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CORPORATE GOVERNANCE AND COST OF EXTERNAL EQUITY OF IPOS UNDERPRICING

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วิทยานิพนธ์ฉบับนี้ ทำการศึกษาเชิงประจักษ์ถึงผลกระทบของบรรษัทภิบาลที่มีต่อต้นทุนของการระดมทุนจากภายนอก กล่าวโดยเฉพาะเจาะจงวิทยานิพนธ์ฉบับนี้ทดสอบความสัมพันธ์ระหว่างการคุ้มครองนักลงทุนและการเสนอราคาต่ำจากการเสนอขายหุ้นที่ออกใหม่ต่อประชาชนครั้งแรก ด้วยกลุ่มตัวอย่างจากการเสนอขายหุ้นที่ออกใหม่ต่อประชนครั้งแรกจาก 10 ประเทศในช่วงระหว่างปี ค.ศ. 1991 และ 2005 ผลลัพธ์แสดงให้เห็นว่าการคุ้มครองนักลงทุนโดยเฉพาะอย่างยิ่งการบังคับใช้กฎหมาย มีผลต่อการเสนอราคาต่ำ วิทยานิพนธ์ฉบับนี้ค้นพบหลักฐานด้วยว่าการเสนอขายหุ้นที่ออกใหม่ต่อประชาชนครั้งแรกในเศรษฐกิจที่มีธนาคารเป็นศูนย์กลางจะมีการเสนอราคาต่ำน้อยกว่าการเสนอขายหุ้นที่ออกใหม่ต่อประชาชนครั้งแรกในเศรษฐกิจที่มีตลาดทุนเป็นศูนย์กลาง การศึกษาบ่งชี้อีกว่า การบังคับใช้กฎหมายและระดับความรับผิดผ่านทางกฎหมายที่เกี่ยวกับหลักทรัพย์มีส่วนสำคัญในการลดความไม่เสมอภาคของข้อมูล โดยรวมวิทยานิพนธ์ฉบับนี้แสดงให้เห็นเชิงประจักษ์เป็นครั้งแรกด้วยหลักฐานระดับสากลถึงความสำคัญของการคุ้มครองนักลงทุน เช่นเดียวกับบทบาทการรับรองของธนาคารด้วยการควบคุมและตรวจสอบ ที่มีต่อต้นทุนของการระดมทุนจากภายนอก

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This thesis empirically investigates the effects of corporate governance on the cost of external equity. In particular, this thesis examines the association between the investor protection and IPOs underpricing. Employing a large sample of IPOs from 10 countries during 1991 and 2005, the results show that investor protection affects underpricing; especially, the legal enforcement. This thesis also finds evidence that IPOs in bank based economies experience lower underpricing than IPOs in market based economies. The finding also suggests that the legal enforcement and liability standard through securities law play a significant role in mitigating information asymmetry. Overall, this thesis empirically demonstrates, for the first time based on cross-country evidence, the importance of investor protection as well as the certification role of bank monitoring to the cost of external equity.

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Field of Study: Finance
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Student's Signature.....
Advisor's Signature.....

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CHAPTER I

INTRODUCTION

1.1 Background and Problem

When outside investors finance firms, they generally face a risk. The insiders (owners and/or managers) may not use their funds in such a way that maximize the shareholders' wealth and even expropriate those funds (Jensen and Meckling, 1976). Thus, the outside investors need a set of mechanism to protect themselves against the expropriation by the insiders, corporate governance.

Pioneered by La Porta et al. (1998), the importance of investor protection through the legal rights and the legal enforcement is regarded as the essential elements of modern corporate governance. When the investor rights are extensive and well enforced, investors are more willing to finance firm. La Porta et al. (1997) observe that countries with the high level of investor protection are associated with a more the valuable stock market, have a larger numbers of listed securities per capita (market breadth), and have a higher rate of IPO activity than do the low level of investor protection countries. As a result, a firm in high investor protection environment could access more availability of funds; thus, lower cost of external equity.

Simultaneously, when investors finance firms, they typically obtain certain rights that are generally protected through the laws and their enforcement. Some of these rights include the disclosure and accounting rules, which provide investors the information they

need to exercise other rights. Without the extensive legal rights and an effective legal enforcement, the insiders could expropriate outside investors easily since they know much more information about the firms. This makes investors require higher expected return compensating for the risk of expropriation, and thereby the external financing would be very costly (La Porta et al., 2000). Brockman and Chung (2003) postulate that legal system reduces the investor uncertainty by establishing clear ownership rights, contract laws, commercial and bankruptcy code, and by maintaining a high degree of certainty with respect to the legal enforcement. To a large extent, the legal environment largely determines the quantity and reliability of publicly available information. The good investor protection environment minimizes the information asymmetries; consequently, it reduces the firm's cost of capital. Recently, La Porta et al. (2006) focus on how laws regulate the issuance of new equities to the public in many countries and find strong evidence that the laws mandating disclosure and the facilitating private enforcement through the liability rules benefit stock markets. This finding confirms the association between the law and the stock market in more depth level, in particular how laws affect the initial public offerings.

The most important equity financing event in a firm's life is the going public. It provides a firm with an access to the public equity which is cheaper than the private equity (Ljungqvist, 2005). For the issuers, it provides a venue to diversify their shares through the public market. And, it also allows a firm to time their equity issues to take the advantage of investor sentiment toward the market as a whole (La Porta et al. 2000). However, it has a cost of external equity; notably, the underpricing phenomenon which

the shares price jumps substantially from their offer price on the first day of trading (Loughran et al., 1994).

Firms usually go public via the initial public offerings (IPOs) of firm's shares to the public markets. At the going public time, the market is asymmetrically informed about the true value of the firm. Studies confirm that this information asymmetry is the main reason of the underpricing of IPOs (e.g. Rock, 1986 and Ritter and Welch, 2002). This phenomenon is observed in every stock market, though the amount of underpricing varies from country to country (Loughran et al., 1994). Because the underpricing is a cost to the going public firm, the issuers would try to minimize this cost, instead of 'leaving money on the table' too much.

The existing corporate governance literature focuses on the protection of outside investors from the expropriation by insiders and guarantee that they will receive their funds back (Shliefer and Vishny, 1997 and La Porta et al., 1997, 1998, 2000 and 2006). Recent study also finds the association between investor protection and the information asymmetry issue (e.g. Brockman and Chung, 2003). Both the agency problem and the information asymmetry can be alleviated by the investor protection as in turn reduces the cost of capital. To this extent, we could expect that in the high investor protection environment characterized by the level of investor protection through legal contexts would potentially benefit the cost of initial public offerings. In acquiring the external equity, the agency problem appears to be the major problem and, as regarded in literature, the main problem underlying the rationale of underpricing is the information asymmetry.

Straightforwardly, since investor protection mitigates both agency problem and information asymmetry, the underpricing as reflected the cost of external equity should be lower in high investor protection environment.

Despite the implication of La Porta et al. (1997) to the corporate governance literature, there appears to be no link between the corporate governance and the cost of external equity; especially, at a country level. In order to understand the association between investor protection and cost of external equity more clearly, it is essential to investigate the cost of external equity across the legal environment characterized by the differing level of investor protection. This thesis will provide the new empirical evidence on how investor protection potentially affects the cost of external equity through the underpricing of initial public offerings.

1.2 Statement of Problem / Research Question

To bridge the gap in the literature that discussed above, the problem to be investigated in this thesis can be stated as follows:

How does investor protection potentially affect the cost of external equity?

1.3 Objective of the Study

The objective of this proposed thesis is therefore to empirically investigate the association between the investor protection and the cost of external equity through the variations of IPO underpricing across the different levels of investor protection.

1.4 Scope of the Study

This thesis sample selection begins with the initial public offerings included in the SDC from 1991 through the first 6 months of 2005 in 10 countries as follows: Australia, France, Germany, India, Japan, Norway, Singapore, Sweden, Thailand and United Kingdom

1.5 Contributions

This thesis provides international empirical evidence on the link between the investor protection and the cost of external equity through the underpricing phenomenon which no study ever tested before. This will provide new insights into the relation between a legal environment and the external equity financing of firms. Despite corporate governance and underpricing literature, this thesis also contributes to the financial system literature by testing the cost of external equity among different financial system characteristics and to the disclosure literature by providing evidence on the association between investor protection and the disclosed use of IPOs proceeds.

1.6 Organization of the Study

The remaining of this paper is organized as following. Chapter 2 discusses the literature reviews, the theoretical background of the study. It reviews how the investor protection potentially affects the cost of external equity; also, the financial system characteristic and the disclosure which extended to the investor protection context are discussed. Chapter 3 describes data and methodology. It discusses the underpricing, investor protection, financial system characteristic and disclosure measurement and the

hypotheses testing. Chapter 4 provides the results of descriptive statistic along with the univariate analysis and multiple regression analysis. Finally, conclusion and recommendations are provided in the Chapter 5.

CHAPTER II

LITERATURE REVIEW

This literature review chapter is organized as following. Firstly, the most important underlying idea of this study, “Corporate Governance and Cost of External Equity” is discussed in Section 2.1. Secondly, “Financial System and Cost of External Equity” in Section 2.2 discussed the implication of bank versus market based literature to the cost of external equity. Thirdly, the link between investor protection and information asymmetry is discussed in Section 2.3, “Investor Protection and Information Asymmetry”. Finally, the most important external financing, the underpricing of initial public offerings, is reviewed in Section 2.4 “Underpricing of Initial Public Offerings”.

2.1 Corporate Governance and Cost of External Equity

The modern corporate governance pioneered by La Porta et al. (1998) posit that the extent to which country’s laws protect investor rights and the extent to which those laws are enforced are the most essential determinants of the ways in which corporate finance and corporate governance evolve in that country. This basic idea has generated a growing body of research that focuses on the effect of difference in legal systems across countries. (for overviews of corporate governance literatures see, Shleifer and Vishny, 1997, Denis and McConnell, 2003, and Gillan, 2006)

One important branch of the existing literature is concerned with the legal systems effect on the external finance. La Porta et al. (1997) observe that the better investor

protection leads outside investors to demand lower risk premium compensating for the risk of expropriation. Since the expected rates of return are lower, making the external financing cheaper; as a result, firms are more likely to use the external finance in the good investor protection environment. They provide supporting evidence that the more protective countries have more valuable stock markets, larger numbers of listed securities per capita and higher rate of initial public offerings activity than the less protective countries. Recently, La Porta et al. (2006) further the investor protection through the legal contexts to the specific provisions in securities laws governing initial public offerings in each country. They empirically find that not only the investor protection through the legal rights and the public enforcement but also the law mandating disclosure and the liability standards of misstatement in a prospectus are associated with the level of stock market developments. This study confirms the association between the laws and the stock market developments. Correspondingly, Modigliani and Perotti (2000) posit that securities, as a subset of private contracts, are by their nature particularly sensitive to the legal frame work. As a result, the value of securities depends as much on their legal rights as on the quality of enforcement of these rights. In their empirical analysis, Demirgűç-Kunt and Maksimovic (2002) also find that the development of a country's legal system predicts the firms' access to external finance.

Whereas corporate governance literature notices the importance of investor protection to the cost of external equity, none study provides the empirical evidence on the association between the investor protection and the underpricing phenomenon;

indeed, it reflects the cost of external equity to the issuers as regarded in the initial public offering literature.

2.2 Financial System and Cost of External Equity

To financial market developments literature, Levine (2002) investigates whether being bank- or market-based benefit the financial development; however, the result provide that it is not useful to characterize as bank- or market-based since both systems can meet the same level of financial development. Similarly to La Porta et al. (2000), the results find that it is better to characterize financial systems with their level of investor protection through the legal framework. Collectively, Demirgűç-Kunt and Maksimovic (2002) find no evidence that firms use external financing for funding growth differently if they are in countries classified as bank-based or market-based relative to the securities market and the banking sector activities. But, it is different when classified based on the level of legal development. Although the results of both papers suggest the importance of investor protection by legal context rather than the bank-based or market-based argument to the financial market developments, the question on the cost of external equity remains uninvestigated.

There are few studies providing the link between having a financial intermediation relationship and the cost of external equity. In initial public offerings literature, James and Wier (1990) provide the empirical evidence that firms with the established borrowing relationships are underpriced substantially less than others in the initial public offerings as a result of the monitoring by bank that reduce the agency costs.

Likewise, Slovin and Young (1990) argue that bank as a well-informed external agent that monitoring firm at a low cost, processing information to the whole market thereby reduces the ex ante uncertainty about the firm value. These two papers imply the benefit of having a bank relationship to the cost of external equity through the context of the asymmetric information and the agency problem.

The roles of bank are also supported by other field of literature. Rajan and Zingales (1998) posit that banks, unhampered by regulatory restrictions, can exploit scale economies in the information processing, ameliorate moral hazard through the effective monitoring, form long-run relationships with firms to ease asymmetric information distortions. Also, García-Marco and Ocaña (1999) provide the empirical evidence that firm with a close bank relationship have a competitive advantage in obtaining funds. Banks, as the lenders who play internal governance mechanism, exercise the monitoring function, while public bondholders do not. The existing literature implies that firms with an established bank relationship have lower information asymmetry, agency problem and higher capacity in obtaining funds; as a result, these firms can access to the external equity at a lower cost.

Recently, Schenone (2004) argues that lending banks have an incentive to monitor and follow their borrowing firm's activities, since doing so enables them to acquire the information for making the right decision on whether to liquidate firm or renegotiate its loan when the firm undergoes financial distress. Furthermore, separating lending from underwriting relationships, her results indicate that the lending relationships generate

more information; consequently, it reduces more information asymmetry which translates into lower underpricing than the underwriting relationship. Overall, the literature confirms that IPOs with banking relationship experience lower underpricing which benefit from the roles of bank, certifying and monitoring.

Though the recent literature bridges the banking relationship to the cost of external equity through the underpricing of initial public offerings, most of studies conducted from one country data; in particular, the United States. If having a bank relationship benefit to the cost of external equity, the going public firms in the financial systems where classified as the bank-based financial system should underpriced lower than the market-based financial systems since on average they should have less information asymmetry problem and agency problem from the effective monitoring, ceteris paribus.

Following the same spirit of Levine (2002), broadening the analysis to a wider array of national experiences will provide greater information on the bank-based versus market-based debate. This thesis will extend the underpricing literature to the financial system literature through the implication of corporate governance literature in the cross-country empirical evidence; particularly, whether the underpricing is different between the bank-based and the market-based financial systems.

Furthermore, La Porta et al. (1997) provide preliminary evidence that the rate of going pubic goes together with the level of investor protection. It is ambiguous whether

the result is affected from the level of banking and stock market development since this financial system issue does not investigated in their paper. With the new international data from Beck et al. (2000), this thesis will reexamine this issue in order to confirm the association between the breadth of the market (the rate of going public) and the investor protection through the legal context after controlled for the level of financial system developments.

2.3 Investor Protection and Information Asymmetry

In the extension of Rock's (1986) underpricing model, Ritter (1984) and formalized in Beatty and Ritter (1986) argue that the underpricing should increase in the ex ante uncertainty about the value of the going public firms. In other words, riskier firms should have higher average initial returns than firms that are easier to evaluate. Literature regards that the information asymmetry is the main reason of the ex ante uncertainty which reflect into the underpricing. In corporate finance literature, as Myers and Majluf (1984) point out, when the information asymmetry problems cannot be resolved, public equity will be costly for the existing shareholders.

Easley and O'Hara (2004) posit that, in equilibrium, the quantity and the quality of information affect the asset prices. In particular, firms whose stock has relatively more private information and less public information will face a higher cost of equity since the uninformed investors demand higher return to compensate their risks. Firms can influence their cost of capital through accounting standard, corporate disclosure policies, attract an active analyst and even choose where to trade their securities.

In addition, corporate governance, the investor protection through a legal context, can influence the cost of capital since it is not only mitigating the agency problem but also the information asymmetry. Brockman and Chung (2003), among others, focus on a link between the investor protection and the information asymmetry. They postulate that the legal environment largely determines the quantity and reliability of publicly available information. By protecting the investors from information asymmetries, a well-developed legal framework enhances the financial market liquidity in turn reduces the firm's cost of capital and increases the market value. Recent study by Khurana et al. (2006) empirically supports the idea that disclosure policy benefits the external finance. Disclosure not only reduces the information asymmetry between the firm and the market but also plays a governance role in providing the investors' ability to monitoring the firm performance and the managers. They results indicate that disclosure affects firm growth by improving a firm's access to lower cost external financing. Both papers show how investor protection and information asymmetry are related which in turn reduce the firms' cost of capital result in market liquidity and firm growth rate.

The importance of disclosure for capital markets is highlighted in a recent corporate governance study by La Porta et al. (2006), focusing on securities laws regulating the issuance of new equities to the public in many countries, posit that the prospective investors in the initial public offerings will face the agency problem and the information asymmetry between them and the promoter of those new issues. Interestingly, the disclosure and the liability standards are more associated with the

development of stock markets than the public enforcement. The result confirms the importance investor protection through legal contexts of disclosure of new securities issues to the development of stock markets.

Likewise, Östberg (2006) provides a framework of mandatory disclosure. In his model, the entrepreneur can credibly commit not to expropriate the outside investors and thereby raise financing for investment through the disclosure level. The positive stock price is the consequence of the reduction in a costly expropriation as passed by the introduction of mandatory disclosure. His model also predicts that the economies with a stronger shareholder protection (higher expropriation costs) should have a higher mandatory disclosure requirement.

To initial public offerings literature, Leone et al. (2007) posit that the specific disclosure could provide an assurance to the outside investors that their funds are not expropriated or wasted on the non-wealth maximizing projects. They empirically find that the going public firms which disclose more specific information about the use of proceeds experience less first-day underpricing. Collectively, the use of proceeds disclosure helps investors in pricing the initial public offerings, in the sense that it reduce the ex ante uncertainty about firm's value; especially, the dispersion of the stock's secondary market value. In a legal analysis of mandatory disclosure, Mahoney (1995) argues that disclosure can help reducing the cost of monitoring and managers' use of assets for self-interested purposes.

The studies imply the association between the investor protection and the cost of external equity as passed by the disclosure context. It is likely that firms though can choose the level of disclosure standard; they are forced by a legal environment through company or securities laws to meet the minimum requirement. Intuitively, the information asymmetry and the agency problem between the issuers and the outside investors in the initial public offerings are generally lower in the legal environment characterized by more stringent disclosure standard. The use of proceeds disclosure as commits the use of funds and reduce the ex ante uncertainty about the firm's value can be used as a proxy to study the association between the investor protection and the disclosure behavior of going public firms.

2.4 Underpricing of Initial Public Offerings

Over decades, the underpricing of initial public offerings is interested by financial economists. Underpricing is costly to firm's owners, the share price sold at the going public are too low while the value of shares retained after the offerings is diluted (Ljungqvist, 2005). Loughran et al. (1994) provide the evidence of underpricing, they found this phenomenon in every country though the degree varies across countries.

Among the theories of underpricing explanations, the asymmetric information framework is the best established. Although, researchers set up the different assumptions in their models, they all agree that the information asymmetry is the main cause of underpricing. (see, Rock, 1986, Ritter, 2003 and Ljungqvist, 2005)

A key empirical implication, due to Ritter (1984) and formalized in Beatty and Ritter (1986), is that the underpricing should increase in the ex ante uncertainty about the value of the going public firm. Most empirical studies of underpricing face the challenge of controlling for the ex ante uncertainty, whatever theory they are trying to test. Hence, in order to test the association between the underpricing and the investor protection, this paper will control the firm-specific characteristics as the proxies for the ex ante uncertainty of stock prices in the multiple regression analysis.

Despite the ex ante uncertainty from firm-specific characteristics, the market condition at the time of going public also affects the underpricing of new equity offerings. Notably, “Hot market” has been described as having an unusually high volume of offerings, severe underpricing, oversubscription of offerings, and concentration in particular industries. (see, Ritter, 1984 and Lowry and Schwert, 2002) Alternatively, Helwege and Liang (2004) give the definition of hot and cold markets based on the total number of IPOs completed per month.

Recent study by Pástor and Veronesi (2005) find the correlation between the recent changes in the market stock prices and the volume of IPOs in France market. Defining market conditions as comprised with three dimesions: expected market return; expected aggregate profitability; and prior uncertainty about the post-IPOs average profitability in excess of market profitability, they found empirical evidence that the IPOs volume responds to time variation in these three dimensions of market conditions. However, the international comprehensive research by Loughran et al., (1994) argued

that the correlation between the level of market and the volume of IPOs is weak in several countries due to the differences in the regulatory of going pubic process.

Nevertheless, the reason behind the hot and cold markets is beyond the scope of this paper, it is necessary to control for the effect of going public in such market conditions. The underpricing may result from the hot market condition that drive the stock price up not the ex ante uncertainty of the offerings themselves. Additionally, studies on the hot and cold markets usually based on one country IPOs sample; in particular, the United States. It is impossible to classify whether the market is hot or cold across different countries. To the best effort, this paper will use the yearly proportion of IPOs volume relative to the market capitalization as the control factor for the market condition.

CHAPTER III

DATA AND METHODOLOGY

3.1 Data

3.1.1 Initial public offerings data

The initial public offerings data are obtained from the Thomson Securities Data Company's online database of financial transactions (SDC)[*]. The sample covers the period between 1991 and June, 2005. The data include only initial pubic offerings which issues to the local market place, the cross-listed offerings are excluded. The first-traded date closing prices are obtained from DataStream, based on the SEDOL code provided from SDC and base-date available for each initial public offerings from DataStream. For simplicity, all samples are converted to United States Dollar based on the exchange rate available in DataStream, the conversion rates are based on offer date and base date of each initial pubic offerings. The maximum sample consists of 3,747 initial public offerings for hypothesis 1 and 2 and 11,506 initial public offerings for hypothesis 3.

3.1.2 Market Index data

In order to adjust the underpricing with the market return, the total equity indices which available from DataStream are used. All of market index, except India, are calculated in United States Dollar.

[*] I am herein grateful acknowledge Dr. Manapol Ekkayokkaya, my thesis advisor for providing this data

3.1.3 Investor Protection data

The corporate governance data used in this thesis are based on the measures of investor protection based on legal characteristics provide in La Porta et al., 1998 and 2006. The five measures; shareholder rights, creditor rights, legal enforcement, disclosure requirement and liability standard are used. (Appendix A. provide data source and description)

3.1.4 Financial System Development data

The financial system development data, banking sector and stock market sector, are adopted from Beck et al., 2000. The data is updated to September 2006 and downloadable from The Worldbank website

3.1.5 Country Economic data

To control for countries difference in economy size, the Gross Domestic Product Per Capita is used. This data are based on World Economic Outlook Database, International Monetary Fund which downloadable from IMF website, updated to September 2006.

3.2 Research Hypotheses

To conduct the empirical objective stated above, the following hypotheses will empirically examined:

Since good corporate governance provides the outside investors a more reliable guarantee that their funds are used in the wealth maximizing way and not expropriated by

the insiders, the outside investors require lower risk premium compensating for expropriating risk; as a result, firms can access the external equity with lower cost (La Porta el al., 1997). Underpricing, as reflect the cost of external equity to the going public firms, should be negatively associated with the level of investor protection. This leads to the first hypothesis.

Hypothesis 1: A high investor protection country should have lower underpricing of initial public offerings comparing to a low investor protection country.

In some financial systems, the major funding of capital is the bank. Bank, as a lender has incentive to monitor firm constantly. With closely monitoring and having long relationship with the client, bank could access to some information before the market as a whole. Thus, the firms in bank-based financial system, on average, should have lower agency problem and information asymmetry. The going public firms in the bank-based financial system should experience a lower underpricing than the market-based financial system, ceteris paribus (Schenone, 2004). Thus, this leads to the second hypothesis.

Hypothesis 2: Initial public offerings in the bank-based financial system should experience lower underpricing comparing to the market-based financial system.

A high investor protection environment, with the extent rights and the effective enforcement, requires a high standard of mandatory disclosure and a high liability standard of misstatement in prospectus (La Porta et al., 2006). It is likely that the issuers

in a high investor protection country are forced to disclose more specific information about their intended use of proceeds. Thus, this leads to the third hypothesis.

Hypothesis 3: A firm in the high investor protection country should disclose more specific use of proceeds in the prospectus than a firm in the low investor protection country.

3.3 Methodology

This thesis investigates the association between investor protection and the underpricing of initial public offerings in a cross-sectional framework.

3.3.1 Dependent Variable

For the purpose of this thesis, the dependent variable is the underpricing of initial public offerings, at first I define the raw return for the i-th firm based on the first day of trading as:

$$UND_i = \left[\left(P_i - O_i\right) / O_i\right] * 100$$

Where P_i is the closing price on the first trading day, and O_i being the offer price identified in the prospectus. For the sensitivity analysis, returns are adjusted for market movements as follows:

$$MAR_i = UND_i - \left[\left(M^c - M^o\right) / M^o\right] * 100$$

Where MAR_i is the market-adjusted return of firm i at the end of first trading day. Note that M^c is the closing value of market on that first trading day and M^o is the closing value of market on the offer date.

3.3.2 Independent Variables

To empirically test the first and third hypotheses, Shareholder rights, Creditor rights, Enforcement (rule of law), Disclosure and Liability Standard indices are used as the proxies for the level of investor protection. In particular, shareholder rights, creditor rights and rule of law (enforcement) are traditional widely used proxies in the literature. Whereas, disclosure requirement and liability standards are the new measures of investor protection that specific in securities law focus especially the law mandating new issues to the public (La Porta et al., 1998 and 2006).

For the second hypothesis, this paper use the binary variable classifying initial public offerings whether they are from bank-based or market-based financial system country following Demirgűć-Kunt and Maksimovic (2002)

3.3.3 Control Variables

Since this paper focuses the effect of investor protection on the underpricing of initial public offerings, the variables for the ex ante uncertainty must be controlled. For the first and third hypotheses, the control variables for the ex ante uncertainty are issue size, firm industry, use of proceeds disclosure and pricing technique.

Studies observe the inverse relationship between the underpricing and issue size, in this thesis the issue size is calculated as the logarithm of the number of shares sold multiplied by the offer price. Also, the issue size will converted to United States Dollar

by using the offer price date exchange rate from the local currency to the United States Dollar. (see, Carey and Steen, 2006)

Studies observe that firms from industries with great earning potential; in particular, those which the value relies much on the intangible assets such as the high tech industry firms are underpriced significantly. One explanation is that as the value depends much on the intangible assets, the ex ante uncertainty about the firm value is high. This thesis will use the binary variable controlling for the high tech IPOs (Ritter, 1984 and Loughran and Ritter, 2004). In contrast to the former, firms from traditional industries such as the financial services, manufacturing and transportation have low earning potential and are easier to value. This thesis will use the binary variable controlling for the financial services firms (Koop and Li, 2001).

As implied from Rock (1986), disclosure is beneficial to the extent that it reduce the heterogeneity in expectations of the stock value between the informed and the uninformed investors. This thesis will use the binary variable controlling for the disclosure of the use of proceeds; particularly, general corporate purposes and other (specific) purposes. (see, Schenone, 2004 and Leone et al., 2006)

Loughran et al. (1994) postulate that the underpricing is systematically varies among the different mechanisms used to price and distributes shares. The book-building pricing method allows the underwriters to manage investor access to shares by the allocation, allowing them to reduce risk for both the issuers and the investors, thereby

limiting the underpricing (Benveniste and Spindt, 1989). Recently, the book-building has become popular in many countries (Sherman, 2005). This thesis will use the binary variable controlling for the book-building pricing technique.

To isolate the effect of investor protection to the underpricing, this thesis controls for the level of economic development since it is often associated with the capital deepening. In addition, richer countries might have higher quality institutions in general, including the extensive investor rights and the effective legal enforcement, which could be associated with the external financing regardless of the content of laws. The logarithm of per capita gross domestic product is added to control for the level of economy size. (see, La Porta et al., 2006)

In order to control for the hot market condition that might drive the stock prices regardless of the ex ante uncertainty of the offerings, the logarithm of the yearly proportion of IPOs volume relative to the market capitalization in the United States Dollar will be added as the control variable. (see, Helwege and Liang, 2004)

For the second hypothesis, further to the study of access to external equity, the level of banking and stock market development will be controlled in order to observe the association between the level of investor protection and the volume of initial public offerings. Particularly, this thesis will adopt the measures of size, liquidity and efficiency of both banking and stock market development from Beck et al. (2000) as the control variables.

3.3.4 Univariate Analysis

Since this thesis focuses on the degree of underpricing across the different levels of investor protection, the analysis will start with the analysis of differences in mean and median. The result interpretation for this univariate analysis is based on t-test of mean according to its simplicity and widely used.

This thesis will classify countries into two groups based on the level of investor protection measures according to La Porta et al., 1998 and 2006. Countries are classified using five measures of investor protection; Shareholder rights, Creditor rights, Enforcement (rule of law), Disclosure and Liability Standard. Countries which each score are higher than sample mean will classify as a High investor protection group, vice versa. Furthermore, this thesis also tests between Common and Civil Law group, Bank-based and Market-based group and General and Specific use of proceeds disclosure group.

3.3.5 Multiple Regression Analysis

To empirically test the first hypothesis, the OLS multiple regression analysis takes the following form:

$$UND_i = \alpha_i + \sum_{j=1}^{5} \beta_j Governance_{ij} + \sum_{k=1}^{7} \gamma_k Control_{ik} + \varepsilon_i \quad (1)$$

Where:

$Governance_{ij}$ is the set of investor protection variables, which is this thesis interest factors. The five measures of investor protection as follows:

$SHARE_j$ Shareholder rights (Anti-director right) index

$CREDITOR_j$ Creditor rights index

$ENFORCE_j$ Enforcement (Rule of law) index

$SHARE_j$, $CREDITOR_j$ and $ENFORCE_j$ are the traditional measure of investor protection from La Porta et al. 1998

$DISCLOSURE_j$ Disclosure requirement in prospectus index

$LIABILITY_j$ Liability of misleading statement in prospectus index

$DISCLOSURE_j$ and $LIABILITY_j$ are the new measure of investor protection specific on law mandating new securities issues from La Porta et al. 2006

$Control_{ik}$ is the set of control variables. The first five variables control for the ex ante uncertainty of initial public offerings characteristics. Another two variables control for the level of economic development and the market condition, as follows:

$GENERAL_k$ Binary variable 1 = General use of proceeds disclosed in prospectus, 0 = Otherwise

$ISSUESIZE_k$ Ln(Number of shares issued times offer price)

$HIGHTECH_k$ Binary variable 1 = High technology industry firm, 0 = Otherwise

$FINANCIAL_k$ Binary variable 1 = Financial services industry firm, 0 = Otherwise

$BOOK_k$ Binary variable 1 = The IPOs is priced using the book-building technique, 0 = Otherwise

$VOLUME_k$ Ln(IPOs volume relative to market capitalization)

$GDPP_k$ Ln(Gross Domestic Product per capita)

ε_i Regression error term

If the level of investor protection has the significant influence to the underpricing, the coefficient of five investor protection variables should be statistically significant.

To empirically investigate the second hypothesis, the binary variable for bank-based financial system countries will be added to equation (1):

$$UND_i = \alpha_i + \theta_i Bank + \sum_{j=1}^{5} \beta_j Governance_{ij_i} + \sum_{k=1}^{7} \gamma_k Control_{i_k} + \varepsilon_i \quad (2)$$

Where:

$BANK_i$ Binary variable 1 = if the initial public offering is from bank-based financial system, 0 = otherwise

The classification of whether financial system is the bank-based or the market-based financial system follows Demirgűć-Kunt and Maksimovic (2002)

In order to purify the effect of having bank-based financial system to the underpricing, the model (2) needed to control for the level of investor protection and the ex ante uncertainty of the offerings.

If being a bank-based financial system has significant effect to the cost of external equity, the coefficient of $BANK_i$ should be statistically significant.

To further reinvestigate the effect of the level of investor protection to the availability of external financing (market breath) following La Porta et al., 1997. This thesis will regress the per annum volume of IPOs relative to the total market capitalization of each country against the investor protection variables where the level of banking and stock market development will be controlled in all specifications.

$$Volume_i = \alpha_i + \sum_{j=1}^{5} \beta_j Governance_{ij} + \sum_{m=1}^{7} \delta_j Financial_{im} + \varepsilon_i \quad (3)$$

Where

$Volume_i$ the logarithm of the yearly issue size of IPOs relative to the market capitalization in the United States Dollar

$FINANCIAL_{im}$ the set of control variables for the level of banking and stock market development

The level of banking development variables as follows:

$CENTRAL\_BANK_m$ Claims on domestic real non-financial sector by the Central Bank as a share of GDP

$PRIVATE\_CREDIT_m$ Private Credit by deposit money banks to GDP

$OVERHEAD_m$ Accounting value of bank's overhead costs as a share of its total assets

$NET\_INTEREST_m$ Accounting value of bank's net interest revenue as a share of its interest-bearing (total earning) assets

The level of stock market development variables as follows:

STK_CAP_m Value of listed shares to GDP

STK_TRADED_m Total shares traded on the stock market exchange to GDP

STK_TURN_m Ratio of the value of total shares to average real market capitalization

All of the $FINANCIAL_{im}$ variables are from Beck et al. (2000)

To empirically test the third hypothesis, in order to investigate the association between the investor protection and the information asymmetry, this thesis will use the

logit model which the dependent variable is the binary variable for the use of proceeds disclose in the prospectus. The model will be estimated by the maximum likelihood method.

$$P_i = E(Y = \text{General use of proceeds disclose} = 1 \mid X_i) = 1 / 1 + e^{-Zi} \quad (4)$$

Where

$$Z_i = \alpha_i + \sum_{j=1}^{5} \beta_j Governance_{ij} + \sum_{k=1}^{4} \gamma_k Control_{ik} + \varepsilon_i$$

$Control_{ik}$ in this logit model include four proxies for the ex ante uncertainty: $ISSUESIZE_k$, $HIGHTECH_k$, $FINANCIAL_k$ and $BOOK_k$

If the level of investor protection has the significant influence to the disclosure behavior of firm in the prospectus, the coefficient of investor protection variables should be statistically significant after controlled for the ex ante uncertainty of the offerings.

3.3.6 Hypotheses Testing

Hypothesis 1: A high investor protection country should have lower underpricing of initial public offerings comparing to a low investor protection country.

$H_0 : \beta_j = 0$ *individually for* j = 1,2,..,5

$H_1 : \beta_j \neq 0$

The coefficient is tested significantly different from zero by t-statistic using White's (1980) heteroskedasticity-consistent standard errors.

Hypothesis 2: Initial public offerings in bank-based financial system should experience lower underpricing comparing to market-based financial system.

$H_0 : \theta = 0$

$H_1 : \theta \neq 0$

The coefficient is tested significantly different from zero by t-statistic using White's (1980) heteroskedasticity-consistent standard errors.

Hypothesis 3: A firm in high investor protection country should disclose more specific use of proceeds in the prospectus than a firm in low investor protection country.

$H_0 : \beta_j = 0$ *individually for* j = 1,2,..,5

$H_1 : \beta_j \neq 0$

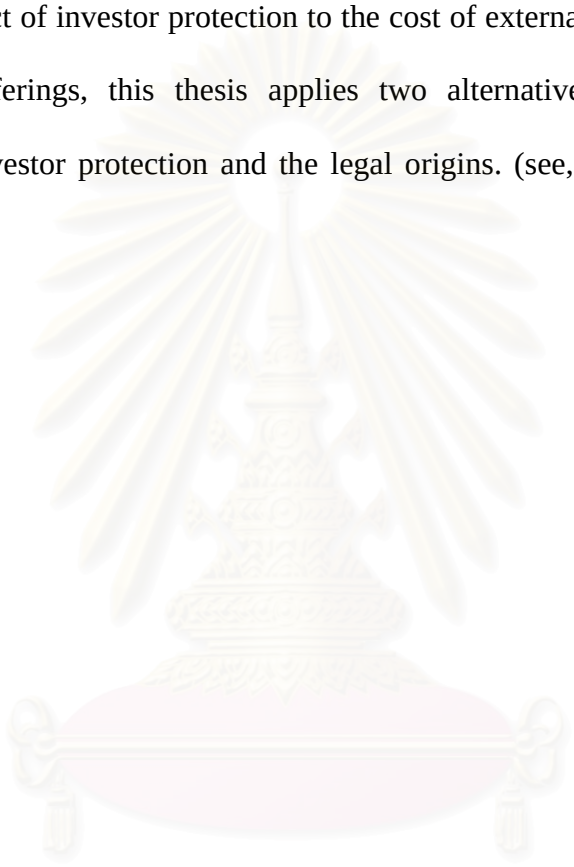
The coefficient is tested significantly different from zero by z-statistic using Huber (1967) and White (1980) robustness covariances.

3.3.7 Sensitivity Analysis

This thesis addresses two issues of sensitivity analysis: Market Adjusted Underpricing and Alternative Variables of Investor Protection.

For Market Adjusted Underpricing, although most studies of underpricing focus on the initial first day return of initial public offerings, a few studies argue that the underpricing should be adjusted by market return between the offer date and the first-traded date; especially, for a market where lagged time period is large (Carey and Steen, 2006). To the best effort and due to availability of data, an analysis comparing between underpricing and market adjusted underpricing will be investigated.

For Alternative Variables of Investor Protection, similar to prior studies of corporate governance across differing level of investor protection, the measures of investor protection are likely to correlate in the same direction. For example, a country with extensive rights is likely to have an effective legal enforcement. In order to affirm the potential effect of investor protection to the cost of external equity of underpricing of initial public offerings, this thesis applies two alternative variables; the principal component of investor protection and the legal origins. (see, La Porta et al., 1998 and 2006)



CHAPTER IV

RESULTS

The main objective of this study is to investigate the potential effect of investor protection on the cost of external equity of underpricing of initial public offerings. Moreover, the study also extends to two related issues: financial system characteristic (bank-based vs. market-based debate) and disclosure through the disclosed use of proceeds of initial public offerings. The analysis is divided into three parts. This section begins the univariate analysis by comparing the underpricing of each measure of investor protection. The multiple regression analysis is presented in the second part of this section. The sensitivity analysis is presented in the last part of this section. Note the univariate comparisons are only descriptive in nature and these thesis main inferences are based on multiple regression performed in Section 4.2.

4.1 Univariate Analysis

4.1.1 The effect of different level of investor protection on the underpricing of initial public offerings

Table 1 presents statistics of dependent variables from 3,748 samples. The samples are divided into two groups based on each category mean value. The result indicates that initial public offerings from high and low level of investor protection experience different level of underpricing.

In panel A., the traditional investor protection measures from La Porta el al. (1998) which based on company law and commercial codes are used as criteria to classify initial public offerings samples into two groups. These three measures; shareholder rights, creditor rights and enforcement, are widely used in the literature.

Initial public offerings from high shareholder and creditor rights groups exhibit higher mean than low groups and statistically significant. An analysis demonstrates that initial public offerings from more extensive shareholder and creditor rights are associated with more underpricing. For the enforcement which reflect the overall quality of country legal system, the initial public offerings from high legal enforcement are exhibit very relatively low underpricing and statistically significant. Thus, the result for legal enforcement is consistent with the first hypothesis. However, according to sample size of each group, the result is difficult to interpret.

In panel B., the new measures of investor protection, disclosure requirement and liability standard, which based on securities law mandating new securities issues from La Porta el al. (2006) are used as criteria to classify initial public offerings into two groups. The last measure, country legal system which classifies country into having civil or common law system, is the broad indicator of investor protection. La Porta et al. (1998) show that common law origin countries are better protect minority shareholders than do civil law origin countries. Thus, it is a good proxy to classify between high and low investor protection environment.

Initial public offerings from more stringent disclosure requirement and higher liability standard exhibit higher mean values than low groups and statistically significant. Also, initial public offerings from civil law system exhibit lower underpricing than common law system and statistically significant. Again, the result in Panel B. is similar to Panel A., initial public offerings from better investor protection environment characterize by more stringent disclosure and higher liability standard for issuing parties are associated with higher underpricing. The result between Civil and Common Law also suggests the same insight; collectively, Civil Law countries generally protect investor less than Common Law countries.

In summary, applying univariate analysis, the evidence clearly suggests that initial public offerings from high and low investor protection countries experience different degree of underpricing. However, the results are not support the argument of La Porta et al. (1997). The initial public offerings from high level of investor protection countries based on traditional measures of investor protection: shareholder rights and creditor rights experience larger underpricing, higher cost of external equity. The new measures based on securities law mandating new securities issues and the broad classification as having civil or common law system exhibit similar result. If investor protection benefits the cost of external equity as La Porta et al. (1998) suggest, initial public offerings from high level of investor protection should experience lower underpricing than initial public offerings from low level of investor protection. Although the legal enforcement category result is consistent with the first hypothesis, the number of observations between two groups questions the reliability of result. Overall, the results are not consistent with the

first hypothesis. The results suggest that initial public offerings from high level of investor protection countries experience larger underpricing, higher cost of external equity.

Table 1 comparison of underpricing (classified by the level of investor protection)

Variables	Investor Protection					
Panel A.	Shareholder Rights		Creditor Rights		Enforcement	
	High	Low	High	Low	High	Low
Mean	27.201[a]	-8.298	22.556[c]	16.023	13.91[a]	118.955
Median	3.571[a]	0	0[a]	4.348	0[a]	25.893
No. Observations	2836	879	1580	2135	3542	173
Panel B.	Disclosure Requirement		Liability Standard		Country Legal System	
	High	Low	High	Low	Civil	Common
Mean	20.778[a]	4.351	26.814[a]	-5.364	11.046[a]	26.982
Median	1.583[a]	0	3.529[a]	0	0.704[a]	0
No. Observations	3268	447	2790	925	1907	1808

The initial public offerings are classified into two groups, high and low, based on different measures of investor protection: Shareholder Rights, Creditor Rights, Enforcement, Disclosure Requirement, Liability Standard and Country Legal System

Panel A. Shareholder Rights, Creditor Rights and Enforcement are traditional measure based on La Porta et al. (1998). Panel B. Disclosure Requirement and Liability Standard are the new measure of law mandating new security issues based on La Porta el al. (2006). Country Legal System is classified into Civil and Common Legal System, which is more generally classification of having high or low investor protection based on Demirgűć-Kunt and Maksimovic (2002). Significant levels refer to the difference of mean (median) value between the two groups.

a, b, and c indicate significance at the 1%, 5% and 10%, respectively

4.1.2 The effect of financial system characteristic and disclosure behavior of going public firms on the underpricing of initial public offerings

Table 2 presents statistics of dependent variables from 3,748 samples. The analysis finds indifference underpricing between groups for both category.

For the first criteria, financial system characteristic, the mean values of bank-based and market-based financial system initial public offerings are not different and statistically insignificant. However, the median values of underpricing bank-based and market-based going public firms are statistically significant at 5%. Although the analysis finds differences in the median values between two groups, the degree is very small. Hence, it is reasonable to conclude that there appear to be no difference in underpricing between bank-based and market-based groups.

For the second criteria, the use of proceeds disclosure of initial public offerings in prospectus, the difference of mean value between general and specific use of proceeds disclosure groups are statistically significant. Although the result is consistent with the third hypothesis, initial public offerings which provide more specific about their use of proceeds are those with less ex ante uncertainty and thereby underpriced less than others with more equivocal about their use of proceeds, the difference is very slightly. Due to a slightly difference of mean value, statistically insignificant of median values and number of observations between groups, the underpricing between two groups are not different.

Overall for both Financial System Characteristic and Use of Proceeds Disclosure, this analysis finds no difference between their groups. Initial public offerings in bank-based and market-based economies are underpriced at almost equivalent. And, the disclosed use of proceeds does not affect the underpricing.

Table 2 comparison of underpricing (classified by financial system characteristic and disclosure of going public firms)

Variables	Financial System Characteristic		Use of Proceeds Disclosure	
	Bank	Market	General	Specific
Mean	17.587	20.099	0.432[b]	0.215
Median	0.775[b]	0	0.003	0.04
No. Observations	1918	1797	542	2083

Initial public offerings are classified into two groups based on two criteria as follows: The first criteria, General and Specific Use of Proceeds Disclosure (in prospectus at the time of issue). The initial public offerings disclosure of use of proceeds is based on Thomson SDC Platinum. The second criteria, Bank-based and Market-based financial system. Whether countries having bank-based or market-based financial system are classified follow Demirgűć-Kunt and Maksimovic (2002). Significant levels refer to the difference of mean (median) value between the two groups.

a, b, and c indicate significance at the 1%, 5% and 10%, respectively

4.2 Multiple Regression Analysis

4.2.1 The effect of investor protection on the underpricing of initial public offerings

The multiple analysis of investor protection on the underpricing of initial public offerings across countries is presented in table 3. This analysis controls for the effects of ex ante uncertainty (use of proceeds disclosure, issue size, industry and pricing technique), market condition and level of countries economic development. The result in table 3 is provocative. The specifications in column 2 to 6 that only one measure of investor protection controlled in the model, all coefficients, except the legal enforcement, are positive and statistically significant. Although contrast to the hypothesis but it is consistent with the univariate analysis results. To this point, this thesis finds evidence that the investor protection has potential effect to the underpricing of initial pubic offerings.

The coefficients of creditor rights and disclosure requirement are not statistically significant when others investor protection measures are included in the models. For

creditor rights, the result may not be surprised since this index captures the rights of creditor at the time of liquidation; intuitively, going public firms are firms with potential growth, it is almost impossible to be liquidated after listing. However, it is necessary to include creditor rights measure in the specifications since this will control for the effect of monitoring by debtor. For disclosure requirement, when liability standard is included in the models, the coefficients are no longer statistically significant. One plausible reason is that in high investor protection environment where information asymmetry is less severe, the information in the prospectus is not so important since it may already be known to the public market via other channel; e.g. financial report, news press, etc. Thus, the result implies the importance of liability for the information disclosed over the context of information needed to include in the prospectus.

Shareholder rights, legal enforcement and liability standard are statistically and significant in all specifications. The negative coefficients of legal enforcement are consistent with the first hypothesis. An increase in legal enforcement is associated with the decrease in the underpricing. The result here supports the notion that higher investor protection should lead to lower cost of external equity; in this case, the underpricing.

Interestingly, the coefficient of shareholder rights turn from positive to negative when other measures of investor protection are controlled in the specifications. The result suggests the positive relation between extensive shareholder right and cost of external equity. Also, for liability standards of misstatement information in the prospectus, the result implies an interesting implication. In high liability standards environment where

the promoters are easily brought to the lawsuit by investors; according to high burden of proof, when the lost occur to investors as a result of the misstatement or omitted information providing in the prospectus, the initial public offerings may be intentionally underpriced. The positive relations of both shareholder rights and liability standards to underpricing are consistent with the lawsuit avoidance explanation of underpricing which suggest that the underpricing is insurance to issuing parties of initial public offerings. No matter how good firms, underwriters and accountant investigate and provide their findings in the prospectus, it is not feasible to foresee future event and there are limits to what can be incorporated into a prospectus. Lowry and Shu (2002) empirically find that the litigation risk is positively associated with the underpricing. Collectively, the result in this section for shareholder right and liability standard suggest the similar intuition to the lawsuit avoidance hypothesis of underpricing. The higher is the risk of litigation (better investor protection), the higher is the underpricing. (for an overview of lawsuit avoidance hypothesis, Ritter, 2003 and Ljungqvist, 2005)

Other variables of interest are the controlling factors for the ex ante uncertainty. The negative coefficients of issue size are consistent with the literature. Larger offerings have lower risk than smaller offerings (see, Carey and Steen, 2006). The high-tech binary variable coefficients are positive and statistically significant. This is consistent with the literature that suggests the high uncertainty about the value of initial public offerings from some industries with high earning potential relative to others. However, the financial services binary variable coefficients are not statistically significant (see, Ritter, 1984, Loughran and Ritter, 2004 and Koop and Li, 2001).

Interestingly, the coefficients of book-building pricing technique are positive and statistically significant. Most studies suggest that the book-building pricing technique is the best mechanism in reducing the ex ante uncertainty which lead to the lower underpricing needed relative to other mechanisms. (Loughran et al., 1994 and Sherman, 2005). Since underwriter can observe the attention of potential investors and reward them for the proprietary information, the book-building pricing technique coefficients should be negative associated with the underpricing (see, Benveniste and Spindt, 1989). One plausible explanation for this contrast result is that this thesis sample covers long period from 1991 to June, 2005 from 10 countries, the effect of book-building pricing technique to the underpricing may changed over time and even impair for some countries. Another possible explanation; according to Loughran et al., 1994, the rules mandating pricing technique are different among countries; for example, the allocation of shares.

Even this thesis use the broad proxy to control for the hot market condition, the result finds an association between the market condition at the time of going public and the underpricing. The coefficients of initial public offerings volume per annum relative to market capitalization exhibit positive and strongly statistically significant (see, Helwege and Liang, 2004 and Pástor and Veronesi, 2005). The evidence here suggests that underpricing of initial public offerings is partly driven by the market condition. An international analysis of this thesis provides supporting evidence that the effect of hot market condition to underpricing appear to generally happen in every countries.

In summary, the result in this section suggests an association between the investor protection and the cost of external equity through the context of underpricing. The level of legal enforcement is negatively associated with the underpricing. An initial public offering from effective legal enforcement environment experiences lower underpricing. The benefit of extensive shareholder rights is not clear since the sign of coefficients change over the specifications rather, along with the liability standard, the result rather support the lawsuit avoidance hypothesis. Overall, the analysis implies the importance of effective legal enforcement over the extensive rights protected by law which is consistent with the notion supported by Modigliani and Perotti (2000).

TABLE 3 Underpricing and Investor Protection

	Dependent Variables = UND								
	1	2	3	4	5	6	7	8	9
Intercept	42.013	45.814	38.581	49.911	-56.221	73.366[b]	71.525[b]	75.107[b]	110.278[a]
SHARE		8.527[a]					7.055[a]		-33.512[a]
CREDITOR			0.598[a]				-3.353[c]		-0.149
ENFORCE				-14.189[a]			-12.789[a]		-5.300[c]
DISCLOSURE					9.019[a]			-0.133	1.628
LIABILITY						7.037[a]		7.103[a]	21.800[a]
GENERAL	0.121	-4.547	-0.317	-1.974	-7.494	-3.246	-3.172	-3.165	5.989
ISSUESIZE	-2.517[b]	-2.661[b]	-2.537[b]	-3.178[a]	-1.860	-2.823[a]	-3.120[a]	-2.836[b]	-3.021[b]
HIGHTECH	7.475[c]	10.932[b]	7.370[c]	7.682[b]	10.470[b]	13.300[a]	11.113[b]	13.311[a]	12.578[a]
FINANCIAL	3.459	1.908	3.188	2.974	2.632	2.878	3.256	2.885	7.492
BOOK	9.157[a]	13.170[a]	9.133[a]	9.732[a]	18.130[a]	18.729[a]	13.131[a]	18.687[a]	24.883[a]
VOLUME	4.009[a]	3.998[a]	3.955[a]	5.689[a]	4.151[a]	2.175[c]	5.817[a]	2.156[c]	-0.963
GDPP	0.073	-3.580	0.257	12.850[a]	2.608	-8.336[b]	7.537	-8.452[b]	-6.437[c]

TABLE 3 Underpricing and Investor Protection (continued)

Adjusted – R^2	0.006	0.017	0.005	0.013	0.025	0.037	0.021	0.036	0.060
F-Statistic	2.764[a]	5.885[a]	2.437[b]	4.513[a]	8.162[a]	11.590[a]	5.671[a]	10.298[a]	12.785[a]
No. observations	2214	2214	2214	2214	2214	2214	2214	2214	2214

The sample comprises a maximum of 2214 initial public offerings issue to local public markets from 10 countries over the 15-year period from 1991 to the end of sixth month of 2005. The dependent variable, UND, is the first day initial return relative to the offer price reported in Thomson SDC platinum. SHARE measures the level of shareholder rights. CREDITOR measures the level of creditor rights. ENFORCE measures the overall quality of the legal system (the rule of law). SHARE, CREDITOR and ENFORCE are from La Porta et al. (1998). DISCLOSURE measures the level of disclosure regulation based on an index of disclosure requirement in new security offerings (multiplied by 10). LIABILITY measures the level of liability standard of misstatement in the prospectus for issuer, underwriter and accountant (multiplied by 10). DISCLOSURE and LIABILITY are from La Porta et al. (2006). GENERAL is the binary variable equal 1 when the use of proceeds disclosed as "general corporate purposes" and 0 otherwise. ISSUESIZE stands for the value of initial public offerings in US$ (in natural logarithm). HIGHTECH is the binary variable equal 1 when firm is classified as "high-tech industry" and 0 otherwise. FINANCIAL is the binary variable equal 1 when firm is classified as "financial services" and 0 otherwise. BOOK is the binary variable equal 1 when offering is priced by the book-building method and 0 otherwise. VOLUME stands for US$ market value of total initial public offerings annually relative to total stock market capitalization (in natural logarithm). These initial public offerings variables are based on Thomson SDC platinum. GDPP is the natural logarithm of gross domestic product per capita in US$ from International Monetary Fund, World Economic Outlook Database, September 2006. See Appendix A for variables details. The table reported ordinary least squares coefficient estimates and t-statistics based on White (1987) heteroskedasticity consistent standard errors & covariance.

a, b, and c indicate statistical significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

4.2.2 The effect of financial system characteristic on the initial public offerings

4.2.2.1 The effect of financial system characteristic on the underpricing of initial public offerings

Prior study on financial system characteristic and external financing, Demirgűç-Kunt and Maksimovic (2002) provide empirical evidence that firms use external finance for funding growth similarly in both bank-based and market-based economies; moreover, the result supports the law and finance view of La Porta et al. (2000). However, the issue whether the cost of this external financing is also similar in both financial systems remains uninvestigated. The multiple regression analysis of financial system characteristic on the underpricing of initial public offerings across countries is presented in table 4. In this analysis, the ex ante uncertainty, the market condition, the level of economic development and the level of investor protection are controlled.

The result in table 4 is consistent with the second hypothesis. When the level of investor protection are controlled (column 3 and 4), the coefficients of BANK, binary variable, are negative and statistically significant. This implies that the initial public offerings from bank-based economy benefit from the monitoring role of bank thereby experience lower underpricing. The result supports the findings of James and Wier (1990) and Schenone (2004) that an initial public offering with bank borrowing relationship will experience lower underpricing than others as a result of monitoring in an international insight.

The control variables for investor protection, shareholder rights, creditor rights and enforcement coefficients are negative and statistically significant. This implies the benefit of investor protection to the cost of external equity and consistent with the first hypothesis. An initial public offering from high investor protection environment characterized by more extensive shareholder and creditor rights and higher effective legal enforcement experience lower underpricing. Suspiciously, the positive coefficients of liability standards for issuing parties are contrast to the first hypothesis. The higher level of liability standard for issuing parties is associated with more underpricing. The plausible explanation is the lawsuit avoidance hypothesis for underpricing (Lowry and Shu, 2002). The result of ex ante uncertainty variables are similar the analysis in prior section.

In summary, following the same spirit of Levine (2002), broadening the analysis to a wider array of national experiences will provide greater information on the bank-based versus market-based debate, the result suggests that classifying between having bank-based or market-based financial systems is useful; particularly, in the issue of cost of external equity which is never investigated in the literature. The result implies the potential benefit of bank roles in monitoring and certifying the going public firms. Initial public offerings in bank-based economy experiences lower underpricing than those from market-based economy.

TABLE 4 Underpricing and Financial System Characteristic

	Dependent Variables = UND			
	1	2	3	4
Intercept	23.600[a]	47.881	135.913[a]	171.325[a]
BANK	-2.361	2.956	-9.566[c]	-21.424[b]
SHARE			-29.522[a]	-40.494[a]
CREDITOR			-1.661	-5.610[c]
ENFORCE			-12.098[a]	-22.460[b]
DISCLOSURE			-0.784	-3.027
LIABILITY			20.314[a]	25.184[a]
GENERAL	-2.014	1.161	1.556	6.054
ISSUESIZE	-2.727[b]	-2.656[b]	-3.934[a]	-2.995[b]
HIGHTECH	4.772	7.353[c]	10.590[b]	13.103[a]
FINANCIAL	1.583	3.950	4.863	7.234
BOOK	10.061[b]	8.697[b]	27.265[a]	25.825[a]
VOLUME		4.328[a]		-1.696
GDPP		-0.472		8.926
Adjusted – R^2	0.005	0.005	0.046	0.061
F-Statistic	2.845[a]	2.488[a]	10.612[a]	12.065[a]
No. observations	2219	2214	2219	2214

The sample comprises a maximum of 2214 initial public offerings issue to local public markets from 10 countries over the 15-year period from 1991 to the end of sixth month of 2005. The dependent variable, UND, is the first day initial return relative to the offer price reported in Thomson SDC platinum. BANK is the binary variable equal 1 if firm is from country classified as having bank-based financial system and 0 otherwise. SHARE measures the level of shareholder rights. CREDITOR measures the level of creditor rights. ENFORCE measures the overall quality of the legal system (the rule of law). SHARE, CREDITOR and ENFORCE are from La Porta et al. (1998). DISCLOSURE measures the level of disclosure regulation based on an index of disclosure requirement in new security offerings (multiplied by 10). LIABILITY measures the level of liability standard of misstatement in the prospectus for issuer, underwriter and accountant (multiplied by 10). DISCLOSURE and LIABILITY are from La Porta et al. (2006). GENERAL is the binary variable equal 1 when the use of proceeds disclosed as "general corporate purposes" and 0 otherwise. ISSUESIZE stands for the value of initial public offerings in US$ (in natural logarithm). HIGHTECH is the binary variable equal 1 when firm is classified as "high-tech industry" and 0 otherwise. FINANCIAL is the binary variable equal 1 when firm is classified as "financial services" and 0 otherwise. BOOK is the binary variable equal 1 when offering is priced by the book-building method and 0 otherwise. VOLUME stands for US$ market value of total initial public offerings annually relative to total stock market capitalization (in natural logarithm). These initial public offerings variables are based on Thomson SDC platinum. GDPP is the natural logarithm of gross domestic product per capita in US$ from International Monetary Fund, World Economic Outlook Database, September 2006. See Appendix A for variables details. The table reported ordinary least squares coefficient estimates and t-statistics based on White (1987) heteroskedasticity consistent standard errors & covariance.

a, b, and c indicate statistical significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

4.2.2.2 The effect of investor protection on the volume of initial public offerings classified by the level of financial system development

This additional analysis reinvestigates the finding of La Porta et al. (1997) which provides preliminary empirical evidence that the rate of going public is positively associated with the level of investor protection. In other words, countries with high level of investor protection tend to have more initial public offerings activity per annual. However, it is suspect that their analysis does not control for the level of stock market banking development. Intuitively, a country with high level of financial development; in terms of size, liquidity and efficiency of banking an stock market, would have more frequent going public activity regardless of its investor protection level. The multiple analysis of investor protection on the volume of initial public offerings across countries is reported in table 5. The measures of three dimensions; size, liquidity and efficiency, for the level of banking and stock market development are controlled in all specifications.

The result is consistent with the finding of La Porta et al. (1997). This analysis finds evidence that the level of investor protection is associated with the rate of going public. All investor protection coefficients are positive and statistically significant. Except the shareholder rights coefficients that are negative and statistically significant. This implies that firms are not interest to go public in high shareholder rights protection environment. The plausible explanation is that a benefit of listing may not cover the cost of doing so. In order to going public, firm must accept the rule and standard required either by law or by market rules. However, the disclosure requirement coefficients are positive and statistically significant. If the benefit of going public is not cover the cost of

doing so, the coefficient should be negative and statistically significant. The investor protection based on investor rights from company law and commercial codes and securities law mandating disclosure requirement are appear to affect the rate of going public differently. Thus, it is inconclusive whether the investor protection is advantage or disadvantage to the going public activity.

Other variables of interest here is the control factors of banking and stock market development. The coefficients represent the size of banking sector, the value of private credit sector relative to GDP, are negative and statistically significant which is rational since an economy where the deposit money of private sector is large implying that citizens are prefer money market to capital market, the lower rate of going public activity is reasonable. Interestingly, the coefficients of size and efficiency of stock market, the value of listed shares to GDP and the ratio of the value of total shares to average real market capitalization, are negative and statistically significant which is curious. The larger and more efficiency stock market impair the rate of going public activity.

In summary, this analysis confirms an association between investor protection and the rate of going public activity with more accurate measure of going public activity. It is interesting that the effect of investor protection is weak relative to the effect of financial development. The financial system characteristic appears to better explain the rate of going public than investor protection. However, it is possible that the proxy for the level of financial development may not clean enough to isolate the relation between investor protection and the rate of going public activity per annum.

TABLE 5 Initial Public Offerings Volume and Investor Protection

	Dependent Variables = VOLUME								
	1	2	3	4	5	6	7	8	9
Intercept	0.028[a]	0.033[a]	0.029[a]	0.039[a]	0.014[c]	0.029[b]	0.043[a]	0.017[b]	-0.039[c]
SHARE		-0.001					-0.001		-0.006[b]
CREDITOR			0.001				0.000		0.002[b]
ENFORCE				-0.001			-0.001		0.004[a]
DISCLOSURE					0.002[b]			0.002[c]	0.005[a]
LIABILITY						0.000		-0.001	0.002
CENTRAL_BANK	-0.033	-0.018	-0.041	-0.051	-0.054[c]	-0.028	-0.035	-0.034[c]	-0.005
PRIVATE_CREDIT	-0.008[a]	-0.010[b]	-0.008[a]	-0.007[b]	-0.006[b]	-0.009[b]	-0.009[b]	-0.008[b]	-0.015[a]
OVERHEAD	-0.290[b]	-0.266[b]	-0.292[b]	-0.265[b]	-0.184[c]	-0.293[b]	-0.241[b]	-0.179[c]	0.046
NET_INTEREST	0.123	0.093	0.090	0.033	0.070	0.109	-0.004	-0.019	0.246
STK_CAP	-0.010[b]	-0.008[b]	-0.013[b]	-0.012[b]	-0.015[a]	-0.010[b]	-0.010[b]	-0.013[a]	-0.020[a]
STK_TRADED	0.011[c]	0.010[c]	0.013[b]	0.012[b]	0.013[b]	0.010[c]	0.013[b]	0.012[b]	0.014[b]
STK_TURN	-0.007[c]	-0.008[b]	-0.009[b]	-0.009[b]	-0.008[b]	-0.008[b]	-0.010[b]	-0.009[b]	-0.009[b]
Adjusted – R^2	0.080	0.081	0.078	0.084	0.119	0.073	0.080	0.125	0.184
F-Statistic	2.560[b]	2.385[a]	2.341[b]	2.446[b]	3.135[a]	2.231[b]	2.088[b]	3.002[a]	3.368[a]
No. observations	127	127	127	127	127	127	127	127	127

The sample comprises 127 country-year initial public offerings volume from 10 countries over the 14-year period from 1991 to 2004. The dependent variable, VOLUME, is the US$ market value of total initial public offerings annually relative to total stock market capitalization. SHARE measures the level of shareholder rights. CREDITOR measures the level of creditor rights. ENFORCE measures the overall quality of the legal system (rule of law). SHARE, CREDITOR and ENFORCE are from La Porta et al. (1998). DISCLOSURE measures the level of disclosure regulation based on an index of disclosure requirement in new security offerings (multiplied by 10). LIABILITY measures the level of liability standard of misstatement in the prospectus for issuer, underwriter and accountant (multiplied by 10). DISCLOSURE and LIABILITY are from La Porta et al. (2006). CENTRAL_BANK is the claims on domestic real non-financial sector by the Central Bank as a share of GDP. PRIVATE_CREDIT is the total private credit by deposit money banks to GDP. OVERHEAD is the accounting value of bank's overhead costs as a share of its total assets. NET_INTEREST is the accounting value of bank's net interest revenue as a share of its interest-bearing (total earning) assets. STK_CAP is the value of listed shares to GDP. STK_TRADED is the total shares traded on the stock market exchange to GDP. STK_TURN is the ratio of the value of total shares to average real market capitalization. These variables are from Beck et al. (2000). See Appendix A for variables details. The table reported ordinary least squares coefficient estimates and t-statistics based on White (1987) heteroskedasticity consistent standard errors & covariance.

a, b, and c indicate statistical significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

4.2.3 The effect of investor protection on the use of proceeds disclosure of going public firms

The multiple analysis of investor protection on the use of proceeds disclosure is reported in table 6. The disclosed use of proceeds, general corporate or other specific purposes, is a more direct proxy to study the information asymmetry between initial pubic offerings and stock market and will be used as the dependent variable. As such, the logit models are applied and investigated by the maximum likelihood method. The control variables are the ex ante uncertainty (issue size, industry and pricing technique). Note initially, the proxy for the pricing technique of initial public offerings is controlled (column 1); however, when the book-building pricing technique is controlled, the sample reduced to only 3991 observations and the coefficient of book-building pricing technique is not statistically and significant. Due to the availability of this data; thus, the following models will not control for the pricing technique. (Appendix E: an analysis which control for the pricing technique)

The result is consistent with the third hypothesis. After controlled for the ex ante uncertainty, the investor protection measures of enforcement and liability standards are negative and statistically significant. It appears that the overall quality of legal enforcement and liability standard for issuing parties according to misstatement or omitted information in prospectus mitigate the information asymmetry, they force issuing parties to provide more specific information. Thus, investor protection through these two channels helps mitigating the information asymmetry.

The enforcement and liability standards are negative and statistically significant. This is consistent with the notion of Modigliani and Perotti (2000) who state the importance of effective legal enforcement over the extensive rights. The negative coefficients imply that in high quality legal enforcement environment, initial public offerings provide more specific information about the use of funds. The promoters are forced by law or market regulatory to disclose information about the use of proceeds or deliberately disclosed this information since they may brought to lawsuit easily when the lost occur to investors according to effective legal enforcement. To initial public offerings, the result implies the importance of legal enforcement, either overall quality of laws or remedy through securities law.

In summary, the result implies the importance of legal enforcement and liability standards of issuing parties to the use of proceeds disclosure. In high quality of legal standard, the promoters are likely to provide more specific information since if they provide less or misstatement information in prospectus, they are easily brought to the lawsuit by investors.

TABLE 6 Investor Protection and Use of Proceeds Disclosure

	Dependent Variable = GENERAL									
	1	2	3	4	5	6	7	8	9	10
Intercept	2.235[a]	14.320[a]	1.943[a]	6.391[a]	10.748[a]	-6.379[a]	13.116[a]	7.574[a]	-5.249[a]	1.877[a]
SHARE			1.816[a]					0.183[a]		1.515[a]
CREDITOR				1.323[a]				0.463[a]		0.309[a]
ENFORCE					-0.958[a]			-0.739[a]		-0.559[a]
DISCLOSURE						1.685[a]			1.748[a]	0.383[a]
LIABILITY							0.142[a]		-0.290[a]	-0.882[a]
ISSUESIZE	-0.221[a]	-0.932[a]	-0.646[a]	-0.670[a]	-0.225[a]	-0.494[a]	-0.911[a]	-0.266[a]	-0.483[a]	-0.186[a]
HIGHTECH	-0.140	-0.640[a]	-0.245[a]	-0.582[a]	-0.104	-0.291[a]	-0.546[a]	-0.099	-0.354[a]	-0.147
FINANCIAL	0.732[a]	0.777[a]	0.511[a]	0.302[a]	0.629[a]	0.517[a]	0.787[a]	0.402[a]	0.541[a]	0.230
BOOK	0.052									
McFadden R^2	0.032	0.335	0.445	0.533	0.592	0.495	0.339	0.609	0.502	0.635
LR Stat	135.978[a]	4176.285[a]	5547.822[a]	6641.249[a]	7370.027[a]	6168.562[a]	4227.685[a]	7583.154[a]	6252.797[a]	7906.771[a]
No. observations	3991	9222	9222	9222	9222	9222	9222	9222	9222	9222

The sample comprises a maximum of 9222 initial public offerings issue to local public markets from 10 countries over the 15-year period from 1991 to the end of sixth month of 2005. The dependent variable, GENERAL is the binary variable equal 1 when the use of proceeds disclosed as "general corporate purpose" and 0 otherwise. SHARE measures the level of shareholder rights. CREDITOR measures the level of creditor rights. ENFORCE measures the overall quality of the legal system (rule of law). SHARE, CREDITOR and ENFORCE are from La Porta et al. (1998). DISCLOSURE measures the level of disclosure regulation based on an index of disclosure requirement in new security offerings (multiplied by 10). LIABILITY measures the level of liability standard of misstatement in the prospectus for issuer, underwriter and accountant (multiplied by 10). DISCLOSURE and LIABILITY are from La Porta et al. (2006). ISSUESIZE stands for the value of initial public offerings in US$ (in natural logarithm). HIGHTECH is the binary variable equal 1 when firm is classified as "high-tech industry" and 0 otherwise. FINANCIAL is the binary variable equal 1 when firm is classified as "financial services" and 0 otherwise. BOOK is the binary variable equal 1 when offering is priced by the book-building method and 0 otherwise. See Appendix A for variables details. The table reported maximum likelihood coefficient estimates and z-statistics based on Huber (1967) and White (1987) robust covariance.

a, b, and c indicate statistical significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

4.3 Sensitivity Analysis

In this section, this thesis addresses two issues of robustness check using some additional data. First, is the underpricing of initial public offerings should be adjusted for the market return due to the elapse time between the offer date and the first trading date? Second, are the investor protection measures endogenous?

4.3.1 Market Adjusted Underpricing

In this section, the analysis focuses on the underpricing of initial public offerings, whether it should be adjusted with market return in order to get the real underpricing as few studies suggest (e.g. Carey and Steen, 2006). According to each stock market microstructure and differences in rules mandating procedure of new equity issue, the lagged time, elapse, between the offer date and the first traded date are varies across countries (Loughran et al., 1994). It is rational that the longer is the lagged time between the offer date which equity price is set and the first traded date, the more likely is the information related to the offerings may changed. The multiple regression analysis comparing between underpricing and market adjusted underpricing is provided in table 7. However, the sample is reduced to only those both underpricing and market adjusted underpricing are available; thus, Japan and Norway are excluded since the estimated elapse time are not available in the literature. (Appendix A. provide information about each countries estimated elapse time which retrieve from literature in details)

The result is interesting. All coefficients in both underpricing and market adjusted underpricing models yield almost identical values. Thus, the underpricing is not necessary to adjust by the market return.

The sensitivity analysis here also suggests some interesting issues. In column 1, the binary variable control for the pricing technique, BOOK, is negative and statistically significant which is consistent with the literature. One plausible explanation is that because Japan IPOs sample which most are priced with auction technique are excluded from the sample. Thus, for the study of underpricing across differing countries, the analysis here suggests the importance of pricing technique. Since different countries prefer different pricing techniques, one's best technique is not necessary to be other's best technique. Consistent with Loughran et al., 1994, the procedure in initial public offerings issue; especially, the pricing technique needed to be study in more depth level according to the differences in rules across countries.

Overall, this analysis confirms an association between investor protection and cost of external equity, the underpricing of initial public offerings. It has no difference between underpricing and market adjusted underpricing. Thus, according to the result, it is unnecessary to account for the market return in the study of underpricing of initial public offerings.

TABLE 7 Market Adjusted Underpricing

	Dependent Variable = UND and MARUND							
	1		2		3		4	
	UND	MAR	UND	MAR	UND	MAR	UND	MAR
Intercept	106.604[a]	68.272[a]	109.412[a]	72.163[a]	83.513[b]	47.863	65.113	27.183
SHARE			3.628[c]	3.851[c]			-9.683	-9.291
CREDITOR			8.194[a]	8.582[a]			8.215[a]	8.665[a]
ENFORCE			14.676[a]	15.879[a]			19.491[b]	20.933[b]
DISCLOSURE					2.842	2.607	6.239[b]	6.316[b]
LIABILITY					1.692	1.924	5.188	5.055
GENERAL	7.057	6.908	4.202	4.085	2.222	2.083	4.010	3.873
ISSUESIZE	-3.084	-3.037	-4.044[c]	-4.043[c]	-3.336	-3.312	-3.815[c]	-3.815[c]
HIGHTECH	3.678	3.944	4.847	5.232	7.133	7.552	5.940	6.317
FINANCIAL	-0.122	-0.122	-1.952	-1.978	-0.569	-0.604	-0.985	-1.003
BOOK	-12.379[c]	-12.307[c]	-7.144	-6.692	-2.083	-1.847	7.300	7.743
VOLUME	2.431[c]	1.931	0.435	-0.209	2.910[b]	2.342[c]	-0.588	-1.220
GDPP	-7.178[a]	-3.679	-25.290[a]	-23.261[a]	-7.951[b]	-4.699	-29.041[a]	-27.221[a]
Adjusted - R^2	0.025	0.019	0.038	0.033	0.035	0.029	0.048	0.043
F - Statistic	4.901	3.959	5.157	4.656	5.235	4.569	5.418	5.012
No. observations	1063	1063	1063	1063	1063	1063	1063	1063

The sample comprises a maximum of 1063 initial public offerings issue to local public markets from 8 countries over the 15-year period from 1991 to the end of sixth month of 2005. The dependent variables; UND, is the first day initial return relative to the offer price reported in Thomson SDC platinum and MARUND, is the first day market adjusted initial return relative to the offer price reported in Thomson SDC platinum. SHARE measures the level of shareholder rights. CREDITOR measures the level of creditor rights. ENFORCE measures the overall quality of the legal system (the rule of law). SHARE, CREDITOR and ENFORCE are from La Porta et al. (1998). DISCLOSURE measures the level of disclosure regulation based on an index of disclosure requirement in new security offerings (multiplied by 10). LIABILITY measures the level of liability standard of misstatement in the prospectus for issuer, underwriter and accountant (multiplied by 10). DISCLOSURE and LIABILITY are from La Porta et al. (2006). GENERAL is the binary variable equal 1 when the use of proceeds disclosed as “general corporate purposes” and 0 otherwise. ISSUESIZE stands for the value of initial public offerings in US$ (in natural logarithm). HIGHTECH is the binary variable equal 1 when firm is classified as “high-tech industry” and 0 otherwise. FINANCIAL is the binary variable equal 1 when firm is classified as “financial services” and 0 otherwise. BOOK is the binary variable equal 1 when offering is priced by the book-building method and 0 otherwise. VOLUME stands for US$ market value of total initial public offerings annually relative to total stock market capitalization (in natural logarithm). These initial public offerings variables are based on Thomson SDC platinum. GDPP is the natural logarithm of gross domestic product per capita in US$ from International Monetary Fund, World Economic Outlook Database, September 2006. See Appendix A for variables details. The table reported ordinary least squares coefficient estimates and t-statistics based on White (1987) heteroskedasticity consistent standard errors & covariance.

a, b, and c indicate statistical significance at the 1%, 5%, and 10% levels (two-tailed), respectively

4.3.2 Alternative Variables

In this section, this thesis focuses on the problem of investor protection measures themselves. It is rationale that a country with extensive shareholder rights is also a country with effective legal enforcement, vice versa. Thus, it is essential to robustness check that the result of this thesis is not contaminated by the problem of investor protection measures themselves. First, this thesis apply the principal component of shareholder rights, disclosure requirement and liability standard, the investor protection (INV_PRO), which roughly accounts for 70% of the variation of three variables (La Porta et al., 2006). Then, similar to cross countries investor protection studies, the legal origins are also applied. Collectively, British common law origin protect investors the best, French civil law origin the least and German civil law origin and Scandinavian law in between. Moreover, the legal origins are truly exogenous in nature (La Porta et al., 1998 and 2006). Applying the alternative variables for investor protection would provide an affirmative result to this thesis.

The sensitivity analyses, applying alternative variables for investor protection, are provided in 4.3.2.1 section for hypothesis 1 and in 4.3.2.2 section for hypothesis 3. Other control variables are similar to the early analyses. Note the British common law origin is used as the base binary variable; thus, only the French, Germany and Scandinavian legal origins binary variables are added in the specifications.

4.3.2.1 Investor Protection and Underpricing

The multiple regression analysis of alternative variables for investor protection is provided in table 8. The result is provocative. The principal component of investor protection coefficients are positive and statistically significant in all specifications whether the legal origins are controlled. This implies the disadvantage of investor protection to the cost of external equity; in particular, initial public offerings from better investor protection environment will experience more expensive cost of external equity, larger underpricing. The legal origins also suggest similar insights. Initial public offerings from French civil law origin, which protect investors the least, will experience lower underpricing than others legal origin; according to negative coefficients of FRENCH and statistically significant. The coefficients of GERMANY and SCANDINAVIAN exhibit closely value and statistically significant which consistent to their level of investor protection. All other control variables for ex ante uncertainty are consistent to the early analysis.

In summary, the sensitivity analysis here suggests an interesting result. The notion that better investor protection will lead to lower cost of external equity is not always correct (La Porta et al., 1997). Both alternative variables confirm this contrast results. The plausible explanation for the contrast findings here is the lawsuit avoidance hypothesis of underpricing. The better is the investors protected, the larger is the probability that issuing party will be brought to the lawsuit according to the information in the prospectus. Underpricing can be used as the insurance for issuing party in mitigating their litigation risk (Lowry and Shu, 2002).

TABLE 8 Investor Protection and Underpricing

	Dependent Variables = UND				
	1	2	3	4	5
Intercept	55.634	68.203[c]	25.432	89.816[b]	121.931[a]
INV_PRO			17.871[a]	77.019[a]	112.253[a]
CIVIL	4.418			38.683[a]	
FRENCH		-44.346[a]			-12.964[c]
GERMANY		9.198[b]			61.182[b]
SCANDINAVIAN		13.323			56.417[b]
GENERAL	1.564	4.861	-2.788	0.220	4.449
ISSUESIZE	-2.717[b]	-3.982[a]	-2.171[c]	-2.781[b]	-4.519[a]
HIGHTECH	7.238[c]	7.369[c]	8.679[b]	10.580[b]	12.354[a]
FINANCIAL	4.234	3.378	2.419	5.759	5.263
BOOK	8.427[b]	9.299[a]	11.493[a]	12.828[a]	16.172[a]
VOLUME	4.482[a]	0.143	3.642[a]	6.568[a]	1.426
GDPP	-1.217	-4.719	0.455	-9.579[a]	-18.233[a]
Adjusted R-squared	0.006	0.023	0.007	0.019	0.049
F-statistic	2.555[a]	6.123[a]	3.074[a]	5.777[a]	11.383[a]
No. Observations	2214	2214	2214	2214	2214

The sample comprises a maximum of 2214 initial public offerings issue to local public markets from 10 countries over the 15-year period from 1991 to the end of sixth month of 2005. The dependent variable, UND, is the first day initial return relative to the offer price reported in Thomson SDC platinum. INV_PRO refer to the principal component of SHARE, DISCLOSURE and LIABILITY. CIVIL is the binary variable 1 when going public firm is from country classified as civil law legal system and 0 otherwise. FRENCH equal 1 when country legal origin is French and 0 otherwise. GERMANY equal 1 when country legal origin is Germany and 0 otherwise. SCANDINAVIAN equal 1 when country legal origin is Scandinavian and 0 otherwise. GENERAL is the binary variable equal 1 when the use of proceeds disclosed as “general corporate purposes” and 0 otherwise. ISSUESIZE stands for the value of initial public offerings in US$ (in natural logarithm). HIGHTECH is the binary variable equal 1 when firm is classified as “high-tech industry” and 0 otherwise. FINANCIAL is the binary variable equal 1 when firm is classified as “financial services” and 0 otherwise. BOOK is the binary variable equal 1 when offering is priced by the book-building method and 0 otherwise. VOLUME stands for US$ market value of total initial public offerings annually relative to total stock market capitalization (in natural logarithm). These initial public offerings variables are based on Thomson SDC platinum. GDPP is the natural logarithm of gross domestic product per capita in US$ from International Monetary Fund, World Economic Outlook Database, September 2006. See Appendix A for variables details. The table reported ordinary least squares coefficient estimates and t-statistics based on White (1987) heteroskedasticity consistent standard errors & covariance.

a, b, and c indicate statistical significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

4.3.2.2 Investor Protection and Use of Proceeds Disclosure of Going Public Firms

In this section, the association between investor protection and information asymmetry through the disclosed use of proceeds is reinvestigated with alternative variables for investor protection in table 9. The result of multiple regression analysis here suggests an interesting insight.

The principal component of investor protection coefficients are negative and statistically significant when legal origins are controlled. This implies an important benefit of in promoting the level of investor protection in mitigating information asymmetry even among the same legal origins. In other words, an increase in overall investor protection will lead the more specific information disclosure to the market thereby make investors easier in pricing the new issue and even in monitoring the firms and their managers. The legal origins coefficients are provide even more provocative result. Civil law, French and Germany legal origin binary variables are negative and statistically significant; thus, suggest similar result that initial public offerings from civil law origin are likely to disclose more specific information about their use of proceeds.

Overall, based on legal origins as the proxy for level of investor protection, the analysis suggest that civil law origin which protect investors the least will experience less information asymmetry. However, the principal component suggests the benefit in improving investor protection when legal origins are controlled. Thus, it is likely that legal origins are not enough to capture the effect of investor protection in mitigating information asymmetry, the level of protection is more important than its origin types.

TABLE 9 Investor Protection and Use of Proceeds Disclosure

	Dependent Variables = GENERAL				
	1	2	3	4	5
Intercept	11.483[a]	11.320[a]	7.899[a]	12.865[a]	13.196[a]
INV_PRO			4.827[a]	-1.567[a]	-2.234[a]
CIVIL	-2.437[a]			-3.056[a]	
FRENCH		-1.909[a]			-2.562[a]
GERMANY		-2.751[a]			-3.706[a]
SCANDINAVIAN		-0.275			-1.058[a]
ISSUESIZE	-0.705[a]	-0.694[a]	-0.721[a]	-0.718[a]	-0.705[a]
HIGHTECH	-0.299[a]	-0.325[a]	-0.330[a]	-0.329[a]	-0.366[a]
FINANCIAL	0.480[a]	0.466[a]	0.579[a]	0.468[a]	0.454[a]
McFadden R-squared	0.421	0.428	0.394	0.423	0.431
LR statistic (4 df)	5247.282[a]	5328.997[a]	4912.471[a]	5267.620[a]	5364.858[a]
No. Observations	9222	9222	9222	9222	9222

The sample comprises a maximum of 9222 initial public offerings issue to local public markets from 10 countries over the 15-year period from 1991 to the end of sixth month of 2005. The dependent variable, GENERAL is the binary variable equal 1 when the use of proceeds disclosed as “general corporate purpose” and 0 otherwise. INV_PRO refer to the principal component of SHARE, DISCLOSURE and LIABILITY. CIVIL is the binary variable 1 when going public firm is from country classified as civil law legal system and 0 otherwise. FRENCH equal 1 when country legal origin is French and 0 otherwise. GERMANY equal 1 when country legal origin is Germany and 0 otherwise. SCANDINAVIAN equal 1 when country legal origin is Scandinavian and 0 otherwise. ISSUESIZE stands for the value of initial public offerings in US$ (in natural logarithm). HIGHTECH is the binary variable equal 1 when firm is classified as “high-tech industry” and 0 otherwise. FINANCIAL is the binary variable equal 1 when firm is classified as “financial services” and 0 otherwise. BOOK is the binary variable equal 1 when offering is priced by the book-building method and 0 otherwise. See Appendix A for variables details. The table reported maximum likelihood coefficient estimates and z-statistics based on Huber (1967) and White (1987) robust covariance.

a, b, and c indicate statistical significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

4.4 Summary of Findings

This thesis starts with the univariate, multiple regression and sensitivity analyses, respectively. Though it is descriptive in nature, the univariate analysis would provide some fruitful results at a glance. The main inferences are based on multiple regression analysis. The sensitivity analysis is applied for the robustness check.

According to univariate analysis result, in each category of investor protection, it appears to have different underpricing between high and low groups; however, the degrees are very small. Collectively, the underpricing between bank-based and market-based is almost equivalent; also, between general and specific purposes disclosed use of proceeds, analysis find indifferent underpricing.

The multiple regression analysis provides appealing result. Legal enforcement appears to be significant to the cost of external equity; in particular, the more effective is the enforcement, the lower is the underpricing. Other interesting proxy for ex ante uncertainty would be the book-building pricing technique, the result shows that the book-building is not decrease the underpricing rather it increase. This would be explainable by the variation in rules across countries. Between bank-based vs. market-based, the result supports the benefit of having bank relationship, initial public offerings from bank-based economy are less underpricing. Additionally, the relation between investor protection and rate of going public is confirmed after the level of financial development is controlled. To the link between investor protection and information asymmetry, using disclosed use of

proceeds as a more direct proxy for information asymmetry, this thesis confirms the benefit of investor protection in mitigating information asymmetry.

Sensitivity analysis with market-adjusted underpricing and alternative variables for investor protection does not alter the main result. It is indifferent between underpricing and market-adjusted underpricing. For alternative measure of investor protection, the principal component measure of investor protection and legal origins support the lawsuit avoidance hypothesis of underpricing. The robustness check for disclosed use of proceeds show the same result, initial public offerings from civil law which less protect investors are disclosed more specific information on there use of proceeds.

Overall, this thesis provides preliminary evidence on the association between corporate governance, investor protection by law, and cost of external equity in an international level with the underpricing of initial public offerings as a new proxy. The effect of each investor protection measure seems to vary; however, the legal enforcement is apparently plays a significant role.

CHAPTER V

CONCLUSION, LIMITATIONS OF STUDY AND AREAS FOR FUTURE RESEARCH

5.1 Conclusion

Recent studies show the benefit of corporate governance to the development of financial market. An important branch is the association between investor protection by law and the cost of external equity. Studies find that the more valuable stock markets, more listed firm per capita and more going public activity are appear to be consequences of cheaper external equity. The underpricing of initial public offerings which is an essential cost of external equity to firms has never been investigated in the corporate governance literature. Bridging the gap discussed, this study investigates the association between investor protection and cost of external equity using IPOs underpricing as a sample. The analysis also extends to two related and interesting issues a bank-based versus market-based debate and a link between investor protection and information asymmetry as passed by the disclosed IPOs proceeds.

This thesis finds that the corporate governance, investor protection by law, is matter to the underpricing phenomenon which reflects the cost of external equity to firms' promoter. Particularly, the legal enforcement is significant. According to the result, initial public offerings from environment with effective legal enforcement experience lower underpricing than others.

To bank-based and market-based debate, this thesis finds evidence that the initial public offerings from bank-based economies have advantage over those from market-based economies in the cost of going public. As the analysis implies, the bank-based initial public offerings experience lower underpricing even when both investor protection and financial development are controlled. Extending the findings of underpricing literature to an international experience, this thesis finds an evidence support the bank-based and market-based debate that classifying economies into bank-based or market-based has at least one advantage, the cost of external equity.

To the link between investor protection and information asymmetry, this thesis finds that the initial public offerings from effective legal enforcement are likely to disclose more specific information on the use of proceeds. High liability standard for issuing parties also lead to more specific information. With more direct proxy for information asymmetry, the result supports the notion that investor protection help mitigating information asymmetry thereby lead to a lower cost of capital.

In sensitivity analysis, this study also investigates the issue that whether underpricing should be adjusted by market return. The analysis find indifferent between underpricing and market-adjusted underpricing. However, the samples decrease to very small size. The alternative variables for investor protection are also applied, the principal component and the legal origins. Applying both alternative variables, the findings are not altered. The evidence supports the lawsuit avoidance hypothesis of underpricing.

Overall this thesis highlights the importance of investor protection to the cost of external equity. The result provides in this thesis is unique since this study provide preliminary evidence of an association between investor protection and cost of external equity in an international experience using the underpricing as a new proxy. Evidence in this thesis suggests a policy implication that promoting the legal enforcement will benefit to the cost of external equity; in particular, the underpricing.

5.2 Limitations of Study

Even though the result of this thesis is provocative, this study is subject to three caveats. First, this study faces the limitation of data. For corporate governance, the investor protection measures provided by La Porta et al studies are questioned about the change in investor protection over time since these indices conducted in 1998 and 2006. However, as La Porta et al. (1998) suggest the major structure of law are not likely to change much. For initial public offerings, the study relies on Thomson SDC data and rechecks it with DataStream, the first traded date closing prices are the major problem to this study. This makes the number of observations in this thesis small compared to the whole sample. Second, while the control variables used in this thesis are likely to explain much of the underpricing, there appear to be other omitted variables that affect the underpricing; for example, the age of firm before going public and the cumulative earnings before going public, which is unable to apply due to data availability. As a third and final caveat, reader should keep in mind that any evidence based on potentially biased self-reporting needs to be interpreted with caution.

5.3 Areas for Future Research

The thesis provides new empirical evidence on the association between investor protection and the cost of external equity as passed by the underpricing of initial public offerings which none study ever investigated before. Although the result documented in this thesis is provocative, it remains interesting gap to empirically analyze in future research. It is obviously interesting to observe the securities law mandating the issuance of new equity in more details. As this thesis implied, some regulations not only related to ex ante uncertainty but also to investor protection aspect. For example, the free-float of IPOs should affect the firm ownership structure. In addition, the differences of securities law and other related to equity issues across countries should be concerned. For example, the pricing technique; the book-building is very common and the auction is rare in U.S.; the auction is common in France and Japan; and, the fixed price offer is common in UK. Next, the dual-class equity is another interesting issue since it affects the maintenance of control through the difference in voting rights. Dual-class equity occurs frequently in Germany, Norway, and Sweden; less frequently in Australia, France and UK but forbidden in Japan and Singapore Lastly, replicating this thesis with a sample from countries with very different in the level of investor protection environment should therefore represent more clear understanding; in particular, the firm level analysis between United Kingdom and Thailand would be very fruitful.

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APPENDICES

Appendix A. Description of the variables included in this paper and their sources

Variables	Description and Source
A.1 Investor Protection Variables (GOVERNANCE)	
SHARE	An index aggregating shareholder rights (anti-director rights). The index is formed by adding 1 when: (1) the country allows shareholders to mail their proxy vote; (2) shareholders are not required to deposit their shares prior to the General Shareholders' Meeting; (3) cumulative voting is allowed; (4) an oppressed minorities mechanism is in place; or (5) when the minimum percentage of share capital that entitles a shareholder to cal for an Extraordinary Shareholders' Meeting is less than or equal to 10%. The index range from 0 to 5. Source: *La Porta et al. (1998) and Company Law or Commercial Code*
CREDITOR	An index aggregating creditor rights. The index is formed by adding 1 when: (1) the country imposes restrictions, such as creditors' consent or minimum dividends, to file for reorganization; (2) secured creditors are able to gain possession of their security once the reorganization petition has been approved (no automatic stay); (3) the debtor does not retain the administration of its property pending the resolution of the reorganization; (4) secured creditors are rank first n the distribution of the proceeds that result from the disposition of the assets of a bankrupt firm. The index range from 0 to 4. Source: *La Porta et al. (1998) and Company Law or Bankruptcy Laws*
ENFORCE	Assessment of the law and order tradition in the country (rule of law). Average of the month of April and October of the monthly index between 1982 and 1995. The index scale from 0 to 10, with lower scores for less tradition of law and order. Source: *La Porta et al. (1998)*
DISCLOSURE	An index aggregating disclosure requirement in the prospectus at the time of going public. (This index captures six areas of affirmative disclosure requirement at the time of going public as follows; (1) prospectus delivering, (2) insiders' compensation, (3) ownership by large shareholders, (4) inside ownership, (5) contracts outside the normal course of business; and (6) transactions with related parties.) Source: *La Porta et al. (2006)*
LIABILITY	An index aggregating liability standard of the misstatement in prospectus for Issuer and Director, Distributor and Accountants. Source: *La Porta et al. (2006)*
CIVIL	Equal one if country is classified as having civil law system and zero otherwise. Source: *Demirgűć-Kunt and Maksimovic (2002)*
UK	Equal one if country classified as having British legal origin and zero otherwise. Source: *La Porta et al. (1998)*
FRENCH	Equal one if country classified as having French legal origin and zero otherwise. Source: *La Porta et al. (1998)*

GERMANY	Equal one if country classified as having Germany legal origin and zero otherwise. Source: *La Porta et al. (1998)*
SCANDINAVIAN	Equal one if country classified as having Scandinavian legal origin and zero otherwise. Source: *La Porta et al. (1998)*
INV_PRO	Principal component of the indices of shareholder rights disclosure requirements and liability standards. Scale from 0 to 10. Source: *La Porta et al. (2006)*

A.2 IPOs Variables

GENERAL	Equal one when the use of proceeds disclosed as "general" and zero otherwise. Source: *Thomson SDC Platinum*
ISSUESIZE	Logarithm of the number of shares multiplies with the offer price in U.S. dollars. Source: *Thomson SDC Platinum*
HIGHTECH	Equal one if classifed as Hightechnology macro industry and zero otherwise. Source: *Thomson SDC Platinum*
FINANCIAL	Equal one if classifed as Financial Sevices macro industry and zero otherwise. Source: *Thomson SDC Platinum*
BOOK	Equal one if the book-building pricing techinuqe is used and zero otherwise. Source: *Thomson SDC Platinum*
VOLUME	The logarithm of the yearly issue size of IPOs relative to the market capitalization in the U.S. dollars. Source: *Thomson SDC Platinum* and DatsStream
ELAPSE	The estimated lagged time between the offer date and the first trading date. The data draw from literature as follows: Loughran et al. (1994) for *Australia* and *Singapore*. Ljungqvist and Wilhelm Jr., 2002, IPO Allocations: Discriminatory or Discretionary, Journal of Financial Economics 65, 167-201, for *France, Germany* and *United Kingdom*. Ghosh, 2005, Revisiting IPO Underpricing in India, working paper, for *India*. Rydqvist, 1997, IPO Underpricing as Tax-efficient Compensation, Journal of Banking & Finance 21, 295-313, for *Sweden*. Kim et al., 2004, Ownership and Operating Performance in an Emerging Market: Evidence from Thai IPO Firms, Journal of Corporate Finance 10, 355-381, for *Thailand*.

A.3 Country-level Variables

GDPP	GDP is expressed in current U.S. dollars per person. Data are derived by first converting GDP in national currency to U.S. dollars and then dividing it by total population. Values are based upon GDP in national currency and the exchange rate projections provided by country economists for the group of other emerging market and developing countries. Exchanges rates for advanced economies are established in the WEO assumptions for each WEO exercise. Source: *International Monetary Fund, World Economic Outlook Database, September 2006*

BANK	Equal one if country is classified as having bank-based financial system and zero otherwise. Source: *Demirgűć-Kunt and Maksimovic (2002)*
A.4 Financial Development Variables (FINANCIAL)	
A.4.1 Banking Development	
CENTRAL_BANK	Claims on domestic real non-financial sector by the Central Bank as a share of GDP. Source: *Beck et al. (2000)*
PRIVATE_CREDIT	Private Credit by deposit money banks to GDP. Source: *Beck et al. (2000)*
OVERHEAD	Accounting value of bank's overhead costs as a share of its total assets. Source: *Beck et al. (2000)*
NET_INTEREST	Accounting value of bank's net interest revenue as a share of its interest-bearing (total earning) assets. Source: *Beck et al. (2000)*
A.4.2 Stock Market Development	
STK_CAP	Value of listed shares to GDP. Source: *Beck et al. (2000)*
STK_TRADED	Total shares traded on the stock market exchange to GDP. Source: *Beck et al. (2000)*
STK_TURN	Ratio of the value of total shares to average real market capitalization. Source: *Beck et al. (2000)*

APPENDIX B. Descriptive Statistics of Country Investor Protection Level and Financial System Characteristics

Country	Investor Protection											Financial System
	SHARE	CREDITOR	ENFORCE	DISCLOSURE	LIABILITY	INV_PRO	CIVIL	UK	FRENCH	GERMANY	SCANDINAVIAN	BANK
Australia	4	1	10	0.75	0.66	0.78	0	1	0	0	0	0
France	3	0	8.98	0.75	0.22	0.47	1	0	1	0	0	1
Germany	1	3	9.23	0.42	0	0	1	0	0	1	0	1
India	5	4	4.17	0.92	0.66	0.77	0	1	0	0	0	1
Japan	4	2	8.98	0.75	0.66	0.42	1	0	0	1	0	1
Norway	4	2	10	0.58	0.39	0.44	1	0	0	0	1	1
Singapore	4	4	8.57	1	0.66	0.77	0	1	0	0	0	0
Sweden	3	2	10	0.58	0.28	0.39	1	0	0	0	1	0
Thailand	2	3	6.25	0.92	0.22	0.37	0	1	0	0	0	0
United Kingdom	5	4	8.57	0.83	0.66	0.78	0	1	0	0	0	0
Sample Mean (10)	3.5	2.4	8.475	0.75	0.44							
La Porta et al. Mean (49)	2.44	2.3	6.85	0.6	0.47							

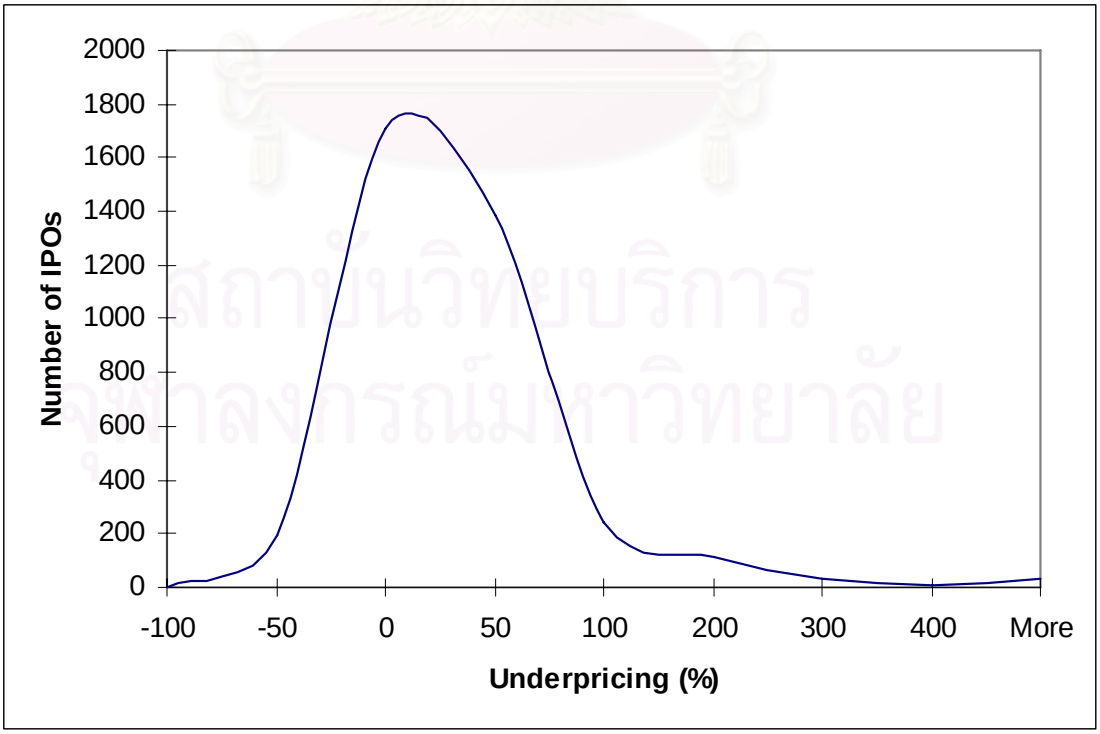
This appendix reports the level of investor protection as measure by three traditional measures from La Porta et al., 1998 which based on company law and commercial code and two new measures from La Porta et al., 2006 which based on securities law mandating new securities issue. INV_PRO refer to the principal component of SHARE, DISCLOSURE and LIABILITY. CIVIL, UK, FRENCH, GERMANY and SCANDINAVIAN are country legal origin from La Porta et al. (1998). The last column is the classification of whether country having bank-based or market-based financial system (value 1 refer to bank-based financial system and 0 refer to market-based financial system). Financial system characteristic is classified follow Demirgűć-Kunt and Maksimovic (2002). See appendix A. for variables details.

APPENDIX C: Descriptive statistic of initial public offerings

APPENDIX C.1 Underpricing of initial public offerings, characterized by country

Country	Number of IPOs	Average Underpricing (%)	Standard Deviation	Min (%)	Max (%)	Median (%)
Australia	598	17.28	0.4073	-50.00	288.00	6.00
France	375	-32.43	0.4215	-92.76	91.16	0.00
Germany	347	-9.24	0.2614	-82.98	153.66	0.00
India	64	173.28	6.2476	-65.52	1925.00	44.64
Japan	1090	28.55	0.7922	-99.58	1460.00	8.99
Norway	46	50.70	1.5538	-85.12	633.33	4.62
Singapore	295	31.37	0.4499	-73.75	272.93	17.84
Sweden	55	52.21	1.3068	-15.00	652.80	8.92
Thailand	108	47.17	1.0366	-67.45	596.15	21.78
United Kingdom	769	12.97	1.178	-98.61	1660.00	0.00
Total	3747	17.6235	94.0386	-99.58	1925.00	0.00

Notes: The data cover the period of 1991 to June, 2005. The sample limits to 3747 from 11492 of initial public offerings issue to local public market since the availability of first day closing prices. (This thesis uses the base date provided in DataStream as the first date of trading). Histogram below illustrates the distribution of underpricing sample.



APPENDIX C.2 Ex ante uncertainty, characterized by country

Country	Total IPOs	Industry				Use of Proceeds Disclosure			Pricing Technique			Estimated Elapse Time (Days)
		Hightech	Non-Hightech	Financial	Non-Financial	General	Specific	NA	Book-building	Others	NA	
Australia	1099	111	988	146	953	59	918	122	22	405	672	7
France	674	190	484	38	636	93	137	444	526	73	75	5
Germany	596	242	354	54	542	33	292	271	523	17	56	3
India	4764	283	4481	1028	3736	4642	119	3	12	56	4696	120
Japan	1810	384	1426	89	1721	95	1673	42	1052	758	0	NA
Norway	122	20	102	26	96	12	15	95	66	6	50	NA
Singapore	450	89	361	55	395	150	168	132	25	338	87	21
Sweden	133	40	93	10	123	21	44	68	89	14	30	60
Thailand	335	27	308	53	282	68	58	209	12	146	177	60
United Kingdom	1523	256	1267	412	1111	394	358	771	793	449	281	10
Total	11506	1642	9864	1911	9595	5567	3782	2157	3120	2262	6124	

Note: “NA” refers to the non-available data

APPENDIX C.3 Summary statistic of initial public offerings volume (in US$), characterized by country (1991-2004)

Country	Number of IPOs	Volume (USD millions)	Average Issue Size (USD millions)
Australia	1099	39040.34	35.52
France	671	26170.55	39.00
Germany	596	25849.57	43.37
India	4764	7391.66	1.55
Japan	1810	130018.30	71.83
Norway	121	4015.61	33.19
Singapore	450	6226.24	13.84
Sweden	133	11828.55	88.94
Thailand	335	10054.79	30.01
United Kingdom	1513	101755.73	67.25
Total	11492	362351.34	31.53

APPENDIX C.4 Annual number of initial public offerings, characterized by country

Year	Australia	France	Germany	India	Japan	Norway	Singapore	Sweden	Thailand	United Kingdom	Total
1991	8	1	20	121	57	2	11	0	58	4	282
1992	28	5	5	332	20	5	14	1	34	14	458
1993	72	9	10	570	91	14	22	5	44	22	859
1994	111	43	7	1000	146	14	31	16	46	151	1565
1995	35	16	15	1331	187	15	18	10	30	74	1731
1996	64	39	4	1134	157	13	16	4	22	183	1636
1997	76	59	20	66	142	23	34	17	4	163	604
1998	51	87	88	10	85	5	19	13	0	69	427
1999	107	118	186	15	106	3	67	21	0	41	664
2000	154	155	196	126	203	9	76	26	3	276	1224
2001	54	69	33	15	172	10	29	11	9	154	556
2002	70	36	7	6	132	0	27	5	12	82	377
2003	96	7	0	12	129	1	42	0	27	72	386
2004	173	27	5	26	183	7	44	4	46	208	723
Total	1099	671	596	4764	1810	121	450	133	335	1513	11492

APPENDIX C.5 Annual volume of initial public offerings (in US$ millions), characterized by country

Year	Australia	France	Germany	India	Japan	Norway	Singapore	Sweden	Thailand	United Kingdom
1991	1357.25	292.22	1603.45	196.21	3718.28	54.74	157.53	0.00	1015.81	5103.21
1992	2471.07	808.89	267.79	412.34	437.96	36.92	292.47	321.08	434.87	1208.02
1993	1127.03	5922.91	1373.83	895.72	22166.90	287.23	1311.46	360.92	1003.84	1314.98
1994	3832.19	7577.45	183.72	1409.15	17589.91	536.28	574.02	2208.56	1703.56	23642.76
1995	2249.56	1942.91	1376.84	1761.69	6470.45	249.36	199.74	1077.81	982.76	3966.20
1996	2790.16	472.50	7152.68	978.11	12090.02	266.15	185.16	79.85	430.02	10768.62
1997	2488.97	3744.29	1537.70	125.72	8208.84	370.53	394.24	506.82	70.93	16275.65
1998	3830.12	2764.69	2960.10	55.41	14625.76	72.38	117.23	477.11	0.00	4176.07
1999	2534.64	579.71	2448.19	118.20	5043.91	79.61	670.52	233.45	0.00	4401.87
2000	2046.50	630.66	5666.77	557.18	11344.09	1136.68	774.18	6016.25	159.04	12186.06
2001	544.65	692.21	666.92	69.93	6572.90	737.81	171.62	112.09	443.82	4317.74
2002	1624.44	232.34	66.89	236.30	4318.06	0.00	294.78	196.71	220.16	4377.36
2003	4847.61	0.72	0.00	121.14	5921.37	20.12	609.37	0.00	1096.68	4504.29
2004	7296.15	509.04	544.70	454.57	11509.85	167.80	473.92	237.88	2493.30	5512.91
Total	39040.34	26170.55	25849.57	7391.66	130018.30	4015.61	6226.24	11828.55	10054.79	101755.73

APPENDIX D. Correlation Matrix of Investor Protection

	SHARE	CREDITOR	ENFORCE	DISCLOSURE	LIABILITY	INV_PRO	UK Origin	French Origin	Germany Origin	Scandinavian Origin
SHARE	1.0000									
CREDITOR	0.5261	1.0000								
ENFORCE	-0.5457	-0.6998	1.0000							
DISCLOSURE	0.7641	0.5436	-0.6821	1.0000						
LIABILITY	0.8941	0.3599	-0.3099	0.6744	1.0000					
INV_PRO	0.8749	0.4280	-0.4728	0.8085	0.7731	1.0000				
UK Origin	0.6254	0.6248	-0.5603	0.7238	0.5153	0.8531	1.0000			
French Origin	-0.2963	-0.5862	0.2062	-0.1427	-0.4758	-0.1934	-0.3904	1.0000		
Germany Origin	-0.4865	-0.3147	0.4382	-0.6235	-0.2273	-0.7818	-0.8049	-0.1283	1.0000	
Scandinavian Origin	-0.1111	-0.1210	0.1873	-0.2808	-0.2013	-0.1610	-0.2356	-0.0376	-0.0774	1.0000

APPENDIX E. Alternative Analysis of Investor Protection and Use of Proceeds Disclosure

	Dependent Variable = GENERAL								
	1	2	3	4	5	6	7	8	9
Intercept	2.235[a]	0.820[c]	0.975[c]	7.568[a]	-4.913[a]	2.353[a]	3.593[a]	-5.452[a]	-7.975[a]
SHARE		0.361[a]					0.094[b]		1.348[a]
CREDITOR			0.686[a]				0.547[a]		0.420[a]
ENFORCE				-0.620[a]			-0.317[a]		0.200[a]
DISCLOSURE					0.762[a]			0.951[a]	0.723[a]
LIABILITY						-0.027		-0.323[a]	-0.996[a]
ISSUESIZE	-0.221[a]	-0.224[a]	-0.253[a]	-0.218[a]	-0.171[a]	-0.218[a]	-0.247[a]	-0.116[a]	-0.098[a]
HIGHTECH	-0.140	-0.036	-0.241[b]	-0.193[c]	-0.091	-0.160	-0.203[c]	-0.173	-0.193[c]
FINANCIAL	0.732[a]	0.663[a]	0.337[a]	0.614[a]	0.615[a]	0.728[a]	0.325[b]	0.611[a]	0.118
BOOK	0.052	0.094	0.074	0.210[b]	0.665[a]	0.027	0.187[b]	0.749[a]	0.106
McFadden R^2	0.032	0.049	0.122	0.080	0.114	0.032	0.133	0.151	0.234
LR Stat	135.978[a]	207.144[a]	520.391[a]	342.935[a]	485.694[a]	137.974[a]	566.208[a]	645.379[a]	996.965[a]
No. observations	3991	3991	3991	3991	3991	3991	3991	3991	3991

The sample comprises a maximum of 3991 initial public offerings issue to local public markets from 10 countries over the 15-year period from 1991 to the end of sixth month of 2005. The dependent variable, GENERAL is the binary variable equal 1 when the use of proceeds disclosed as "general corporate purpose" and 0 otherwise. SHARE measures the level of shareholder rights. CREDITOR measures the level of creditor rights. ENFORCE measures the overall quality of the legal system (rule of law). SHARE, CREDITOR and ENFORCE are from La Porta et al. (1998). DISCLOSURE measures the level of disclosure regulation based on an index of disclosure requirement in new security offerings (multiplied by 10). LIABILITY measures the level of liability standard of misstatement in the prospectus for issuer, underwriter and accountant (multiplied by 10). DISCLOSURE and LIABILITY are from La Porta et al. (2006). ISSUESIZE stands for the value of initial public offerings in US$ (in natural logarithm). HIGHTECH is the binary variable equal 1 when firm is classified as "high-tech industry" and 0 otherwise. FINANCIAL is the binary variable equal 1 when firm is classified as "financial services" and 0 otherwise. BOOK is the binary variable equal 1 when offering is priced by the book-building method and 0 otherwise. See Appendix A for variables details. The table reported maximum likelihood coefficient estimates and z-statistics based on Huber (1967) and White (1987) robust covariance.

a, b, and c indicate statistical significance at the 1%, 5%, and 10% levels (two-tailed), respectivel

BIOGRAPHY

Mr. Anon Aunsinmun was born in September 21, 1982 in Bangkok. At the primary through secondary level, he graduated from Assumption College. At the undergraduate level, he graduated from the Faculty of Law, Thammasat University in September 2004 with a Bachelor of Laws degree, LL.B., with major in Laws and minor in English Language. He joined the Master of Science Program in Finance, Chulalongkorn University in June 2005.