# DOES OWNERSHIP STRUCTURE EFFECT IPO UNDERPRICING: EVIDENCE FROM THAI IPOS

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**Abstract**

The study utilizes a unique set of IPOs data in Thailand post Asian Financial crises to identify the relationship between initial market adjusted underpricing and the ownership concentration. We find that a weak but a negative relationship exists between the two and therefore to certain extent refuting the signaling hypothesis of high ownership and high underpricing. We employ a rank correlation to identify the association between the two variables. A regression model using the widely used proxies of information asymmetry model fails to up hold the information asymmetry model in the context of Thai IPOs.

**Keywords:** Underpricing, Ownership Concentration, Information Asymmetry Model, Thailand, Emerging Markets

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## 1. Introduction

Underpricing of Initial Public Offerings (IPOs) has attracted much research. Research shows the pervasiveness of underpricing across markets and across time periods. The existence of underpricing in IPOs is robust to different models used in their measurement. However, there is a lack of consensus on what can explain underpricing. Some models attribute underpricing to the information asymmetry between issuers and investors (Rock, 1986), while others contend that underpricing is a tool to signal the quality of the issue (Leland and Pyle, 1977). In addition, underpricing has also been regarded as means to reduce legal liability (Tinic, 1988), and reduce marketing costs (Habib and Ljungqvist, 2001).

One of the most interesting aspects of firms especially in the context of developing and emerging markets is ownership concentration. Studies show that ownership structure plays a very important role in corporate finance in emerging markets, more than so in the developed countries (LaPorta, et all, 1999). More often than not the owners are the managers themselves in firms in such countries and therefore exert significant control (Claessens, 2000). The presence of less stringent regulations means that big have shareholders have an unhindered ability to pursue private benefits at the expense of other minor shareholders. Ownership concentration has been used as a variable to explain a number of financial phenomenons including operating performance among others. Ownership concentration therefore becomes an interesting variable to associate with the initial underpricing. While some studies have attempted to prove that ownership concentration is used as a proxy by the issuers to signal the quality of the issue, others have identified ownership concentration as a factor affecting the degree of initial underpricing specially in the case of emerging markets. Allen and Faulhaber (1989) state that high quality issuers use ownership concentration as a signal to the potential investor about the quality of the offering and therefore retain a higher stake which leads to underpricing. Chen and Strange (2004), on the other hand, have proved in the context of poor regulatory environment that high concentration ratio leads to lower initial IPO return as the market correctly identifies the ability of the dominant stockholder to pursue private benefits easily and without penalty. Although after the Asian Financial crises the regulations have been made stronger, Thai capital markets still is in it infant stage.

The purpose of this study is to find out the relationship between the ownership structure and the degree of initial underpricing context of Thai initial offerings post financial crises. We have used a unique set of data from the IPOs listed in the SET and MAI post financial crises. Most of the studies on Thai IPOs have focused on the period prior to the financial crises.

The rest of the paper is organized as follows. The next section reviews the literature. Section 3 elaborates the data and the methodology used in the study. In section 4 we discuss the results. We conclude in section 5.

## 2. Literature Review

The empirical evidence on the initial performance of initial public offerings (IPOs) suggests that, on average, they are underpriced (for example, McDonald and Fisher, 1972; Ibbotson, 1975; Ritter, 1991; Aggarwal et al, 1993; Tinic, 1988; and Loughran et al, 1994). The degree of underpricing ranges between 6 to 20 percent in developed markets (for example, Buckland et al, 1981; Ibbotson et al, 1991; and Levis, 1990), and between 100 to 500 percent in the emerging markets (for example, Su and Fleisher, 1999; McGuinness, 1992; and Dawson, 1987). Countries with the lowest underpricing tend to be countries in which most firms going public are relatively large firms with long operating history and where the contractual mechanism used has auction-like features (Loughran et al, 1994)[1]. On the other hand high initial returns are found in the emerging and developing markets. The Chinese market recorded an average underpricing level of 948.6 percent reported by Su and Fleisher (1999) for 308 IPOs listed on the Shanghai Stock Exchange for the 1987 – 1995 period[2]. Wethyavivorn and Koo-Smith (1991) studied a sample of 32 Thai IPOs from 1988 until 1989 and found the average initial return to be 56.73 percent. Similar results are also found in other studies carried out in the emerging and developing markets. In this perspective it becomes very important to identify the peculiar causes of such high abnormal returns in the emerging markets.

Several competing theories have been advanced to explain the underpricing.

### *2.1 Adverse Selection Models*

Rock's (1986) posits that there are two groups of investors, informed and uninformed investors and therefore information asymmetry. Due to this asymmetry, informed investors compete for only the "good" issues, thereby creating an adverse selection problem where the probability of uninformed investors of obtaining "bad" issues is larger. This is also referred to "the winner's curse". As compensation for the risk of trading against the informed investors and for receiving a disproportional number of "good" issues, Rock conjectures that a discount on the offer price is required to attract uninformed investors. The problem with Rock's model is that in the real world, the clear division of investors into uninformed and informed is rather difficult. Another issue that arises with Rock's model is the assumption that underwriters use the rationing method where informed investors crowd out uninformed investors with regards to "good" issues, thereby the underpricing of IPO is used to induce applications from the uninformed investors. In reality, IPOs are often over-subscribed and therefore, there is no true incentive for underpricing the issue to attract uninformed investors. Benviste and Spindt (1989) show that all of the IPOs by firm-commitment1 offering during a five-year period were over-subscribed in the pre-listing period[3]. Koh and Walter (1989) also reported this for the Stock Exchange of Singapore where 90 percent of the 63 IPOs examined during the 1973-1987 period are found to be over-subscribed[4].

### *2.2 Signaling Of Firm Quality*

The basic idea behind the signaling model is that high quality firms send signals to the investors so as to differentiate themselves from inferior issuers. Leland and Pyle's (1977) proposed one of the first signaling models describing the issuer's function in the IPO process[5]. They argue that the level of retention of shares by original shareholders can be a convincing signal of firm value to outsiders. This idea is very much tied to the principal-agent conflict which should be less of a problem when owners of the company retain a large amount of shares after the IPO, thus these companies are regarded as the ones that are of high quality. Investors are expected to make their IPO purchasing decisions based upon this crucial information. This model lacks empirical support, but is the basis for which Titman and Trueman (1986), Grinblatt and Hwang (1989) and Allen and Faulhaber (1989) build their conceptual framework. Titman and Trueman (1986) used the quality of the auditing firm's reputation as a signal in their model[6]. When companies decide to float shares on secondary markets, auditors are usually employed as independent valuers of the company's financial status and they prepare the financial information which is to be included in the prospectuses. It is perceived that some auditors offering the service are known for higher quality standards, especially those from the Big Five accountancy firms (Price Waterhouse Coopers, Arthur Andersen, KPMG, Ernst and Young and Deloitte Touche Tohmatsu). Titman and Trueman's (1986) model posits that issuers who wish to disseminate favorable financial

[1] Loughran, Tim, Jay R. Ritter and Kristian Rydqvist, "Initial public offerings: International insights", *Pacific-Basin Finance Journal* 2, 1994, pp165-199

[2] Su, Dongwei and Belton M. Fleisher, "An empirical investigation of underpricing in Chinese IPOs", Pacific-Basin Finance Journal 7, 2, 1999, pp173-202

[3] Benveniste, L. and P. Spindt, "How investment bankers determine the offer price and allocate new issues", Journal of Financial Economics 24, 1989, pp343-361

[4] Koh, F. and T. Walter, "A direct test of Rock's model of the pricing of unseasoned issues", Journal of Financial Economics 23, 1989, pp251-272.

[5] Leland, H. and D. Pyle, "Information asymmetries, financial structure and financial intermediation", Journal of Finance 32, 1977, pp371-387

[6] Titman, S. and B. Trueman, "Information quality and the valuation of new issues", Journal of Accounting and Economics 8, 1986, pp159-172.

information to their potential investors would be willing to pay the prestigious auditor who most likely would produce favorable financial information. Whereas issuers with less favorable information to release to the public would most likely find it not worthwhile to pay the cost of a high quality auditor since the auditor's revealed information would be less favorable. Therefore, the quality of the auditor chosen greatly affects the price of an IPO.

Allen and Faulhaber (1989) used a bivariate signaling model which is an extension of Leland and Pyle's (1977)[7]. In addition to the ownership retention rate being a signal of a company's quality, the issuer deliberately undervalues his IPO as a second signal to convey the high quality of the company to investors. By doing this, the issuer is conveying the message that it is financially sound and will be able to recoup losses incurred by undervaluing the issue.

The limitation of signaling models is that the assumptions conflict with regulations and business practice. In general, issuers must hold over 50 percent of their shares for controlling purposes, and must sell over 25 percent of their shares to the public. This is true for the Second Board of the Kuala Lumpur Stock Exchange as well (Securities Commission, Policy and Guidelines, Section 10.07). Restricted by such regulations, the range of shares offered to the public is limited between 26 to 29 percent whilst the ownership retention rate for issuers used for signaling are limited to 51 to 74 percent. In most IPO cases, share retained by owners amount to about 60 to 70 percent, leaving not much of a difference for the purpose of signaling (Wang, 1999). Additionally, signaling models lack the empirical evidence to support these theories.

### *2.3 Principal-Agent Models of IPOs*

The models discussed above have not accorded investment banks any particular role. In winner's curse model, banks are assumed to be as ignorant about a firm's value as the firm itself, and in the signaling models bank are simply passive distributors of shares to the public. The principal-agent model focuses on potential agency problems between the investment bank managing the flotation and the issuing firm. Baron and Holmstrom (1980) and Baron (1982) argue that underwriters exploit their superior knowledge of the market and underprice issues to minimize marketing effort and to ingratiate themselves with buy-side clients. They deliberately under price the offerings expending less effort to market the new issues and to favor their buying clients. Although this argument may be conceivable, and is somewhat supported by the empirical findings in Baron (1982), Muscarella and Vetsuypens (1989) find that the investment banks under price themselves by as much as other IPOs when they go public. If the investment bankers were, in fact, informationally advantaged, we would not expect to find them under pricing their own shares at IPO.

### *2.4 Pricing Methodology of IPOs*

One school of thought suggests that the returns of IPOs tend to influenced by the pricing methodology of the IPOs. Loughran et al (1994), show that fixed price mechanism tend to result in a high level of underpricing leaving huge money on the table due mainly to the offer price being set relatively early, before much information about the state of demand is known. With book-building however, the underwriters who organize road shows to find out the real demand of the IPO with a specific price range, the underpricing is lower as the underwriter and issuer more or less know what money the investors are keen to pay for the stock and readjust the offer price accordingly. This theory however may not always be fully correct. Hanley (1993) points out that the underwriters, even with high demand for IPOs in the market, still tend to underprice. This study is supported by Ritter and Welch (2002) where they show that underpricing in case of book building still remains very much there as in the original price. This theory does explain part of the underpricing due to uncertainty about the demand (in case of fixed price method), but still fails to explain as to what extent the underpricing is done only due to this factor.

### *2.5 Underpricing And Ownership Concentration*

One of the signals to the outside investor from informed issuers in the context of signaling theory is the ownership concentration. The signaling theory suggests that the issuing firms use the retention ratio as an indication of the quality of the offer. Although this has not been convincingly corroborated by empirical evidences, the explanation of the theory is quite interesting. A high concentration ratio would indicate a higher quality of firm as the owners are reluctant to release a high proportion of the future cash flows to the outside investors.[8]

Another explanation of the ownership structure and initial underpricing is suggested by Brennan and Franks (1997). They illustrate that initial owners underprice their IPOs to attract more applications for the primary shares. The resultant subscription means that the shares are rationed by the initial owners and

[7] Allen, F. and G. Faulhaber, Signaling by underpricing in the IPO market, Journal of Financial Economics 23, 1989, pp303-323.

[8] Jian Chen & Roger Strange, "The effect of ownership Sturcture on the Underpricing of Initial Public Offerings: Evidence of Chinese Stock Markets", The Management Research Papers, King's College London, University of London, April 2004

they will discriminate between applicants so as to reduce the size of new shareholdings. The result of this procedure would be a few large founding shareholders and many small investors. In this aspect underpricing is used as a tool of corporate control.

A third explanation of underpricing and ownership structure, which is mostly related to privatization process, offers a different perspective. The main argument is that companies controlled by a majority shareholder have a significantly smaller IPO premium because the market correctly understands the value of control rights, and this information will be reflected in the market price. The underpricing becomes even smaller if the control of a company is not expected to change hands and there is no market for corporate control. [9] This is contrary to the prediction of signaling theory that IPO underpricing signals the quality of the firm, and that a higher retained fraction of ownership should be related to higher IPO returns. This has been empirically supported in the context on Chinese IPOs. Jian Chen and Roger Strange found out that in a sample of 467 listed companies the underpricing was negatively related to the proportion of shares held by largest shareholder. This is other words means that outside investors perceive the unobstructed ability of the controlling shareholder to pursue private benefits at the expense of the others and therefore lead to lower IPO pricing.

## 3. Data and Methodology

The data for the study consists of all the IPOs that were offered in Thailand over the period January 2000 to June 2004. The IPOs prior the financial crises have not been included for consistency purposes. A total of 74 IPOs were made during this period which were subsequently listed either on the SET or MAI. SET is the Stock Exchange of Thailand while MAI stands for Market for Alternative Investment and lists stocks of small to medium range. Out of the 74 IPOs, 58 were listed on SET while the other 26 on the MAI. For the purpose of analysis the SET index has been used as a proxy for the market and the market return calculated accordingly. It is a composite index calculated on stock prices on the Main Board of the SET. It is a market capitalization weighted index which compares the current market value of all listed common stocks with the value on a base date of April 30, 1975, when the SET Index was first calculated and set at 100 points. Its calculation is adjusted in line with new listings, delisting, and capitalization changes. The data has been collected from a number of sources, primarily the Stock Exchange of Thailand (SET), the Securities and Exchange Commission (SEC), SEAMCO securities. The list of IPOs conducted over the period was available from SEAMCO securities while the details regarding the prospectus were available from SEC and SET.

### *3.1 Underpricing*

For the purpose of the study, the market adjusted underpricing was utilized which is calculated by adjusting the market return to the raw underpricing. The raw underpricing is the return earned on the 1st day of trading on the stock exchange and is defined as follows

$UP = (P_1-P_0)/P_o$

Where,

UP = Raw underpricing

$P_1$ = Closing pricing on the 1st day of trading

$P_0$ = offer price

The market return is the return earned on the market portfolio over the same period as that of the raw underpricing and is defined as follows:

$R_m = (I_1-I_0)/I_0$

Where,

$R_m$ = Market return

$I_1$= Set Index on the 1st day of trading

$I_0$ = Set Index on the day of Offering

The market adjusted underpricing is the difference between the raw underpricing and market return and is defined as follows:

$UP_{mk} = UP- R_m$

Where,

$UP_{mk}$ = market adjusted return

### *3.2 Rank Correlation*

In order to discern the association between degree of underpricing and ownership concentration we employ the spearman's rank correlation. The rank has been calculated for the overall sample as well as for individual years.

### *3.3 Regression Model*

The basic objective of the study is to identify the impact of ownership concentration on the initial underpricing. For this purpose the ownership ratio of the top shareholder post the IPO is taken into account. Moreover, the ownership ratio of the top five shareholders is also calculated as done in a number of similar studies. We have built the following regression model to test some of the proxies of information asymmetry model along with the ownership concentration variable:

$$UP_{mk} = \alpha_0 + \alpha_1 VAL_i + \alpha_2 LEV_i + \alpha_3 AGE_i + \alpha_4 ASSET_i + \alpha_5 MKTRUNUP_i + \alpha_6 PREMSTD_i + \alpha_7 STD_i + \alpha_8 EXD + \alpha_9 OWNC + \varepsilon_i$$

$UP_{mk}$ is the market adjusted underpricing and also is the dependent variable. VAL is the proceeds raised

[9] Jian Chen & Roger Strange, "The effect of ownership Sturcture on the Underpricing of Initial Public Offerings: Evidence of Chinese Stock Markets", The Management Research Papers, King's College London, University of London, April 2004

in the IPO. It reflects the maintained hypothesis that smaller offerings are more speculative, on average, than larger offerings (Beatty & Ritter, 1986). α1 is expected to be negative. LEV is the book value of pre-IPO debt (short term and long term) divided by the book value of all assets. It is argued that a high pre-IPO leverage ratio raises ex ante uncertainty about the financial strength of a firm, because debt financing for investment projects in not a viable choice for imposing a hard budget constraint on management, while a small pre-IPO leverage conveys a good news to the market. This suggests that $\alpha_2$ is positive. Ritter (1991) finds that there is a strong negative relationship between the age of the firm and the IPO initial return, which is consistent with the notion that risky issues require higher average returns and that age is a useful proxy for this risk. Therefore, $\alpha_3$ should be negative. The age of the firm is calculated as the difference between the date of IPO and the date of establishment. Prevailing market conditions (MKTRUNUP and PREMSTD) influence the assessment of firm risk. MKTRUNUP is the cumulative daily returns on the security exchange 30-trading day before an IPO, an indicator for the market conditions surrounding a new issue. PREMSTD is the standard deviation of daily returns on the index 30-trading day before an IPO, an indicator for the market uncertainty surrounding a new issue. STD is the standard deviation of daily after-market returns estimated over a 100-trading day period after inception of market trading. If market returns are high and the variance of returns is low at the time a firm goes public, the IPO initial return will naturally be high (Ritter, 1991). Moreover, risky firms have an incentive to go public when market conditions are favorable. Hence, $\alpha_5$ should be positive while $\alpha_6$ should be negative. Furthermore, Ritter (1984) uses the variability of stock returns of the issuing firm in the after-market period as one of the proxies for ex ante uncertainty. He finds significant relationship between the variability of after-market returns and the degree of IPO underpricing for a sample of natural resource companies. He interprets his findings as giving support to the claim that the greater the uncertainty about the true price of new shares, the larger is the discount that an issuer must offer in selling IPOs, and that there is no reason to restrict risk proxies to ex ante observable characteristics. Therefore, we hypothesize that the degree of IPO underpricing is positively related to STD, i.e., $\alpha_7$ is positive. EXD represents the stock exchange dummy variable. Bigger issues are generally listed in bigger exchanges while smaller issues are restricted to alternative markets. Thus the degree of underpricing for IPOs listed in MAI should be higher than those listed in the SET. We expect $\alpha_8$ to be positive.

OWNC is the ownership concentration variable measured by the proportion of outstanding shares held by the top shareholder reported post IPO. In contrary to the signaling model, we expect the coefficient of ownership variable, $\alpha_9$, in an emerging market like Thailand to have a negative relationship with degree of initial underpricing.

## 4. Discussion of empirical results

### *4.1 Descriptive Statistics*

Table 1 shows the distribution of IPOs by year and the exchange where it was listed. It can be seen from the table that with the passage of time since the economic crises the number of IPOs have increased significantly with the year 2003 having as many as 23 IPOs. The bulk of the IPOs are listed on the SET. Smaller firms are listed in the MAI. 58 IPOs were listed on SET and 16 were listed on the MAI.

INSERT TABLE 1

Table 2 shows the distribution of IPOs by gross proceeds. As we can see from the table, most of the proceeds from the offering are in the region of 500 million baht (1 USD= 40 Baht Approx.). The number of IPOs raising more than 2,000 million baht is only about 13%. Also the table shows that the MAI is exclusively related to the listing of small and medium stocks.

INSERT TABLE 2

Table 3 presents the initial market adjusted returns of the IPOs across the exchange and over the time period studied. The year 2000 and 2004 shows initial overpricing while the middle three years shows underpricing, with the highest underpricing in the year 2003 which also is the year with the highest number of listing. The amount of underpricing has generally increased over the time period and probably with more listing 2004 could also witness some underpricing by the end of the year. In the year 2003, the degree of underpricing in both SET and MAI are similar, where as the same pattern does not hold for other years. The degree of underpricing is consistently higher in SET listed securities that those listed in MAI.

INSERT TABLE 3

Similarly Table 4 presents the initial market adjusted return of the IPOs on the basis of gross proceeds which is segregated into the two exchanges. Generally the degree of underpricing decreases with the increase in the gross proceeds with the only exception in the class of greater than 2000 million, which is quite surprising. The gross proceeds category of 1500-2000 million baht shows the least amount of underpricing, where as the extreme is in the more than 2000 million category.

INSERT TABLE 4

Table 5 shows the initial market adjusted return of the IPOs classified on the basis of the age of the company. As shown in the table, the result is

surprising. Surprisingly, the degree of underpricing of new companies is less than those of the older companies.

INSERT TABLE 5

Table 6 shows the distribution of initial market adjusted return of IPOs on the basis of the of post IPO ownership concentration which is reflected by the ownership of the top shareholder. Initial underpricing is the maximum in less than 20% category and the 20-30 % category. The degree of underpricing in more than 50% category is greater all other categories except for one.

INSERT TABLE 6

### *4.2 Rank Correlation*

Table 7 presents the results of the rank correlation between market adjusted initial underpricing and ownership concentration. This is done for the entire sample as well as for the individual years. Since the number of IPOs in 200 was very small we have excluded them from the individual year analysis.

INSERT TABLE 7

The rank correlation for the entire sample as well as the individual years with the exception of 2004 shows a negative relationship between the two variables. Although the value is not statistically significant, the sign of the coefficients indicate that ownership concentration and initial underpricing move in opposite directions.

### *4.3 Results of the regression model*

Table 7 presents the coefficients of the variables used in the study. As we can see none of the variables is significantly able to explain the underpricing of Thai IPOs. The issue size coefficient is positive which is contrary to the established evidence that underpricing is lower or less with the increase in the issue size. Studies in the past have indicated a negative relationship between the age of the firm and the degree of underpricing. However, our model shows a weak, but a positive relationship between the two. If, however, when we remove 3 outliers from the sample (namely TKS Technology, Chuo Senko Thailand and United securities plc) the coefficient turns out to be a weak but negative one. Although the pre-IPO total asset variable is also insignificant in explaining the underpricing, its coefficient is negative, consistent with the idea that larger companies are less under priced.

INSERT TABLE 8

Leverage as a variable also fails to explain the underpricing phenomenon of Thai IPOs. However, the coefficient of the variable is positive, consistent with its expected sign. Similarly, the coefficients of the variables cumulative return of the market 30 days prior the IPO and standard deviation of the market 30 days prior the IPO also produce expected signs. However, both the variables are insignificant in explaining the underpricing phenomenon is Thailand. The standard deviation of the stock 100 days post IPO is also unable to explain the underpricing results. The variable do however, shows the expected sign, positive here, in relation to underpricing.

### *4.4 Ownership Concentration*

Although the ownership concentration coefficient is not statistically significant its negative sign throws an interesting insight. The negative sign means that the initial underpricing and ownership concentration are negatively related. This opposes the signaling theory hypothesis which states that initial underpricing and ownership concentration should be positively related. In other words higher the post ownership concentration the higher should be the underpricing as the market would take that concentration ratio as an indication of higher quality offer. But that is not the case with Thai IPOs. This suggests that a high ownership concentration post IPO does not act as a signal of a better quality offer to the Thai investors. Thus the Thai experience is inclined more towards the other explanation of ownership concentration and initial underpricing which offers a positive relation between the two. This means that investors look at high post IPO ownership concentration as something not very desirable. This suggests that investor see large shareholders as trying to maximize the proceeds from the offering by setting a high price. However, a detailed research is warranted to confirm the characteristics of initial underpricing and ownership concentration.

## 5. Conclusions

The study of Thai IPO seems very opportune at this time as the Thai capital markets have somewhat bounced back from the collapse of the economic crises in 1997. The total capital raised over the period through the 74 IPOs amounts to 128169.37 million Baht, with MAI's share at 2 %. The biggest issue during the period was that of PTT which raised a staggering 28000 million Baht through the privatization process. Apart from some big issues most of the issues were smaller in size with about 50% of the IPOs raising equal or less than 500 million Baht. Similarly, most of the IPOs were issued during the year 2002 and 2003. The year 2002 can be regarded as the year when the IPOs bounced back with 23 new issues, with 18 being listed in the SET and the rest 5 in MAI. 2003 proved to be even better with the number of total IPOs rising to 28, out of which 22 were listed in SET and the rest in MAI.
Studies prior to 1997 (Wethyavivorn and Koo-Smith, 1991) have identified large underpricing of IPOs over periods 1989-1993 and then from 1989-1997. The paper has studied the underpricing phenomenon

of the Thai IPOs over the 2000-2004 period covering 74 IPOs. Although the degree of underpricing seems to be less than those documented by other similar studies on the Thai IPOs, underpricing still is quite substantial at 33%. The study which primarily tries to test the information asymmetry model, finds out the model is unable to explain the underpricing phenomenon for the Thai IPOs. A very weak explanatory power provides evidence that the information asymmetry model, especially the adverse selection model has no power in explaining underpricing. The rank correlation test was utilized to see the association between underpricing and ownership concentration. Results showed a weak but negative relationship between the two. This to certain extent validates the wide-spread idea in the emerging markets that high concentration can lead to the pursue of private benefits.

The study developed a model of regression to identify the causes of underpricing specially the impact of ownership concentration. A number of proxies relating to information asymmetry model was included: the gross proceeds, age of the company, pre-IPO leverage, pre-IPO total assets, cumulative market return 30 days prior to the IPO, standard deviation of the market 30 days prior to the IPO, standard deviation of the IPOs 100 for days post listing, , stock exchange, and ownership concentration. The basis for selecting these variables were a number of similar studies carried out both in the developed as well as in the emerging markets.

The IPOs for the year 2000 were overpriced where as the IPOs of year 2003 are the most underpriced at 55% followed by the IPOs of 2002 with 31%. Surprisingly, the initial underpricing in MAI is smaller compared to SET, which reputes the empirical evidence found in the developed market that issues listed in smaller exchanges demonstrate higher underpricing. And this is not an average figure, it has occurred consistently over the period studied. The other surprising result of the process is the presence of high degree of underpricing for issue sizes of more than 2000 million baht. This was the largest segment in terms of gross proceeds, however, the underpricing in this category is the highest compared to other smaller issue segments. The underpricing for the issues made by prestigious underwriters is slightly less than those made by non-prestigious underwriters (32.92% versus 34.22). The regression analysis could not identify any specific factor determining the initial underpricing of the Thai IPOs. Ownership concentration factor brought out some results which were inconsistent with the signaling hypothesis but consistent with some other studies in the emerging market. High ownership concentration was not followed by high initial underpricing. In fact the reverse took place which indicated the offer price was already set high by the large shareholders of the company so as to drive away the kind of initial high returns.

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**Appendix 1.** Comparison of underpricing theories

| | | |
|---|---|---|
| Adverse Selection Model | | |
| Basis Assumption: Information asymmetry between informed and uninformed investor and therefore winners' curse.<br>Course of Action: Underprice offering to attract uninformed investors. | | |
| Winner's Curse Rock (1986) | Informed vs. Uninformed Investors | Discount on the offer price required to attract uninformed investors. |
| Koh and Walter (1989)- Stock Exchange of Singapore (1973-1987) | Underpricing is costly and not desired by the issuers | Selecting prestigious underwriters who then offer the IPOs at lower discount levels |
| Signaling Models | | |
| Basic Assumption: Issuers have superior information than investors<br>Course of Action: Signal the prospective investors about the quality of the offerings. | | |
| Allen and Faulhaber (1989) | Signaling through initial offer price | High quality firms set low prices to benefit from subsequent offerings |
| Grinblatt and Hwang (1989) | Signaling through initial offering price and fraction of equity floated | Owner later sell the remaining stake at a higher price and achieve portfolio diversification. |
| Welch (1989) | Signaling through initial offer price | Direct imitation cost borne by low value firms; if insufficient to deter mimicking, underpricing becomes additional wedge leading to separating equilibrium |
| Principal Agent Models: | | |
| Basic Assumptions: Underwriters have superior information about the issue<br>Course of Action: Issuers let underwriters price the offerings; underwriters trade off between underwriting costs and benefits from underpricing | | |
| Baron (1982)<br>Baron and Holmstrom (1980) | Underwriters have (1) superior information about the demand for the new shares and (2) their marketing efforts are unobservable/verifiable | issuers rationally let underwriters underprice |
| Muscarella and Vetsuypens (1989a) | | Self-marketed IPOs vs. Others IPOs |
| Pricing Methodology Model:<br>Basic Assumption: Pricing Methodology Affects IPO underpricing<br>Course of Action: choice of appropriate mechanism | | |
| Loughran et al (1994) | Offer price set relatively early in fixed price mechanism, before much information about the state of demand is known | Results in a high level of underpricing leaving huge money on the table |

**Appendix 2.** Flowchart of the IPO process

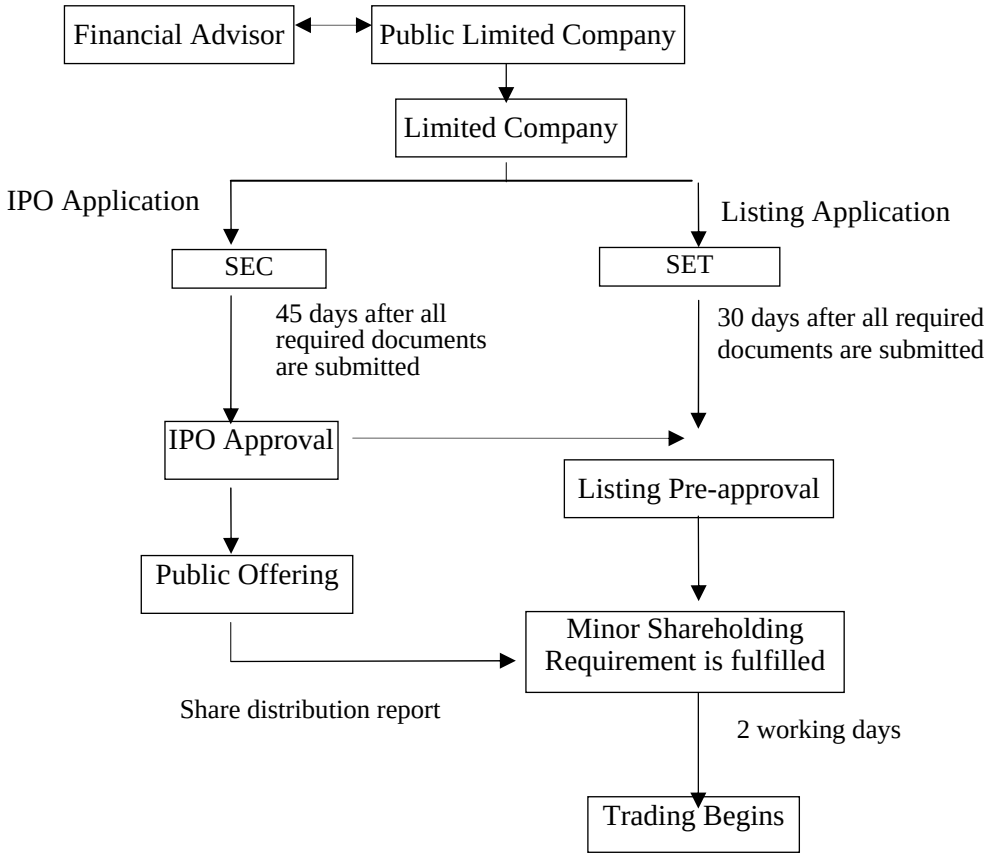


**Table 1.** Distribution of IPOs by Year and Exchange

| Exchange | SET | | MAI | | Total | |
|---|---|---|---|---|---|---|
| Year | Issue Amount | No. | Amount | No. | Amount | No |
| 2000 | 9172.00 | 3 | | 0 | 9172.00 | 3 |
| 2001 | 29369.90 | 6 | 131.28 | 3 | 29501.18 | 9 |
| 2002 | 9712.00 | 18 | 519.14 | 5 | 10231.14 | 23 |
| 2003 | 57872.80 | 22 | 1717.2 | 6 | 59590.00 | 28 |
| 2004 | 19433.42 | 9 | 241.63 | 2 | 19675.05 | 11 |
| Total | 125560.12 | 58 | 2609.25 | 16 | 128169.37 | 74 |

**Table 2.** Distribution of IPOs by Exchange and Gross Proceeds

| GROSS PROCEEDS | SET | MAI | Total |
|---|---|---|---|
| SIZE < 500 M | 28 | 15 | 43 |
| 500 <= SIZE<1000 | 12 | 1 | 13 |
| 1000<=SIZE<1500 | 6 | 0 | 6 |
| 1500<=SIZE<2000 | 2 | 0 | 2 |
| SIZE>=2000 | 10 | 0 | 10 |
| TOTAL | 58 | 16 | 74 |

**Table 3.**Underpricing across exchange and year

| Year | SET | | MAI | | Total sample |
|---|---|---|---|---|---|
| | Number | Initial Return | Number | Initial Return | Initial Return |
| 2000 | 3 | -6.60 | 0 | | -6.60 |
| 2001 | 6 | 40.59 | 3 | 0.41 | 27.20 |
| 2002 | 18 | 37.97 | 5 | 4.15 | 30.62 |
| 2003 | 22 | 55.09 | 6 | 55.04 | 55.08 |
| 2004 | 9 | 0.58 | 2 | -5.62 | -0.55 |
| Average | 58 | 36.63 | 16 | 21.31 | 33.32 |

**Table 4.** Underpricing on the basis of exchange and Gross Proceeds

| GROSS PROCEEDS | SET | Returns | MAI | Returns | Total Sample | |
|---|---|---|---|---|---|---|
| SIZE < 500 M | 28 | 36.30 | 15 | 19.53 | 43 | 30.45 |
| 500 <= SIZE<1000 | 12 | 37.24 | 1 | 47.96 | 13 | 38.06 |
| 1000<=SIZE<1500 | 6 | 28.33 | 0 | - | 6 | 28.33 |
| 1500<=SIZE<2000 | 2 | 19.37 | 0 | - | 2 | 19.37 |
| SIZE>=2000 | 10 | 48.97 | 0 | - | 10 | 48.97 |
| TOTAL | 58 | 37.27 | 16 | 21.31 | 74 | 33.82 |

**Table 5.** Initial Returns on the basis of the age of the company

| Age | No. | Initial Return |
|---|---|---|
| > 5 Age | 11 | 21.81 |
| 5 =< Age <10 | 19 | 29.48 |
| 10 =< Age<20 | 31 | 42.09 |
| Age >=20 | 13 | 30.60 |
| Total | 74 | 33.82 |

**Table 6.** Ownership Concentration

| Variables | < 20% | 20-30% | 30-40% | 40-50% | >50% |
|---|---|---|---|---|---|
| No. of IPOs | 21 | | 13 | 7 | 14 |
| Av. Initial return | | 16.37 | 44.95 | 34.26 | 33.14 |
| Av. Issue Size | | 615.04 | 481.80 | 5111.17 | 4667.24 |
| Av. Age of the company | | | 16.500 | 13.571 | 11.786 |
| Av. Pre-IPO total assets | | 2406.983 | 929.568 | 6055.253 | 25191.775 |
| Av. Leverage | | | 0.461 | 0.394 | 0.518 |
| Av. Concentration Ratio | | | | | |

**Table 7.** Rank Correlation

| Particulars/Year | Full Sample | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|
| Rank Correlation | -0.0897 | -0.083 | -0.114 | -0.213 | 0.0909 |
| t-value | -0.765 | -0.221 | -0.524 | -1.111 | 0.274 |

**Table 8.** Regression Coefficient

| | Unstandardized Coefficients | | Sig. |
|---|---|---|---|
| | | | |
| | B | Std. Error | |
| (Constant) | -12.749 | 77.626 | .870 |
| Gross Proceeds | 2.860E-03 | .003 | .400 |
| Age of the company | .627 | .956 | .514 |
| Pre-IPO Total Assets | -3.816E-04 | .001 | .472 |
| Leverage | 3.724 | 41.221 | .928 |
| Cumulative return of the market 30days prior the IPO | 0.572 | .943 | .546 |
| Standard deviation of the market 30 days prior the IPO | -2.339 | 26.583 | .930 |
| Standard deviation of the stock 100 days post IPO | 6.256 | 8.714 | .476 |
| Stock Exchange | 13.983 | 23.229 | .550 |
| Ownership Concentration | 3.203E-02 | .747 | .966 |

Dependent Variable: Market Adjusted Initial Returns