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The pricing and performance of IPOs for small and medium-sized enterprises: Evidence from Thailand

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This paper examines the pricing and performance of initial public offerings (IPOs) for small-and-medium-sized enterprises (SMEs) on the Thai Market for Alternative Investments (MAI) from September 2001 to October 2008. Underpricing is calculated using headline underpricing, underpricing issuer loss, underpricing loss by market value, and underpricing loss by issuer price. Aftermarket performance employs monthly cumulative abnormal returns, buy-and-hold returns, and wealth relatives. The underpricing results show respective average underpricing of 12.69%, 5.01%, 4.74% and 11.40% for the measures used. This is significantly lower than the underpricing found for the large-firm IPOs listing on the Stock Exchange of Thailand (SET). However, there is much variability in pricing over the sample period, with substantial underpricing in 2003/04, and correctly priced issues on average in 2001/02 and 2005/06/07. While the performance analysis is suggestive that SMEs perform well after listing, returns adjusted for market performance indicates that this generally only holds up until the second year after listing.

Keywords: small-and-medium-sized enterprises, initial public offerings, underpricing, abnormal returns

JEL classification: C12; C23; G24; G32

1. Introduction

In Thailand and elsewhere, small-and-medium-sized enterprises (SMEs) are an important mechanism for economic development and growth. This is because SMEs play a significant role in selling their own products in the form of finished goods and services. At the same time, they also act as subcontractors or suppliers of materials and are a major component of demand for the intermediate goods and services of larger enterprises. Accordingly, in many economies, but especially in developing economies like Thailand, SMEs play a major role in generating and sustaining growth, employment, and trade. For instance, SMEs account for about 96 percent of all Thai businesses [the Office of Small and Medium-Sized Enterprises Promotion (2009) defines small (medium) enterprises in Thailand as those with fewer than 50 (more than 50 but not more than 200) employees or fixed assets not exceeding 50 (more than 50 but not more than 200) million baht (USD/THB35)]. They are especially important in selected industries in Thailand, including manufacturing, wholesale and retail sales, and services.

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Following the 1996 economic crisis in Thailand, many businesses closed or downsized. One government response to reinvigorate economic activity was to provide support to SMEs through the provision of advice and financial assistance, the promotion of entrepreneurship, and the recognition and creation of new markets. Starting in 2000, the Thai government enacted legislation for the central purpose of assisting, promoting, and developing SMEs in Thailand. The government created several offices to facilitate this process. These include the Office of Small and Medium Enterprises Promotion, the Institute for Small and Medium Enterprises Development, and the transformation of the Small Industry Finance Cooperation to the Small and Medium Enterprise Development Bank of Thailand. Several financial institutions, including state-owned and commercial banks, also provided renewed support by the provision of credit facilities and advice to SMEs. However, evidence elsewhere, especially in Taiwan, Japan and Germany, suggests that close cooperation between the public and private sectors is also required to systematically address some of the areas of shortcomings faced by SMEs, including in marketing, labour supply, production technology, management, access to public services, and especially, a shortage of capital.

Access to capital markets, especially equity, is a major requirement for the sustainability and ongoing development of the SME sector itself, and ultimately the evolution of at least some SMEs into larger, globally competitive enterprises. Unfortunately, this is where SMEs suffer an acute disadvantage through the lack of critical size, liquidity, information asymmetry, and the lack of suitable markets. Importantly, initial public offerings (IPO) on organised exchanges are an important step in the lifecycle of new and start-up firms and provides important opportunities for access to new capital and the cashing out of entrepreneurs, private equity, and venture capitalists alike. However, many economies lack formalised exchanges accessible to SMEs. Nonetheless, even where exchange-traded opportunities exist for SMEs, as in Thailand, there is still some uncertainty about the ongoing firm performance needed to sustain these markets, and more importantly, their effectiveness in appropriately pricing the issuance of primary securities.

The purpose of this paper is to study the pricing and performance of the IPOs for SMEs listed on Thailand's MAI. The paper is organized as follows. Section 2 discusses the development, structure, and operations of the MAI. Section 3 provides a review of the literature on IPO underpricing and performance. Section 4 presents the methodology and Section 5 explains the empirical results. Some concluding remarks are in Section 6.

2. Thai IPO market for SMEs

The MAI, the sister bourse of the Stock Exchange of Thailand (SET), was established under the Securities Exchange of Thailand Act on November 11, 1998, with operations officially commencing on June 21, 1999 and trading starting on September 17, 2001. The launch of the MAI represented a significant step in the development of the Thai capital market, and originally aimed at providing opportunities for SMEs to access long-term capital for business expansion. More recently, the MAI has focused on the subset of young, high-growth, innovative and knowledge-based SMEs. Here, as elsewhere, the MAI's purpose is not only to create new fund-raising opportunities for innovative business with high growth potential, but also to provide a greater range of investment alternatives for Thai and international investors.

The MAI follows the same trading rules and settlement procedures as the SET, though the listing requirements for the MAI are considerably more flexible. For instance, companies seeking listing on the MAI must have capital of between 20 million baht and 300 million baht compared to a minimum of 300 million baht for the SET (MAI 2008; SET 2008). However, firms must comply with the same disclosure regulations as SET-listed companies, as well as any regulations set by the Thai Securities and Exchange Commission (SEC) regarding the appointment of independent directors and audit committees and compliance with SEC standards for auditing and internal controls. As a further incentive for SMEs to access capital markets, the government approved a program where firms listing on the MAI through to the end of 2007 could qualify for corporate income tax rates of 20 percent for five years, compared to 25 percent for firms on the SET and 30 percent for unlisted companies (Revenue Department 2007). As a snapshot, by December 2007 54 individual securities were on the MAI, comprising 48 common stocks and 6 warrants. At the time, the MAI's market capitalisation had reached 38,268.98 million baht with an average daily turnover of 338.95 million baht. Figure 1 depicts the number and value of MAI IPOs from 2001 to 2007.

<FIGURE 1 HERE>

3. Literature review

One of the more puzzling phenomena in finance is the underpricing of new stock issues. There are various explanations for this, including information asymmetry, signalling relationships, cyclical behaviour, and third-party certification. Foremost among these, the information asymmetry hypothesis sees underpricing as an equilibrium occurrence when

investors are disproportionately informed. As uninformed investors face the consequences of poor judgement when other investors are better informed, underpricing arises to compensate uninformed investors for the risk of ending up with a less successful IPO.

Underpricing is clearly a concern for entrepreneurs, venture capitalists, and private equity investors, since it reduces the amount received by going public. However, one argument is that the extent of the entrepreneurs' concerns is limited to the influence on their net wealth. Costly action, such as employing reputable underwriters, is undertaken only where advantageous. In general, as the proportion of the company going public escalates, the existing investors in the firm attempt to reduce underpricing at an increasing rate. When informed investors believe an issue is overpriced, they discard the investment opportunity and seek issues elsewhere that are not overpriced.

An alternative rationale for underpricing is that the value of an issue depends on market demand and the selling efforts of underwriters. In general, the underwriter is typically aware of demand levels, more so than the issuer. As such, the issue price is set below its 'true value' to increase interest. Similarly, the issuer is more informed then potential investors. In an attempt to resolve problems with asymmetric information, the underwriter signals the true value of the firm by underpricing the securities and acquires a percentage of the shares. The retention of shares comes as a signalling device to the market—the higher the withholding, the higher the return expected. Other work draws attention to the signalling relationship between the issuer's fractional holding of the firm's equity and the expected future cash flows. In response to these and other theoretical developments, a body of empirical research has arisen, largely in the US, concluding that IPOs are indeed underpriced [see, most recently, Ibbotson et al. (1994), Megginson and Weiss (1991), Hunt-McCool et al. (1996), Habib and Ljungqvist (1998; 2001), Francis and Hasan (2001), Bradley and Jordan (2002), Loughran and Ritter (1995; 2002)].

Relatively fewer studies concern IPO (under)pricing in Thailand, with all extant work focusing only on the SET, the exchange for large IPOs [Wethyavivorn and Koo-Smith (1991), Allen et al. (1999), Lonkani (2000) and Lonkani and Firth (2005), Chorruk and Worthington (2010), Aumeboonsuke and Tangjitprom (2012), Ekkayokkaya and Pengniti (2012)]. For example, Wethayavivorn and Koo-Smith (1991) studied 32 IPOs over the period 1988–89 and found that the average initial return was 56.73%. Similarly, using a sample of 150 IPOs from 1985 to 1992, Allen et al. (1999) reported that the average initial return for Thai IPOs was 63.49 percent, while Lonkani (2000) concluded that the average initial return was 46.70 percent using a sample of 292 IPOs from 1987 to 1997. Generally, and in common

with evidence from developed markets, these studies provide evidence that large IPOs in Thailand are also substantially underpriced. This is perhaps best summarised by the results in Chorruk and Worthington (2010), who the presence of underpricing in the order of 5–17% for SET IPOs over the period 1997 to 2008.

In terms of performance, most of the extant work concurs with work in the US by Moonchul and Ritter (1999) that post-IPO firms generally underperform as investors are overly optimistic about their potential when listed. However, Loughran and Ritter (1995) counter that underperformance is not a unique trait of IPOs rather a result of IPO firms being small with low book-to-market values. There are just a few recent studies of Thai IPO performance, including Allen et al. (1999) and Kim et al (2004). Allen et al (1999), for instance, studied 150 IPO listed on the SET from 1985 to 1992 and uncovered evidence of poor short-run aftermarket performance: the average market-adjusted cumulative abnormal return at the end of the listing month was –2.9 percent (*t*-value = 2.18). Nevertheless, they find no evidence for poor long-run performance up to 36 months after the IPO (with the exception of the first two months). Indeed, the average market-adjusted cumulative abnormal return at the end of a 36-month period is 10.02 percent, though not statistically significant.

However, when outliers are removed from cross-sectional analysis, there is still the suggestion that Thai IPOs may underperform on average in the long run. Moreover, aftermarket returns are higher with value-weighted adjustment of the benchmark suggesting that smaller firms have better performance. Once again, the aftermarket performance of Thai IPOs is similar to Wethyavivorn and Koo-smith (1991) but contrasts with Ritter (1991), Levis (1993), Aggarwal et al. (1993) and Allen and Patrick (1994). Kim et al. (2004) also suggest evidence of a long-term decline in operating performance for IPO firms in Thailand using a sample of 133 SET IPOs from 1987 to 1993. However, most recently, Chorruk and Worthington (2010) find evidence of higher performance for the two years after the IPO on the SET and underperformance only thereafter. Therefore, this paper is the first study of IPO pricing and performance using a sample of SMEs listed on the MAI.

4. Data and method

The existing literature on the pricing and performance suggests two board hypotheses for each study as follows. First, in terms of pricing, we hypothesise that the IPOs for SMEs are underpriced. Second, in terms of performance, we hypothesise that the IPOs for SMEs underperform post-listing. In order to test the first hypothesis, four complementary measures

of underpricing are calculated: headline underpricing, underpricing issuer loss, underpricing loss by market value, and underpricing loss by issue price (Habib and Ljungqvist 1998; Silva Rosa et al. 2003). To test the second hypothesis, we calculate monthly average cumulative abnormal returns (CAR), buy-and-hold returns (BHR) and wealth relatives (WR).

4.1 *Sample selection and data sources*

For the pricing analysis, the sample comprises 53 of the total 55 common stock IPOs (96.36%) listed on the MAI from September 2001 to December 2007. We excluded two IPOs from the sample because of data incompleteness. For the performance analysis, however, we are able to include all 55 IPOs (100%) except where the individual performance measure requires the same data used in the pricing analysis, in which case we are again restricted to 53 of the 55 IPOs. Note also that number of IPOs in the sample exceeds the number of common stocks listed at the end of the period because a few firms have subsequently delisted during the sample period, usually when moving to another market such as the SET.

First, we use observations of the issue price and first-day closing price from the SETSMART (SET Market Analysis and Reporting Tool) to calculate the initial returns. SETSMART, a web-based application obtained from the SET, seamlessly integrates all data obtainable for Thai companies listed on the SET and the MAI, including historical stock prices, indices, listed company profiles, and news. Second, details of the IPO distribution (number of primary, secondary shares and total shares) is from the prospectus filing form (Form 69-1). We download this information from the IPO filing database provided by the Capital Market Information Centre at the SEC.

Third, the SET Fact Book series 2001–07 supplies the remaining non-price data requirements, including the proportion of free float and strategic shareholders from the Information and Communication Technology Department at the SEC. For the performance analysis, we sample the 53 IPOs listed on the MAI from September 2001 to December 2007. We calculate the aftermarket performance from September 2001 to October 2008 using individual stock prices and price index data for the SET and MAI from SETSMART.

4.2 *Measures of underpricing*

The four underpricing measures used in this study are adapted from Habib and Ljungqvist (1999), Silva Rosa et al. (2003), and Chorruk and Worthington (2010). While not previously applied to SMEs, we argue that these measures nonetheless well reflect the nature of underpricing in SMEs. The only possible difference is that founding and/or family

shareholders traditionally hold SMEs very closely, even after the IPO, and so the proportion of free float in these measures will typically be less than that for a large firm IPO. However, as shown in the calculations below, other than the basic headline underpricing measure, the calculations used adjust for shares held by strategic (pre-IPO) shareholders and firm size so the measures of underpricing obtained are comparable for any size IPO (including SMEs). First, headline underpricing (*UPH*) is a traditional measure of underpricing:

$$UPH = \frac{\left(P_c - P_i\right)}{P_i} \tag{1}$$

where P_c is the closing price on the first day of trading and P_i is the issue price of the company *i*. Second, underpricing issuer loss (*UPIL*) determines the loss to the issuer per share:

$$UPIL = \left(1 - \text{Strategic Shareholders}\right) \times \frac{\left(P_c - P_i\right)}{P_i} \tag{2}$$

where strategic shareholders is the portion of ownership of the firm retained or the proportion of shares held by the shareholders for the purpose of company management or business strategy and all other variables are as previously defined. Strategic shareholders equal to 100% minus the percentage of free float. Free float is the proportion of shares not held by strategic shareholders and not reacquired by the issuing company. Free float is estimated from the company's shareholder register as of the latest registered book closing date for general meeting in each year and is adjusted for subsequent changes in ownership structure.

Third, underpricing loss by market value (*UPLMV*) is the underpricing loss standardised by the firm's market value:

$$UPLMV = \frac{\left(P_c - P_i\right) \times \left(\text{Secondary shares} + \text{Strategic shareholders} \times \text{Primary shares}\right)}{P_c \times \text{Total shares}} \tag{3}$$

where secondary shares are the number of shares held by pre-IPO shareholders, primary shares are the number of new shares offered in the IPO and total shares are the total shares on issue for the post-IPO firm. Finally, underpricing loss by issue price (*UPLIP*) shows the loss to the issuer standardized by the value of the firm based on the issue price.

$$UPLIP = \frac{\left(P_c - P_i\right) \times \left(\text{Secondary shares} + \text{Strategic shareholders} \times \text{Primary shares}\right)}{P_i \times \text{Total shares}} \tag{4}$$

We calculate the four underpricing measures in Equations (1)–(4) for each firm in the sample. The mean and median values for the IPOs listed on the SET are also compiled. Finally, a value-weighted measure of each underpricing measures is calculated using:

$$\sum_i \left(\text{Total shares}_i \times UP_i\right) \Big/ \sum_i \text{Total shares}_i \tag{5}$$

where UP_i is *UPSTD, UPIL*, *UPLMV* and *UPLIP*, respectively. This measure of underpricing takes into account a firm's size relative to the level of underpricing.

4.3 *Measures of post-IPO performance*

The methodology used to measure IPO performance follows Ritter (1991), Brav and Gromper (1997) and Lyon et al. (1999) in the use of monthly (1) cumulative average returns (CARs), (2) buy-and-hold returns (BHRs), and (3) wealth relatives (WR).

We calculate the CARs in the following manner. First, the raw returns for company *i* in event month *t* is measured as follows:

$$R_{it} = \frac{(P_c - P_i)}{P_i} \tag{6}$$

where R_{it} is the monthly raw return for the company *i* in event month *t* where the starting price for each company is its last price for the month of listing, excluding the initial return, P_c is the closing price on the first month of listing, P_i is issue price of the company *i*. The monthly raw returns for each IPO company are for months 1 to 36 or until delisting or the end of the observation period. We define event months as months following the listing month. Second, the benchmark return for company *i* is calculated the same way as the raw return over the same period as following:

$$R_{bencht} = \frac{(P_{c-bench} - P_{i-bench})}{P_{i-bench}} \tag{7}$$

where R_{bencht} is the monthly benchmark return on company *I*, $P_{c\text{-}bench}$ is the closing price of the benchmark on the first listing month and $P_{i\text{-}bench}$ is the closing price of the benchmark on the previous month. Third, benchmark adjusted returns are the difference between the raw return of company *i* and the return on the benchmark portfolio over the same period.

$$AR_{it} = R_{it} - R_{bencht} \tag{8}$$

Fourth, the average benchmark adjusted return for month *t* on a portfolio of *n* stocks for event month *t* defined as $\overline{AR_{it}}$. This is the value-weighted arithmetic mean of the benchmark-adjusted returns:

$$\overline{AR_{it}} = \frac{1}{n}\sum_{i=1}^{n} AR_{it} \tag{9}$$

Fifth, the cumulative average benchmark adjusted returns from event month 1 to event month *t* define $\overline{CAR_{1,t}}$. We calculate this cumulating the average benchmark adjusted returns ($\overline{AR_{it}}$) over various intervals during the 36-month aftermarket period.

$$\overline{CAR_{1,t}} = \sum_{t=1}^{t} \overline{AR_{it}} \tag{10}$$

Finally, to assess whether the cumulative average benchmark adjusted returns are significantly different from zero, studentised *t*-tests for cumulative average benchmark adjusted returns are calculated as:

$$CAR\_t_{month} = \frac{\overline{CAR_{1,t}}}{\sigma\left(CAR_{1,t}\right)/\sqrt{n}} \tag{11}$$

where σ is the sample standard deviation of abnormal returns and n is the number of IPOs.

We calculate the BHRs using the following series. First, the buy-and-hold return for the company *i*, denoted as BHR_{it}, excluding the initial return on the first trading day, is:

$$BHR_{it} = \left(\prod_{t=start}^{\min(T,delist)}(1+R_{it})-1\right) \tag{12}$$

Second, the benchmark buy-and-hold return, denoted as BHR_{bencht}, is calculated in the same way as the buy-and-hold return for company *i*.

$$BHR_{bencht} = \left(\prod_{t=start}^{\min(T,delist)}(1+R_{bencht})-1\right) \tag{13}$$

Third, the benchmark-adjusted buy-and-hold returns for each company are $BHAR_{it}$. We calculate this by deducting from the buy-and-hold return for company *i* the return of benchmark portfolio as follows:

$$BHAR_{it} = BHR_{it} - BHR_{bencht} \tag{14}$$

Fourth, the average buy-and-hold return for period *t*, denoted as $\overline{BHAR_{it}}$, is the arithmetic mean abnormal return on all IPOs in the sample of size *n*:

$$\overline{BHAR_{it}} = \frac{1}{n}\sum_{i=1}^{n} BHAR_{it} \tag{15}$$

Finally, a positive (negative) value of *BHAR* indicates that IPOs outperform (underperform) the benchmark portfolio. To test whether the average buy-and-hold return is significantly different from zero, a *t*-test is calculated as:

$$BHAR\_t_{month} = \frac{\overline{BHAR_{it}}}{\sigma\left(BHAR_{it}\right)/\sqrt{n}} \tag{16}$$

where σ is the sample standard deviation of abnormal returns

The final measure of IPO performance is the wealth relatives from the three-year buy-and-hold returns. We define these as the ratio of the end-of-period wealth from holding a portfolio of issues to the end-of-period wealth from holding a benchmark portfolio, given by:

$$WR_{it} = \frac{1+\overline{BHR_{it}}}{1+\overline{BHR_{bencht}}} \tag{17}$$

A wealth relative greater (less) than one indicates that the IPOs over performed (underperformed) the benchmark portfolio.

5. Empirical results

5.1 *Underpricing*

Table 1 presents the headline underpricing (*UPH*), underpricing issuer loss (*UPIL*), underpricing loss by market value (*UPLMV*), and underpricing loss by issue price (*UPLIP*) measures for the sample of 53 IPOs listed on the MAI from 2001–2007. Over the full sample period, 12.69% are headline underpriced, 5.01% are issuer loss underpriced, 4.74% are issuer price underpriced, and 11.40% are market value loss underpriced. These results generally indicate that Thai IPOs are less underpriced than the evidence from most developed markets suggests. However, there is much variability in the underpricing over the sample period. For example, while the mean underpricing is statistically significant for the whole sample period 2001–2007, the only years where the mean underpricing is significantly different from zero is in 2003 (42.23%, overpriced) and 2004 (17.11%, overpriced).

<TABLE 1 HERE>

Table 2 provides average headline underpricing (*UPH*), underpricing issuer loss (*UPIL*), underpricing loss by market value (*UPLMV*), and underpricing loss by issue price (*UPLIP*) by the gross proceeds of issue. Importantly, only the mean underpricing for medium-sized IPOs is statistically significant at 15.74%, 6.46%, 6.67%, and 14.13% for *UPH*, *UPIL*, *UPLMV*, and *UPLIP*, respectively. This contrasts with earlier findings, not necessarily in Thailand, by Allen and Faulhaber (1989), Aggarwal et al (1993) Ritter (1991), Allen and Patrick (1994) and Allen et al. (1999) that the larger the gross proceeds, the higher initial underpricing. Generally, this would imply that the owners of medium-sized SMEs suffer more from "money left on the table" during the IPO process than the owners of small and large-sized SMEs.

<TABLE 2 HERE>

5.2 *Post-IPO performance*

Figure 2 graphs the monthly average raw return, benchmark-adjusted return and cumulative benchmark-adjusted return for the 53 IPOs included in the sample up to 36 months. Most critically, the cumulative benchmark-adjusted return is always above zero until month 36. This suggests that Thai IPOs outperform the market benchmark. Table 3 provides additional details on the benchmark-adjusted returns and cumulative benchmark-adjusted returns.

<FIGURE 2 HERE>

<TABLE 3 HERE>

Figure 3 plots the monthly average raw returns, benchmark-adjusted returns and cumulative benchmark-adjusted returns for the 55 IPOs classified by the gross proceed of issues up to 36 months. As shown, there is substantial variation in the average performance of SMEs listed on the MAI. In general, the smallest IPOs have consistently negative CARs for the 36 month-observation period, medium-sized IPOs have consistently positive CARs for the same period, and large-sized IPOS have positive CARs for the first 12 months, at which time they become negative. Now consider Table 4, which details the benchmark-adjusted returns and cumulative benchmark-adjusted returns for the end of years 1, 2 and 3, for the three size groups of IPOs. This likewise indicates variations in benchmark performance, with all three groups of IPOs (small, medium, and large) underperforming relative to benchmark in their first year, over performing in their second year, and then underperforming again in their third year. Note that the number of IPOs for which we can evaluate the two- and three-year CARs decreases because of the lack of post-IPO market data.

<FIGURE 3 HERE>

<TABLE 4 HERE>

Table 5 reports the average buy-and-hold returns and wealth relatives, exclusive of the initial returns on the first day of trading up to 36 months after listing. At first sight, the results would appear to show that the *BHAR*s for all IPOs and all months are positive with the exception of month 24. However, the *BHAR* are only statistically significant for the first month following the listing month, after which there is no statistically significant difference in performance at the mean than the benchmark portfolio. For the wealth relatives, these are highest for the first none or so months after the listing month and then statistically insignificant. Table 6 provides average buy-and-hold returns and wealth relatives, exclusive of initial returns categorized by the gross proceeds of issue at the end of years 1, 2 and 3 post-listing. The only statistically significant finding is that medium and large-sized IPOs have positive *BHAR*s in their second year after issue.

<TABLE 5 HERE>

<TABLE 6 HERE>

6. Concluding remarks

This paper analyses the pricing and performance of 53 IPOs in the Thai MAI listed since its commencement in September 2001 until October 2008. Underpricing is calculated using headline underpricing, underpricing issuer loss, underpricing loss by market value, and underpricing loss by issuer price, while aftermarket performance is measured using monthly cumulative abnormal returns, buy-and-hold returns, and wealth relatives. As far as the authors are aware, this is one of very few studies of IPO pricing and performance in Thailand, and the only study to concern IPOs in the SME-orientated MAI market.

Overall, the findings suggest a modest level of underpricing on the MAI over the period 2001 to 2007. However, this would appear to be primarily the results of very substantial underpricing in 2003 and 2004. In all other years, there is no statistically significant evidence, on average, of underpricing (or indeed overpricing). Further, it would that medium-sized SMEs account for most of the underpricing observed. These findings contrast strongly with Allen and Faulhaber (1989), Aggarwal et al. (1993) Ritter (1991), Allen and Patrick (1994), and Allen et al. (1999), amongst others, that underpricing is relatively more severe in smaller IPOs. Indeed, the evidence largely suggests that Thai companies listing on the MAI are

appropriately priced on issue and do not suffer from the underpricing so prevalent in many developed and emerging markets. In terms of performance, there is likewise very little evidence to suggest that the behaviour of listed SMEs, at least in Thailand, is any different from the market as a whole. While some measures of return performance are suggestive, SMEs only selectively outperform the market in their second year, after which their performance is indistinguishable for their compatriots.

Of course, some limitations in this study indicate that we should treat these findings with at least some caution. The first major limitation is that the monthly MAI index used for the market benchmark is only available after 2003. The only alternative available for this period was the SET index, and as this draws on larger, more mature firms, it may be an unsuitable benchmark of performance for small, younger firms. A second limitation is that no industry indexes are currently available for the MAI. This means that some interesting insights using industry benchmarks are obtainable. Finally, as a new market we were only able to study the MAI over a short sample period. This may mean the results are subject to relatively short-term impacts (for example, hot and cold markets, macroeconomic shocks) that limit our ability to extend our findings more generally over time.

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Figure 1. Number and value of IPOs for Thai SMEs, 2001–2007

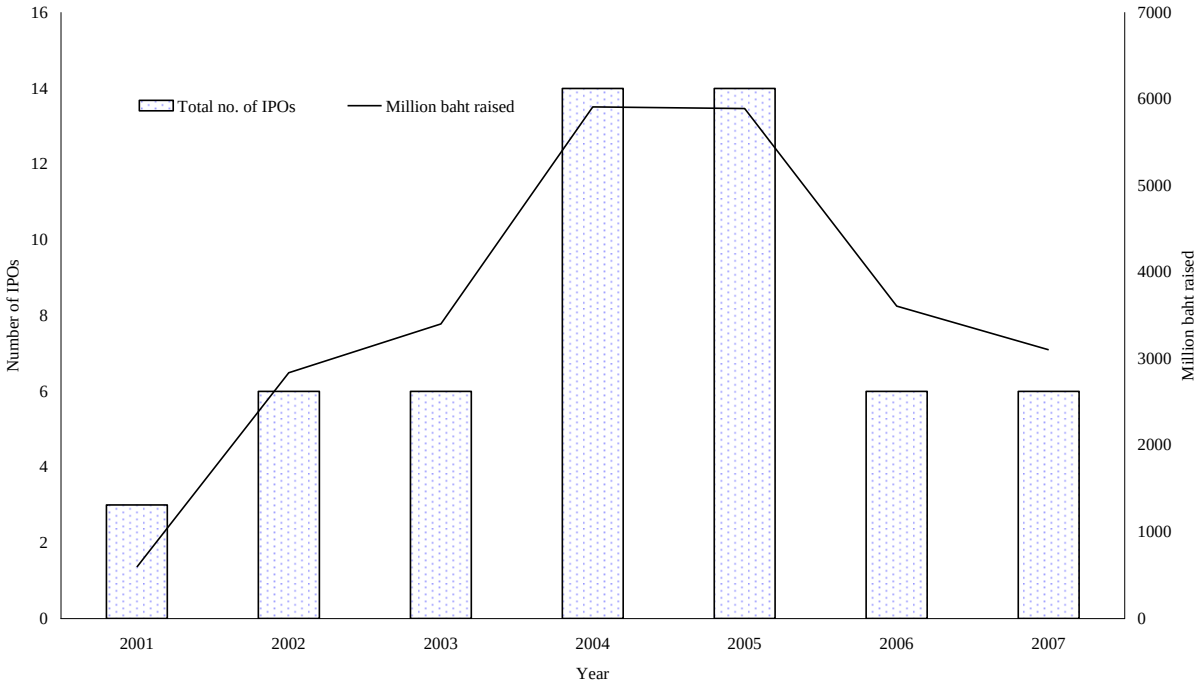


Table 1. IPO underpricing in percentages by year of issuance

Year	Underpricing	UPH	UPIL	UPLMV	UPLIP
2001–07 (53)	Mean	12.6900	5.0100	4.7400	11.4000
	Median	2.2200	0.7400	1.9400	1.9900
	Std dev.	0.3076	0.1441	0.2194	0.2759
	t-statistic	3.0025	2.5305	1.5722	3.0096
	p-value	0.0041	0.0145	0.1220	0.0040
	Value-weighted	17.9700	7.2700	7.7700	16.1700
2001 (2)	Mean	–3.8600	–1.7700	–7.4500	–3.5000
	Median	–3.8600	–1.7700	–7.4500	–3.5000
	Std dev.	0.2636	0.0831	0.2773	0.2470
	t-statistic	–0.2070	–0.3010	–0.3798	–0.2007
	p-value	0.8701	0.8139	0.7689	0.8739
	Value-weighted	10.6100	2.7900	7.7700	10.0500
2002 (6)	Mean	–4.7500	–1.8100	–13.3300	–4.8400
	Median	2.6100	0.8200	2.3600	2.4200
	Std dev.	0.2642	0.1068	0.3751	0.2422
	t-statistic	–0.4402	–0.4155	–0.8707	–0.4897
	p-value	0.6782	0.6950	0.4237	0.6451
	Value-weighted	–6.7800	–2.3300	0.1400	–6.5400
2003 (5)	Mean	42.5500	21.0300	22.2900	37.6600
	Median	49.2300	0.8700	2.5600	2.6400
	Std dev.	0.3963	0.2840	0.1929	0.3395
	t-statistic	2.4011	1.6557	2.5832	2.4808
	p-value	0.0743	0.1731	0.0611	0.0682
	Value-weighted	57.9700	29.9500	29.5300	50.9700
2004 (14)	Mean	17.1100	7.0500	9.4300	15.1600
	Median	3.1700	0.8000	2.8700	3.0100
	Std dev.	0.2732	0.1123	0.1643	0.2428
	t-statistic	2.3425	2.3495	2.1481	2.3366
	p-value	0.0357	0.0353	0.0511	0.0361
	Value-weighted	19.0300	7.9900	10.4600	16.7700
2005 (14)	Mean	3.0200	0.0000	–0.1200	3.0300
	Median	–0.7200	–0.1100	–0.7400	–0.6900
	Std dev.	0.2148	0.0679	0.1616	0.1998
	t-statistic	0.5259	–0.0008	–0.0280	0.5673
	p-value	0.6078	0.9994	0.9781	0.5802
	Value-weighted	5.9600	0.6000	1.6500	5.8200
2006 (6)	Mean	2.6300	0.0000	0.9100	2.7900
	Median	–2.8000	–0.8900	–2.7000	–2.5900
	Std dev.	0.1602	0.0471	0.1393	0.1509
	t-statistic	0.4027	–0.0023	0.1604	0.4522
	p-value	0.7038	0.9983	0.8789	0.6700
	Value-weighted	3.2100	0.5000	1.5200	3.2600
2007 (6)	Mean	33.0300	12.6800	16.4500	30.1200
	Median	17.0300	4.5000	13.4600	15.9600
	Std dev.	0.4524	0.2008	0.2240	0.4055
	t-statistic	1.7885	1.5470	1.7985	1.8197
	p-value	0.1337	0.1825	0.1320	0.1285
	Value-weighted	51.3600	22.3100	23.8800	45.9600

Notes: Number of IPOs in brackets. UPH – headline underpricing, UPIL – underpricing issuer loss, UPLMV – underpricing loss by market value, and UPLIP – underpricing loss by issue price. *t*-statistics and *p*-values are tests of null hypothesis that means are equal to zero.

Table 2. IPO underpricing in percentages by gross proceeds of issue

Gross proceed	Underpricing	UPH	UPIL	UPLMV	UPLIP
Small-sized issues (13)	Mean	5.6028	2.2069	1.3123	4.8331
	Median	5.4545	1.3407	4.9181	5.1864
	t-stat	0.8752	0.7804	0.2824	0.8563
	p-value	0.3987	0.4503	0.7825	0.4086
	value-weighted	6.6550	0.3410	0.3338	0.9322
Medium-sized issues (30)	Mean	15.7476	6.4606	6.6708	14.1312
	Median	3.2778	1.1418	2.9031	2.9986
	t-stat	2.8055	2.3703	1.5217	2.7956
	p-value	0.0089	0.0246	0.1389	0.0091
	value-weighted	15.2545	3.4576	4.0523	7.9675
Large-sized issues (10)	Mean	12.7041	4.2955	3.3890	11.7659
	Median	–1.8452	–0.4707	–1.7771	–1.7341
	t-stat	1.0025	0.7546	0.4715	1.0370
	p-value	0.3423	0.4698	0.6485	0.3268
	value-weighted	30.7528	3.4688	3.3848	7.2724

Notes: Number of IPOs in brackets. Small-sized issues – gross proceeds less than 300 million baht, Medium-sized issues – gross proceeds between 300 and 600 million baht, Large-sized issues – gross proceeds greater than 600 million baht. UPH – headline underpricing, UPIL – underpricing issuer loss, UPLMV – underpricing loss by market value, and UPLIP – underpricing loss by issue price. *t*-statistics and *p*-values are tests of null hypothesis that means are equal to zero.

Figure 2. Average and benchmark-adjusted returns and cumulative abnormal returns by post-IPO month

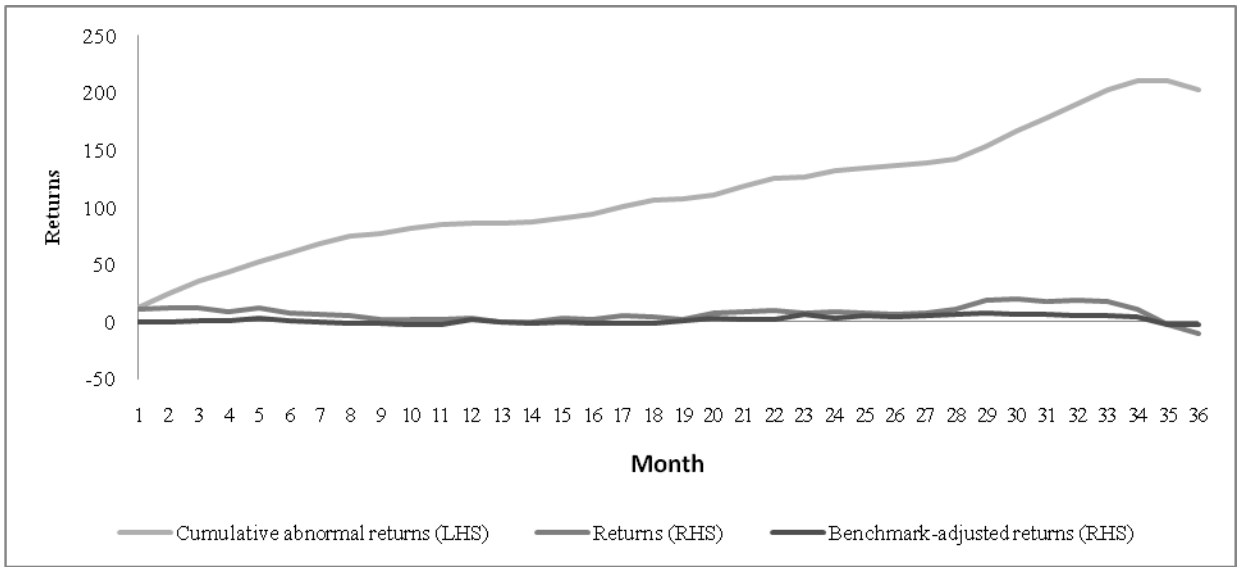
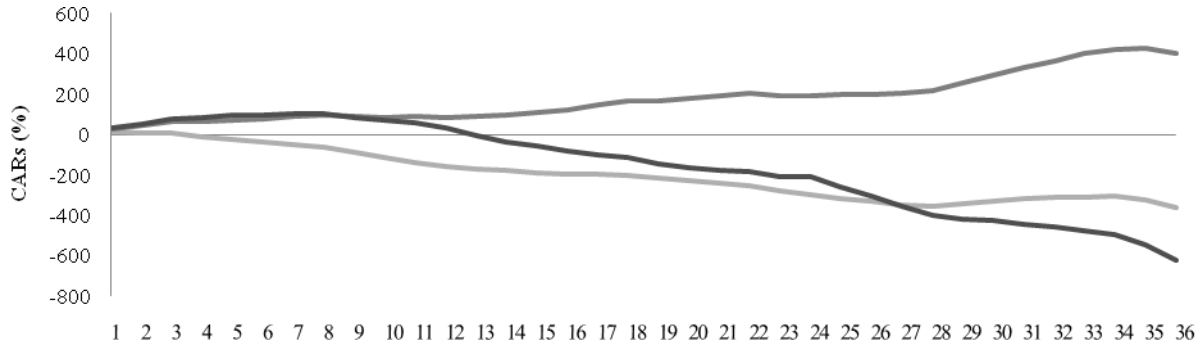


Table 3. Average and cumulative abnormal returns

Month	Size	$\overline{AR_{it}}$	Std dev	t-stat	p-value	$\overline{CAR_{1,t}}$	Std dev	t-stat	p-value
1	55	11.8301	0.4766	1.8410	0.0711	11.8301	0.4766	1.8410	0.0711
2	55	12.4960	0.6983	1.3270	0.1901	24.3261	0.6983	2.5833	0.0125
3	55	11.4457	0.6618	1.2826	0.2051	35.7718	0.6618	4.0085	0.0002
4	55	8.0334	0.5436	1.0959	0.2780	43.8052	0.5436	5.9758	0.0000
5	55	8.9125	0.6083	1.0866	0.2820	52.7177	0.6083	6.4272	0.0000
6	55	7.5468	0.6123	0.9141	0.3647	60.2645	0.6123	7.2996	0.0000
7	55	7.5918	0.6288	0.8954	0.3745	67.8564	0.6288	8.0031	0.0000
8	55	6.6691	0.6534	0.7569	0.4524	74.5255	0.6534	8.4585	0.0000
9	55	2.8722	0.7014	0.3037	0.7625	77.3977	0.7014	8.1839	0.0000
10	55	4.1738	0.7103	0.4358	0.6647	81.5715	0.7103	8.5169	0.0000
11	55	4.0185	0.7493	0.3978	0.6924	85.5900	0.7493	8.4717	0.0000
12	53	1.1958	0.8206	0.1061	0.9159	86.7858	0.8206	7.6992	0.0000
13	52	–0.2273	0.7860	–0.0208	0.9834	86.5585	0.7860	7.9408	0.0000
14	52	1.1125	0.8164	0.0983	0.9221	87.6710	0.8164	7.7439	0.0000
15	51	3.3204	0.8278	0.2864	0.7757	90.9914	0.8278	7.8496	0.0000
16	51	3.5305	0.8020	0.3144	0.7545	94.5219	0.8020	8.4172	0.0000
17	50	6.1259	0.8474	0.5112	0.6115	100.6478	0.8474	8.3985	0.0000
18	50	5.4757	0.8647	0.4478	0.6563	106.1235	0.8647	8.6782	0.0000
19	49	0.8987	0.8347	0.0754	0.9402	107.0222	0.8347	8.9748	0.0000
20	49	4.1457	0.9857	0.2944	0.7697	111.1680	0.9857	7.8948	0.0000
21	49	7.5325	0.9982	0.5282	0.5998	118.7005	0.9982	8.3237	0.0000
22	49	7.0459	0.9824	0.5020	0.6179	125.7464	0.9824	8.9595	0.0000
23	48	0.8989	0.9508	0.0655	0.9480	126.6454	0.9508	9.2286	0.0000
24	47	5.5138	1.0385	0.3640	0.7175	132.1592	1.0385	8.7246	0.0000
25	43	1.7204	0.9349	0.1207	0.9045	133.8797	0.9349	9.3908	0.0000
26	43	2.3342	0.9512	0.1609	0.8729	136.2139	0.9512	9.3902	0.0000
27	42	2.2037	0.8946	0.1596	0.8740	138.4175	0.8946	10.0270	0.0000
28	42	4.1489	0.8858	0.3035	0.7630	142.5664	0.8858	10.4307	0.0000
29	42	11.3358	1.0233	0.7179	0.4769	153.9022	1.0233	9.7473	0.0000
30	42	12.6263	1.0664	0.7673	0.4473	166.5285	1.0664	10.1201	0.0000
31	41	11.1638	1.0548	0.6777	0.5019	177.6923	1.0548	10.7866	0.0000
32	41	12.9123	1.0830	0.7634	0.4497	190.6046	1.0830	11.2695	0.0000
33	41	12.4650	1.0719	0.7446	0.4609	203.0696	1.0719	12.1303	0.0000
34	41	7.2430	0.9668	0.4797	0.6341	210.3126	0.9668	13.9285	0.0000
35	41	–0.0025	0.8296	–0.0002	0.9998	210.3100	0.8296	16.2321	0.0000
36	33	–7.4071	0.7727	–0.5507	0.5857	202.9029	0.7727	15.0840	0.0000

Figure 3. Monthly cumulative abnormal returns (CARs) by gross proceed of issue



Notes: Small-sized issues – gross proceeds less than 300 million baht, Medium-sized issues – gross proceeds between 300 and 600 million baht, Large-sized issues – gross proceeds greater than 600 million baht.

Table 4. Average and cumulative benchmark-adjusted returns by gross proceeds of issue at the end of years 1–3

Category	Size	$\overline{AR_{it}}$	Std dev	t-stat	p-value	$\overline{CAR_{1,t}}$	Std dev	t-stat	p-value
Year 1 (53)									
Small	13	–21.0667	0.5774	–1.3155	0.2129	–157.1311	0.5774	–9.8117	0.0000
Medium	30	19.4145	0.8240	1.2904	0.2071	242.8866	0.8240	16.1442	0.0000
Large	10	–24.5191	1.0013	–0.7744	0.4586	–56.0477	1.0013	–1.7701	0.1105
Year 2 (47)									
Small	12	–17.5076	0.7271	–0.8341	0.4220	–298.2367	0.7271	–14.2080	0.0000
Medium	28	16.2003	0.9584	0.8944	0.3790	488.5186	0.9584	26.9716	0.0000
Large	7	2.2335	1.7334	0.0341	0.9739	–397.0885	1.7334	–6.0608	0.0009
Year 3 (33)									
Small	8	–37.6053	0.7496	–1.4190	0.1988	–362.1141	0.7496	–13.6643	0.0000
Medium	21	12.5488	0.7729	0.7440	0.4655	761.5970	0.7729	45.1554	0.0000
Large	4	–51.7793	0.5397	–1.9188	0.1508	–1,023.9444	0.5397	–37.9454	0.0000

Notes: Small-sized issues – gross proceeds less than 300 million baht, Medium-sized issues – gross proceeds between 300 and 600 million baht, Large-sized issues – gross proceeds greater than 600 million baht.

Table 5. Average buy-and-hold returns and wealth relatives, excluding initial return

Month	Size	$\overline{BHAR_{it}}$	Std dev	t-stat	p-value	WR_{it}
1	55	11.8301	0.4766	1.8410	0.0711	22.9429
2	55	11.6785	0.5523	1.5682	0.1227	45.7240
3	55	11.0296	0.5736	1.4261	0.1596	16.6969
4	55	9.8667	0.5532	1.3228	0.1915	11.0279
5	55	9.3494	0.5583	1.2419	0.2196	7.3924
6	55	8.7175	0.5555	1.1638	0.2496	8.0649
7	55	8.5051	0.5516	1.1435	0.2579	11.7432
8	55	8.2921	0.5502	1.1177	0.2687	23.5070
9	55	7.5017	0.5559	1.0008	0.3214	120.2102
10	55	6.8352	0.5615	0.9028	0.3706	–28.5287
11	55	6.2792	0.5683	0.8194	0.4161	–11.8880
12	53	5.5624	0.5868	0.6901	0.4932	–56.3080
13	52	2.5977	0.5694	0.3290	0.7435	134.6031
14	52	2.1443	0.5732	0.2698	0.7884	–12.9039
15	51	0.1956	0.5672	0.0246	0.9805	0.4442
16	51	0.2519	0.5720	0.0315	0.9750	0.5814
17	50	2.0736	0.5691	0.2576	0.7978	–0.8112
18	50	2.0405	0.5756	0.2507	0.8031	–0.6401
19	49	0.7784	0.5803	0.0939	0.9256	0.5250
20	49	0.5048	0.5833	0.0606	0.9519	0.6631
21	49	0.3363	0.5864	0.0401	0.9681	0.7620
22	49	0.0299	0.5882	0.0036	0.9972	0.9773
23	48	0.5869	0.5881	0.0691	0.9452	0.6393
24	47	–0.1179	0.5962	–0.0136	0.9892	1.0594
25	43	3.6301	0.5944	0.4005	0.6908	–0.0539
26	43	3.1728	0.5972	0.3484	0.7293	0.0102
27	42	4.4810	0.5961	0.4872	0.6287	–0.1007
28	42	4.1690	0.5985	0.4514	0.6541	–0.1104
29	42	3.9936	0.6013	0.4304	0.6691	–0.1642
30	42	3.8476	0.6033	0.4133	0.6815	–0.2226
31	41	4.4639	0.6115	0.4674	0.6427	–0.2236
32	41	4.3554	0.6155	0.4531	0.6529	–0.2800
33	41	4.2533	0.6200	0.4392	0.6628	–0.3359
34	41	4.0845	0.6228	0.4199	0.6768	–0.3499
35	41	3.8481	0.6247	0.3944	0.6954	–0.2527
36	33	4.2196	0.5805	0.4175	0.6791	0.6514

Table 6. Average buy-and-hold returns, excluding initial return, categorized by gross proceeds of issue

Category	Size	p-value	$\overline{BHAR_{it}}$	Std dev	t-stat	p-value	WR_{it}	Minimum	Maximum
Year 1 (53)									
Small	13	0.7373	–17.3941	0.5611	–1.1176	0.2856	35.8452	–85.5446	152.41436
Medium	30	0.3710	19.0469	0.5431	1.9208	0.0646	0.7564	–57.7743	162.1944
Large	10	0.3054	–5.0475	0.6855	–0.2329	0.8211	–1.6645	–117.2736	130.3874
Year 2 (47)									
Small	12	0.4768	–13.5824	0.4588	–1.0255	0.3272	4.5457	–63.9272	105.7940
Medium	28	0.2518	13.5573	0.6020	1.1916	0.2438	0.5485	–65.7125	173.1557
Large	7	0.2941	–31.7368	0.6840	–1.2276	0.2656	0.5276	–135.5648	39.8776
Year 3 (33)									
Small	8	0.0131	–23.6888	0.4662	–1.4373	0.1938	2.6016	–73.4088	58.7556
Medium	21	0.0027	21.2567	0.5503	1.7702	0.0919	0.1899	–75.4317	150.5737
Large	4	0.3018	–29.4084	0.7125	–0.8255	0.4696	0.3622	–135.1121	15.6727

Notes: Small-sized issues – gross proceeds less than 300 million baht, Medium-sized issues – gross proceeds between 300 and 600 million baht, Large-sized issues – gross proceeds greater than 600 million baht.