IPO) defines a process whereby a private company first time issues its company's stock to the public. Generally, the company could be a smaller, new and young organization successful listed in the Main or Ace market to finance and raise equity capital for the firm's expansion and other prospects through IPOs. The reasonable measure for investor oversubscription is the total number of shares demand by investors to the number of company share supply to sell.

2.2.1 Oversubscription of IPOs in Developed countries

The studies of IPOs oversubscription has reported in developed markets. Empirical studies in the earlier stage, Omran (2005) studied underpricing in the Egyptian market and found that the initial excess returns are determined by ex-ante uncertainty and oversubscription. Brennan and Franks (1997) mentioned underpricing is used to ensure the oversubscription. Average of oversubscription ratio is 18.8 times from 69 IPOs in UK. The result from regression reported 1% changes in underpricing lead to 0.64 changes in oversubscription. Moreover, Degeorge et al., (2010) the average oversubscription of IPO is 2.26 in US market is much less as compared to Cornelli and Goldreich (2003) average of oversubscription of 9.1. Kenourgios, et al. (2007) explored the IPO oversubscription in Greek found that the mean for oversubscription was 89.96 times from 1997 to 2002. The study in Greek exceeds the mean of oversubscription times in Abu Bakar and Uzaki (2013) in Malaysia subscribed only 29.87 times. These oversubscription ratios in developed countries have a positive relation to the IPO underpricing.

Literature review in Hong Kong Market, Agarwal et al. (2008) examined the factors of IPO initial return along with oversubscription ratio in order to confirm the role of investors demand in pricing of IPO. Agarwal et al. (2008) and Abdul Rahim and Yong (2010) noted that high demand IPO has positive mean initial return due to oversubscription. Ho (2016) extends the study from Hong Kong to Singapore and Malaysia of oversubscription ratio which influence by four corporate factors (size of company, managerial ownership, industry dummy, and age of company). They have higher average subscription rate of 109 times in Hong Kong across the period 2008 to

2010 as compare to Singapore (61 times) followed by Malaysia (28 times). In additional, Lin and Hsu (2008) investigated the determinants of the IPO performance from Hong Kong and Taiwan. The share allotment rate act as amount of share issued being subscribed and average 30% and 29% subscribed in Hong Kong and Taiwan respectively. The more oversubscription of IPOs indicated the investors experience in a good investment in those countries.

2.2.2 Oversubscription of IPOs in Developing countries

Most of research has been carried out the relationship between the determinants of oversubscription in extend to explain the underpricing in developing or emerging countries (Marisetty & Subrahmanyam, 2010; Chaturvedi et al, 2005; Yong & Isa, 2003; Wan Hussin, 2002, 2005; Jelic et al, 2001; Abdul Rahim & Yong, 2010; Albada et al, 2019). Siew and Sundarasan (2015) attempted to identify the relationship between oversubscription against initial returns in emerging market was positive significant while no significant relation on volatility of IPOs. Empirical study from Marisetty and Subrahmanyam (2010) documented the effect of group affiliation on the initial return of 2,713 IPOs in India during the period 1990–2004. His findings found that oversubscription as proxy for investor over reaction to IPOs is positive relation to underpricing. Group affiliated firms lure attention of stand-alone firm create excess demand (over-reaction hypothesis) thus uncertainty allocation of IPOs to investors. As to gain the allocation, investors have to purchase the stock after listing in stock market and driving up the IPO price. His study conjectured that underpricing is affected significantly by oversubscription of IPOs.

Demand of IPOs are excess than it supply in China. Chi and Padgett (2005) emphasized due to imbalance in supply and demand of IPO, firms that issued fewer share perform better in long run as lower in supply and highly demand may push up the price and subsequent higher in return. Sohail and Rahemen (2009) conduct the determinants of IPO underpricing in Pakistan obtained the positive relation between oversubscription and underpricing. Phadke and Kamat (2018) found a positive and significant relation between subscription rate and IPOs underpricing. Sahoo (2014) studied impact of subscription rate of institutional and non-institutional retail investors to underpricing for 149 IPOs listed in Indian stock market. The result showed institutional investors tend to have higher stock demand. It supported by Rock (1986) argued when both uninformed and informed investors get the rationed allocation of share they acquired for the under-price stocks lead to oversubscribed as compared to over-priced shares that only allow uninformed to purchase. Thus, underpricing is positive relative to oversubscription.

2.2.3 Oversubscription of IPOs in Malaysia

In Malaysia, investors have to make advance payments to subscribe the initial public offerings (Tajuddin, et al. 2014). The fixed price mechanism is principally used in Malaysia's IPO market instead of book-building mechanisms like in US, UK, Japan, and in other countries in making advanced payment. The fixed price mechanism may affect the oversubscription of IPO. Tajuddin et al. (2016) test the 204 Malaysia IPOs over period 2005 to 2014. They achieved the average oversubscription of 28.71 times, 44 times documented to Dawson (1987), 27.65 referred to Jelic et al., (2001), 43.71 times reported to Yong and Isa (2003), and 33.59 times subjected to Low and Yong (2011).

Yong and Isa (2003); Abdul-Rahim and Yong (2010) and Mohd Rashid et al. (2014) resulted that the oversubscription ratio is significant to the IPO initial return. Jelic et al., (2001) conduct the underwriter reputation and management earning forecast on performance of IPOs in Malaysia and oversubscription ratio as control variable has proved to be positive significant effect on market adjusted return in long term period.

Firm sizes as independent variable enable the researcher further examine the information asymmetry on the oversubscription of IPO (Tajuddin et al. 2015; 2017). They found that firm size is negative significant to oversubscription as larger firm sizes proved to have low information asymmetry or high information disclosure reduce the IPO underpricing and at the same time lower in oversubscription. Moreover, growth opportunity as independent variable has a negative significant to IPO oversubscription (Tajuddin et al. 2015). Companies with high growth opportunities have a tendency to have lower risk with low initial returns and seldom subscribed by investors. In Malaysia, empirical studies also provided the evidence that Shariah-compliant status credible signal the investor and positively influence the IPO oversubscription (Tajuddin et al. 2017; 2019). Abu Bakar and Uzaki (2013) adopted underwriter reputation and times of oversubscription to IPO underpricing for Shariah-compliant companies in Malaysia from 2000-2011. Unfortunately, both of the underwriter reputation and oversubscription were insignificant effect on the IPO underpricing. Most research has done to found the institutional quality importantly affect the underpricing. Thus, this study will highlight that institutional quality towards IPO demand in Malaysia yet to be examined.

2.2 Impact of key variables on the IPO oversubscription

Previous researches have studied the institutional quality or government quality on the stock market performance (Asongu, 2012); FDI inflows (Aziz, 2017); IPOs underpricing (Autore et al, 2014, Engelen and van Essen, 2008); IPO mispricing (Ajal, 2018); and IPO prospectus length (Hearn, 2013). The empirical result showed that institutional quality has significant relation to the dependent variables. The following section will discuss on the institutional quality factors as explanatory variables toward the IPOs oversubscription by previous findings.

2.2.1 Voice and accountability

Voice and accountability reflects a country's citizen have the right to vote for selecting the government, ability to voice out the expression by the individual, freedom in communication as well as freedom in social media. According to empirical study M. Bird, Vazquez and Torgler (2008) employed the demand factors such as voice and accountability on the tax effort in developing countries and high income countries. They found out voice and accountability is statistically positive significant effect on the tax performance in developing countries, whilst conclude that improving the institutional like voice and accountability has the high potential of getting good tax performance in high income countries. Torgler (2005) and Torgler and Schneider (2007) show that higher degree of direct political control and democracy in the jurisdiction contribute to lower tax evasion.

Moreover, Asongu (2012) employed the determinants of institutional quality on stock market performance in African countries. The findings consistent with Boadi and Amegbe (2017) illustrated that positive significant relation between voice and accountability and stock market performance as higher accountability and the efficient government would enhance stock market performance if listed companies have larger market capitalization and higher in stock traded. In contrast, Low et al. (2015) studied the link between the quality of the institutional and stock market risk in both developed and emerging countries. Voice and accountability has a negatively significant to stock market risk in emerging market as strong accountability drives to lower risk compared to lower accountability. However, there is no significant between accountability in explained stock market risk in developed countries. Besides, Low et al (2011) found no effect of institutional quality representing voice and accountability on stock market returns.

Autore et al. (2014) provide a good review of institutional quality voice and accountability is positive to IPO underpricing. Boulton et al. (2011) obtained the result which supported their hypothesis and has positive correlation voice and accountability showed sound voice and accountability provide high IPO in return. Hearn (2013) showed voice and accountability negative relation to IPO length prospectus. Ajmal (2018) explore the institutional quality on IPO mispricing noticeable that voice and accountability reduce the mispricing extremely underpriced IPOs. Similar result found on Gonzalez et al. (2018) which voice and accountability negative correlated to IPO first day return (underpricing) but do not mitigate the IPO underpricing. On the other hand, Hearn (2014) found no significant relationship between voice and accountability to IPOs

underpricing. Those previous empirical evidence provides this study to fill the gap to identify the relationship between voice and accountability with IPOs oversubscription.

2.2.2 Government effectiveness

Government effectiveness reflects the “ability of government to produce and implement sound policies and deliver the public goods” (Kaufmann et al., 2009). Gani (2014) provide the study of governance towards foreign direct investment across seventeen countries from Asia, Latin America and Caribbean regions. The empirical results showed that government effectiveness is positive and significant to FDI. Dewandaru et al. (2014) explored the institutional quality for the stock market development across each 11 countries in Islamic and developed countries over period of 1996-2011. Finding found that effectiveness government is positive relation to value traded in stock market in developed countries and positive significant in Islamic countries. Besides, the study of governance such as government effectiveness has positive effect and able to improve stock market performance (Eita, 2015). The positive result can be supported by Ajide and Bello (2014) in Nigeria country and Hussain et al. (2017) in South Asian countries which high quality of government effectiveness will increase the stock market performance. Furthermore, government effectiveness also has positively significant on stock market performance (Law et al., 2011; Hooper, 2009). Hooper (2009) argue that countries with high institutional quality influence the transaction cost in firm operation and reduction of transaction costs would benefit to the profitable project in firm and stock demand also expected to have high excess return on equity.

Hearn (2013) found the negative correlation between governments effectiveness on IPO prospectus length. This pointed out that increase the government effectiveness will lower the IPO prospectus length. Engelen and van Essen (2008) study the government effectiveness is negative significant on IPO underpricing over period 1980 to 2000 in cross country. Therefore, negative relation showed low effectiveness of government caused the higher underpricing of IPO and thus causes highly oversubscription of IPO (Autore et al., 2014). Hence, this study tends to identify the relationship of government effectiveness on IPO oversubscription to fill the gap in literature.

2.2.3 Political Stability and Absence of Violence/Terrorism

Political Stability and Absence of Violence/Terrorism reflect to insights of the likelihood of the instability of government or politic and enforcement of politic encouraged violence and terrorism. Political stability is a vital element in the business environment since it may affect the consumer and investor confidence level and directly has impact on the country economics. Brewer et al. (2007) applied the similar indicators of political accountability as in Adsera et al. (2003) which have level of democracy, including civil liberties and free circulation of daily newspapers per person. Law, et al (2011) examined that political stability which comprised 48 countries has positive and significant on stock market return. The positive finding is consistent with Hussain et al. (2017) which strong political stability has strong relation on stock market performance as the countries with efficient of institutional quality reduce the uncertainties and investors ought to invest without fear in losing their wealth. Hooper et al. (2009) emphasized that political stability has a negative and high influence on stock market returns in both developed and

emerging market. Conversely, Boadi and Amegbe (2017) showed no significant relationship between political stability on stock market performance.

Autore et al. (2014) provide a good review on institutional quality is positive to IPO underpricing in developed and emerging markets. Meanwhile, higher level of political stability tend to have better performance of IPO issued in the development market but nearly absent for IPO issued in emerging market. Furthermore, empirical research on Iran adopts the explanatory variable level of political relation determined the effect on IPO valuation (Rahbar & Ranjbar, 2015). The finding showed the positive significant result between level of political relation and the IPO valuation. Similarity, further explanation of Rae et al. (2011) and Fazli (2011) demonstrate that high level of political stability will increase the incentive to become a public company in order to access more external funds. Conversely, Engelen and van Essen (2008) found political stability has a negative relation towards underpricing. Ajmal (2018) explore the institutional quality and economic strength on IPO mispricing in four countries. He found that high political stability reduce the mispricing extremely underpriced IPOs. Thus, political stability is inverse relation with the underpriced and expected acquired for IPOs will be reduced. Based on narrative, the study examines the relation of political stability on IPOs oversubscription.

2.2.4 Regulatory quality

Regulatory is an inevitable element in indicating the power of the government to formulate and implement sound policies and regulations to promote and allow the development of private sector (Kaufmann et al. 2009). Empirical study Boadi and Amegbe (2017) which investigates the relation between country level governance and stock market return over the period 1996 to 2014 across 23 countries of fixed effect model resulted that regulatory quality is positively significant toward the stock market return. Findings are supported and consistent with Law et al. (2011, 2014). Yartey (2010) measured the institutional regulatory quality is positive significant to stock market development. The positive correlated also proved by Gonzalez et al. (2018) which regulatory quality as important indicator to determine the IPO underpricing in Latin America. Hearn (2013) investigated the relationship of institutional quality relative to IPO prospectus length in Africa country. Regulatory quality found positive and significant towards IPO prospectus length. Findings infer that sound policy stimulating the development of capital market at the same time effectively promoting the regulatory quality ensures a viable competitive market place and avoids capture by social elites and special interest groups.

In addition, countries that have strong regulation and law enforcement contribute to more information disclosure and transparency in public. Consequently, efficient regulation allows issuers to control over their firms and the ability to lower the IPO price resulting increase demand for the IPO shares (Ajmal, 2018). According to Loughran et al. (1994), Malaysia is more regulated compared to the other countries, and this might affect the

underpricing and oversubscription. Chowdhry and Sherman (1996) indicate that regulatory constraints is prevalent in Malaysia before years 1988, the regulatory constraints force the firm to set the price in lower will result the high oversubscription level. Chen et al. (2012) mentioned that improved of regulatory from traditional quota system with approval system which has strict requirement on quality issuers or underwriter and IPO procedures has importantly enhanced the underwriting market share in China. Thus good quality of underwriter significant the stock market and thus may create high demand for the IPOs. Accordingly, this study fills the gap in literature to determine the relationship of regulatory quality on IPOs oversubscription.

2.2.5 Rule of law

Rule of law reported that perception of crime, contracts enforceable and effectiveness and predictability of judiciary (Kaufmann et al., 2004). This indicator is proxy to ensure for developing the successful environment in which fair and predictable rules form the basis for economic and social interactions. Countries with poor rule of law and legal protection have negatively effect on firm value and increased the uncertainty in making decision. Thus, investors require higher mispricing to compensate the uncertainty for the subscription of stock when high uncertainties exist in environment (Ajmal, 2018). Consequently, strong quality of law allows issuers to control over their firms and the ability to lower the IPO price resulting increase demand for the IPO shares. Boadi and Amegbe (2017) have seen the negatively significant of law in affect stock market performance. In other words, countries with high quality of law resulting to lower stock return.

The impact of country level institutional quality is adopted to examine on IPO underpricing in developed and emerging countries (Autore et al., 2014). They found that countries which enforce the insider trading laws has positive significant to IPO underpricing in developed countries but negative relation in emerging countries. Hearn (2013) also obtained the identical result as rule of law is positive significant towards IPO prospectus length. In contradict to Engelen and van Essen (2008) found that rule of law has negatively significant on IPO underpricing. Therefore, countries with stronger legal protection have a lower level of underpricing. Boulton et al. (2011) generated the hypothesis of countries with stronger institutional quality or legal institutions holding other variables constant result in higher IPO underpricing and potential to protect outside investors. This study also manifest that governance has important role in alleviate information asymmetry between issuer and investors. However, the findings did not same as expected as there is no significant effect on the IPO underpricing. Therefore, relation between rule of law and IPOs demand need to be empirically proven to fill the gap in literature narrative.

2.2.6 Control of corruption

Control of corruption reflect to the extent which public power or elites is capture and drilled for private gain in both petty and grand forms of corruption along with it to gain the private interest. Based on empirical study M. Bird, Vazquez and Torgler (2008) adopt the demand factors such as control of corruption on the tax effort in developing countries and high income countries. Result concluded that control of corruption is positive significant effect on the tax performance in both developing and high income countries

and illustrated that good government institutions lead to more satisfying and willingness of citizen to paying the tax. Similarity, Torgler and Schneider (2007) concluded that control of corruption is negative significant to the shadow economy which means the lower the corruption lead to higher of economic performance.

Boadi and Amegbe (2017) document that empirical relationship between corruption level and stock market performance over period 1996 to 2014 for 23 countries. The result from fixed effects estimation found that a control of corruption has a negative effect on stock market performance as focused on reducing corruption lead to higher equity returns. Asongu (2012) found that control of corruption is positive significant to stock market performance in African countries. Hooper et al, (2009) contributed to literature with provident on level of corruption in stock market performance for developed and emerging countries and argue that systemic corruption level as key measure for governance is positively impact to international stock returns. Hussain et al. (2017) documented the research in South Asian countries inferred control of corruption has positive significant to stock market performance. For instance, countries with strong institutional environment raise investors' confident level to invest in stock market. Furthermore, Law, et al (2011) manifested that corruption not significant on the stock market return. Besides from stock market performance, empirical research on IPO also has been studied by previous researches such as Ajmal (2018). Control of corruption is negatively significant to IPO suggested that less control of corruption lead to more mispricing of IPO. Moreover, Hearn (2014) found the negative significant relation for control of corruption and IPO

underpricing. Accordingly, this study examine the relation of control of corruption and demand of IPOs yet to be empirically proven.

2.3 Underlying Theories

Based on literature research, common of the researchers used information asymmetry and signaling theory their empirical approaches to study on oversubscription of initial public offering. The illustrations of theories are show as following section.

2.3.1 Information asymmetry

Information asymmetry normally exists in the market especially in the primary market whereby public offerings are made. The asymmetric information theory explained the reason to be oversubscribed and initial return of IPOs by investors (Rock, 1986). Study by Siew and Sundarasan (2015) emphasis that information asymmetric and its effects on initial return are undeniable as firms go public, all the uncertainty and risk may happen to affect the oversubscribed the stock and directly influence the overpriced and underpriced. Empirical evidence from Alanazi and Liu (2013) stated that theory of winner's curse from Rock (1986). Winner curse exist when informed investors have superior knowledge over the uninformed investors and variation in these formation causes the uninformed investors receive more allocation of overpriced IPOs than the underpriced IPOs. In order to compensate the adverse selection dilemma, issuers discount the price to ensure the participant of uninformed investors. Therefore, informed investor will have full allocation or high demand on underpriced IPOs.

Rock (1986) and Chowdhry and Sherman (1996) illustrated that higher involvement of informed investors contribute a good signal to uninformed investors led to higher demand and accordingly to the high returns. It supported by Chowdhry and Sherman (1996) and Kenourgios et al. (2007) when the information leakages occur during public offering, it can assumed that high level of oversubscription to explain the underpricing of IPOs. Issuers may have to underprice the IPO to induce the first few potential buyers (Yong, 2007). This situation was attracted high demand in IPO securities. Studies from the Italian stock market mentioned that effective interventions or changes in regulations reduce the information asymmetries (Cattaneo, et al. 2015). However, IPOs in UK country, Chambers and Dimson (2009) pointed out regulation has less effective than market force in reducing information asymmetries. According to Tajuddin et al. (2014), higher information asymmetry cause to higher uncertainty transmit negative signal to investors and likely to reduce the oversubscription. Therefore the information reflects to market is essential to both issuers and investors in making the decisions.

2.3.2 Signaling Theory

The application for the company's share greater than it issued for sale in going public is over-subscribed or measured by oversubscription ratio. According to Siew and Sundarasan (2015), oversubscription of IPO signals that potential investors have high confident level on the going public companies on future prospect whereby it able to contribute benefits and maximizing shareholder's wealth in term of increasing of share price or dividend. This statement can be used to explain country with high institutional

quality reflect high investor confidence level to make investment lead to high IPOs oversubscription.

A likely explanation, Reese (1998) infer that huge investor enthusiasm in the IPO reflected the extent of the ways that demand overwhelms supply signal the divergence of beliefs concerning the true value of the company and higher initial profit in return whilst its initial trading volume. Thus, this implied that companies which generate impressive interests have higher chances to oversubscribe. Furthermore, the prices for the IPO securities are greatly associated with the firms which obtained the perfect information and depend on the other market report or information to the issuing firm (Karlis & Stumph, 2000). When firm depend on the other report or information, it signal that the true value of securities raise the confidence level of investors. Based on Khan (2017), they argue that firms with high institutional quality (better legal system) diminish the corruption, in turn, will signal this quality to investors. This quality expected to raise investor's confidence level. Thus, this study will examine the signaling theory using institutional quality.

2.4 Controls Variables

The macroeconomic and firm-specific factors have been set as control variables to examine the explanatory variables, institutional quality on the oversubscription of IPOs. The selected macroeconomic factors are Gross Domestic Product (GDP), KLCI index, and real effective exchange rate whilst firm-specific indicators are market capitalization,

institutional investor involvement and Offer price. The following part will briefly explain each of the control variables relative to the initial public offerings.

2.4.1 Gross domestic product (GDP)

GDP growth rate is measures how fast the economic growth in a country. GDP growth rate has been commonly used to examine the relationship on stock market performance and initial public offering. Meluzin, Zinecker, and Kovandova (2014) and Blum (2011) showed that GDP is positive significant effect on the number of IPOs. The studied by Breinlinger and Glogova (2002) manifests that the level of GDP per capita is highly correlated with law enforcement result a positive significant to the number of IPOs. Angelini and Foglia (2018) mentioned that IPO volume also expected to be high when GDP is high due to the increase in output and expansionary demand in the market. Rahbar and Ranjbar (2015) adopt GDP growth as control variables, Breinlinger and Glogova (2002), Gunturkun, Gurarda and Erdogan (2012), Laohakosol, Sharma and Sthapit (2018) and Hopp and Dreher (2007) determined that GDP do not have any significant relationship on the stock pricing in IPOs. Thus, we expect that the GDP is closely related to demand for IPO.

2.4.2 Stock market (KLCI) index

Stock markets index can use as proxy to indicate the willingness of investors to invest in securities that showing the demand for the IPOs. The study by Meluzin, Zinecker, and Kovandova (2014) in Poland and Laohakosol, Sharma and Sthapit (2018) in Nepal results

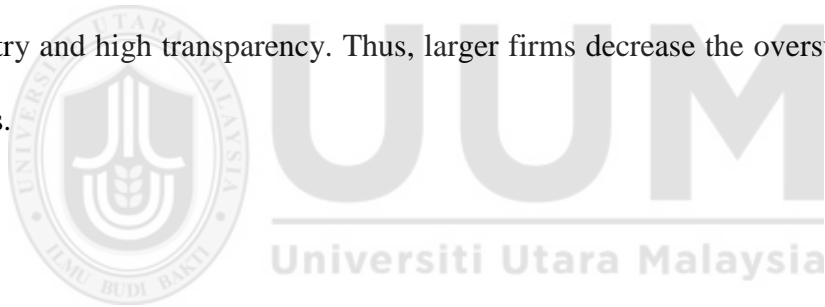
that the stock market index is positive significant on the numbers of IPOs. The result is consistent with Tran and Jeon (2011) which used S&P 500 as a proxy for stock market performance indicated that positive correlated to number of IPOs. Firms tend to issues equity when stock price increase or strong market performance as can reduce the cost for going public (Ameer, 2012). They argue that investors try to take advantage through better stock market performance to publish company in public in contrast to the investor may undervalue the price and reducing the number of IPOs in low investor sentiment. Gunturkun, Gurarda and Erdogan (2012) found no significant result on the IPO underpricing. Thus, in this research we argue that good performance of the stock market may increase the number of demand for the IPOs.

2.4.3 Exchange Rate

Volatility in exchange rate greatly influences the stock market return reflect to the information available to investors. Some studies concluded there is a relationship between exchange rates movement on stock performance. The study of Ajide and Bello (2014) mainly measured the governance quality towards the stock market in Nigerian. The exchange rate as control variable has found a negative significant relation to stock market performance. Foreign exchange rate is global risk factor as explanatory variable has all negative significant and nearly negative significant on the stock market risk in developed countries and emerging market respectively (Low et al. 2015). However, there is no relation between exchange rate and IPOs underpricing while subscription rate is positive to underpricing (Phadke & Kamat, 2018).

2.4.4 Market capitalization

Market capitalization used as proxy for firm size which is the total asset of the company own (Chahine, Filatotchev, & Zahra, 2011, Yung & Zender, 2010). Moreover, Rahbar and Ranjbar (2015) and Abdullah and Taufil-Mohd (2004) observed that firm size is positive significant to pricing on IPO. They asserted that larger firms have more proficient to provide discounts. In contrast, firm size observed significant negative relationship to IPO returns and the demand (OSR) (Abdul Rahim & Yong, 2010). The results are consistent with Tajuddin et al. (2014, 2016, and 2017) which exist of negative relationship between firm size and oversubscription (OSR) in Malaysia. This can be explained larger firms have proven track record contributes to lower information asymmetry and high transparency. Thus, larger firms decrease the oversubscription from investors.



2.4.5 Institutional Investor Involvement (DPRIVATE)

The shares that offered to institutional investors recognized as percentage of IPOs allocated to informed investors or know as private placement. DPRIVATE represent the dummy for the private placement which implied in the study of Tajuddin et al. (2015), Tajuddin et al., (2016) has a positive while insignificant relative to oversubscription of IPOs. Rock (1986) obtained the similar result argued that higher of involvement of informed investor led to higher demand and accordingly the returns. Based on Yong (2011) and Abdul Rahim et al. (2012), they stated that the more IPO subscribed by institutional investors seem to has lower risk and thus the lower the IPOs underpricing or

lower initial return which supported the argument for the winner curse whereby informed investors has valuable information (lower risk) than uninformed investors with high risk (Rock, 1986).

2.4.6 Offer Price

The offer price of IPO is issued price of securities set by underwriter or investment bank during IPO process. Yong and Isa (2003) found a positive and significant relation between offer price and initial return. Tajuddin et al., (2017) shown there is insignificant positive between offer price and oversubscription of IPO. Moreover, Tajuddin et al., (2015) argue that the company risk (the reciprocal of the offer price) may influence the investor's demand on IPO with explanation of higher risk or lower offer price of IPOs will lure the investors. In contrast, Low and Yong (2011) showed a negative and significant relation between offer price and oversubscription of IPO with reasonably supported by empirical research of Benveniste and Busaba's (1997). For instance, investor demand increase as lowering the offer price and in turn reduce the chances of issue failure.

2.4 Chapter summary

In a nutshell, this chapter had studied all of the empirical studies on dependent variables and independent variables based on previous researcher's findings. Based on review of past studies, oversubscription has been importantly related to underpricing of IPO. Researchers proved that institutional quality has significant relation to IPO underpricing

empirically. Plenty of studies carried out to determine the relationship between institutional quality and underpricing however no empirically study yet in conducting the institutional quality on oversubscription since there exist oversubscription related to underpricing. The theories for this study also has been listed and formed. In next chapter, method which used for this study will be covered.



CHAPTER THREE

DATA AND METHODOLOGY

3.1 Introduction

This chapter will deliberate the source of data, measurement of variables, research model and statistical methodology applied in this study. The statistical methodology in present study is to discover the relationship between institutional quality toward IPOs oversubscription in Malaysia. The theoretical framework also constructed in section 3.8.

3.2 Data

The data applied on present study are secondary data whereby comprised of initial public offering (IPOs) listed in Bursa Malaysia that covered from duration of January 2000 to December 2016. The full sample data is 392 firms that first time issued it securities to primary market that adopting fixed price mechanism. The data consist of IPOs oversubscription ratio, the components of institutional quality (voice and accountability, political stability and absence of violence, regulatory quality, government effectiveness, rule of law, and control of corruption), and the control variables that include gross domestic product (GDP), exchange rate (EX_RATE), KLCI index, institutional involvement investor (DPRIVATE), offer price (PRICE) and market capitalization or firm size (MKTCAP). Those data of dependent variable are extracted from Bursa Malaysia website, Securities Commission (SC) Malaysia, Bursa Malaysia annual report and company's prospectus and control variables extracted from DATASTREAM, while

institutional quality also known as Worldwide Governance Indicators are extracted from Worldwide Bank Group.

3.3 Sample Descriptive

Our sample consist 392 firms listed on Bursa Malaysia for the period of January 2000 to December 2016 shown in Table below. The sample in present study involve all types of firms or companies which excluded companies contain outliers, companies that are restricted offer to sale to Bumiputera investors, qualified employees, restricted from public issues, tender offer and special issues which similar to the study by Abdul Rahim (2008) as to evade from meaningless outcomes. The financial companies that include banks or financial services, insurance companies, and real estate investment trust (REITs) also not counted in the final sample. Those data are downloaded from Bursa Malaysia website. This study used the oversubscription ratio as proxy for demand of IPOs. Yong and Isa (2003), Abdul Rahim and Yong (2010), Tajuddin et al. (2015, 2017) employed the oversubscription ratio in their research. The sample of Malaysia IPOs based on year 2000 to 2016 is summarized as below.

Table 3.1 The Distribution of Malaysia IPOs sample from listing year of 2000 until 2016

Listing Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
Population	38	20	51	58	72	79	40	26	23	14	29	28	17	17	15	13	12	552
Final sample	29	13	32	43	54	61	29	13	13	9	19	20	10	13	12	10	12	392

Source: Bursa Malaysia

3.4 Measurement of Variables

3.4.1 Dependent Variable

Dependent variable for this study is oversubscription of initial public offering (IPO) which measured the investor's demand on the IPO. The oversubscription ratio suggests that which imbalance of demand and supply where demand is beyond the supply of the securities in the market, consequently, highly demand in IPOs will more likely to push up the price and subsequent given the higher initial return (Abdul Rahim & Yong, 2010; Agarwal et al. 2008, Mohd Rashid et al. 2014; Chi & Padgett, 2005). Yong and Isa (2003), Abdul-Rahim and Yong (2010) and Mohd Rashid et al. (2014) resulted that oversubscription ratio is positive and significant to the IPO initial return and using the same measurement. The oversubscription ratio is measured as follows:

$$OSR = \frac{\text{Total number of IPOs subscribed}}{\text{Total offer Units}}$$

3.5 Independent Variables

World Bank Worldwide Governance Indicators (WGI) is applied to measure the institutional quality. The key independent variable in present study is institutional quality which comprised from six important indicators. Those six dimension WGI comprises of voice and count ability, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law, and control of corruption. This Worldwide Governance Indicators are research data set which aggregate the six dimension of

governance for 200 countries over the period of 1996 to 2016. WGI were constructed by Kaufmann et al. (1999) and data are updated annually by World Bank. The six dimension indicators were collected from large amount of enterprise, citizen, and survey respondent from expert in developing nations. Those are selected from several of institution, think tanks, non-governmental and international agencies and also private sectors. The six indicators constructed using an unobserved components methodology. This study used WGI estimate for six indicators follow Cooray (2009), Hearn (2013) and Uddin et al. (2019). WGI estimate gives the country score on the aggregate indicator, in units of a standard normal distribution that ranging from approximately -2.5 to 2.5. The definition for each institutional quality indicators is shown in Table 3.2.

Table 3.2 Definition of Institutional Quality

<p>Voice and accountability reflects the extent to which citizens have the rights involved in selecting their government, as well as liberty in association or communication, expression and social media.</p>
<p>Government effectiveness refer to the ability and credibility of government to produce and implement sound policies which involve in the quality of public services and civil service as well as the degree of its free from political pressure.</p>
<p>Political Stability and Absence of Violence/Terrorism reflect to insights of the likelihood of the instability of government or politic and/or politically motivated violence and terrorism.</p>
<p>Regulatory quality shows the capability of the government or regulatory authority to express and implement sound policies and regulations that permit and promote private sector development.</p>
<p>Rule of law likes a system reflects the confidence of agents to abide all the rules of society, quality of contract enforcement, property rights, the police, and the courts, as</p>

well as the likelihood of crime and violence.

Control of corruption reflect to the extent which public power or elites is capture and drilled for private gain in both petty and grand forms of corruption along with it to gain the private interest.

3.6 Control Variables

There are six variables have been set as control variables to examine the explanatory variables, institutional quality on the oversubscription of IPOs in this study. These variables are gross domestic product, KLCI Index, exchange rate, market capitalization, institutional investor involvement, and offer price.

3.6.1 Gross Domestic Product

Gross domestic product (GDP) growth rate represents a country economic growth. GDP growth rate has been commonly used to examine the relationship on stock market performance and IPOs. Angelini and Foglia (2018) mentioned that IPO volume expected to be high when GDP is high due to the increase in output and expansionary demand in the market. Present study employ GDP growth rate which expect that the demand for IPO is related closely to economic cycle. The yearly of GDP growth rate (%) are collected from the World Bank Data.

3.6.2 Stock market (KLCI) Index

Stock market (KLCI) index is proxy to measure the stock market performance. Strong market performance may influence the demand for the stock in market. Tran and Jeon (2011) used S&P 500 as a proxy for stock market performance indicated that positive correlated to number of IPOs. Ameer (2012) argue that firms more likely to issues the new share when the stock price increases to reduce the cost in going public. This is due to investors urge to take advantage from strong market performance in form of new listed company. Present study employs the monthly KLCI index extract from the Data Stream in library.

3.6.3 Exchange rate

Exchange rate act as control variable in present study used to determine the impact of institutional quality on the IPOs oversubscription. The proxy represent for exchange rate is real effective exchange rate index. The real effective exchange rate index (2010=100) in Malaysia defines as nominal effective exchange rate divided by price deflator. The data applied is monthly basis and the source of data is obtained from International Monetary Fund. Ajide and Bello (2014) and Low et al. (2015) found that exchange rate as control variable found a negative significant relation to the stock market while Phadke and Kamat (2018) found no relation to IPOs underpricing.

3.6.4 Market capitalization (Firm Size)

Market capitalization used as proxy for firm size which is the total asset of the company own. The firm size observed significant negative relationship to IPO returns and the

demand (OSR). Abdul Rahim and Yong, (2010) illustrated that larger firm or higher market capitalization contributes more information transparency associate with lower risk and thus implies lower return to investors and subsequently affect the demand for the equity. The market capitalization for each firms collected through the Bursa Malaysia website and company's prospectus.

3.6.5 Institutional Investor Involvement (DPRIVATE)

The private placements of IPOs are stocks offered directly to institutional investor or in finance literature recognize as informed investors. While the non-private placement of IPOs are belongs to retail investors which distinguish as uninformed investors. The informed investors tend to have more valuable information than non-informed investors. The dummy of private placement (DPRIVATE) is act as proxy for institutional investor involvement. The firms which undertake private placement represent for one and zero otherwise.

3.6.6 Offer Price

The IPO offer price is the first price of stock issued to public whereby investors pay to obtain the share. Investors tend to purchase the IPOs which are below than fair price as to gain profits through the underpricing. Therefore, the higher underpricing creates the oversubscription. Moreover, Low and Yong (2011) and Benveniste and Busaba's (1997) showed a negative and significant relation between offer price and oversubscription of IPO. When the offer price of IPOs is lower, investors demand for IPOs will increase as they believe the chances of failure will be reduce. The offer price in present study is

collected from the published sources for instance Bursa Malaysia and from company's prospectus.

3.7 Hypothesis Development

3.7.1 Voice and accountability

Low et al. (2015) manifested that voice and accountability has a negative and significant to stock market risk in both emerging and developed countries as better accountability has lower market risk. Hearn (2013) and Ajmal (2018) illustrated that voice and accountability has negative relation to IPO length prospectus and IPO underpriced respectively. However, voice and accountability is positive and significant to stock market performance as sound and strong accountability of government consequently with better market performance (Asongu, 2012; Boadi & Amegbe, 2017). Boulton et al. (2011) and Autore et al. (2014) illustrate that positive relationship of voice and accountability to IPO underpricing and thus higher IPO initial return. Signaling theory infer that country with higher voice and accountability provide higher confidence level lead to attract more investors as investors believe in getting a good return without loose in wealth. However, absent of study employed to determine the relationship between institutional quality voice and accountability with IPO oversubscribed empirically. Thus, it can be explained that when good quality of voice and accountability contributes to high confidence level will signal to the investor's sensitivity and attention subsequently acquired more demand for IPOs. Therefore, present study develops the first hypothesis as follow:

H₁: Voice and accountability is positive significant towards IPO oversubscription

3.7.2 Government effectiveness

Government effectiveness defines as government is capable to implement sound policies to benefit public and each own country. Hearn (2013) obtained a negative relation between government effectiveness and IPO prospectus length in which increase the government effectiveness will lower the IPO prospectus length. Engelen and van Essen (2010) and Autore (2014) indicated government effectiveness is negative significant on IPO underpricing. For instance, higher government effectiveness resulted to lower underpricing of IPO and expected low in oversubscription of IPO since underpricing and oversubscription of IPO is positive correlated based on Kenourgios et al. (2007). Contradictory, empirical studies from Ajide and Bello (2014); Hussain et al. (2017); Law et al., (2011) and Hooper (2009) proved that government effectiveness is a positively significant towards stock market performance. Hooper (2009) illustrated higher effective of government can reduce the transaction cost at the same time higher return as well as higher stock demand. Besides, government with high effectiveness reflects the lower information asymmetry or high information transparency in public. The highly of information disclosure to public, investors tend to has high confidence level and subsequently lure the investors to subscribe more IPOs. Accordingly, this study develops a hypothesis as follow:

H₂: Government effectiveness is positive significant towards IPO oversubscription

3.7.3 Political Stability and Absence of Violence/Terrorism

Political stability is one of the vital elements that cause the improvement of financial market and economic growth. A lot of studies conducted the relationship between

political stability and stock performance or IPOs initial return and has positive significant relation. Brewer et al. (2007), Law, et al (2011) and Hussain et al. (2017) mentioned that countries with high stability of politic have strong in stock market return as uncertainties is reduce and investor has higher confidence level in investment. However, Liew and Rowland (2016) found out the negative relation between political instability and stock market performance. It implied that high political stability signal to low uncertainties or risk and lower demand for IPOs. Hearn (2014) found the negative significant relation for political stability. Ajmal (2018) explore the institutional quality and economic strength on IPO mispricing in four countries. He found the inverse relation therefore high political stability reduces the mispricing extremely underpriced IPOs and definitely acquired for IPOs will be reduced. Ajmal (2018) argued that countries with low economic strength may signal that company involve in uncertainties thus it may contributes to high return and acquired for high demand or subscription on IPOs. Therefore, country with political stability signal to investor's confidence level will lead to high in IPOs subscription. Thus, this study intends to examine the impact of political stability to IPOs oversubscription and develops a hypothesis as following:

H₃: Political stability is negative significant towards IPO oversubscription

3.7.4 Regulatory quality

Regulatory in a country manifest its government implements the sound policies and regulation to promote the development of private sectors. Many researches document a positive relation between regulatory quality and stock market return. Boadi and Amegbe (2017), Law et al. (2011, 2014), and Yartey (2010) found a positive relation between

regulatory quality and stock market performance. The positive correlated within regulatory quality and IPO underpricing and IPOs prospectus length also proved by Gonzalez et al. (2018) and Hearn (2013) respectively. Positive findings infer that sound policy stimulating the development of capital market and efficient and effectively promoting the regulatory quality ensures a viable competitive market place and avoids capture by social elites and special interest groups whilst contribute to more information disclosure and transparency in public. Thus, strong quality of regulation allows issuers to control over their firms and the ability to lower the offer price as to increase demand for the IPO shares (Ajmal, 2018). However, country with high quality of regulatory has lower information asymmetry and high in transparency whilst investors encounter with lower uncertainties. Based on risk return tradeoff theory, investor will be compensates with lower return as lower risk and demand for IPOs will be reduce. This study intends to examine the relation of regulatory quality to IPOs oversubscription and develops a hypothesis as following:

H₄: Regulatory quality is negative significant towards IPO oversubscription

3.7.5 Rule of law

Rule of law in which the mediator has followed and abide the society rules, involve in contract enforcement, property right, police and the courts as well as crime and violence. Boadi and Amegbe (2017) have seen the negatively significant of law in affect stock market performance. In other words, countries with high quality of law resulting to lower stock return. Ajmal (2018) explained as poor legal protection reflects the uncertainties to investor thus require a higher mispricing or return in order to compensate the subscription

of the stocks. Nevertheless, Autore et al. (2014) indicated that enforce the insider trading law have positive significant on IPO underpricing in both emerging and developed countries. Hearn (2013) also obtained the similar result as rule of law is positive significant towards IPO prospectus length. Boulton et al. (2010) hypothesized that countries with virtuous legal protection tend to have lower information asymmetry between issuers and investors hence have higher IPO underpricing. Therefore, better legal framework create lower information asymmetry has higher transparency and more assurance or less uncertainties to investors will acquired for more IPOs causes the phenomena of oversubscription. Hence, this study makes a hypothesis as following:

H₅: Rule of law is positive significant towards IPO oversubscription

3.7.6 Control of corruption

Torgler and Schneider (2007) determined the negative relationship between control of corruption with shadow economy or in other words lower corruption indicate better economic performance. Similar of negative effect between corruption level and stock market performance as reducing corruption lead to higher equity returns (Boadi & Amegbe, 2017). Ajmal (2018) found control of corruption is negatively significant to IPO suggested that less control of corruption lead to more mispricing of IPO. In contrast, the Asongu (2012) found that control of corruption is positive significant to stock market performance in African countries. Hooper et al. (2009) contributed to literature with provident on level of corruption in stock market performance for developed and emerging countries and argue that systemic corruption level as key measure for governance is positively impact to international stock returns. Hussain et al. (2017) documented the

research in South Asian countries inferred control of corruption has positive significant to stock market performance. For instance, countries with strong institutional environment (better control of corruption) raise investors' confident level to invest in stock market. Thus, align with signaling theory, investors with higher confident level have lower uncertainties of information as they attain will bring more return in future and expected to oversubscribe the new IPOs. Thus, evidences employ the institutional quality control of corruption towards IPO oversubscription need to have empirically proven. Therefore, this study makes a hypothesis as follow:

H₆: Control of corruption is positive significant towards IPO oversubscription



3.8 Research Framework

Figure 3.1 demonstrate the relationship between explanatory or independent variables and oversubscription of IPOs in the hypothesis 1 to hypothesis 6 in earlier part. Moreover, the six control variables are further employ to determine the main relation.

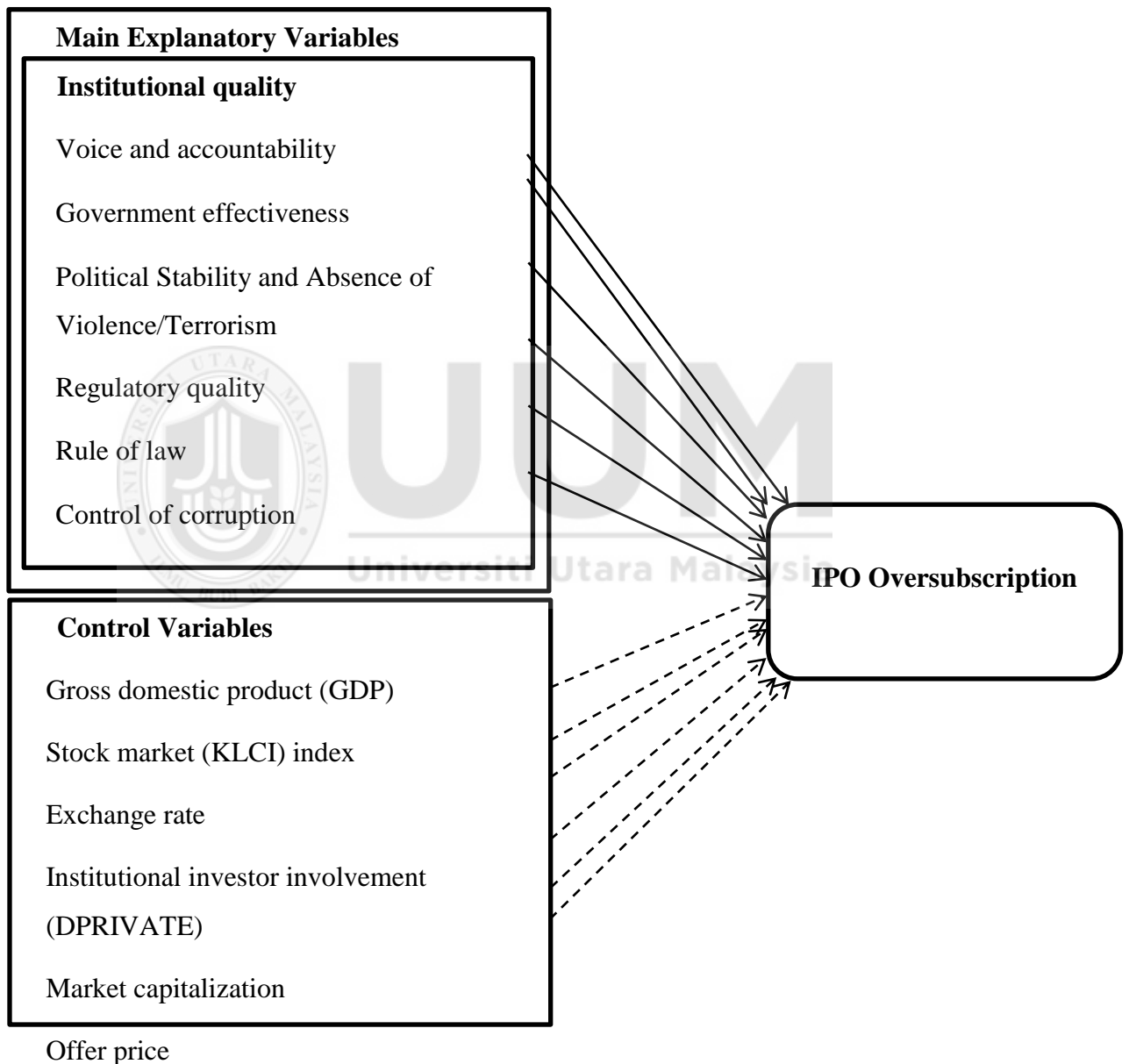


Figure 3.1 Conceptual Framework for relationship between institutional quality on IPO oversubscription

3.9 MODEL SPECIFICATION

In order to test these hypotheses, the cross-sectional regression analysis is employed in this study. The regression equation is including six main independent variables and six control variable presenting as follows:

$$\begin{aligned} \text{OSR}_i = & \alpha + \beta_1 \text{VOICE}_i + \beta_2 \text{GOV}_i + \beta_3 \text{POLITICAL}_i + \beta_4 \text{REGULATORY}_i + \beta_5 \text{LAW}_i + \\ & \beta_6 \text{CONCORR}_i + \beta_7 \text{GDP}_i + \beta_8 \text{KLCI_INDEX}_i + \beta_9 \text{EXC_RATE}_i + \beta_{10} \text{MKTCAP}_i + \\ & \beta_{11} \text{DPRIVATE}_i + \beta_{12} \text{PRICE}_i + \varepsilon_i \end{aligned} \quad (\text{Eq 3.1})$$

Where:

α	= the constant
$\beta_1, \beta_2 \dots \beta_{12}$	= Coefficients of the parameters
OSR	= Oversubscription ratio of IPOs
VOICE	= Voice and accountability
GOV	= Government effectiveness
POLITICAL	= Political stability
REGULATORY	= Regulatory quality
LAW	= Rule of law
CONCORR	= Control of corruption
Control variables:	
GDP	= Gross Domestic Product growth rate (%)
KLCI_INDEX	= Stock market performance

EXC_RATE	= Real effective exchange rate
MKTCAP	= Market capitalization (firm size)
DPRIVATE	= Dummy for private placement (Institutional investor involvement)
PRICE	= Offer price of IPOs
ε	= error term

Based on the equation 3.1 and the explanations, the hypotheses from previous section are aid to perform the regression model. In order to achieve the objectives of the study, a model is formed, which indicates the oversubscription ratio is explained by the institutional quality and the model was tested by using cross sectional analysis. The hypotheses are only supported if the p-value shows a significant correlation to oversubscription of IPOs.

3.10 Econometric Estimation

3.10.1 Data Normality Test

Normality test is conducted to ensure the residual in the model are normal distributed. This test can be identified through histogram and residual on descriptive statics as well as Jarque-Bera statistics. When histogram is performed in bell-shaped and /or Jacque-Bera statistics is insignificant, the residuals are said to be normally distributed. In other words, the model can be expected to. Be normally distributed also. The bigger sample sizes tend

to has normal distributed in statistically or vice versa. Thus, the hypothesis for normality test show as follow:

H_0 : The residual (μ) of model is normally distribution

If the p-value of Jarque Bera statistics or alpha is less than 0.05, we can reject the null hypothesis, thus the residuals are not normally distributed.

3.10.2 Multicollinearity Test

Multicollinearity is where two or more independent variables exist of linear relationship in the regression model (Gujarati 2003). The multicollinearity problems will lead to the regression coefficient and the standard errors are undetermined. If the collinearity between variables is high but not perfect, standard error will be high. Thus, the precise coefficient value of population will not be estimated. As the solutions to overcome this problems: Gujarati (2003) proposed to use prior information, using panel series data to increase the sample size, omit the high collinear variables, data transformation and acquire for additional or new data.

The variance inflation factor (VIF) is employed to diagnosis the multicollinearity. The VIF for variable indicates that whether it has a strong or high linear association with all of the remaining variables. The rule of thumb is interest for multicollinearity if the VIF is exceeds 10. According to Hair et al. (1995), the maximum acceptable level of VIF is 10. Thus, best decision is either considering eliminates the variables or engages other variables as to obtain the least square estimation.

3.10.3 Autocorrelation Test

Autocorrelation occurs in scenario where the regression models of error terms are correlated. There are four methods to detect the autocorrelation such as graphical method, Geary test, Durbin Watson (DW) d test, and Breusch-Godfrey test. This study selects the Durbin Watson d test and model is free from or no serial correlation in sample whereby the statistic is around value 2.0. But when the DW statistic fall between 0 or below 2, there is a positive serial correlation. A negative serial correlation demonstrates the DW statistic is from value 2 to 4 (perfect autocorrelation). Thus, hypothesis for examined autocorrelation is as follow:

H_0 : No serial autocorrelation

We do not reject the null hypothesis when the DW statistics fall to value 2.0, otherwise reject the null hypothesis.

If the autocorrelation still exists after running Durbin Watson test, the Newey-West covariance estimator can be imposed to correct or adjust the autocorrelation problems.

3.10.4 Heteroscedasticity Test

In regression analysis, the disturbances (ε_i) in population regression function are homoscedastic in assumption indicates that the regression obtain the same variance. However, the regression is determined as heteroscedasticity when the variances are different. Heteroscedasticity can be detecting through conducting White test. This study apply “White consistent standard errors and covariance” to overcome the problem of homoscedasticity. The null hypothesis is show as follow:

H_0 : Homoscedasticity (the variance of residual (μ) is constant).

The null hypothesis will be rejected if the p value is less than 0.05. The residuals in regression is said to have constant variance if null hypothesis is not rejected and the residuals are homoscedastic.

3.10.5 Ramsey Reset Specification Test

RAMSEY Reset test is a specification test for linear regression model which to found out whether the independents variables applied has any influence to explained the dependent variable (Ramsey, 1969). To complete the RESET test for omitted variable, the coefficients for all independent variable to explained dependent variable must be jointly insignificant. The RAMSEY RESET test is based on the Lagrange Multiplier principle which usually performed using the critical values of the F-statistic.

H_0 : The correct specification is linear (no misspecification)

The null hypothesis is rejected if the p-value for F statistic fall below 0.05, means the model is suffer from the misspecification problems, otherwise do not reject. However, the null hypothesis is not rejected; this model has a correct specification (does not suffer from omitted variables).

3.11 CHAPTER SUMMARY

This chapter performs the hypotheses based on the literature review on the previous research. The research hypotheses for this chapter may contribute the important information for investors, issuer, and other parties like regulators. Moreover, the research

framework and model is developed based on the hypotheses. All the available data for variables have been clearly explained in data collection and sample description. The next following chapter will be further explored about the empirical result and output of each methodology. The E-views software will be used to conduct the data analysis.



CHAPTER FOUR

DATA ANALYSIS AND FINDINGS

4.1 Introduction

This chapter will discuss and analyze the empirical findings of institutional quality on IPO oversubscription. The preliminary analysis discusses the result of descriptive statistic for all dependent variable, independent variables and control variables and following by explanation for correlation matrix among each variable. The study further analyzes for the normality test, multicollinearity test, autocorrelation and heteroscedasticity problem in the regression model. The last part undertakes the interpretation for the regression of ordinary least square (OLS) to realize the hypotheses development in chapter 3. This chapter will be finalizing with a chapter summary.

4.2 Descriptive Statistics

Descriptive statistic is used to summarize and understand the features of sample of data. Mean, medium, standard deviation is descriptive statistics that commonly measure in statistics. Based on Table 4.1, the average for oversubscription ratio (OSR) is 29.75 times and the medium for oversubscription ratio is 17.21 times. The maximum of OSR 229.2 times and minimum is -0.89 times indicates the under subscription by 89%. The highest and lowest OSR indicates difference of demand for each IPO issued in Malaysia over period 2000 to 2016. VOICE has average (medium) of -0.38 (-0.42). The VOICE has a

range between minimum -0.563 to maximum -0.147. GOV has a higher value compared to other five institutional quality indicators. The average and medium of GOV is 1.087 and 1.088. The maximum of GOV is 1.27 while the minimum is 0.875. The mean and medium of POLITICAL is 0.306 and 0.565 respectively. The maximum value indicates higher political stability and vice versa. The minimum value is -0.042 to a maximum of 0.565. Moreover, REGULATORY stands for the second higher of institutional quality has average and medium values of 0.574 and 0.570 respectively which minimum value 0.304 to maximum value 0.838. The average and medium values of LAW is 0.463 and 0.479. The maximum of LAW is 0.588 and the minimum is 0.273. The descriptive summary for CONCORR indicates the average and medium value of institutional quality is 0.238. CONCORR shows the corruption level of the maximum value is 0.411 and the minimum value is -0.056. The maximum value of the six dimensions of institutional quality contribute to the highest international transaction and provide for the security and predictability.

Table 4.1 also explained the descriptive summary of control variable in this study. The average of GDP is 5.63% and medium is 5.585. The Malaysia GDP has reached the maximum of 8.86% and minimum of -1.51% with the standard deviation of 1.826 over year 2000 to 2016. KLCI_INDEX average and medium are 1054.35 and 909.67 respectively. The maximum KLCI_INDEX reach 1879.12 point and minimum 571.26 point over the sample year. Moreover, average and medium of EXC_RATE is 96.72 and 96.5 point respectively. The average of MKTCAP is 15.43 and medium is 18.03. The maximum market capitalization is 23.53 and minimum is -1.897 with standard deviation

of 6.92. The average of DPRIVATE is 0.792. The IPOs which involve in DPRIVATE categories as 1 and zero for otherwise has the standard deviation of 0.406. The average and medium for PRICE is RM0.986 and RM 0.750 respectively with standard deviation of 0.752. The maximum of IPO offer price is RM5.05 and minimum is RM0.15 show the different offer price for each listed companies.

4.3 Pearson Correlation Matrix

The correlation matrix applied in this study is to determine and analyze the relation between one variable to another. The correlation coefficient illustrates the degree between related variables and range from -1 (perfect negative correlation) to +1 (perfect positive correlation). According to Khan (2017) the correlation coefficient between variables should not exceed 70% to prevent from multicollinearity problem. The correlation matrix between variables is show in Table 4.2. The voice and accountability has higher positive correlation (14.22%) followed by control of corruption (13.33%) compared to other institutional indicators includes government effectiveness, political stability, and rule of law) except regulatory quality has negative correlated to oversubscription. The gross domestic product (GDP) (15.9%) and institutional involvement investors (12.86%) has positive correlated to oversubscription ratio while, stock market performance (KLCI_INDEX), exchange rate (EXC_RATE), market capitalization (MKTCAP) and offer price (PRICE) has negative correlated with oversubscription. The relations for all variables are not highly correlated to each other as the coefficient less than 70%.

Table 4.1: Descriptive statistics of variables over 2000 to 2016

Dependent Variable	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Jarque-Bera
OSR (times)	29.745	17.213	229.203	-0.89	37.974	2.580	11.007	1474.584
Dependent variables: Institutional quality								
VOICE	-0.381	-0.421	-0.147	-0.563	0.137	0.584	1.918	41.225
GOV	1.087	1.088	1.267	0.875	0.087	0.059	3.407	2.922
POLITICAL	0.306	0.288	0.565	-0.042	0.194	-0.019	1.596	32.057
REGULATORY	0.574	0.570	0.838	0.304	0.101	-0.323	4.543	45.463
LAW	0.463	0.479	0.588	0.273	0.078	-1.468	4.397	171.859
CONCORR	0.238	0.238	0.411	-0.056	0.119	-0.920	3.040	55.038
Control variables								
GDP	5.632	5.585	8.859	-1.514	1.826	-1.651	8.310	635.341
KLCI_INDEX	1054.347	909.670	1879.120	571.260	359.9	0.899	2.448	57.606
EXC_RATE	96.720	96.500	106.800	84.100	4.131	-0.079	3.054	0.458
MKTCAP	15.433	18.028	23.533	-1.897	6.919	-1.848	4.596	263.348
DPRIVATE	0.792	1.000	1.000000	0.000	0.406	-1.441	3.078	135.098
PRICE	0.986	0.750	5.050	0.150	0.752	1.870	8.242	673.745

Notes: The table above indicates the descriptive statistic for all variables for Malaysia IPOs over years 2000 to 2015. OSR is oversubscription ratio, VOICE is voice and accountability, GOV is government effectiveness, POLITICAL is political stability and absence of Violence/Terrorism, REGULATORY is regulatory quality, LAW is rule of law, CONCORR is control of corruption, GDP is gross domestic product, KLCI_INDEX is market performance, EXC_RATE is exchange rate, MKTCAP is market capitalization proxy for firm size, DPRIVATE is Dummy for private placement, PRICE is offer price.

4.4 Diagnostic Results

This section explained the result retrieved from normality test, multicollinearity, heteroscedasticity, autocorrelation, and Ramsey Specification test that discuss in chapter 3. The diagnostic test is to ensure the multiple regressions in this study are reported without raising any validity issue. Result of the diagnostic test will be show as follow.

4.4.1 Normality Test

The normality test is to ensure the multiple regressions is normally distributed. This study applied Jarque-Bera (JB) test. The hypothesis for null hypothesis will be rejected if the p-value of JB test is smaller than 0.01 and the data sample is not normal distribution. The result shows that residual of regression is not normally distributed as p-value is less not 0.01 thus null hypotheses is rejected. Even though the residuals are non-normal distributed but not a main concern or issues as it is natural attributed from the financial data. The result of normal distribution is display in Appendix A.

Table 4.2: Pearson Correlation Matrix

	OSR	VOICE	GOV	POLITICAL	REGULATORY	LAW	CONCORR	GDP	KLCI_INDEX	EXC_RATE	MKTCAP	DPRIVATE	PRICE
OSR	1.00000												
VOICE	0.14224	1.00000											
GOV	0.12281	-0.18735	1.00000										
POLITICAL	0.06730	0.45914	0.28027	1.00000									
REGULATORY	-0.07558	0.22053	-0.11587	0.27282	1.00000								
LAW	0.09959	0.32180	0.12465	0.49474	0.33192	1.00000							
CONCORR	0.13328	0.23885	0.17593	0.31251	0.31305	0.05781	1.00000						
GDP	0.15937	0.09943	0.23901	-0.12415	0.13660	0.00070	0.35554	1.00000					
KLCI_INDEX	-0.08461	-0.14573	-0.38148	-0.58286	0.29761	0.15668	-0.38955	-0.08809	1.00000				
EXC_RATE	-0.17405	-0.54053	0.04447	-0.19607	-0.05623	-0.35119	0.02536	-0.06398	-0.01845	1.00000			
MKTCAP	-0.07374	-0.01145	0.19190	-0.02450	-0.46225	-0.30677	-0.10014	0.03807	-0.32942	0.24671	1.00000		
DPRIVATE	0.12867	0.08085	0.10025	0.21590	0.07250	0.46941	-0.14160	-0.11518	0.15579	-0.19333	-0.18295	1.00000	
PRICE	-0.23013	-0.17541	-0.16967	-0.24933	-0.00478	-0.44533	0.16459	0.10292	-0.04563	0.32135	0.20331	-0.49107	1.00000

4.4.2 Multicollinearity

Multicollinearity first can be assessed through the Pearson correlation matrix analysis as shown in Table 4.2. The correlation coefficients between independent variables are small which do not exceed 0.5 and -0.6. Then the results are further determined through the variance inflation factor (VIF) to identify whether exists of a strong linear relationship between variables. The higher value of VIF reported in this study is 8.07 for KLCI_INDEX which lower than the VIF cut off point of 10. Thus all the variables are free from multicollinearity issues. Table 4.3 and Appendix B show the result of VIF.

Table 4.3 Variance inflation factor (VIF) result

Variable	Centered VIF
VOICE	2.096804
GOV	1.949594
POLITICAL	5.785662
REGULATORY	5.119321
LAW	7.504533
CONCORR	3.138370
GDP	1.921381
KLCI_INDEX	8.078734
EXC_RATE	2.503018
MKTCAP	4.795293
DPRIVATE	1.846724
PRICE	1.708449

4.4.3 Autocorrelation

The Durbin Watson d test employed in this study is to identify the serial correlation. Serial correlation causes underestimate of true variance as the error terms are correlated. Durbin Watson d test and model is free from serial correlation in sample whereby the statistic is around value 2.0. In present study, Durbin Watson d test has value of 1.5 which falls in the range between values 0 until around 2 considered as positive serial correlation. In order to solve the positive serial correlation, this study performed the Newey-West test (HAC test). The autocorrelation issue has been solved as all the standard error and the t-statistic have been improved after conducting Newey-West test. The result is show in Appendix C.

4.4.4 Heteroscedasticity

Heteroscedasticity problem is examined using Breusch-Pagan Godfrey test. Since the probability for F-statistic is less than p-value 0.05 the null hypothesis of homoscedasticity is rejected. Thus, the residuals in regression have different variance and heteroscedasticity. Therefore, the White test of “Heteroscedasticity Consistent Covariance” has conducted to solve heteroscedasticity problem in regression model by correcting the coefficient and standard error become minimize. The findings for both tests are show in Appendix D and Appendix E.

Table 4.4 Heteroscedasticity Test: Breusch-Pagan-Godfrey

F-statistic	2.486994	Prob. F(12,377)	0.0038
Obs*R-squared	28.60834	Prob. Chi-Square(12)	0.0045
Scaled explained SS	125.7961	Prob. Chi-Square(12)	0.0000

4.4.5 Ramsey Specification Test

This study conducts the RAMSEY RESET test to examine the model specification through identify the linearity assumption in regression model. The null hypothesis is rejected if the p-value is smaller than 0.05. The findings in Appendix F manifest probability of F-statistic is larger than 0.05, thus reject the null hypotheses. This indicating that the regression models do not has misspecification error.

4.6 Result of Regression Analysis

This section will discuss the cross-sectional multiple regressions of institutional quality to IPO oversubscription in order to address the hypotheses developed in chapter three. After discussing the entire necessary test based on previous section, the multiple regressions model is developed as follow:

$$\begin{aligned} \text{OSR}_i = & 67.6720 + 41.5278\text{VOICE}_i + 29.4626\text{GOV}_i - 32.9655\text{POLITICAL}_i - \\ & (20.70989) \quad (26.77639) \quad (23.23588) \\ & 59.7260\text{REGULATORY}_i + 8.0860\text{LAW}_i + 42.6354\text{CONCORR}_i + 3.0909\text{GDP}_i - \\ & (29.53083) \quad (40.12851) \quad (22.52659) \quad (1.131681) \\ & 0.0090\text{KLCI_INDEX}_i - 0.1753\text{EXC_RATE}_i - 0.6520\text{MKTCAP}_i + 6.9738\text{DPRIVATE}_i \\ & (0.012534) \quad (0.603017) \quad (0.345161) \quad (5.555234) \\ & - 10.2\text{PRICE}_i \end{aligned}$$

Where i = 1, 2, ...390

(3.079436)

Table 4.5 shows the result from the ordinary least square (OLS). The R² of model is 0.1488 and the adjusted R² is 0.1217. The adjusted R² indicated that there is 12.17% of variation in predicted OSR is explained by variation of all independent variables.

Table 4.5 Result of Ordinary Least Square (OLS)

Dependent Variable : Oversubscription (OSR)				
	Coefficient	Standard error	t-statistics	P-value
Independent variables				
VOICE	41.52780	20.70989	2.005216**	0.0457
GOV	29.46260	26.77639	1.100320	0.2719
POLITICAL	-32.96553	23.23588	-1.418734	0.1568
REGULATORY	-59.71600	29.53083	-2.022158**	0.0439
LAW	8.086026	40.12851	0.201503	0.8404
CONCORR	42.63542	22.52659	1.896271*	0.05292
Control variables				
GDP	3.090940	1.131681	2.731281***	0.0066
KLCI_INDEX	-0.009006	0.012534	-0.718561	0.4729
EXC_RATE	-0.175278	0.303017	-0.290669	0.7715
MKTCAP	-0.652015	0.345161	-1.889015*	0.0597
DPRIVATE	6.973826	0.555234	1.255361	0.2101
PRICE	-10.20090	3.079436	-3.312587***	0.0010
C	67.67198	62.24658	1.087160	0.2777
R ²	0.148838			
Adjusted R-squared	0.121745			
F-statistic	5.493693			
Durbin-Watson stat	1.500465			

Notes: OSR is oversubscription ratio, VOICE is voice and accountability, GOV is government effectiveness, POLITICAL is political stability and absence of Violence/Terrorism, REGULATORY is regulatory quality, LAW is rule of law, CONCORR is control of corruption, GDP is gross domestic product, KLCI_INDEX is market performance, EXC_RATE is exchange rate, MKTCAP is market capitalization proxy for firm size, DPRIVATE is Dummy for private placement, PRICE is offer price. The asterisks ***, ** and * signify the results are significant at 1%, 5% and 10% significant level respectively.

On top of that, voice and accountability (VOICE) is positively significant at 5 % level to IPOs oversubscription. The higher quality of VOICE creates high demand on IPOs. The positive result supported by Boulton et al. (2011) and Autore et al. (2014) have positive relation between voice and accountability with IPO underpricing. This can be explained by signaling theory which explains that high institutional quality contributes to high investor's confidence level whilst attract the investor to acquire for more IPO thus create to IPOs oversubscription. Besides, the regulatory quality (REGULATORY) found a negative and significant to IPOs oversubscription at 5% significant level suggested that strong regulatory quality causes lower subscription of IPOs. Country with strong regulatory quality indicates lower information asymmetry or higher transparency has lower uncertainty in market. According to risk-return tradeoff theory, lower risk tends to has lower underpriced thus subscription of IPOs will be lower as well. Furthermore, control of corruption result a positive relation to IPOs oversubscription at 10% significant level. This implies that higher controlling corruption creates higher IPOs oversubscription. The positive result aligns with empirical evidence from Hooper et al. (2009) and Hussain et al. (2017). Positive relation entitle that better in control of corruption signal the quality to investors and raise the confidence level of investors subsequently highly demand for IPOs.

However, institutional quality such as government effectiveness (GOV) and rule of law (LAW) indicated the positive but insignificant to IPOs oversubscription. Investors tend to invest in the country with high quality of institutional as lower information asymmetry or high transparency will make investors subscribed for more IPOs without worries in losing

their wealth. Besides, political stability (POLITICAL) has negative but insignificant towards IPOs oversubscription. The negative relationship illustrated that strong political stability may signal to lower information asymmetry and lower uncertainties to the firms create the low subscription of IPOs alike to the study from Liew and Rawland (2016) and Hearn (2014).

As for control variables, gross domestic product growth rate (GDP) found a positively significant at 1% significant level on oversubscription of IPOs. This indicates that countries with higher economic growth consequently create higher IPOs oversubscription for new listed firms. The result obtained which is similar to Glogova (2002), Angelini and Foglia (2018), and Blum (2011) show GDP is positive significant to the number of IPOs due to increase in output and expansionary demand in the market. In addition, offer price (PRICE) has a negative significant at 1% on IPOs oversubscription. The lower offer price contributes to higher IPOs demand as lower offer price may attract the investor. The result supported by Benveniste and Busaba (1997) and Low and Yong (2011) which have a negative significant relation between offer price and IPOs oversubscription.

The market capitalization (MKTCAP) or firm size is negative significant at 10% to IPOs oversubscription. The larger firms have a proven track record that contributes to lower information asymmetry and does not lower the offers price to attract investors. Thus, larger firms decrease the oversubscription from investors (Tajuddin et al. 2014; 2016; 2017). However, KLCI_INDEX and EXC_RATE are negative insignificant on IPOs oversubscription implies that higher value of KLCI_INDEX and EXC_RATE, the lower

the IPOs oversubscription. While DPRIVATE is positive insignificant to IPOs oversubscription shows that institutional investor involvement will increase the demand for IPO.

4.6 Chapter Summary

This chapter illustrates the results of six dimensions of institutional quality such as voice and accountability, government effectiveness, political stability, regulatory quality, rule of law, and control of corruption on IPOs oversubscription. Several tests have been conducted to affirm the model has performed accurately. From the descriptive statistics, the average of government effectiveness has the highest value and voice and accountability has the lowest average compared to other institutional quality. The highest mean indicates that government effectiveness has a higher institutional impact compared to voice and accountability compared to other indicators. However, voice and accountability shows the highest correlated to IPOs oversubscription.

Table 4.6 shows the summary result of the relation of key independent variables to the dependent variable. Based on findings of ordinary least square (OLS) all the institutional quality variables are consistent with the expected sign. However, only three variables of institutional quality have a significant effect the IPOs oversubscription. Voice and accountability and control of corruption are positive significant to IPOs oversubscription at 5% and 10% significant level respectively. Regulatory quality has negative relationship to oversubscription of IPOs at 5% significant level. Meanwhile, the government

effectiveness and rule of law are positive while political stability is negative insignificant to the IPOs oversubscription respectively.

Table 4.6 Summary of Findings

Variables	Expected sign	Estimated sign	Theory	Decision
VOICE **	+	+	Signaling	Consistent
GOV	+	+	Information asymmetry	Consistent
POLITICAL	-	-	Signaling	Consistent
REGULATORY **	-	-	Information asymmetry	Consistent
LAW	+	+	Information asymmetry	Consistent
CONCORR *	+	+	Signaling	Consistent

Note: The asterisks ** and * signify the results are significant at 5% and 10% significant level respectively.

Moreover, gross domestic product growth rate (GDP) found a positively significant at 1% significant level on oversubscription of IPOs. In addition, institutional involvement investor (DPRIVATE) is positive but insignificant to IPOs oversubscription. The offer price (PRICE) has a negative significant at 1% on IPOs oversubscription. The market capitalization (MKTCAP) or firm size is negative significant at 10% to IPOs oversubscription. However, KLCI_INDEX and EXC_RATE are negative relationships to IPOs oversubscription indicate higher KLCI_INDEX and EXC_RATE contribute to lower oversubscription but is insignificant in finding.

CHAPTER FIVE

CONCLUSION AND IMPLICATION

5.1 Introduction

Chapter five provides the conclusion of this study. This chapter concludes the summary and conclusion of findings. Next section focuses the discussion on the limitations of this study that might contribute ideas for the future study. On top of that, the implications will be illustrated based on investors, issuer, regulatory, and provide for the body of literature. Lastly, this chapter will provides some recommendation for future studies.

5.2 Summary and Conclusion

The present study used a sample of 390 IPOs firms listed in Bursa Malaysia over the period of 2000 to 2016. Therefore, the objective is to investigate the relationship between the six indicators of institutional quality associate with the IPOs oversubscription (OSR) withholding six control variables. This study attains the objectives through analyses the result of ordinary least square (OLS) in the previous chapter. The institutional quality indicator such as voice and accountability, regulatory quality and control of corruption are significant influences the IPOs oversubscription in Malaysia.

The result shows the positive and significant relationship between voice and accountability with an oversubscription of IPO as expected. This finding aligns with the hypotheses 1. The positive result is consistent with previous empirical studies like Asongu (2012), Boadi and Amegbe (2017), Autore et al. (2014) and Boulton et al. (2011).

This illustrated that a strong quality of voice and accountability lead to a high oversubscription of IPOs in line with the signaling theory. The signaling theory infers that a high institutional quality signal to a high investor's confidence level will attract the investors to invest by highly subscribe for the IPOs.

Table 5.1: The hypothesis development

Hypothesis	Decision
H ₁ : Voice and accountability is positive significant towards IPO oversubscription	Accepted
H ₂ : Government effectiveness is positive significant towards IPO oversubscription	Rejected
H ₃ : Political stability is negative significant towards IPO oversubscription	Rejected
H ₄ : Regulatory quality is negative significant towards IPO oversubscription	Accepted
H ₅ : Rule of law is positive significant towards IPO oversubscription	Rejected
H ₆ : Control of corruption is positive significant towards IPO oversubscription	Accepted

The regulatory quality shows a negative and significant relationship to IPOs oversubscription which aligns with hypotheses 4. Rock (1986) explained that low information asymmetry (high regulatory quality) causes to low risk or uncertainties in the market and in line with risk return tradeoff theory, investor subscribed for IPOs is reduce as low risk low return. The negative result implies that good regulatory quality will cause higher IPOs oversubscription. The control of corruption shows a positively significant

relationship with IPOs oversubscription, implies that high quality of control of corruption contributes to higher IPO oversubscription. This finding accepts hypotheses 6. The positive finding is consistent with the study of Asongu (2012), Hopper et al. (2009) and Hussain et al. (2017).

In the regression model, the government effectiveness and rule of law appear to be positive insignificant towards IPOs oversubscription. The positive implies that high quality of institutional quality tends to have low risk as information transparency. High transparency assures the investor in making their investment decision to subscribe more IPOs. Nonetheless, hypotheses of government effectiveness (hypothesis 2) and rule of law (hypothesis 5) have positive significant to IPOs oversubscription is not supported as insignificant in findings. Meanwhile, the political stability (hypothesis 3) has negative but insignificant relationship with IPOs oversubscription. The insignificant relationship has been supported by Boadi and Amege (2017).

Moreover, gross domestic product growth rate (GDP) found a positively significant on oversubscription of IPOs. The resulted obtained which is similar with Glogova (2002), Angelini and Foglia (2018), and Blum (2011) show GDP is positive significant to the number of IPOs due to increase in output and expansionary demand in the market. This indicates that countries with higher GDP consequently create higher IPOs oversubscription for new listed firms. In addition, offer price (PRICE) has a negative and significant on IPOs oversubscription. The higher offer price contributes to lower IPOs demand as investors tend to buy lower offer price whilst create high initial return. The negative result supported by Benveniste and Busaba (1997) and Low and Yong (2011).

The market capitalization (MKTCAP) or firm size is negative significant to IPOs oversubscription. The larger firms have proven track record contributes to lower information asymmetry and do not lower the offers price to attract investors. Thus, larger firms decrease the IPOs oversubscription. However, KLCI_INDEX and EXC_RATE are negative insignificant on IPOs oversubscription while DPRIVATE is positive insignificant to IPOs oversubscription. This implies that market performance, exchange rate, institutional investor involvement do not explain the IPOs oversubscription.

5.3 Limitation of Study

This study researched to examine the impact of institutional quality on IPOs oversubscription. The limitation need to be recognized as to enrich the forthcoming research. The first limitation of this study is the research focus only in the Malaysia market. This study only provides and acknowledges the IPO trend in Malaysia for investors. The local or foreign investors who tend to focus on Asia countries are limited with information to make their investment decision in the IPO market. Moreover, the year of study only focuses on 2000 until 2016.

Besides, this study does not employ the robustness test in model regression is one of the limitations. Robustness tests can be used to identify the main regression coefficient whereby adding or removing the variables in the regression specification. The structural is validity when the coefficients of variables are plausible and robust. Moreover, the measurement of institutional quality does not undertake the robustness test to identify the insignificant variables to obtain the robust results. In addition, the limited control variable

is the limitation of the study since the adjusted R^2 is smaller in the regression. The smaller adjusted R^2 indicate the lower of the goodness of fit of explanatory variables in explained the dependent variable. Those limitations contribute to the future researchers in examine the identical topic.

5.4 Implication of Study

The findings of this study provide the implication policy for important parties such as investor, issuer or issuing firms, regulatory or policymaker. The implications are shown as follow:

5.4.1 Investors

Based on the perspective of investors, the findings of this study will contribute to the importance of judgment for them in making investment decisions. Local and foreign investors should consider institutional quality in making their investment decision. The result shows that voice and accountability and control of corruption are positive significant to the demand of IPOs. For instance, voice and accountability may reflect the government effectiveness in concern the citizen's sound, public communication or in social media. Therefore, higher voice and accountability may reflect to the market sentiment whereby lower information asymmetries and bias create higher transparency to attract more investor demand for IPOs.

Investors also need to be more alert when involved in the country with corruption. Corruption diminishes public trust and investor's confidence level. The better the control

of corruption has lower the risk will raise the confidence level of investors as they believe the government's capability and effectiveness in fighting corruption. This reflects to the investor which encounters with lower risk subsequently low probability of losing their wealth when investing in IPO market. Moreover, firm specific control variables such as offer price and market capitalization as a proxy for firm size have negative significant to IPOs oversubscription also contribute implication for the investor in making the decision. Investors who are risk adverse may be likely to invest in smaller firms. As higher information asymmetry links to high uncertainties and will be subscribed for IPOs with smaller firm sizes.

5.4.2 Issuers

The findings of this study provide the insights for the issuer on institutional quality that may signify them to be alert in organizing the firms. The Securities Commission Malaysia regulated the regulation like listing requirement to ensure the systematic and soundness of the capital market. Findings show that regulatory quality is the negative relationship to IPO oversubscription. The low quality of regulatory reflects to higher information asymmetry and high risk tend to have a high return in the future and subsequently affect to higher demand for IPOs. Therefore, issuers have to concern the changes of regulations that may affect the firm in governance it operation. Thus, an appropriate tactic must be implemented by firms to interface with the changes of regulatory quality.

In Malaysia, the offer price practices the fixed price mechanism which do not concern for investor's demand. The study highlights the offer price is significantly negative relation on IPOs oversubscription. The higher offer price contributes to lower IPOs demand as investors tend to buy lower offer price whilst contribute to high initial return. Issuer must offer the price in fair value as it still need to attain the approval from Securities Commission (SC) Malaysia.

5.4.3 Regulator

The findings of this study provide a vital implication for regulators or policymaker in enhancing the IPO market. The result shows that regulatory quality in Malaysia has a negative significant relation to the IPOs oversubscription. Negative relationship illustrated that high quality of regulatory creates the lower information asymmetry and risk thus lower subscription of IPOs. Thus amendment or create a new regulation associate with institutional quality, regulator like Security Commission (SC) Malaysia and intervention of government must establish a clear objective to ensure the regulation is applicable for all individuals, business community, and professional organization. In addition, offer price in Malaysia practice fixed price mechanism ignoring for investor demand create information asymmetry. Therefore, regulators should point out issuers to disclosure the important information that might influence the investor decision demand for IPOs.

Moreover, the study found the positive significant relation between control of corruption and IPOs oversubscription. This indicates that better corruption control will result in high oversubscription as high confidence level of investors and transparency of other

authorities. This outcome provides an important acknowledges for policymaker in regulate the rule and sound policies to fight for the corruption. Therefore, the government and policymaker have to be aware of and take the preventive precaution against the impact of institutional quality on IPO oversubscription.

5.4.4 Body of literature

Most of previous study focused on the institutional quality on stock market performance, IPO underpricing, bank risk, tax performance. This study contribute the empirical evidence for the future studies which the institutional quality is an important variables to identify the IPOs oversubscription. Institutional quality such as voice and accountability, control of corruption, and the regulatory quality all were found have a significant relation with IPO oversubscription. The positive findings indicated that improving institutional quality through voice and accountability and control of corruption can significantly improve the IPO oversubscription, except regulatory quality with negative significant. Since the adjusted R^2 for all independent variables in explaining IPOs oversubscription is low thus, future studies may involve other significant variables for further examined the validity the findings of this study. Moreover, the theory of information asymmetry and signaling applied to explain the relationship between institutional quality and IPOs oversubscription based on previous literature narrative on IPO market. Most importantly, this contributes for future researcher the ideas in explaining the relation between institutional quality to IPOs oversubscription.

5.5 Recommendation for Future Study

After the implication for the study, the recommendation on institutional quality on IPOs oversubscription is important for future study. It is an undeniable fact that institutional quality has now become an important policy issue in many countries. The six indicators (voice and accountability, government effectiveness, political stability, regulatory quality, rule of law, and control of corruption) of institutional quality can combine to form one independent to determine the relation in IPO market. Future studies may also involve on the regulatory environment and the investor protection in determining the IPO oversubscription. In addition, the future study should include the potential or significant control variables as determinants for IPO oversubscription. The macroeconomic variable such as overnight policy rate (OPR), inflation rate, and an unemployment rate that might influence the investors demand.

In Malaysia, future studies can examine the IPO involve in the scope of financial service or real estate investment trust (REIT) to further explain in the IPO market. Future studies may extend their study from Malaysia to Asia regions which give a better view of the comparison between performances of each market. Future studies may carry out to investigate the IPO oversubscription in different markets which involve in developing and developed markets. Since the sample period is only taken into account until year 2016, future studies are recommended to increase their sample until year 2018 as to known on the current trend of IPO oversubscription.

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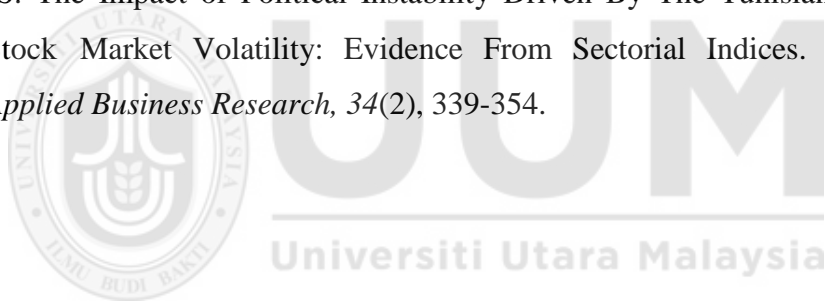
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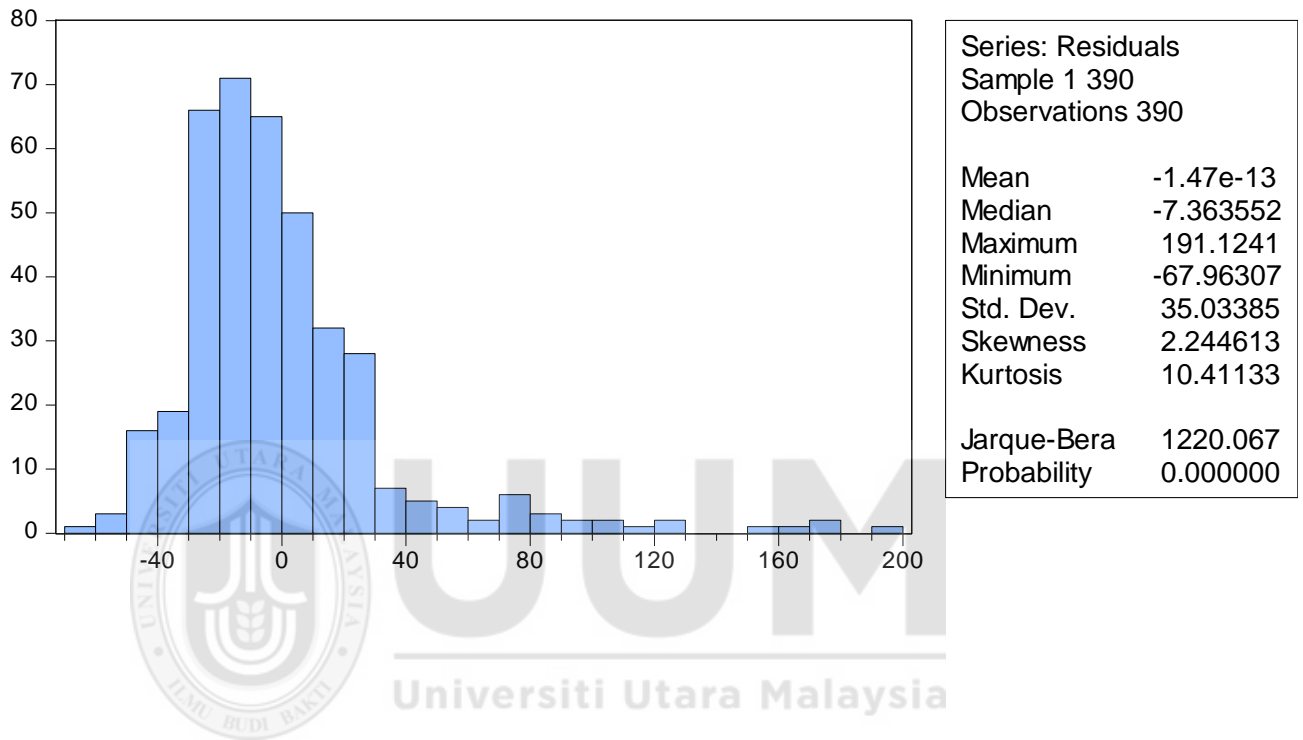
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APPENDICES

Appendix A

Normality test



Appendix B

Multicollinearity Test

Variance Inflation Factors

Date: 10/10/19 Time: 00:39

Sample: 1 390

Included observations: 390

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
VOICE	378.3096	46.60719	2.096804
GOV	728.3028	598.8239	1.949594
POLITICAL	283.5972	16.46417	5.785662
REGULATORY	731.6754	188.7452	5.119321
LAW	999.4533	137.0595	7.504533
CONCORR	301.7169	18.41918	3.138370
GDP	0.453351	10.52592	1.921381
KLCI_INDEX	7.47E-05	72.41555	8.078734
EXC_RATE	0.265034	1868.006	2.503018
MKTCAP	0.217675	45.61283	4.795293
DPRIVATE	13.70794	5.534152	1.846724
PRICE	5.129739	10.53511	1.708449
C	2344.710	1721.727	NA

Appendix C

Autocorrelation Test (HAC test)

Dependent Variable: OSR
 Method: Least Squares
 Date: 10/10/19 Time: 00:12
 Sample: 1 390
 Included observations: 390
 HAC standard errors & covariance (Bartlett kernel, Newey-West fixed
 bandwidth = 6.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
VOICE	41.52780	24.60984	1.687447	0.0923
GOV	29.46260	37.98382	0.775662	0.4384
POLITICAL	-32.96553	26.42247	-1.247633	0.2129
REGULATORY	-59.71600	40.38493	-1.478670	0.1401
LAW	8.086026	48.64940	0.166210	0.8681
CONCORR	42.63542	24.94848	1.708939	0.0883
GDP	3.090940	0.923409	3.347313	0.0009
KLCL_INDEX	-0.009006	0.013787	-0.653241	0.5140
EXC_RATE	-0.175278	0.669597	-0.261767	0.7936
MKTCAP	-0.652015	0.498468	-1.308037	0.1917
DPRIVATE	6.973826	3.718921	1.875229	0.0615
PRICE	-10.20090	2.651498	-3.847221	0.0001
C	67.67198	65.94687	1.026159	0.3055
R-squared	0.148838	Mean dependent var	29.74485	
Adjusted R-squared	0.121745	S.D. dependent var	37.97359	
S.E. of regression	35.58705	Akaike info criterion	10.01461	
Sum squared resid	477447.2	Schwarz criterion	10.14681	
Log likelihood	-1939.848	Hannan-Quinn criter.	10.06701	
F-statistic	5.493639	Durbin-Watson stat	1.500465	
Prob(F-statistic)	0.000000			

Appendix D

Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	2.486994	Prob. F(12,377)	0.0038
Obs*R-squared	28.60834	Prob. Chi-Square(12)	0.0045
Scaled explained SS	125.7961	Prob. Chi-Square(12)	0.0000

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 10/10/19 Time: 00:12

Sample: 1 390

Included observations: 390

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3686.558	6431.737	-0.573182	0.5669
VOICE	3943.519	2139.885	1.842865	0.0661
GO	5208.368	2766.717	1.882508	0.0605
POLITICAL	-2188.813	2400.888	-0.911668	0.3625
REGULATORY	-3340.441	3051.324	-1.094751	0.2743
LAW	1428.211	4146.348	0.344450	0.7307
CONCORR	-615.2149	2327.600	-0.264313	0.7917
GDP	122.7045	116.9330	1.049358	0.2947
KLCI_INDEX	-1.201575	1.295104	-0.927783	0.3541
EXC_RATE	50.77690	62.30778	0.814937	0.4156
MKTCAP	-73.55016	35.66437	-2.062287	0.0399
DPRIVATE	404.9078	574.0042	0.705409	0.4810
PRICE	-703.5930	318.1881	-2.211249	0.0276

R-squared	0.073355	Mean dependent var	1224.224
Adjusted R-squared	0.043859	S.D. dependent var	3760.485
S.E. of regression	3677.094	Akaike info criterion	19.29040
Sum squared resid	5.10E+09	Schwarz criterion	19.42260
Log likelihood	-3748.628	Hannan-Quinn criter.	19.34281
F-statistic	2.486994	Durbin-Watson stat	1.872000
Prob(F-statistic)	0.003809		

Appendix E

White test

Dependent Variable: OSR

Method: Least Squares

Date: 10/10/19 Time: 00:38

Sample: 1 390

Included observations: 390

White heteroskedasticity-consistent standard errors & covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
VOICE	41.52780	19.45018	2.135085	0.0334
GOV	29.46260	26.98709	1.091730	0.2756
POLITICAL	-32.96553	16.84034	-1.957533	0.0510
REGULATORY	-59.71600	27.04950	-2.207656	0.0279
LAW	8.086026	31.61413	0.255773	0.7983
CONCORR	42.63542	17.37000	2.454544	0.0146
GDP	3.090940	0.673313	4.590641	0.0000
KLCI_INDEX	-0.009006	0.008640	-1.042391	0.2979
EXC_RATE	-0.175278	0.514814	-0.340469	0.7337
MKTCAP	-0.652015	0.466557	-1.397504	0.1631
DPRIVATE	6.973826	3.702424	1.883584	0.0604
PRICE	-10.20090	2.264893	-4.503921	0.0000
C	67.67198	48.42221	1.397540	0.1631
R-squared	0.148838	Mean dependent var	29.74485	
Adjusted R-squared	0.121745	S.D. dependent var	37.97359	
S.E. of regression	35.58705	Akaike info criterion	10.01461	
Sum squared resid	477447.2	Schwarz criterion	10.14681	
Log likelihood	-1939.848	Hannan-Quinn criter.	10.06701	
F-statistic	5.493639	Durbin-Watson stat	1.500465	
Prob(F-statistic)	0.000000			

Appendix F

Ramsey Reset Test

Ramsey RESET Test

Equation: UNTITLED

Specification: OSR VOICE GOV POLITICAL REGULATORY
LAW

CONCORR GDP KLCI_INDEX EXC_RATE MKTCAP

DPRIVATE

PRICE C

Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	2.920301	376	0.0523
F-statistic	12.36876	(1, 376)	0.0523
Likelihood ratio	12.62383	1	0.0521

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	18749.00	1	18749.00
Restricted SSR	477447.2	377	1266.438
Unrestricted SSR	458698.2	376	1219.942
Unrestricted SSR	458698.2	376	1219.942

LR test summary:

	Value	df
Restricted LogL	-1939.848	377
Unrestricted LogL	-1932.036	376

Unrestricted Test Equation:

Dependent Variable: OSR

Method: Least Squares

Date: 10/10/19 Time: 11:11

Sample: 1 390

Included observations: 390

White heteroskedasticity-consistent standard errors & covariance

Variable	Coefficien t	Std. Error	t-Statistic	Prob.
VOICE	-49.95707	25.19607	-1.982732	0.0481
GOV	-9.974691	27.16409	-0.367201	0.7137
POLITICAL	38.53299	21.59399	1.784431	0.0752
REGULATORY	92.04723	40.30192	2.283942	0.0229
LAW	-82.72209	36.47812	-2.267718	0.0239
CONCORR	-32.03780	24.12860	-1.327794	0.1851

GDP	-2.225288	1.330041	-1.673097	0.0951
KLCI_INDEX	0.013056	0.009343	1.397493	0.1631
EXC_RATE	-0.366534	0.499363	-0.734003	0.4634
MKTCAP	0.937519	0.525812	1.782991	0.0754
DPRIVATE	-2.305402	3.763136	-0.612628	0.5405
OFFER_PRICE	0.174604	2.854174	0.061175	0.9513
C	-6.796072	52.93616	-0.128382	0.8979
FITTED^2	0.028245	0.007531	3.750551	0.0002
<hr/>				
R-squared	0.182262	Mean dependent var	29.74485	
Adjusted R-squared	0.153989	S.D. dependent var	37.97359	
S.E. of regression	34.92767	Akaike info criterion	9.979673	
Sum squared resid	458698.2	Schwarz criterion	10.12205	
Log likelihood	-1932.036	Hannan-Quinn criter.	10.03611	
F-statistic	6.446539	Durbin-Watson stat	1.473880	
Prob(F-statistic)	0.000000			



Appendix G

Ordinary Least Square (OLS)

Dependent Variable: OSR
 Method: Least Squares
 Date: 10/10/19 Time: 00:11
 Sample: 1 390
 Included observations: 390

Variable	Coefficient	Std. Error	t-Statistic	Prob.
VOICE	41.52780	20.70989	2.005216	0.0457
GOV	29.46260	26.77639	1.100320	0.2719
POLITICAL	-32.96553	23.23588	-1.418734	0.1568
REGULATORY	-59.71600	29.53083	-2.022158	0.0439
LAW	8.086026	40.12851	0.201503	0.8404
CONCORR	42.63542	22.52659	1.892671	0.0592
GDP	3.090940	1.131681	2.731281	0.0066
KLCI_INDEX	-0.009006	0.012534	-0.718561	0.4729
EXC_RATE	-0.175278	0.603017	-0.290669	0.7715
MKTCAP	-0.652015	0.345161	-1.889015	0.0597
DPRIVATE	6.973826	5.555234	1.255361	0.2101
PRICE	-10.20090	3.079436	-3.312587	0.0010
C	67.67198	62.24658	1.087160	0.2777
R-squared	0.148838	Mean dependent var	29.74485	
Adjusted R-squared	0.121745	S.D. dependent var	37.97359	
S.E. of regression	35.58705	Akaike info criterion	10.01461	
Sum squared resid	477447.2	Schwarz criterion	10.14681	
Log likelihood	-1939.848	Hannan-Quinn criter.	10.06701	
F-statistic	5.493639	Durbin-Watson stat	1.500465	
Prob(F-statistic)	0.000000			