INSTITUTIONAL QUALITY IMPACTS ON THE OFFER SIZE OF IPOs IN THE HONG KONG MARKET

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Abstract

The major purpose of the present study is to examine how the institutional quality impact on the offer size of initial public offering (IPO) listed on the Main Board of Hong Kong Stock Exchange during the year 2000 to 2017. This study utilizes three control variables for controlling the significance between institutional quality and offer size. Few empirical pieces of evidence measure the relationship between institutional quality and offer size. Therefore, this study fills the gap of literature on the significance of institutional quality on the offer size. There are six dimensions of institutional quality utilized from World Governance Indicators (WGI) that including government effectiveness, rule of law, control of corruption, political stability, voice and accountability and regulatory quality. The agency theory and signaling theory are used to further explain the impacts of institutional quality on the offer size. The present study utilizes the cross-sectional multi regression analysis to examine the hypothesis. Based on the analysis of the data of 1042 IPOs in Hong Kong, the result of this study shows that government effectiveness and regulatory quality negatively impact the offer size, and rule of law, control of corruption, political stability and voice and accountability positively impact on the offer size. Besides, the interest rate and the stock market return reflect a positive significance with offer size, but the Gross Domestic Price (GDP) growth shows a negative relationship with offer size. The significance of the present study may remind the regulators to improve the institutional quality to promote the growth of the market.

Keywords: institutional quality, Initial Public Offering (IPO), offer size, Hong Kong, cross-sectional regression

Abstrak

Tujuan utama kajian ini adalah untuk mengkaji bagaimana impak kualiti institusi ke atas tawaran tawaran tawaran awam awal (TAA) yang disenaraikan di Papan Utama Bursa Saham Hong Kong pada tahun 2000 hingga 2017. Kajian ini menggunakan tiga pemboleh ubah kawalan untuk mengawal kepentingan antara kualiti institusi dan saiz tawaran. Beberapa bukti empirikal mengukur hubungan antara kualiti institusi dan saiz tawaran. Oleh itu, kajian ini mengisi jurang kesusasteraan mengenai kepentingan kualiti institusi pada saiz tawaran. Terdapat enam dimensi kualiti institusi yang digunakan daripada Petunjuk Tata Pemerintahan Dunia (WGI) yang termasuk keberkesanan kerajaan, kedaulatan undang-undang, kawalan korupsi, kestabilan politik, suara dan kebertanggungjawaban dan kualiti pengawalseliaan. Teori agensi dan teori isyarat digunakan untuk menerangkan lebih lanjut mengenai kesan kualiti institusi pada saiz tawaran. Kajian ini menggunakan analisis regresi pelbagai rentas untuk mengkaji hipotesis. Berdasarkan analisa data 1042 TAA di Hong Kong, hasil kajian ini menunjukkan bahwa keberkesanan dan kualitas pengawasan pemerintah berdampak negatif terhadap ukuran tawaran, aturan hukum, pengendalian korupsi, kestabilan politik dan suara dan akuntabilitas memberi dampak positif pada saiz tawaran. Di samping itu, kadar faedah dan pulangan pasaran saham mencerminkan kepentingan positif dengan saiz tawaran, tetapi pertumbuhan Harga Domestik Kasar (KDNK) menunjukkan hubungan negatif dengan saiz tawaran. Kepentingan kajian ini boleh mengingatkan pengawalselia untuk meningkatkan kualiti institusi untuk mempromosikan pertumbuhan pasaran.

Kata kunci: kualiti institusi, tawaran awam awal (TAA), saiz tawaran, Hong Kong, regresi keratan rentas

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I had a very enjoyable study at Universiti Utara Malaysia (UUM). Moreover, it has a beautiful natural environment but the university also has helpful staff.

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CHAPTER ONE INTRODUCTION

1.1 Background of Study

The initial public offering (IPO) is generally defined as a financial activity that an enterprise sells (issues) its securities to the public for the first time in the primary market (Ritter, 1998). Normally, the type of security can be sold by debt or equity (Ritter, 1998). The initial public offering (IPO) has become the financing method pursued by most companies in the stock market. Going public is the positive chance of financing for young enterprises to grow up and also provide capital to raise additional funds for the older enterprises (Kim & Weisbach, 2005). Meanwhile, the initial public offering (IPO) is a popular way that investors trade and gain on the stock market.

As an iconic market for capitalism known for its low taxes and free trade environment, Hong Kong has attracted interest from investors around the world. Hong Kong IPO market is obviously affected by the global economy due to the monetary policy in Hong Kong is called Linked Exchange Rate System (LERS). Under LERS regulation, before the Central Bank of Hong Kong print money, Hong Kong dollars per issue, a bank will pay the $0.128 to the Hong Kong Monetary Authority in the Exchange Fund Accounts and get the Certificate of indebtedness. The amount of U.S dollars that the Exchange Fund's paid supports the stability of

Hong Kong' exchange rate (Zhang, 2002). In other words, the stability of the Hong Kong economic is highly influenced by the U.S market. Thus, this study assume that the economic condition may influence the size of offering as the volatile economic environment may tend to more uncertainty of investment for participants.

The offer size is defined as the proportion of ownership of the company that shares to the public at IPO, as well as the amount of capital raised that the managers decide to use for growth (Badru et al 2017). Whether the success or failure of IPO depends on the reasonable offer size which can be measured by offer price multiplied by the number of IPOs (Drake & Vetsuypens, 1993). The company is willing to raise more capital at IPO based on the good level of confidence from the participants who participate in the stock market.

There are several previous studies have discussed the determinants of offer size. The structure of the company is one of the determinants which influence the capital raised at IPO (Alavi et al., 2008; Latham & Braun, 2010). For instance, the ownership of the firm affect the amount of capital raised since it will affect the managers control the company for their private interest (Zingales, 1995), and the structure of board of directors (BODs) is seen as a factor affecting the IPO proceeds (Latham & Braun, 2010) since the effective structure of BODs increase the transparency and credibility as it promotes the confidence level. Besides, the timing of opportunity could affect the amount of capital raised (Deeds et al., 1996) through

the perspectives of investors (Mousa, 2014). Based on the signaling theory (Grinblatt & Hwang, 1989), the sales growth, leverage and quality of auditor are seen as a sign of valuation of ability of company affect the size of offering through increasing transparency and investors' perspectives (Latham & Braun, 2010; Mayur & Kumar, 2013; Badru et al., 2017). The cost of issuing is also an important factor influence the offer size of IPO based on agency theory (Jensen & Meckling, 1976; Chen & Wu, 2002).

Other than that, the level of governance was identified as a crucial role in the IPO process as it affects the stock market through reduce the uncertainty of market condition and attract more investors (Lester et al., 2006). The institutional quality was generally acted as a proxy for the standard of governance. Based on the previous study, the arguments come forward that the institutional quality could impact the IPO market (Ajmal 2018; Boulton et al., 2010; Asongu 2012; Hearn 2014; Hopp et al., 2007; Satta et al., 2017). This study believes that institutional quality could influence the offer size of IPO as a country with a high level of governance would able to attract investors to subscribe for issuance of IPO. Hence, this study would examine six indicators that could influence the institutional quality involves voice and accountability, political stability, government effectiveness, rule of law, regulatory quality, and control of corruption classified by the database of the World Bank.

1.2 Hong Kong Stock Market

The total market capitalization of Hong Kong listed companies up to USD 4,350 billion (or around HKD 33,998 billion) since December 2017 and was ranked 4th compared to other stock markets. Mostly the market capitalization of Hong Kong market accounts for half of the Mainland of China market and it accounts for only 14% of the value of the United States market. Based on Figure 1.1, it is clear that the number of listed companies has been increasing in general from the year 2000 to the year 2017 in the Main Board of the Hong Kong Stock Exchange.

Regarding the statistics from the website of Hong Kong Stock Exchange by range of the year 2000 to the year 2017, the newly listed company in Main Board reached to the largest value (174) with percentage of total listed companies (8.22%) in 2010 (including the listed companies who transfer from Growth Enterprises Market). However, the number of newly listed companies experienced two sudden declines between 2000 and 2017, which were reflected in Figure 1.1 in 2008 and 2012 respectively. This is most likely due to the effects of the global financial crisis in 2008 and the European debt crisis at the end of 2011. The turbulence of macroeconomics has increased the volatility of the Hong Kong stock market. This phenomenon reflects the environmental turbulence impact on the confidence levels of companies to raise capital in the market.

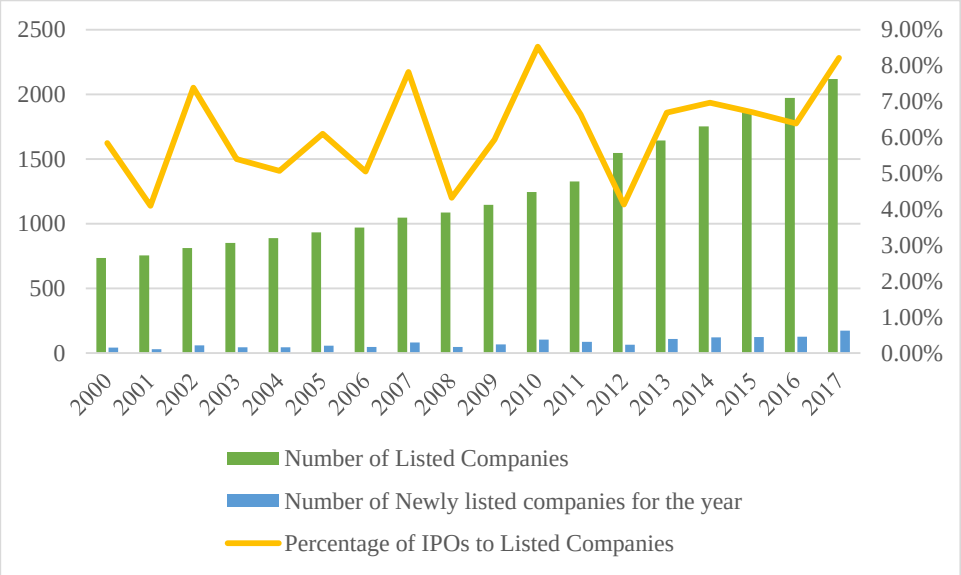

Figure 1.1 Numbers and percentage of IPOs to the total number of listed companies in the Main Board of Hong Kong Stock Exchange

Figure 1.2 shows that it reflects as sizes of an offering of IPO in a proportion of the value of the Hong Kong stock market between the year 2000 and the year 2017. The amount of raised capital at IPO also plummeted in the year 2008 and the year 2012. It reflects the fact that the environmental turbulent has not only reduced the confidence level of a company when the company goes public but also caused them to reduce the size of offering to reduce the risk of failure.

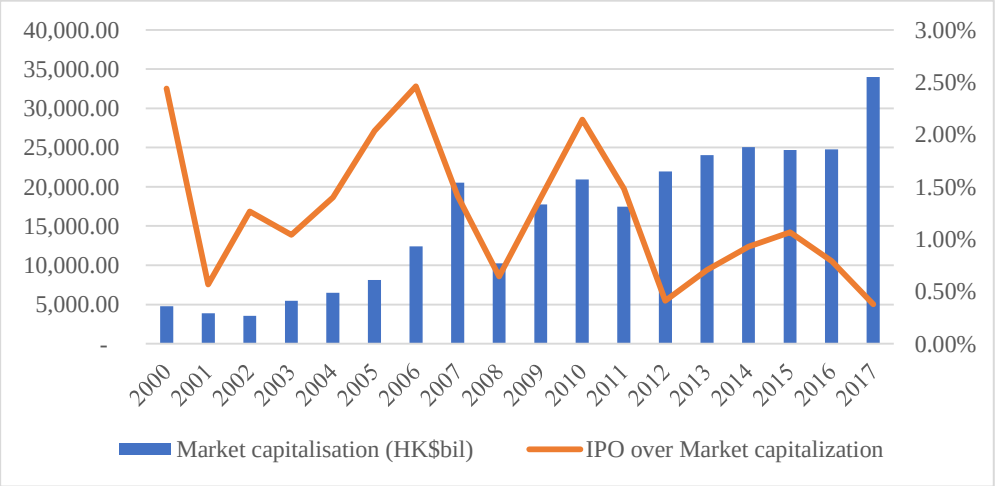

Figure 1.2 IPO size versus stock market capitalization

Since 1993, under the rule of the Company Law, the size of new shares including the number of shares issued and the price of shares issued is usually confirmed by the securities authorities firstly, and it is being contributed by the government. Unlike the Mainland of China, Hong Kong IPO Offerings are classified as Hong Kong public offerings and international offerings. By contrast, international offerings, where investors can specify a price or place a limit order, have a decisive impact on the offer size of IPOs. In other words, the size of the offering is affected by the investors' perspectives of both market and company. As one factor that reflects the condition of the market, the institutional quality is also considered as an important influence on the offer size of IPO.

1.3 Problem Statement

Offer size of IPO is measured by the number of IPOs issued multiplied by the offer price that is used to determine the proceeds that the company raises the capital for growth. However, it is not easy to raise fund by IPOs for companies. It is known that the failure of capital raised is affected by the inefficient size of the offering (Chen &Wu, 2002). Based on the previous study, many determinants have to be found that influence the capital raised through improve the transparency or reduce the uncertainty. For example, Preffer (1972) argued that the ineffective structure of board of directors (BODs) can affect the amount of capital raised since it increases the uncertainty of investment, and it could reduce the confidence level of issuers and investors in participating in the market. Further, poor institutional quality may increase the uncertainty of investment (Boulton et al., 2010). Therefore, the present study believes that the poor institutional quality and uncertainty may affect the decision to offer the new shares but yet to be tested. Hence, this study would examine six indicators that could influence institutional quality.

Firstly, based on the study of Hooper et al. (2009), they tested the relationship between government effectiveness and the stock market and argued that a low level of government effectiveness is able to promote a lower cost of capital raised. The company may be willing to issue more with a lower cost of issuing. Besides, Hearn and Piesse (2012) illustrated the relationship between institutional quality and

control retention. They argued that good government effectiveness increases control retention and raise agency problem. Therefore, the present study argues that government effectiveness could affect the offer size since strong government effectiveness tends to a higher level of uncertainty due to the high agency cost. Thus, it makes the company difficult to raise capital. However, there is a lack of evidence of the relationship between government effectiveness and offer size.

Secondly, as a basic role of governance in a country, the rule of law represents how participants confident on the rules of society, especially in the protection of right from the contracts. Similar as government effectiveness, the good quality of rule of law was mentioned to positively effects on the IPOs trading with a higher initial return (Ajmal, 2018; Asongu, 2012; Hopp et al., 2007). They argued that a good level of the rule of law improve the transparency and credibility of issuers and investors, and then the offer size would be assumed to be largely due to the protection from good governance improve the confidence level of participants. Hence, this study argues that a good level of rule of law reduce the uncertainty due to the transparency and credibility, and it makes the issuer easy to raise capital under a high confidence level of participants but yet to be tested.

Thirdly, as a momentous proxy for institutional quality, control of corruption represents how the government use their public power to respond to public gains. Broadly speaking, Ajmal (2018) found the IPOs in the market who is under the less

control of corruption may produce more mispriced. In other words, he argued that a higher level of control of corruption promotes a higher level of transparency. This argument is supported by prior studies of Asongu (2012), Hearn (2014) and Christian and Axel (2007). They tested the relationship between institutional quality and underpricing in North Africa market, and argued that the quality of the rule of law improve transparency and attract international investors through strengthening institutional quality. Good quality of control of corruption improve the transparency and reduce the uncertainty which makes issuers easy to raise capital. Therefore, the present study argues that good control of corruption may have a positive impact on the offer size.

Fourthly, political stability can normally provide a stable trading environment for both issuers and investors. Due to the study of Hopp et al. (2007), they argued that positive political stability tends to a high level of disclosure. Boulton et al. (2010) tested the institutional quality with underpricing of IPOs, and they consistently argued that a good quality of political stability could improve the transparency and reduce the uncertainty of investment. Therefore, the present study argues that political stability has a positive impact on the offer size. Good political stability reduces uncertainty through promoting transparency and credibility, and it that makes companies easier to raise capital. However, there are a few literatures to support the significance between political stability and the offer size of IPOs.

Fifthly, voice and accountability represent the basic human right that investors can trade freely in the stock market. Asongu (2012) believed that a good quality of voice and accountability can create a good market performance and provide a better choice for the small business enterprise who need a positive environment to grow up. He argued that a good quality of voice and accountability reduce the uncertainty by increasing transparency. Similarly, the study of Boulton et al. (2010) was also carried out a positive relationship between institutional quality and underpricing under the health market environment. They argued that the voice and accountability improve financial disclosure. Therefore, the present study argues that good voice and accountability can reduce uncertainty through improve the disclosure and attract more investors. It makes the issuers easier to raise capital. Thus, by measuring the relationship of voice and accountability with offer size, it is expected to supplement the literature.

Finally, regulatory quality is also one of the governance indicators to proxy for institutional quality, and it defined as the ability that government to implement the regulations which are helpful to promote economic growth and break the cycle of poverty. Low et al. (2011) investigated how country-level governance affects the performance of the stock market, and they argued that a higher quality of regulatory would increase the cost of issuing. Hearn and Piesse (2012) argued that a good quality of regulatory quality could reduce the control retention of the manager.

Deeds et al. (1996) argued that the company under a high-level regulatory quality increase the uncertainty by reducing the time of an opportunity of capital raised. Therefore, the present study argues that there is the regulatory quality could have a negative impact on the offer size due to increasing cost of issuing and reduction of opportunity. However, there is a gap in how regulatory quality affects offer size of IPO.

1.4 Research Objectives

The main objective of the study is to measure the indicators of six institutional quality variables (government effectiveness, rules of law, control of corruption, political stability, voice and accountability and regulatory quality) that affect the offer size of IPOs. To specifically, the six objectives of this study are identified as follows,

1. To investigate the impact of government effectiveness on offer size of IPOs
2. To test the impact of rules of law on offer size of IPOs
3. To assess the impact of control of corruption on offer size of IPOs
4. To examine the influence of political stability on offer size of IPOs
5. To measure the effect of voice and accountability on offer size of IPOs
6. To verify the impact of regulatory quality on offer size of IPOs

1.5 Research Questions

Through the background of prior study, there are six questions are identified as follows,

1. Does government effectiveness impact on offer size of IPOs?
2. Does rules of law impact on offer size of IPOs?
3. Does control of corruption influence offer size of IPOs?
4. Does political stability influence offer size of IPOs?
5. Do voice and accountability affect offer size of IPOs?
6. Does regulatory quality impact on offer size of IPOs?

1.6 Significance and Contribution of the Study

The biggest contribution of this study is to make up for the gap in the current research on IPO by testing whether institutional qualities (i.e., government effectiveness, rules of law, control of corruption, political stability, voice and accountability and regulatory quality) are important factors to be considered in IPO offering, especially in international offering.

1.6.1 Investors

For the investors, regarding the significant relationship between offer size and institutional quality, it is meaningful to help investors to make better investment decisions and reduce the risk of loss. This is because a strong institutional quality reduces uncertainty and promote a high confidence level (Ajmal, 2018). By considering the choice of investment, investors can decide following the level of institutional quality. A good level of institutional quality would improve the confidence level of investors. Otherwise, an instable institutional environment signals poor protection of investors which would increase the risk of loss.

1.6.2 Issuers

For the contribution for the issuers, the evidence between offer size and institutional quality is able to issue full subscription by issuing an appropriate offer size based on the institutional quality. Based on the previous study, Hooper et al. (2009) point out that a good level of institutional quality affects the transaction cost of issuing. Since the issuers expect to use the effective method of issuing for maximizing the capital raised, good institutional quality would reduce the cost of capital raised with an appropriate offer size to enlarges the benefits of financing. Besides, good institutional quality would increase the potential investors' perspectives and attract more investor participant in the market (Mousa, 2014). It would promote the full subscription of the companies as well.

1.6.3 Regulators

For regulators, they have to consider to further improve the institutional quality as it influences the growth of the country. Good institutional quality enhances the business regulation reforms which made it easier to start and operate a business, improved transparency, strengthened property rights, and helped streamline commercial dispute resolution and bankruptcy procedures (El Sayed, 2011). On the other hand, institutional quality could reduce transaction costs by reducing uncertainty and establishing a stable structure to facilitate interactions (Meyer, 2001). Thus, the present study may enlighten the regulators to improve the success of issuing by improving the institutional quality.

1.6.4 Body of Literature Review

The present study makes a significant contribution to the body of literature that explains the relationship of six indicators of institutional quality on offer size of IPO. Regarding the mostly study discuss the relationship between institutional quality and underpricing, there are two theories able to fill the gap of lack of evidence involve the agency theory (Jensen & Meckling, 1976) and signaling theory (Grinblatt & Hwang, 1989). The present study argues that a high level of institutional quality could improve the confidence level by reducing the agency cost, increase the transparency and protect the investors' interests based on the agency theory

(Lombardo and Pagano, 2006; Fan et al., 2008; Hearn, 2014). In addition, this study also argues that the uncertainty can be reduced due to the good signals on the quality of auditors, sales growth and capital structure, and it promotes the confidence level of issuers and investors based on the signaling theory (Amayur & Kumar, 2013; Badru et al., 2017).

1.7 Scope of The Study

To explain offer size of IPOs, the present study aimed to discuss the factors of institutional quality such as government effectiveness, rules of law, control of corruption, political stability, voice and accountability and regulatory quality. Besides, there are three variables controlled in which have been explained to impacts on offer size from the previous study which are Gross Domestic Price, Stock Market Index and Interest rate.

Based on the objectives of the study, the sample extraction of IPOs is measured from those offer size issued for listing on the Hong Kong Stock Exchange, in which the period is used from January 2000 to December 2017. The newly listed IPOs are from the Main Market. The data of IPOs is collected from the website of the Hong Kong Stock Exchange. The final samples of IPOs offer size was processed without those companies who transfer from Growth Enterprise Market (GEM) to the Main Market.

1.8 Structure of the Thesis

This study was designed in five chapters. Chapter one explains the background of the study, a background of the market, problem statement, research questions and objectives, scope of the study as well as contribution. Chapter two summarizes previous literature relate to the present area of study and particularly mentioned the views of offer size, underpricing of IPOs and six indicators of institutional quality. The subjective hypothesis of this study is dialectically discussed through the discussion of past findings. Chapter three discusses the process of hypothesis development under prior evidence from chapter two. It also includes the sample and data design, selection of independent variables and control variables which refer to the methodology of the previous study. Chapter four is going to explain the results based on the present study. In the end, chapter five discusses the conclusion, limitation and implication based on the result from chapter four, and suggests for future study.

CHAPTER TWO LITERATURE REVIEW

2.1 Introduction

To review the relevant issues and to support the development process of hypothesis, this chapter is going to summarize the literature from previous findings in similarly study area. Firstly, this chapter starts from the discussion of offer size of IPOs and the explicable relationship between offer size and IPO initial return based on the different background of the market in developed countries, developing countries and finally on Hong Kong market. Besides, the following part discusses the six indicators of institutional quality which involve control of corruption, government effectiveness, rule of law, political stability, regulatory quality as well as voice and accountancy and proceed the development of hypotheses.

2.2 Empirical Evidence of Offer size in Various Markets

The section discusses the previous studies with the tests of offer size based on the different market which starts from a developed market, developing market and the last met the Hong Kong market. The later section discusses the factors which can impact the offer size of IPOs and followed theories.

2.2.1 Offer size of IPOs in the Developed Markets

Regarding the previous researches, Boulton, Smart & Zutter (2010) have studied the numbers of IPOs of 29 countries and independent administrative regions which including developed market and developing the market from the year 2000 to the year 2004. The descriptive statistics show the U.S. market had the largest offer size of IPOs (767) from the year 2000 to the year 2004, followed by Japan (755), U.K (631) and Australia (403). Banerjee, Dai, and Shrestha (2010) rank the offer size of IPOs with a cross-countries basis in a larger range of period since the year 2000 until the year 2006, and they agreed that the U.S. is the largest markets which hold 1700 IPOs compared to other developed countries. The study of Boulton et al. (2010) and Banerjee et al. (2010) argued that the offer size of IPOs in developed markets is estimated to be larger than that of developing markets by providing the better macroeconomic level, market conditions or institutional quality compared with the developing markets, and there are several determinants have been done on offer size from the previous studies.

Alavi et al. (2008) found that pre-IPO ownership structure influences the allocation of new share offered in Australia market. It is well known that a company's public offering of its own shares also represents a change in ownership structure and a loss of control. Hence, the managers of a company require control retention of management before the company goes public (Alavi et al., 2008) that would result in the size of offering to the public. Based on the agency problem (Villalonga & Amit,

2006), the CEO ownership is also considered a determinant that impacts on the IPO proceed regarding that the large size of the offering may bring out a high risk of threatening private interests (Latham & Braun, 2010). Based on the resource dependency theory (Pfeffer, 1972), the influence of offer size by the structure of the board of directors is explained that the companies can maximize the capital funds through reducing the uncertainty of the environment. Besides, Latham and Braun (2010) argued that the level of debt in a firm's capital structure influence the IPO proceeds since a firm has to consider the orginasional risk with a high level of leverage before their decision making of IPO.

Furthermore, the level of debt (Ross, 1977) and entrepreneurial orientation (Mousa et al., 2014) are kinds of signals reflect the firm's value that influences the investors' prospection. Mousa et al. (2014) argued that the lower prospection of the firm by investors would influence the evaluation of the firms' IPO in the U.S market, and it would negatively impact on the amount of capital raised. Another factor that influences the offer size of IPOs due to investors' excessive prospection is the "hot" market issue (Ritter, 1984). Deeds et al. (1996) examined the factors affects the amount of capital raised on biotechnology industry in the U.S., and they argued that the "hot" market provides the timing of opportunity for capital raised (Deeds et al., 1996). They also found that the geographic position is a factor affect the amount of capital raised at IPO. Meanwhile, Krugman (1991) argued that a similar industry type of enterprise cluster can facilitate the ability of enterprises to harvest additional

resources and information, and hence the geographic position of a firm represents the ability of success.

2.2.2 Offer size of IPOs in the Developing Markets

As an important member of developing markets, the emerging market is the developing market with a gradually improved market economy, foster economic growth and greater market potential. A report by the U.S. Department of Commerce has listed China's independent administrative regions (including Hong Kong and Taiwan), Malaysia and other 19 countries as emerging markets in the year 1994. Robert et al. (2006) point out that the offer size of IPOs in emerging markets is large as well. This is because the expansion of investment options in emerging markets adapts to the diversified investment motivation, transaction motivation and interest needs of investors. However, the offer size of companies in emerging markets not only expect to be affected by the competitive advantages of an emerging market, but also some other determinants influence the offer size of IPO.

In the Malaysia stock market, the structure of the board of directors (BODs) is determined to increase the capital raised by signaling an effective structure of the board of director to investors and attract potential investors under a good quality of firm value (Badru et al., 2017). Other than that, Badru et al. (2017) also point out that the proportion of women on the BODs can also affect the allocation of capital

raised at IPO. The participation of women on decision marking is seen as a sign of the good quality of corporate governance which may promote the ability of capital raised (Sanders & Boivie, 2004; Chaddad & Reuer, 2009). The proportion of women on boards is also set at 30 per cent under the rules of policy by the former Prime Minister of Malaysia in 2017. Moreover, Badru et al. (2017) argued that the quality of auditors affects the IPO process. In the India market, Mayur and Kumar (2013) argued that the leverage and sales growth would influence the capital raised at IPOs since the company with high leverage and high sales growth has limited methods to raised capital without goes publics (Huyghebaert & Hulle, 2006).

2.2.3 Offer size of IPOs in the Hong Kong Market

In the Hong Kong market, Chen and Wu (2002) argued that the size of capital raised by a company affected by the cost of issuing. Companies tend to choose an effective strategy of capital raised consist of initial public offering (IPO) and seasoned equity offering (SEO) depends on the cost of capital raising since the company has to consider that the way of raising funds by IPO would sell a large size of company shares with a high cost of issuing. The companies are willing to issue more with a lower cost of issuing.

2.3 Factors Impact on Offer size

The factors affect the IPOs offer size is usually determined based on the macroeconomic conditions of the country in which the operation of the issuer is. Normally the offer size of IPOs in developed markets is estimated to be larger than that of developing markets by providing the better macroeconomic level, market conditions or institutional quality compared with the developing markets (Boulton et al.,2010) and Banerjee et al., 2010). Then the factors affect the offer size followed by the development of the industry in which the business of issuer is. The geographic position is determined as a factor influence offer size of IPOs under the biotechnology industry (Deeds, et al., 1996). In addition, the offer size of IPOs can be affected by the structure of board of directs, control retention of manager, CEOs stock ownership, leverage, timing of opportunity, top management team, quality of auditors as well as cost of capital raised (Preffer, 1972; Deeds et al., 1996; Chen & Wu, 2002; Alavi et al., 2008; Zimmerman, 2008; Latham & Braun, 2010; Mayur & Kumar, 2013; Mousa, 2014; Badru, et al., 2017)

However, the present study argues that institutional quality also can influence the offer size of the IPO. The country with a high level of governance would be able to attract investors to subscribe to the offer size of IPO but yet to be tested. Therefore, In the next section, the present study will like to determine the factors of institutional quality on offer size.

2.3.1 Government Effectiveness on Offer Size

Boulton et al. (2010) used government effectiveness as one of governance indicator to test whether the directly influence a level of governance on the IPOs underpricing in the U.S. market. They argued that the high level of government effectiveness is due to a high level of disclosure and credibility. Furthermore, In New Zealand, Ajmal (2018) found the government effectiveness has a negative relationship between IPO mispricing. He argued that good government effectiveness would reduce the uncertainty, which can be either supported by Shleifer& Vishny (1997). In North Africa, Hearn (2014) estimated the relationship between institutional quality and underpricing of IPO. He argued that a higher level of government effectiveness would increase transparency by reducing information asymmetry.

Conversely, Hooper et al. (2009) also tested the relationship between governance and stock market performance. They argued the government effectiveness positively influence the cost of capital raised. Similarly, Low, Kew and Tee (2011) investigated the relationship between governance and the performance of the stock market, and they argued that a lower quality of government effectiveness would increase the cost of capital raised. Hearn and Piesse (2012) tested the relationship between institutional quality and control retention of entrepreneurial founders, and they argued that a company under a lower quality of government effectiveness would reduce the control retention of entrepreneurial founders under the pre-IPO ownership structure.

This study argues that good government effectiveness may increase the transparency of the country and reduce the uncertainty of investment. However, the good government effectiveness would increase the cost of capital raised and increase the control retention of a manager under the pre-IPO ownership structure since the amount of capital raised is seen as decreasing as well. Therefore, the present study argues that increases in government effectiveness could reduce the offer size. Thus, this study will contribute to the literature by examining the following hypothesis. The first hypothesis should be developed as follow:

H1: Government effectiveness negatively impacts on the offer size of IPO

2.3.2 Rules of Law on Offer Size

The quality of the rule of law determines that issuers and investors can trade freely and be benefited on a safe and protected legal environment, as well as issuers may issue more due to the confidence of the legal market. In the developed and emerging market, Hopper, Sim and Uppal (2009) found that a good quality of rule of law can impact on the transaction costs which be expected to the opportunity of profitable projects. This is because of the reduction of transaction cost of a firm enlarges the benefits of projects. Fan et al. (2008) and Lombardo and Pagano (2006) argued that a high quality of rule of law can decrease the agency cost, and hence increase the

investors' benefits and attract more investors. Hearn and Piesse (2012) argued that the transaction cost can be reduced by the high quality of auditors with a high level of rule of law and attract more potential investors at pre-IPO.

Meanwhile, the rule of law includes the forcemeat of contracts which can improve the corporate governance quality, and then increases the benefits of shareholders (Hopper, Sim and Uppal, 2009), and Asongu (2012) also find that improve the quality of rule of law has a positive impact on the stock market return in the sample of African counties. This argument indicates that the good quality of the rule of law could increase the potential investors' perspectives (Mousa, 2014). Boulton et al. (2010) investigated the relationship between institutional quality and underpricing of IPO. They argued that a high level of rule of law promotes transparency and credibility for investors.

Therefore, this study argues that uncertainty can be reduced by the transparency, credibility, the good quality of auditors, reduction of agency cost and transaction cost and investors' perspectives promote the confidence level of issuers and investors in participating in the market. Based on the previous study, there is still short of empirical evidence on the relationship between government effectiveness and offer size of IPOs. Thus, the present study argues that increasing in rule of law could attract investors and influence the offer size of IPO. The second hypothesis is developed as follow:

H2: Rule of law positively impacts on the offer size of IPO.

2.3.3 Control of Corruption on Offer Size

Boulton et al. (2010) used the control of corruption as an indicator for the institutional quality to measure the relationship with underpricing of IPO in U.S market. They argued that a good quality of control of corruption can increase financial disclosure and credibility. Consistent with what they arguments, Asongu (2012) point out that a good government quality in control of corruption provides good opportunities of raising capital for the small business enterprises (SMEs) and influence the confident level of these enterprises to participate in the stock market. Hopp and Dreher (2007) mentioned that occupation can undermine shareholders wealth in most developed and emerging market. In other words, they argued that the control of corruption can protect the shareholders' benefits and then reduce the uncertainty for the investors.

Besides, Low et al. (2011) and Hooper et al. (2009) investigated the relationship between institutional quality and stock market return. They argued that the level of control of corruption would influence the cost of the fund raised. In New Zealand, Ajmal (2018) investigated the relationship between institutional quality and mispricing of IPO. He argued that a good quality of control of corruption reduce

uncertainty through increase the transparency. Hence (2014) tested the relationship between institutional quality and underpricing in North Africa market. He argued that the quality of the rule of law improve transparency and attract international investors through strengthening institutional quality.

Therefore, this study argues that uncertainty can be reduced by the high quality of transparency, credibility, protection of investor benefits and environment of opportunity to grow, and it will promote the confidence of both issuers and investors to participate in the market. However, based on the previous evidence, there is a gap in the relationship between the control of corruption and offer size that yet to be examined. Hence, the present study argues that a higher control of corruption would impacts on the offer size, and it would fill the gap of literature with the following hypothesis.

H3: Control of corruption positively impacts on the offer size of IPO.

2.3.4 Political Stability on Offer Size

Political stability was thought to be the factor of institutional quality that most affected stock market returns based on the highest negative regression in the developed and emerging market (Hooper et al., 2009). However, Hearn (2014) found that a higher quality of political stability does not tend to good feedback on

performance in North Africa stock market regarding a negative correlation with IPOs underpricing. He argued that the quality of political stability could not promote the certainty of investment, in which consistent with Ajmal (2018).

Adversely, Hopp et al. (2007) argued that positive political stability tends to a high level of disclosure. In the U.S. market, Boulton et al. (2010) stated that a stronger quality of political stability tends to a greater underpricing of IPOs. They argued that political stability could improve transparency and credibility to reduce the uncertainty of investment. Low et al. (2011) did a further discussion about the influence of political stability on stock market return. They argued that a high quality of political stability improves the certainty of corporate governance to protect the shareholders' rights. Satta et al. (2017) investigated the relationship between aftermarket performance of IPOs and political stability, and they argued that a good level of political stability could help to increase the transparency and reduce the expenditure of investment. Ajmal (2018) tested how institutional quality affects the mispricing of the IPO. He argued that good political stability could reduce the uncertainty of investment.

Therefore, this study argues that the uncertainty can be mitigated due to the transparency, protection of investors, and credibility, it will promote the confidence level for issuers and investors in participating in the market. However, there is a gap that the relationship between political stability and offer size is yet to be tested.

Hence, the present study argues that increasing political stability could positively influence the offer size of the IPO. The hypothesis is developed as follow:

H4: Political stability positively impacts on the offer size of IPO.

2.3.5 Voice and Accountability on Offer Size

The Voice and accountability were supposed as an important factor of institutional quality and did positively influence the stock market return cross 48 developed and emerging markets (Low et al., 2011). Low et al. (2011) argued a level of voice and accountability would enhance the company-level of governance and effective decision making of managers. Based on the study of Hearn (2014), he argued that voice and accountability are not able to reduce the uncertainty since there is no relationship between voice and accountability and mispricing.

Conversely, Hooper et al. (2009) found a positive relationship between voice and accountability and stock market return cross 50 countries. They argued that the uncertainty could be reduced by protecting the investors' rights under a high level of voice and accountability. Boulton et al. (2010) tested how the voice and accountability impacts on IPOs underpricing in U.S market controlling by IPO offer size. They argued that a good quality of voice and accountability promote a high level of disclosure. Asongu (2012) mentioned that the good quality of voice and

accountability provide a good opportunity of financing for those enterprises who are most vulnerable to a volatile political environment. Ajmal (2018) found that a good quality of voice and accountability would reduce the mispricing of IPOs. He argued that the uncertainty could be reduced by voice and accountability.

Therefore, this study argues that uncertainty can be reduced due to the transparency, the good opportunity of financing and protection of investors' rights, and it will improve the confidence level for both issuers and investors to participate in the market. However, it is a short of research on the explanation of the quality of voice and accountability on offer size of IPOs. Thus, the present study argues that a good level of voice and accountability would attract investors and impacts on the offer size of IPO. The hypothesis is developed as follow:

H5: Voice and accountability positively impact on the offer size of IPO.

2.3.6 Regulatory Quality on Offer Size

The quality of regulation reflects an understanding of the government's ability to develop and implement sound policies and regulations that allow and facilitate the development of the private sector. Boulton et al. (2010) measured the relationship between institutional quality and underpricing of IPO in U.S market. They argued that the high level of regulatory quality pushes a high level of disclosure and

credibility. In North Africa, Hearn (2014) estimated the relationship between institutional quality and underpricing of IPO. He argued that a higher level of regulatory quality could increase transparency by reducing information asymmetry.

Differentially, Low et al. (2011) investigated how country-level governance affects the performance of the stock market, and they argued that a higher quality of regulatory would increase the cost of issuing. Similarly, Hooper et al. (2009) also tested the relationship between institutional quality and stock market performance. They consistent with that the regulatory positively influence the cost of capital raised. Hearn and Piesse (2012) tested the relationship between institutional quality and control retention of entrepreneurial founders, and they argued that a company under a lower quality of regulation would reduce the control retention of entrepreneurial founders under the pre-IPO ownership structure. Deeds et al. (1996) argued that the company under a lower level regulatory quality should be easier to enter into the "hot" market.

This study argues that the good regulatory would reduce the cost of capital raised and opportunity of gains on “hot” market, and increase the control retention of the manager under the pre-IPO ownership structure due to the amount of capital raised is seen as decreasing as well. It will reduce the confidence level of both issuers in participating in the stock market. However, it is a short of literature directly explains the relationship between offer size and regulatory quality. Therefore, the present

study argues that increasing regulatory could reduce the offer size of IPOs, and it would contribute on the short of literature by testing the following hypothesis:

H6: Regulatory quality negatively impacts on the offer size of IPOs.

2.4 Theories Related to Literature

Offer size is often tested as a proxy for supply in the process of capital raised. The relationship between offer size and institutional quality can be explained in terms of the agency theory that an agency problem exists under the conflict between managers and investors based on the information asymmetry during the process of IPO, while the signaling theory is used to further explain the factors affect offer size.

2.4.1 Agency Theory

The agency theory was first proposed by Jensen & Meckling (1976) discussed the conflicts between agents (managers) and principals (shareholders). Normally, the underlying agency problem is that the principals believe that their interests could be harmed due to the agents who hold a lower risk and more information could protect their owns interests. Therefore, a large amount of capital raised is seen as a high level of agency cost that is a more beneficial decision for the managers rather than investors.

Based on the agency problem (Villalonga & Amit, 2006), the CEO ownership has been found to have impacts on the IPO proceed regarding that the large size of the offering may bring out a high risk of threatening private interests (Latham & Braun, 2010). Since the issuers are willing to issue more with a high confidence level under good institutional quality, the agency cost could increase following the increase conflict of interests with large size of capital raised. Thus, this study argues that the offer size of IPOs could be considered as smaller regarding the agency problem could be magnified under the good institutional quality.

2.4.2 Signaling Theory

Signaling theory is often used to explain the information difference between two parties (Grinblatt & Hwang, 1989). The party that is thought to have more information can make better decisions and, on the other hand, may enjoy more benefits. Good institutional quality could be seen as a signal that the stable environment for the investing purpose.

Under the study of Zimmerman (2008), the functional and educational background of the top management team as a good signal of firm value whereby impacts on the amount of capital raised. The results of the study argued that the higher functional and educational background of the top management team would positively impact on the offer size of IPOs. Boulton et al (2010) found that the good institutional could

improve the confidence level of investors and issuers by reducing the uncertainty. Therefore, they argued that institutional quality could have a signal to investors in making investment decision. Thus, this study argues that the firms with high level of institutional quality will provide better signal in reducing the risk and accordingly the firm might issue a high offer size.

2.5 Control Variables

To examine the institutional quality on offer size of IPOs, the two control variables have been tested with a significant level from the present stage of the study. There are interest rate and stock market index. Through the literature of relation between IPOs initial return and offer size that has been mentioned in the previous section, it is supposed that the control variable of GDP which found a significant level with IPOs initial return can also impact on IPOs offer size. The following section discusses how each of the control variables is relevant with offer size.

2.5.1 Gross Domestic Price (GDP) Growth

As a macroeconomic indicator, Gross Domestic Price (GDP) is straightforward to reflect the economic condition of a country and acts an important role in the development of the stock market. Erel et al. (2011) used GDP growth as a proxy for Gross Domestic Price (GDP) to estimate that GDP can impact on the amount of

capital raised at IPO. As a result, he found that Gross Domestic Price (GDP) has a negative relationship with the amount of capital raised.

Ajmal (2018) tested the relationship between GDP and initial return of IPOs. He argued that a good GDP in a country promotes a higher initial return of IPO. Asongu (2012) investigated the relationship between stock market capitalization and institutional quality by controlling the variable of GDP growth. He argued that a country with a good GDP growth would enhance the perspectives and confidence level of both issuers and investors in participating in the stock market.

2.5.2 Interest Rate

The interest rate was defined as the appointed percentage that the lender asked to charge from the borrower based on the amount of borrowing (Felsenfeld, 1967). Ameer (2007) used to test the relationship between outstanding of new issue stocks and bonds in Malaysia market. He argued that the interest rate can affect the attitude of borrowing for both private and public.

Based on the result of Granger-causality Tests, he found that interest rate impacts on the new equity issues. Ameer (2012) had given a further explanation of the relationship between the interest rate and issuance of IPOs. He found that interest rate positively impacts on the number of IPOs which means that a higher interest rate

would promote the firms expand the offer size of IPOs which in line with the view of Lim et al (2012) in China market.

2.5.3 Stock Market Return

Normally, the stock market index is used to represent a country's stock market performance based on the domestic currency. Even Mustafa et al (2012) found that Turkey stock market index has no impact on IPOs initial returns, some scholars prefer to measure the relationship between IPOs underpricing and macroeconomics by testing the stock market index and support that there is a line between each other. Ameer (2007) found stock market index can influence the new equity issuance. Ameer (2012) further confirm that stock market index has positive impacts on the number of IPOs issuance. The arguments of Lim et al. (2012) supports the same finding from the measurement of the relationship between the numbers of IPOs and stock market index in China.

2.6 Chapter Summary

In the past study, offer size was regarded as an influential factor to estimate the IPOs performance. That evidence contributed to that issuers and investors could change the quantity of investment or directly influence their investment decisions by comparing the size of the issue with the current institutional quality.

Although several studies have tested the institutional qualities on IPOs performance with the initial return, the findings have yielded mixed results. At the same times, there are also some literature explained the offer size impacts on IPOs performance, but directly empirical evidence between institutional quality and offer size of IPOs are yet to be found.

CHAPTER THREE RESEARCH METHODOLOGY

3.1 Introduction

Overall, the data, sample description, variables, frameworks, model, hypothesis and statistics tests are discussed based on the chapter 3 that used to investigate the relationship between institutional quality and offer size of IPOs in Hong Kong market. In detail, data and sample are used to describe the scope of the present study. Besides, chapter 3 determines the dependent variable (DV), independent variables (IVs) and control variables (CVs) to develop the hypothesis and research framework. Finally, the statistics test measures the objectives of the study which have already discussed in Chapter 1.

3.2 Data

The present study tested with secondary data which are extracted on those offer size of IPOs for listing on the Hong Kong Stock Exchange from January 2000 to December 2017. The offer size of IPOs is collected by the newly listed companies in the Main Market. The other data such the six indicators of governance (government effectiveness, rules of law, control of corruption, political stability, voice and accountability and regulatory quality) and Gross Domestic Price, Stock Market Return and Interest Rate are collected from the websites of World Bank and Hong

Kong Stock Exchange.

3.3 Sample Description

The sample of the study is built up of the offer size of IPOs from the newly listed companies from January 2000 until December 2017. Considering that several companies that transformed from GEM to the Main Board have issued IPOs for the first time, the final sample removed those who transformed and focused on new listings on the Main Board. Therefore, the total number of final samples are 1042. The start date was chosen in 2000 to reduce the impact of the 1997 Asian financial crisis on the results of the study as Hong Kong's stock market was significantly affected by the global economy.

Listing Year	Population	Final Sample
2000	736	41
2001	756	31
2002	812	15
2003	852	39
2004	888	46
2005	934	54
2006	970	53
2007	1,048	78
2008	1,087	27
2009	1145	60
2010	1244	86
2011	1326	68
2012	1,547	48
2013	1,643	73
2014	1,752	90
2015	1,866	83
2016	1,973	71
2017	2,118	79
Total	22,697	1,042

3.4 Measurement of Variables

3.4.1 Main Variable

The dependent variable under the present study is offer size of IPOs (LN_SIZE) which is calculated by the number of IPOs issued multiplied by the offer price of IPOs, meanwhile, the offer size used to as the natural logarithm of offer size (Chia & Pedgett, 2005; Boulton et al., 2010; Low & Yong, 2011). The formula used to calculate the offer size of IPOs are identified as follow:

$$LN\_SIZE = P_{offer} \times No.of\ Shares\ Issued \quad (3.1)$$

3.4.2 Independent Variables

To achieve the main objective of the present study which test the relationship between offer size and institutional quality, there are six governance indicators play a role as proxy for institutional quality consist of government effectiveness, rules of law, control of corruption, political stability, voice and accountability and regulatory quality (Hooper et al., 2009; Boulton et al., 2010; Low et al., 2011; Asongu, 2012; Hearn & Piesse, 2012) in Table 3.1. The measurement of independent variable utilizes the percentile rank. Percentile rank indicates the country's rank among all countries covered by the aggregate indicator, with 0 corresponding to lowest rank, and 100 to highest rank. Percentile ranks have been adjusted to correct for changes over time in the composition of the countries covered by the World Governance

Indicator (WGI).

Table 3.1 Definition of independent variables

Independent variables	Definition
Government effectiveness (GE)	The government effectiveness (GE) was defined as a quality of services to society and citizens, the quality of the civil service and the level of independence from political pressure, the effective formulation and implementation of policies, and the high credibility of the government with respect to the system established.
Rule of law (RL)	The rule of law (RL) was determined as the extent to which agents voluntarily comply with social rules in terms of the quality of contract enforcement, property rights, police and courts, and the possibility of confidence in reducing crime and violence.
Control of corruption (CC)	The control of corruption (CC) was defined as the protection of private property in the use of public power includes combating various forms of corruption, and controlling the encroachment of upper-class groups and individuals on the interests of the state.
Political stability (PS)	The political stability (PS) represented as the ability to perceive the possibility that a government will be destroyed or overthrown by unconstitutional or violent means, including politically motivated violence and terrorism.
Voice and accountability (VA)	Voice and accountability (VA) represented a quality of protection for those citizens of a country that can participate in choosing their government as well as freedom of speech, association and media.
Regulatory quality (RQ)	The regulatory quality (RQ) was defined as a quality that the ability of government builds up and put into effect of sound policies, and the private sector grows under the regulations that are supported and promoted by the government.

3.5 Control Variables

There are 3 variables will be controlled to measure the relationship between offer size of IPOs and six indicators of institutional quality since the significance relates to the offer size of IPOs from the previous study. These variables consist of gross domestic price growth, interest rate and stock market return.

3.5.1 Gross domestic price (GDP) growth

Gross domestic price (GDP) growth is measured by the annual percentage growth rate of GDP at market prices based on constant local currency. Based on the previous study, the GDP growth (GDP_G) used to represent the fundamental of a macroeconomic condition for a country (Hopp, et al., 2007; Asongu 2012). The annual data of GDP growth was collected from the website of the World Bank since the year 2000 until the year 2017.

3.5.2 Interest rate

There are two resources of financing for companies to raise funds which involve debt and equity. Either the company can choose the way to collect fund from the public by being a listed company, or borrow money from financial institutions such as banks. The interest rate (INTEREST) is represented by the lending rate on account of the present study since the lending rate indicates the rate of borrowing. In

other words, the interest rate is used to reflects the information of macroeconomics for the participants of financial resources (Chen, 1986). Some theoretical study also used the interest rate as an indicator of macroeconomics such as Ameer (2012), Güntürkün, et al. (2012) and Lim, et al. (2012).

3.5.3 Stock market return

The stock market return was tested by using the stock market index in the domestic market (Rashid , 2007; Lim et al., 2012; Chen et al., 1986). Reference with the previous study, Hong Song Stock Market Index (LOG_HKI) is used as a proxy for stock market return in Hong Kong, and the data of Hong Song Index treated by Logarithm. The monthly data of the stock market index was collected from DataStream.

3.6 Research Framework

Figure 3.1 estimates the relationship between the independent variables and offer size qualified in the hypothesis. The investigation of the relationship between each independent variable and offer size refers to the effects of control variables.

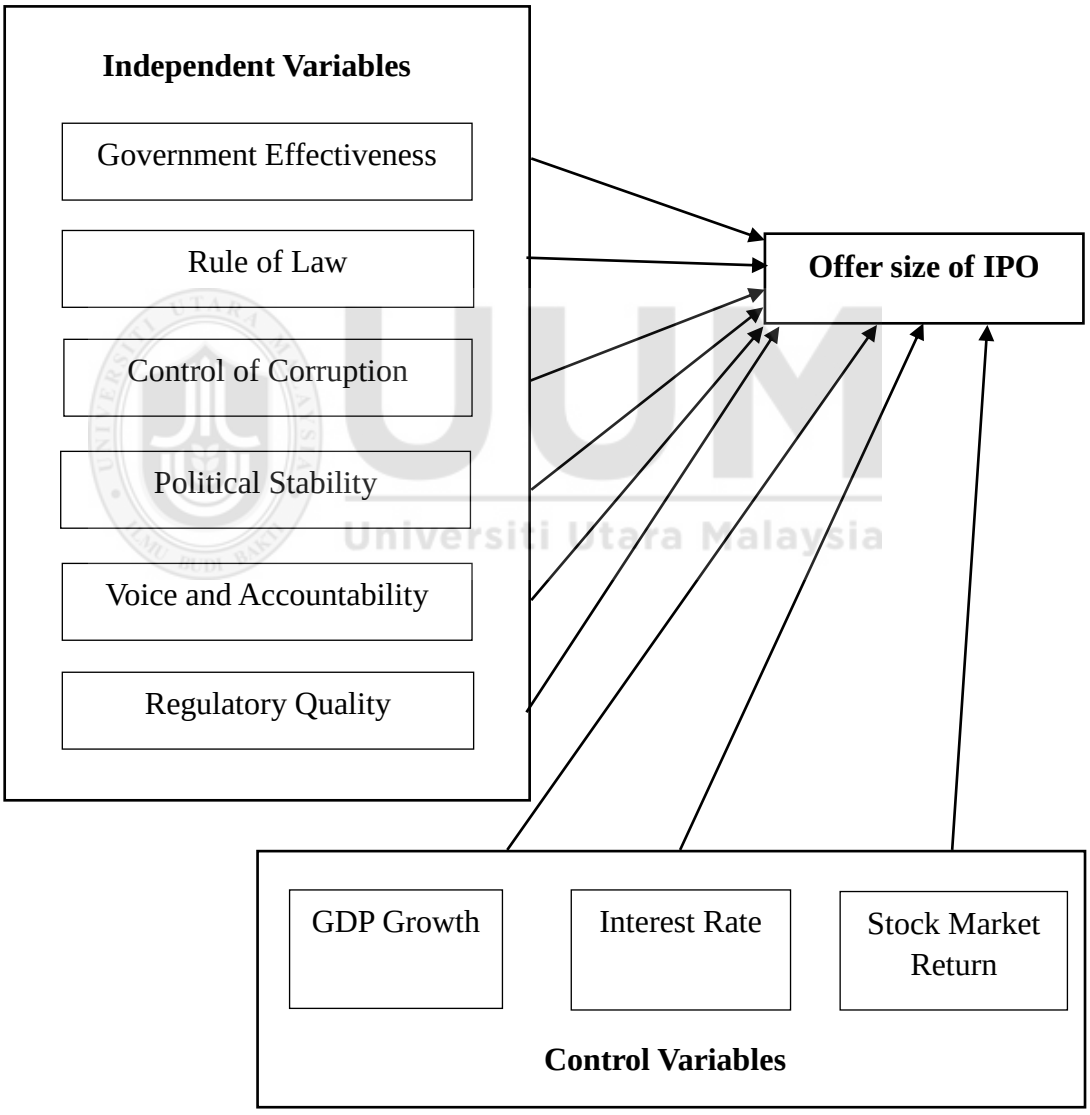

Figure 3.1 Conceptual framework of the relationship between institutional quality and offer size of IPOs

3.7 Model Specification

$$LN\_SIZE_i = \alpha + \beta_1 GE + \beta_2 RL + \beta_3 CC + \beta_4 PS + \beta_5 VA + \beta_6 RQ + \beta_7 GDP_G + \beta_8 LOG_{HKI} + \beta_9 INTEREST + \varepsilon \quad (3.10)$$

Where:

α = The regression intercept,

β = The regression coefficients of the respective predictor variables,

LN_SIZE = The natural logarithm of offer size of IPOs

GE = government effectiveness

RL = rule of law

CC = Control of corruption

PS = Political stability

VA = Voice and accountability

RQ = Regulatory quality

Control Variables:

GDP_G = Growth rate of Gross domestic price

LOG_HKI = The logarithm of Hong Kong stock market index

INTEREST = Interest rate

ε = Error term of the regression

3.8 Econometric Estimation Issues

Before doing the measurement and analysis of hypothesis, there are some issues should be considered such as normality, autocorrelation, multicollinearity and heteroscedasticity issues. Therefore, there are serious techniques used to correct the issues by using Eviews (Version 10.0) that will be explained in the next section.

Other than that, at the beginning of the analysis of hypothesis, the descriptive statistics will be shown to explain the basic characteristics of data such as mean, median, minimum maximum and standard deviation. Skewness and kurtosis also be produced by the descriptive statistics which are used to indicate the symmetry and peakedness of a distribution.

3.8.1 Data Normality Test

The normality test used to estimate whether the data of the study is normal distribution by observing both the descriptive statistics and the histogram involves Jarque-Bera statistics. When the Jarque-Bera is not significant (less than 0.05), the data is not considered as the normal distribution.

3.8.2 Correlation Coefficient Analysis

The correlation coefficient is a statistical index reflecting the degree of closeness between two or more variables, including positive correlation and negative

correlation. In the present study, the correlation coefficient is imperative to identify the relationship between the offer size of IPO and six indicators of institutional quality (government effectiveness, rule of law, control of corruption, political stability, voice and accountability and regulatory quality). The range of correlation should be between +1 and -1. When the result shows a negative value, it indicates a negative correlation, vice versa. The degree of correlation can be divided into three levels, including strong (more than negative or positive 0.7), medium (more than negative or positive 0.31 to 0.69) and weak (less than negative or positive 0.3).

3.8.3 Test of Multicollinearity

Multicollinearity represents a linear relation in a view of the condition of two or more variables under the regression model (Gunst, 1983). The characteristics of the multicollinearity issue occurred is the high correlation between two or more explanatory variables. Such problems may lead to distorting regression model estimation or difficulty in estimating accurately.

Several techniques for measure the multicollinearity was discussed from the previous study by Mansfield and Helms (1982), Mason, Gunst and Webster (1975). Among the variance inflation factors (VIF), a signal of highly linear correlation with all variables was proposed to verify the multilinearity. To avoid multicollinearity issue, Miles (2014) suggested that the role of thumb of VIF should not exceed 10.

3.8.4 Autocorrelation Issues

The existence of autocorrelation explains the correlation within variables based on different types of data, such as time series or cross-section (Gujarati, 2003). Following the previous study, Durbin Watson (DW) is used to estimate the autocorrelation. The statistics of Durbin Watson is identified equals to 2- 2ρ (correlation coefficient). Thereby, there is no autocorrelation when ρ equal to 0, the Durbin Watson equals to 2. If ρ equals to -1, the Durbin Watson equals to 4. It reflects a worse situation of negative autocorrelation occurs. For overcome autocorrelation issue, Newey-West covariance estimators are applied to adjust with the regression model.

3.8.5 Heteroskedasticity Issues

Heteroskedasticity issue happened when the influence of measurement errors (ε) and factors omitted from the model on the explained variables. If the regression is homoscedastic, the variances are indicated as same. Oppositely, the variances are different indicates the existence of heteroskedasticity. The issue of homoscedasticity can be overcome by the White test. The result is proved with a heteroskedasticity when the p-value is less than 0.05. In other words, the homoscedasticity problem was verified if the p-value is more than 0.05.

3.8.6 RAMSEY Specification Test

RAMSEY reset test is a way of measurement where the independent variables are useful to further explain the significance of dependent variables under a linear regression model. The result of RAMSEY reset test will be interpreted based on the F-test of the present study. It can be identified as no problem of misspecification if F-test shows insignificance.

3.9 Chapter Summary

This chapter explain the research methodologies used for the present study which involves research design, data description and collection, research framework, techniques of interpretation of regression model and other specification model in order to determine the relationship between offer size and six indicators of institutional quality (government effectiveness, rule of law, control of corruption, political stability, voice and accountability and regulatory quality). The software of Eviews (Version 10.0) is utilized to run the data based on the discussed methods.

CHAPTER FOUR FINDINGS AND DISCUSSION OF THE RESULTS

4.1 Introduction

The beginning of the chapter discusses the results of descriptive statistics of the present study that explain the basic features of the variables involves dependent variable, independent variables and control variables. The correlation between offer size and six indicators of institutional quality under the control variables will be illustrated in the second step. After that, the issues of normality, multicollinearity, autocorrelation and heteroskedasticity will be estimated before computing the analysis of the regression model for the variables. Finally, the results of regression interpret whether the hypothesis of the present study is verified by the findings of the regression model. For a convenient purpose, the hypotheses are explained again as follows:

H1: Government effectiveness negatively impacts on the offer size of IPO

H2: Rule of law positively impacts on the offer size of IPO

H3: Control of corruption positively impacts on the offer size of IPO.

H4: Political stability positively impacts on the offer size of IPO

H5: Voice and accountability positively impact on the offer size of IPO

H6: Regulatory quality negatively impacts on the offer size of IPO

4.2 Descriptive Statistics

The results of descriptive statistics will explain the fundamental features of data consist of central tendency, dispersion and normality. Refer to Table 4.2, it states the result of mean, median, maximum, minimum, standard deviation, skewness, kurtosis and Jarque-Beta for all variables. Since the companies who transformed from the GEM to the Main Board market are eliminated from the data set, the total sample of the present study is 1042 during the period of 2000 to 2017.

Based on Table 4.2, it shows that the average value of the natural log of offer size is 18.7957 with the standard deviation of 1.5377. The maximum value of the natural log of offer size is 23.5792 and the minimum value is 14.1608. Offer size has a normal skewness (0.2407 close to 0) and a flatted curve with platykurtic (2.7977>3). Moreover, Comparing the listed companies' offer size of IPOs during the period of 2000 to 2017, the more size of offering exceeded the average value (18.7957) during the period of 2016 to 2017. It indicates that the more listed companies issued a larger size rather than other period during the year 2016 and 2017.

For the independent variables, the indicator of voice and accountability (VA) has the highest percentile rank compared to other institutional quality indicators that the average value is 99.1955. The maximum of percentile rank is perfectly 100% which reflects that there is a high quality on voice and accountability. Based on the value of

skewness and kurtosis, it states that the voice and accountability has a left-tail skewness (-1.7024 < 0) and a peaked curve with a leptokurtic kurtosis (4.2724 > 3).

The second highest indicator of institutional quality is government effectiveness (GE). The mean of government effectiveness during the period of 2000 to 2017 is 95.1725 with the standard deviation of 3.2396. It indicates that the level of government effectiveness has a high percentile rank which closes to 100% in the Hong Kong Market. Based on the minimum percentile rank of 87.6923, the result verifies that the quality of government effectiveness is quite good in the Hong Kong market. Besides, the result of skewness and kurtosis shows that government effectiveness has a left-tail skewness (0.2407 > 0) and a flattened curve with a platykurtic kurtosis (2.9315 > 3).

The mean of control of corruption (CC) from the period of 2000 to 2017 is 92.7503 that has highly percentile rank in the Hong Kong Market with the standard deviation of 1.9836. The maximum of control of corruption is 95.1923 and the minimum value is 86.2944. This result points out the quality of control of corruption in the Hong Kong market between the period of 2000 and 2017. The control of corruption has a left-tail skewness and a flatted curve since the skewness (-2.2133) is less than 0 and the kurtosis (7.9324) is greater than 3.

The average of percentile rank of the rule of law (RL) is 90.9319 with a standard

deviation of 4.6974. The maximum of rule of law is 95.1923 and the minimum is 74.7526. Compare to the historical data during the period of 2000 to 2017 with the average of rule of law, it indicates that Hong Kong market has a higher quality of rule of law since the year 2014 according to the percentile rank of rule of law is higher than the mean value, but the quality of the rule of law is lower since the minimum percentile rank of the rule of law is lower than the government effectiveness and the control of corruption. Furthermore, the rule of law has left-tail skewness and a flatted curve since the skewness (-2.7144) is less than 0 and the kurtosis (9.8418) is greater than 3.

Besides, the mean of political stability (PS) during the period of 2000 to 2017 is 83.4899 with a standard deviation of 6.8325. The maximum value is 95.6311 and the minimum value is 72.3810. The larger difference between the maximum value and minimum value indicates that there is a relatively violent fluctuation of the quality of political stability during the period of 2000 to 2017 compare to other indicators of institutional quality. In addition, political stability has a normal skewness (0.0408 close to 0) and a flatted curve of kurtosis (1.6993 < 3).

Table 4.2 Descriptive statistics of variables

Variables	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Jarque-Bera
LN_SIZE	18.7957	18.5848	23.5792	14.1608	1.5377	0.2407	2.7977	11.8359
GE	95.1724	97.0874	99.0385	87.6923	3.2396	-0.9341	2.9315	151.734
RL	90.9319	91.0798	95.1923	74.7525	4.6974	-2.7144	9.8418	3311.92
CC	92.7503	93.1707	94.7619	86.2944	1.9836	-2.2133	7.9324	1907
PS	83.4899	83.4123	95.6311	72.381	6.8325	0.0408	1.6993	73.7382
VA	99.1955	99.5261	100	95.9184	1.2734	-1.7024	4.2724	573.625
RQ	62.5883	63.5071	69.9531	51.7413	4.435	-0.7295	3.4275	100.361
GDP_G	4.0151	3.1015	8.7001	-2.4591	2.7439	-0.2965	2.7531	17.9192
INTEREST	5.636	5	9.27	5	1.1907	1.7225	4.7138	642.791
LOG_HKI	4.2985	4.3403	4.4963	3.9362	0.1162	-1.0547	3.5125	204.582

The variable which is the smallest mean of percentile rank is regulatory quality (RQ) with 62.5883, and the standard deviation is 4.4350. The minimum of regulatory quality reflects a worse condition of institutional quality since the value is (51.7413) just half of 100%. The maximum of regulatory quality is lower than other indicators as well which is 69.9531. Based on the skewness and kurtosis, it indicates that the regulatory quality has a left-tail skewness (-0.7295 < 0) and a peaked curve (3.4275 > 3).

4.3 Correlation Analysis

According to Table 4.3, the correlation matrix states the correlation between offer size and its explanatory variables. Based on Table 4.3, it shows that offer size (LN_SIZE) has two negative correlations with government effective (GE) (-0.0190) and regulatory quality (RQ) (-0.0455). The results of negative correlation reflect the size of offering on IPO would decrease when the level of government effectiveness and regulatory quality increase. The finding can be supported with prior studies of Ajmal (2018) and Hearn (2014) that the government effectiveness negatively affects the underpricing of IPOs. They argued that investors are influenced by the signaling of poor government effective since there is a stable environment of investment with a lower risk, and it tends to a lower confidence level of investors regarding a lower risk produces a lower return. Thus, investors are not willing to issuer more. Claessens and Laeven (2003) mentioned that higher regulatory quality comes out

with less uncertainty. It does not attract more investors who are willing to gain a higher return with a higher risk. Consequently, the supply of IPOs (offer size) may be reduced due to the decreased demand for investors. Furthermore, the independent variables including rule of law (RL) (0.0081), control of corruption (CC) (0.1563), political stability (PS) (0.2129) and voice and accountability (VA) (0.1470) have a positive correlation with offer size. It can be explained that the higher quality of rule of law, control of corruption, political stability and voice and accountability would result in a greater offer size of IPOs. This view can be supported under the signaling theory (Grinblatt & Hwang, 1989; Cohen & Dean, 2005) that quality of institutional quality plays a role as a signal to reflect a high premarket demand of investors and the confidence of issuers.

Table 4.3 The Correlation of Variables

	LN_SIZE	GE	RL	CC	PS	VA	RQ	GDP_G	INTEREST	LOG_HKI
LN_SIZE	1									
GE	-0.019	1								
RL	0.0081	0.7202	1							
CC	0.1563	0.4194	0.7451	1						
PS	0.2129	0.1573	0.1867	0.2458	1					
VA	0.147	0.5433	0.6587	0.4425	0.3268	1				
RQ	-0.0455	0.3397	0.6551	0.5644	0.2133	0.3865	1			
GDP_G	0.1504	-0.2545	-0.0823	0.0815	0.2775	0.1634	0.0808	1		
INTEREST	0.1977	-0.2821	-0.6266	-0.4592	0.3062	-0.1943	-0.529	0.4714	1	
LOG_HKI	0.0342	0.7464	0.4167	0.2162	-0.1303	0.2631	0.2264	-0.1577	-0.2066	1

4.4 Results of Diagnostic Testing

To ensure the validity of the model and the accuracy of the results, the diagnostic tests are required to report prior to regression analysis. The following part will discuss with normality, multicollinearity, autocorrelation and heteroscedasticity.

4.4.1 Normality of Distribution

Regarding Figure 4.2, the p-value of Jarque-Bera (0.0015 < 0.05) reflects an insignificant level of regression residual. It interprets that the regression residuals are not a normal distribution. Nevertheless, the non-normality can be ignored based on the large sample set of secondary data are able to run with valid and sufficient results in the finance area.

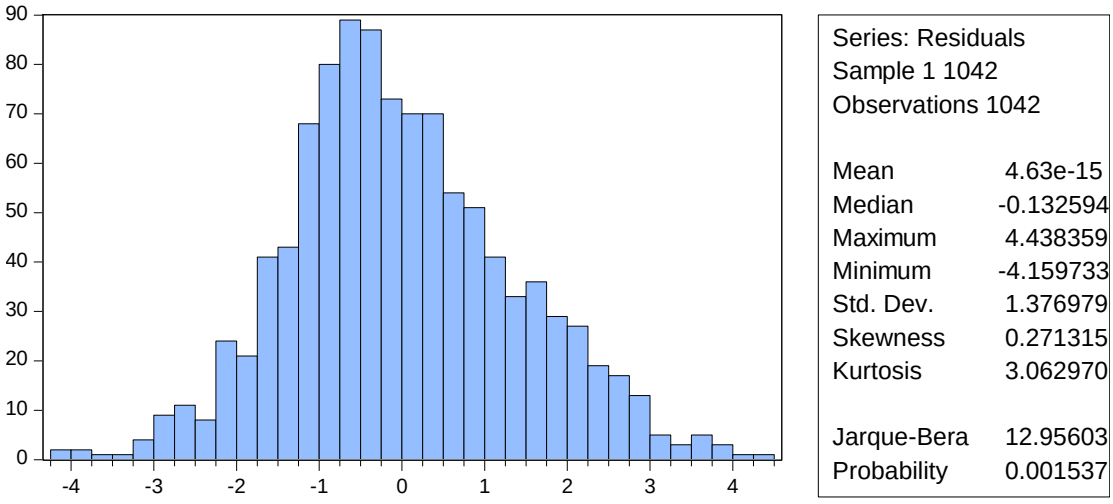

Figure 4.2 Results of Normality Test

4.4.2 Multicollinearity

Refer to Table 4.3, the correlation matrix states that the independent variables are highly correlated with each other (exceed 0.24) except the correlation between political stability and government effectiveness (0.1573) and political stability and rule of law (0.1867). The present study ensures the issue by using variance inflation factors (VIF) on account of the multicollinearity problem occurred when there is high correlation between variables.

Miles (2014) suggested that the role of thumb of VIF should not exceed 10. Based on Appendix C of results of VIF, it shows that the valued of centered VIF for all of the variables are less than 10. It is considered as no multilinearity problem occurred.

4.4.3 Autocorrelation

To confirm the present study does not have autocorrelation problem, the statistics of Durbin Watson should be around two. Based on Appendix E, the Durbin- Watson is 1.74 which reflects that the regression model exists autocorrelation issue. Therefore, the Neywey-West is used to amend the autocorrelation issue by decreasing the standard error.

4.4.4 Heteroskedasticity

To measure the influence of measurement errors (ε) and factors omitted from the model on the explained variables, the F-statistics should be used to identify the heteroskedasticity issue. The heteroskedasticity was verified if the p-value of F-statistics is less than 0.05. Based on Appendix G, the results of ordinary least squares (OLS) regression shows a heteroskedasticity issue (p-value < 0.05). Therefore, the White's test is applied to overcome the heteroskedasticity problem by reducing the standard error of the regression result.

4.4.5 RAMSEY Reset Test

RAMSEY reset test is a way of measurement where the independent variables are useful to further explain the significance of dependent variables under a linear regression model. Regarding Appendix F, the result of F-statistics does not reflect a significant level (p-value > 0.05) which states that the analysis of the present study responds under a linear regression model.

4.5 Results from Regression Analyses

To achieve the objectives of the present study and test the hypothesis, the cross-sectional multiple regression is utilized to estimate the significance between offer size and its independent variables. Table 4.3 shows the Ordinary Least Square

(OLS) results for the relationship between offer size and its independent variables and control

Table 4.3 OLS results for the relationship between offer size and its variables

	Dependent Variable: Offer size			
Independent Variables	Expected Sig.	Coefficient	Std. Error	t-statistic
Constant		-35.24989	5.249176	-6.715319
Government Effectiveness (GE)	-	-0.315853	0.037506	-8.421500***
Rule of Law (RL)	+	0.078663	0.029851	2.635166***
Control of Corruption (CC)	+	0.257416	0.034792	7.398744***
Political Stability (PS)	+	0.025222	0.008838	2.853903***
Voice and Accountability (VA)	+	0.281464	0.050117	5.616086***
Regulatory Quality (RQ)	-	-0.034422	0.014848	-2.318214**
GDP growth (GDP_G)		-0.138127	0.025820	-5.349574***
Interest rate (INTEREST)		0.605421	0.086744	6.979418***
Stock market return (LOG_HKI)		5.199141	0.663444	7.836590***

Note: superscript *, ** or *** indicates significance at the 10%, 5% and 1%

variables. Refer to the F-statistics of the regression model, it indicates that the significance between offer size and its variables can be valid explain under a linear regression model. Therefore, the Equation (3.11) can be reported based on the Equation (3.10) as follow:

$$y = -35.24989 - 0.315853x_1 + 0.078663x_2 + 0.257416x_3 + 0.025222x_4 + 0.281464x_5 - 0.034422x_6 - 0.138127x_7 + 0.605421x_8 + 0.605321x_9 \quad (3.11)$$

4.5.1 Results on Independent Variables

The result which is summarized in Table 4.3 illustrates how the six indicators of

institutional quality (government effectiveness, rule of law, control of corruption, political stability, voice and accountability and regulatory quality) impact on the offer size (LN_SIZE). The hypothesis of the study (H1, H2, H3, H4, H5 and H6) also can be examined based on the result of the regression model. The following section will explain the findings and hypothesis separately.

A. Government Effectiveness

Government effectiveness is a governance indicator as a proxy for the institutional quality to test how the institutional quality impacts on offer size of IPOs in the Hong Kong market. In the light of Table 4.3, the result of ordinary least squares (OLS) states a negative coefficient (-0.315853) at 1% significant level. The first hypothesis of the present study (H1) can be accepted that government effectiveness negatively impacts on the offer size of IPOs.

The negative relationship between government effectiveness and offer size on the results of this study accept the estimated argument of the present study that a good quality of government effectiveness would result in a smaller size of the offering. It is consistent with the arguments of Hearn and Piesse (2012) that the higher quality on government effectiveness promotes higher control retention of the entrepreneurial founder, and they would reduce the proportion of control shares to the public. The arguments of this study also can be explained based on the agency theory due to the conflict of managers' interest when the companies were listed (Jensen & Meckling,

1976). This is because the agency problems raised when the managers are able to raise funds easily under good government effectiveness. In other words, the uncertainty of investors increases when the level of government effectiveness is good. Thus, the confidence level would reduce due to the increased uncertainty, and investors are not actively in the IPO market (Boulton et al, 2010). Furthermore, the negative relationship between government effectiveness and offer size is supported by the arguments of Hooper et al. (2009) that good government effectiveness promotes a high agency cost. Under the influence of higher cost and agency problem, a less confidence level occurred that companies are hard to raise capital and not willing to issue more.

B. Rule of Law

As an indicator of institutional quality, the rule of law plays a role as a proxy to examine with an offer size of IPOs. According to Table 4.3, it shows a positive relationship (0.078663) between rule of law and offer size at 1% significant level. Thus, the second hypothesis of the study (H2) can be accepted that the rule of law positively impacts on the offer size of IPOs.

Similarly, referring with the views of the previous study, the finding of the present study is supported by the argument of Asongu (2012), in which a high quality of rule of law could increase the potential investors' perspectives. It would improve the confidence level of issuers and investors and attract more investors. Consist of the

findings of Boulton et al. (2010), he argued that good quality on the rule of law can attract more investors regarding it promotes more transparency and credibility. Hopper et al. (2009) mentioned that good quality on the rule of law improves the corporate governance quality which increases the benefits of shareholders. According to the transparency and increasing benefits of the shareholder from good government effectiveness attract investors to actively participate in the stock market, the issuers are more confidence in raising capital and be willing to issue more.

C. Control of Corruption

To examine the relationship between institutional quality and offer size, control of corruption acts as a proxy for institutional quality to fulfil the objectives of the present study. The result of Table 4.3 shows that the coefficient of control of corruption is positive (0.257416) at 1% significant level. It indicates that control of corruption has a positively significant relationship with offer size. Hence, the third hypothesis of the study (H3) can be accepted.

Consistent with the argument of Asongu (2012), a good governance quality on control of corruption provides a good opportunity for enterprise, and thereby the confidence of companies should be raised and the offer size will be more. On the other hands, the confidence level of participating in the market is promoted by the effects of the reduction of transaction cost and increased transparency under the good quality of control of corruption (Hooper et al., 2009; Hence, 2014; Ajmal 2018). Companies are

easier to raise capital and be willing to issue more, and the investors are more active participant in the market with a good quality of control of corruption.

D. Political Stability

Political stability is used as a proxy to estimate how the institutional quality impacts on the offer size of IPOs. Based on Table 4.3, it shows that political stability has a positively coefficient (0.025222) which indicates that there is a positive relationship between political stability and offer size at 1% significant level. The result of significance from the regression model is consistent with the developed hypothesis (H4). Therefore, the fourth hypothesis is accepted that political stability positively impacts on the offer size of IPOs.

It also can be explained by the study of Addoum and Kumar (2016) that that political tenses can result in the output of the financial market. Hopp et al. (2007) argued that positive political stability reduces uncertainty due to a higher level of disclosure. Consider to the positive relationship of uncertainty between political tenses and financial market, the increased pre-market demand can be explained that the reduction of uncertainty on the financial market would finally stimulate investors' confidence level and participants (Yackson, 2008). In addition, based on the argument of Satta et al. (2017), the finding of this study can be supported that the uncertainty can be reduced by the good political stability due to the increased transparency and decreased the expenditure of investment, and it would increase the confidence level of issuers. Therefore, the issuers are easier to raised capital and are willing to issue more IPOs

E. Voice and Accountability

As an indicator to represent institutional quality, the voice and accountability are used to verify how the institutional quality impacts on the offer size. According to Table 4.3, it shows a positively significant (0.281464) relationship between voice and accountability and offer size at 1% significant level. The hypothesis of the study (H5) can be accepted that voice and accountability positively impact on the offer size of IPOs.

The finding of the present study is supported by several previous studies. Firstly, the high-quality voice and accountability improve the disclosure and credibility, which reduce the uncertainty and promote a higher level of confidence of both issuers and investors (Hooper et al., 2009; Boulton et al., 2010; Low et al., 2011). The investors who are confident to the issuers' future prospects are more willing to buy and hold their shares under the market who has a good institutional quality (Che-Yahya, et al., 2014). Secondly, Asongu (2012) mentioned that the good quality of voice and accountability provide a good opportunity of financing for those enterprises who are most vulnerable to a volatile political environment. Hence, the issuers are more confidence to raise capital and be willing to supply more.

F. Regulatory Quality

Regulatory quality plays a role as a proxy for institutional quality to test the relationship with offer size. Based on Table 4.3, the coefficient of regulatory quality is

-0.034422 under the 95% significant level. It can be explained that the hypothesis of the study (H6: regulatory quality negatively impacts on the offer size of IPOs) is accepted.

The arguments of the previous study can further support the accepted hypothesis that the regulatory quality negatively impacts the offer size of IPOs. To consider an efficient method of issuing from the managers, the uncertainty could increase due to the increased cost of issuing (Hooper et al. 2009; Low et al., 2011). At the same times, the uncertainty could be increased due to the reduction of control retention of managers under a good regularity quality (Hearn & Piesse, 2012). Other than that, based on the signaling theory (Grinblatt & Hwang, 1989), a low level of regulatory quality is seen as a signal of opportunity that company is easier to enter into the "hot" market and raised capital Deeds et al. (1996). Hence, the size of the offering of companies should be large with poor regulatory quality.

4.5.2 Results on Control Variables

There are three control variables consist of Gross Domestic Price growth (GDP_G), interest rate (INTEREST) and stock market return (LOG_HKI) utilize to do further identification of relationship with offer size of IPOs. On the basis of Table 4.3, there is a negative relationship between GDP growth and offer size at a 1% significant level. The result of the present study can be supported through the finding of Erel et al.

(2011) that they found a negative relationship between GDP growth and the amount of capital raised. At the same times, based on the agency theory, the uncertainty by the raised agency problem since the managers may promote their private interests and harm the investors' interest under a financial environment with good GDP growth (Jensen & Meckling, 1976). Therefore, the confidence level would be harmed due to the increased agency problem and uncertainty, and it makes the issuers difficult to raise capital, and the investors are unconfident to participant in the market.

Secondly, the results in Table 4.3 shows a positive relationship between the interest rate and offer size of IPOs at a 1% significant level. Since this study expressed interest rates in terms of lending rates, the result interprets that the companies prefer to raise capital by going public rather than borrowing in financial institutions when the lending rate rise. Ameer (2012) point out that interest rate has a positive impact on the number of IPO, and it argued that the increased interest rate promotes the confidence level of issuers to raise capital by equity offering. Thereby, issuers also reduce the number of IPOs to reduce the probability of failure.

Thirdly, stock market return indicates a positive relationship with offer size at a 1% significant level. it interprets that the size of offering would be large when the confidence level of both issuers and investors is promoted due to the stock market shows a good performance. The finding of the study is consistent with the findings of Ameer (2012) and Lim et al. (2012) that the stock market index has a positive

relationship with the number of IPOs. In other words, the issuers are willing to issue more since the return of the stock market is high. Lim et al. (2012) supported the finding of the present study that there is a positive relationship between the stock market index and the number of IPO issuance in China market.

4.6 Chapter Summary

Overall, the percentile rank of voice and accountability (VA) shows the highest value of 99.1955 compare to other indicators of institutional quality in the descriptive statistics. Based on the analysis of the correlation between each variable, it shows that only government effectiveness (GE) and regulatory quality (RQ) have a negative correlation with offer size (LN_SIZE). Besides, from the regression analysis, the six hypotheses of the study have been accepted at a significant level which is summarized in the table below. The independent variables of government effectiveness (H1) and regulatory quality (H6) show the negative relationship with offer size, and rule of law (H2), control of corruption (H3), political stability (H4) and voice and accountability (H5) show the positive relationship with offer size.

CHAPTER FIVE CONCLUSION AND IMPLICATIONS

5.1 Introduction

This chapter determines the conclusion of the whole study. Before discussing the limitation of the study, the first section will present a summary of the study. Next section discusses the implication of this study concentrate on the factors affects the offer size in the IPO market. Finally, this chapter provides some suggestions based on the present study for future research.

5.2 Summary of the Study

This section presents a summary of the empirical findings of the present study. The main objective of the present study is to estimate how the institutional quality impacts on the offer size of IPO in the Hong Kong market. To achieve the main objective of the study, there are six indicators of governance represent the institutional quality consist of government effectiveness, rule of law, control of corruption, political stability, voice and accountability and regulatory quality. Besides, there are three control variables used to further explain the relationship between institutional quality and offer size which including Gross Domestic Price (GDP) growth, the interest of rate and stock market return. The sample of the study involves 1042 IPOs listed in the Main Board of Hong Kong Stock Exchange during the year 2000 to the year 2017.

Based on the empirical finding, the institutional quality has an influence on the offer size of IPO in Hong Kong. Among the results, government effectiveness and regulatory quality negatively impact on the offer size. This is supported by the argument of Hooper et al. (2009), Low et al. (2011) that the good quality of government effectiveness and regulatory quality reduce the confidence level of issuers due to the higher cost of capital raised and higher control of retention from the entrepreneurial founders. It is hard for the issuers to raise capital with the highly cost of issuing and the control retention of managers, and the managers may not be willing to decide a large size of offerings. Based on the underlying theory of Signaling Theory (Grinblatt & Hwang, 1989), a lower level of government effectiveness and regulatory quality are seen as a signal of opportunity to easily enter into "hot" market and raise capital (Deeds et al. 1996). It can also be explained based on the Agency Theory (Jensen & Meckling, 1976). There is an agency problem when investors believe managers are more concerned with their private interest with a large amount of capital raised under a condition of good institutional quality, and it could damage the interests of the shareholders.

Besides, the present study found the rule of law, control of corruption, political stability and voice and accountability positively impact on the offer size of IPO. It can be supported by the arguments of Boulton et al. (2010), Hearn (2014), Satta et al. (2017) and Ajmal (2018) that the good level of the rule of law, control corruption, political stability and voice and accountability reduce the uncertainty due to the

transparency and credibility, and it tends to improve the confidence level of issuer and investors in participating in the market. Hearn and Piesse (2012) point out that institutional quality influences the offer size due to the negative relationship between the rule of law and transaction costs. Fan et al. (2008) and Lombardo and Pagano (2006) argued that high quality of the rule of law reduces the agency cost since the investors' trust managers highly concern on the shareholders' wealth with high transparency. Asongu (2012) supported that a good quality of voice and accountability provides an opportunity of raising capital for issuers who should be protected from the unstable market environment. Hence, the issuers are willing to issue more, and both issuers and investors are optimistic to participant in the market.

Furthermore, as one of the control variables, GDP growth was found negatively influence on the offer size, and it can be supported by the finding of the previous study that a negative relationship between GDP growth and the amount of capital raised (Erel et al., 2011). Based on the agency theory, the negative relationship between GDP growth and offer size can be explained by the increased uncertainty since investors believe that managers may promote their private interests and harm the investors' interest under a financial environment with good GDP growth (Jensen & Meckling, 1976). Besides, interest rate and stock market return positively impacts on the offer size based on the empirical findings of the present study. It can be supported by the findings of Ameer (2012) and Lim et al. (2012) that the interest rate and stock market index have a positive relationship with the number of IPOs.

5.3 Limitation of the Study

This study investigates the relationship between the institutional quality (government effectiveness, rule of law, control of corruption, political stability, voice and accountability and regulatory quality) and the offer size of IPO in Hong Kong market. Before discussing the implication of the study, the limitation should be stated. The first limitation of this study is the incomplete sample size. The final sample of the present study is the IPOs listed in the Main Board and exclude the IPOs who listed in the Growth Enterprise Market (GEM). It is may not complete representing the condition of the Hong Kong market. At the same time, more observations of the sample would affect the result of the research more accurate.

The second limitation of the study is the limited number of control variables. The present study is only controlled by the indicators of macroeconomics involves GDP growth, interest rate and stock market return. Based on Table 4.3, the adjusted R-squared is only 19% since the adjusted R-squared represent how the strength of the relationship between the dependent variable and independent variables. Thus, the R-square need to be improved by increase the number of control variables that may influence the offer size of IPO.

5.4 Implications of the Study

The implications of this learning are explained with the investors, issuers and regulators based on the findings and principles of this study.

Firstly, good institutional quality should be able to promote transparency and reduce the uncertainty to the investors, except for government effectiveness and regulatory quality. Based on the results of this study, the government effectiveness and regulatory quality with the high percentile rank of governance show a negative influence on the offer size Thus, it contributes that the investors can make a better investment decision through referring to the finding of the present study that the institutional quality influence the offer size of IPO.

Secondly, the issuers can issue an appropriate offer size to achieve the full subscription by considering the significance between institutional quality and offer size. The good level of the institutional quality such as the rule of law reduces the uncertainty of investors by improving the transparency, and it tends to promote a confidence level of investors in participating in the market. Thus, it is easier for issuers to raise capital under a high level of investors' confidence. On the other hand, the issuers are able to issue with an effective issuing method based on good institutional quality since the good level of political stability can reduce the cost of issuing.

Thirdly, the significance between institutional quality and offer size contributes that the regulators need to improve the institutional quality. This is because the good institutional quality such as control of corruption provides a good opportunity for the companies who need to be protected from the unstable investment environment access to raise capital. Besides, improving institutional quality is also promoting the growth of the country.

5.5 Suggestions for Future Research

Based on the limitation of the study, the section provides some suggestions for future research. Firstly, the present study suggests to include the numbers of IPOs who listed in the Growth Enterprises Market (GEM) to expand the sample size and complete the result of the study.

Secondly, this study suggests increasing the number of control variables in order to increase the strength between the dependent variable and independent variables. Referring to the study of Guzmán et al. (2018), Signaling theory (Grinblatt & Hwang, 1989) and life cycle hypothesis (Modigliani, 1957), the age of the company is seen as a good signal to evaluate the company for the investors, and it presents a choice of managers based on the different stage of their business life. The return on equity (ROE) is also considered as a control variable to represent the performance of the

company in future research (Guzmán et al., 2018).

Thirdly, due to the target market of the present study is focus on the Hong Kong market simply, this study suggests to expand the size of target market for the future research, either select the market with the same level of economic criteria, such as ASEAN market or mix the target market from both developed market and developing market.

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APPENDICES

APPENDIX A

DESCRIPTIVE STATETISTICS OF VARIABLES

Variables	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Jarque-Bera
LN_SIZE	18.7957	18.5848	23.5792	14.1608	1.5377	0.2407	2.7977	11.8359
GE	95.1724	97.0874	99.0385	87.6923	3.2396	-0.9341	2.9315	151.734
RL	90.9319	91.0798	95.1923	74.7525	4.6974	-2.7144	9.8418	3311.92
CC	92.7503	93.1707	94.7619	86.2944	1.9836	-2.2133	7.9324	1907
PS	83.4899	83.4123	95.6311	72.381	6.8325	0.0408	1.6993	73.7382
VA	99.1955	99.5261	100	95.9184	1.2734	-1.7024	4.2724	573.625
RQ	62.5883	63.5071	69.9531	51.7413	4.435	-0.7295	3.4275	100.361
GDP_G	4.0151	3.1015	8.7001	-2.4591	2.7439	-0.2965	2.7531	17.9192
INTEREST	5.636	5	9.27	5	1.1907	1.7225	4.7138	642.791
LOG_HKI	4.2985	4.3403	4.4963	3.9362	0.1162	-1.0547	3.5125	204.582

APPENDIX B

CORRELATION BETWEEN THE VARIABLES

	LN_SIZE	GE	RL	CC	PS	VA	RQ	GDP_G	INTEREST	LOG_HKI
LN_SIZE	1									
GE	-0.019	1								
RL	0.0081	0.7202	1							
CC	0.1563	0.4194	0.7451	1						
PS	0.2129	0.1573	0.1867	0.2458	1					
VA	0.147	0.5433	0.6587	0.4425	0.3268	1				
RQ	-0.0455	0.3397	0.6551	0.5644	0.2133	0.3865	1			
GDP_G	0.1504	-0.2545	-0.0823	0.0815	0.2775	0.1634	0.0808	1		
INTEREST	0.1977	-0.2821	-0.6266	-0.4592	0.3062	-0.1943	-0.529	0.4714	1	
LOG_HKI	0.0342	0.7464	0.4167	0.2162	-0.1303	0.2631	0.2264	-0.1577	-0.2066	1

APPENDIX C

MULTICOLLINEARITY TEST

Variance Inflation Factors
Sample: 1 1042
Included observations: 1042

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
GE	0.0014	6949.5670	8.0355
RL	0.0009	4024.9130	9.2332
CC	0.0012	5675.8040	2.5923
PS	0.0001	298.6039	1.9846
VA	0.0025	13467.1500	2.2168
RQ	0.0002	472.8841	2.3603
GDP_G	0.0007	8.5872	2.7319
INTEREST	0.0075	136.0199	5.8067
LOG_HKI	0.4402	4434.1550	3.2322
C	27.5539	15011.5000	NA

APPENDIX D

HETEROSKEDASTICITY TEST

Dependent Variable: LN_SIZE
Sample: 1 1042
Included observations: 1042
White-Hinkley (HC1) heteroskedasticity consistent standard errors and covariance

Variables	Coefficient	Std. Error	t-Statistic	Prob.
GE	-0.3159	0.0407	-7.7693	0.0000
RL	0.0787	0.0322	2.4438	0.0147
CC	0.2574	0.0347	7.4261	0.0000
PS	0.0252	0.0087	2.9101	0.0037
VA	0.2815	0.0514	5.4774	0.0000
RQ	-0.0344	0.0158	-2.1838	0.0292
GDP_G	-0.1381	0.0254	-5.4288	0.0000
INTEREST	0.6054	0.0872	6.9439	0.0000
LOG_HKI	5.1991	0.6680	7.7830	0.0000
C	-35.2499	5.2459	-6.7195	0.0000
R-squared	0.1982	Mean dependent var		18.7957
Adjusted R-squared	0.1912	S.D. dependent var		1.5377
S.E. of regression	1.3830	Akaike info criterion		3.4959
Sum squared resid	1973.8110	Schwarz criterion		3.5434
Log likelihood	-1811.3610	Hannan-Quinn criter.		3.5139
F-statistic	28.3389	Durbin-Watson stat		1.7441
Prob(F-statistic)	0	Wald F-statistic		30.3147
Prob(Wald F-statistic)	0			

APPENDIX E

AUTOCORRELATION TEST

Dependent Variable: LN_SIZE
Method: Least Squares
Sample: 1 1042
Included observations: 1042
HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 7.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GE	-0.315853	0.063836	-4.947919	0.0000
RL	0.078663	0.050203	1.566897	0.1174
CC	0.257416	0.045246	5.689317	0.0000
PS	0.025222	0.011372	2.217927	0.0268
VA	0.281464	0.069784	4.033371	0.0001
RQ	-0.034422	0.023791	-1.446832	0.1482
GDP_G	-0.138127	0.033994	-4.063230	0.0001
INTEREST	0.605421	0.116712	5.187307	0.0000
LOG_HKI	5.199141	0.931763	5.579895	0.0000
C	-35.249890	6.588377	-5.350315	0.0000
R-squared	0.198167	Mean dependent var		18.79572
Adjusted R-squared	0.191174	S.D. dependent var		1.537748
S.E. of regression	1.38297	Akaike info criterion		3.495895
Sum squared resid	1973.811	Schwarz criterion		3.543389
Log likelihood	-1811.361	Hannan-Quinn criter.		3.51391
F-statistic	28.33892	Durbin-Watson state		1.744123
Prob (F-statistic)	0	Wald F-statistic		18.70704
Prob (Wald F-statistic)	0			

APPENDIX F

RAMSEY RESET Test

Ramsey RESET Test
Equation: UNTITLED
Specification: LN_SIZE GE RL CC PS VA RQ GDP_G INTEREST LOG_HKI C
Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	1.7731	1031	0.0765
F-statistic	3.1438	(1, 1031)	0.0765
Likelihood ratio	3.17254	1	0.0749

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	6.0005	1	6.0005
Restricted SSR	1973.811	1032	1.912607
Unrestricted SSR	1967.81	1031	1.908642

Unrestricted Test Equation:
Dependent Variable: LN_SIZE
Method: Least Squares
Sample: 1 1042
Included observations: 1042

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GE	-2.188214	1.056655	-2.070889	0.0386
RL	0.548960	0.266913	2.056699	0.0400
CC	1.781068	0.860025	2.070950	0.0386
PS	0.174703	0.084766	2.060993	0.0396
VA	1.932284	0.932389	2.072402	0.0385
RQ	-0.237160	0.115300	-2.056890	0.0399
GDP_G	-0.964128	0.466569	-2.066423	0.0390
INTEREST	4.218767	2.039727	2.068299	0.0389
LOG_HKI	36.126770	17.455420	2.069660	0.0387
C	-299.654300	149.213200	-2.008229	0.0449
FITTED^2	-0.155534	0.087720	-1.773086	0.0765

R-squared	0.200604	Mean dependent var	18.795720
Adjusted R-squared	0.192851	S.D. dependent var	1.537748
S.E. of regression	1.381536	Akaike info criterion	3.494770
Sum squared resid	1967.810000	Schwarz criterion	3.547013
Log likelihood	-1809.775000	Hannan-Quinn criter.	3.514586
F-statistic	25.872390	Durbin-Watson stat	1.746486
Prob(F-statistic)	0		

APPENDIX G

OSL RESULTS FOR THE RELATIONSHIP BETWEEN OFFER SIZE OF IPOS AND INSTITUTIONAL QUALITY

Dependent Variable: LN_SIZE
Method: Least Squares
Sample: 1 1042
Included observations: 1042

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GE	-0.315853	0.037506	-8.421500	0.0000
RL	0.078663	0.029851	2.635166	0.0085
CC	0.257416	0.034792	7.398744	0.0000
PS	0.025222	0.008838	2.853903	0.0044
VA	0.281464	0.050117	5.616086	0.0000
RQ	-0.034422	0.014848	-2.318214	0.0206
GDP_G	-0.138127	0.025820	-5.349574	0.0000
INTEREST	0.605421	0.086744	6.979418	0.0000
LOG_HKI	5.199141	0.663444	7.836590	0.0000
C	-35.249890	5.249176	-6.715319	0.0000

R-squared	0.198167	Mean dependent var	18.795720
Adjusted R-squared	0.191174	S.D. dependent var	1.537748
S.E. of regression	1.382970	Akaike info criterion	3.495895
Sum squared resid	1973.811000	Schwarz criterion	3.543389
Log likelihood	-1811.361000	Hannan-Quinn criter.	3.513910
F-statistic	28.338920	Durbin-Watson stat	1.744123
Prob(F-statistic)	0		