Ownership and operating performance in an emerging market: evidence from Thai IPO firms

Kenneth A. Kim\textsuperscript{a}, Pattanaporn Kitsabunnarat\textsuperscript{b}, John R. Nofsinger\textsuperscript{c,*}

\textsuperscript{a}School of Management, State University of New York at Buffalo, Buffalo, NY 14260, USA
\textsuperscript{b}College of Business Administration, Texas A\&M International University, Laredo, TX 78041, USA
\textsuperscript{c}College of Business and Economics, Washington State University, Pullman, WA 99164, USA

Accepted 4 April 2002

Abstract

We examine the operating performance of Thai firms after they go public. Overall, we find that their performance declines. We then explore the relationship between managerial ownership and the change in firm performance. We find that firms with ‘low’ and ‘high’ levels of managerial ownership experience positive relationships between managerial ownership and the change in performance (alignment-of-interest hypothesis), while firms with ‘intermediate’ levels of managerial ownership exhibit a negative relationship between managerial ownership and the change in performance (entrenchment hypothesis). Examining the operating performance of IPO firms from an emerging market and finding a curvilinear relationship between managerial ownership and the post-IPO change in performance represents two significant contributions to the IPO literature.

\textcopyright 2002 Elsevier B.V. All rights reserved.

\textit{JEL classification: G32}

\textit{Keywords:} Initial public offerings; Managerial ownership; Thailand

1. Introduction

For emerging market countries, ownership structure plays a very important role in corporate finance (LaPorta et al., 1999), perhaps more so than in developed countries. For example, Claessens et al. (2000) specifically examine corporate ownership for East Asian firms and find that owners exert significant control over the firms they own,
which is not surprising given that managers and owners are often the same people. In addition, due to the relatively undeveloped market structure of emerging markets, the degree of information asymmetry among participants is relatively high, which allows influential manager-owners greater latitude to engage in and act upon their desires. Consequently, significant managerial ownership in a developing economy may enhance both managerial alignment effects and entrenchment effects. On the one hand, the existence of significant managerial ownership mitigates agency costs (Jensen and Meckling, 1976). The higher degree of information asymmetry between managers and outside shareholders in an emerging market requires a greater need for alignment of managerial interests with shareholder interests. On the other hand, in a market with high information asymmetry, it may be easier for entrenched manager-owners to expropriate wealth from outside shareholders. Fama and Jensen (1983) point out that, in a high information asymmetry environment, managers may indulge preferences for non-value-maximizing behavior.

In our paper, we study the relationship between managerial ownership and firm performance using Thai IPO firms. Studying Thai firm owners will be insightful because, as pointed out by Claessens et al., large Thai shareholders have significant cash flow and voting rights as compared to other shareholders from around the world. Therefore, it will be interesting to see how significant managerial ownership will affect firm performance (especially in an environment where we suspect information asymmetry is likely to be high). Another major contribution of our paper is that we consider both the alignment-of-interest and entrenchment effects on operating performance for post-IPO firms, while allowing for three levels of managerial ownership. The prior literature on firm performance and managerial ownership finds that alignment-of-interest occurs at ‘low’ and ‘high’ levels of ownership, and that entrenchment occurs at ‘intermediate’ levels of ownership (Morck et al., 1988; Short and Keasey, 1999). These findings are based on data using firm performance levels. In our research, we test to see if they can explain the change in performance for firms from the pre-IPO to the post-IPO. The alignment-of-interest hypothesis predicts a positive relationship between post-IPO managerial ownership and the firm’s change in performance. The more the original owner-managers own after the firm goes public, the more they will engage in value-maximizing behavior. In contrast, the entrenchment hypothesis predicts a negative relation between post-IPO managerial ownership and the firm’s change in operating performance. The more the original owner-managers own after the firm goes public, the more entrenched they will be and will thus indulge in perquisite consumption in lieu of value maximizing endeavors. However, these conflicting behaviors can occur at different levels of ownership, as confirmed by previous empirical studies, which we empirically address in our study of IPO firms.

Analyzing a sample of 133 firms that conducted initial public offerings in Thailand during 1987–1993, we document several important findings. First, we find that firm performance subsequently declines after the firms go public, and that the decrease in operating performance is nearly one order of magnitude greater in Thailand than in the United States. For example, return on assets 3 years after the IPO is 70% lower than during the year before the IPO. This result compares to a decline of 9% in the United States (see Jain and Kini, 1994). This finding is robust to a cash flow performance
measure, and to industry-adjusted performance measures. A change in ownership structure is one of the major changes that take place when a firm goes public. Therefore, we next investigate the role of managerial ownership on the going-public firm’s change in performance. In an earlier study using US IPO firms, Jain and Kini (1994) find a positive linear relationship between ownership and the change in firm performance. The more shares the original owners retain, the better the firm performance. Their evidence supports the alignment hypothesis. However, Mikkelson et al. (1997) reject this hypothesis while also using US data. Further, Mikkelson et al. explicitly consider a nonlinear relationship between the change in performance and insider-ownership by including the squared level of ownership stake (quadratic form) as an explanatory variable for the change in performance, but this variable is also not significant. For our own sample, when we consider both the level of the ownership variable and an ownership-squared variable, we also fail to find any relationship between ownership and firm performance, consistent with Mikkelson et al.

Subsequently, following the research conducted by Morck et al. (1988) for established firms, we then investigate an extension of the nonlinear model by allowing the ownership variable to be squared and cubed (cubic form). The inclusion of the cubic form allows for three levels of managerial ownership, consistent with Morck et al.’s theoretical model and Short and Keasey’s (1999) empirical design. Our findings indicate that increases in managerial ownership are associated with better firm performance within both the 0–31% and 71–100% ownership ranges. Alternatively, greater managerial ownership is negatively associated with firm performance in the 31–71% ownership range. As such, we document that post-IPO ownership does play an important role in the going-public firm’s change in performance, but that the relationship is only captured when we allow for three levels of inside ownership. Thus, our results are consistent with prior empirical findings on the general relationship between firm performance levels and managerial ownership, allowing us to suggest that this model is applicable to going-public firms and its change in performance.

Lastly, we investigate other determinants of the going-public firm’s change in performance. After controlling for capital expenditures, we find that firm size does not seem to play an important role, but that growing firms perform better after the IPO than other firms. We also find that firms with high levels of bank financing suffer a larger performance decline when they become public firms. However, in subsequent analyses, we find that these additional determinants have different implications on the level of performance. Most importantly, however, these additional determinants do not subsume the managerial ownership findings.

Overall, because we are the first (to the best of our knowledge) to investigate the operating performance of IPO firms in an emerging market and because we document a curvilinear relationship between managerial ownership and firm performance for these going-public firms, it is our contention that we are making two significant contributions to the IPO literature. The rest of this paper proceeds as follows. Section 2 discusses managerial ownership and firm performance issues. Section 3 describes our data and presents summary statistics. The results of our empirical investigations are presented in Section 4 and our conclusions are discussed in Section 5.
2. Ownership structure and firm performance

This section discusses the relevant literature and issues surrounding ownership structure and firm performance in three separate subsections. Specifically, we discuss ownership structure and firm performance for (i) established firms, (ii) for IPO firms, and (iii) for emerging market IPO firms, respectively.

2.1. Ownership structure and firm performance of established firms

Ownership structure significantly affects firm value and performance. Early studies focused on a linear relation between firm performance and ownership structure, such as Demsetz and Lehn (1985). Two different linear relations were formed. First, Jensen and Meckling (1976) suggest the alignment-of-interest hypothesis. Due to a reduction of agency costs, this hypothesis predicts that firm value and operating performance increases as management ownership rises. Alternatively, Demsetz (1983) and Fama and Jensen (1983) point out offsetting costs of significant management ownership. At certain levels of equity ownership, managers’ consumption of perquisites may outweigh the loss they suffer from a reduced value of the firm. A high level of managerial ownership in a high information asymmetry environment allows managers to indulge preferences for non-value-maximizing behavior. Therefore, this entrenchment hypothesis predicts a negative relation between operating performance and managerial ownership.

More recent research accounts for both the alignment and entrenchment hypotheses by considering a nonlinear relationship between managerial ownership and firm performance. Morck et al. (1988) find that the alignment hypothesis effects are dominant within the 0–5% range and above the 25% level. The entrenchment effect is dominant within the 5–25% ownership range. These ownership turning points, however, must be arbitrarily prespecified before their piecewise regressions are executed. As pointed out by Morck et al. (1988), the theoretical arguments alone cannot predict the relationship between ownership and performance, especially with regard to determining the managerial ownership turning points where managerial incentives will switch from alignment to entrenchment, and back again to alignment.

McConnell and Servaes (1990) propose a quadratic model in which the coefficient on managerial ownership is expected to be positive while the coefficient on managerial ownership squared is expected to be negative. However, they cannot support Morck et al.’s entrenchment findings at the intermediate ownership level. Subsequently, Short and Keasey (1999) argue that a cubic model better describes the transition between alignment affects to entrenchment affects and back again to alignment. Here, the coefficients on ownership and ownership-cubed are expected to be positive, while the coefficient on ownership-squared is expected to be negative. Their evidence supports the cubic model of ownership structure to describe firm performance in established firms. Thus, their results are consistent with Morck et al., but their empirical approach allows the data to determine its own turning points. Specifically, they find an entrenchment effect when managerial ownership is between 16% and 42%, but an alignment-of-interest effect is found otherwise.
2.2. Ownership structure and firm performance of IPO firms

Few studies focus on the operating performance of IPO firms. Jain and Kini (1994) argue that IPOs cause a dilution of stock ownership and therefore increase agency costs. The reduction in management ownership that occurs when a firm makes its transition from private to public ownership is likely to lead to the agency problem as described in Jensen and Meckling (1976). The operating performance of the firm may suffer as managers have incentives to increase perquisite consumption. Consequently, Jain and Kini (1994) predict and find evidence of a decline in post-IPO operating performance in a sample of US IPOs during 1976 to 1988. This decline is explained, at least in part, by worsened incentives of managers.

The agency costs associated with the dilution of the ownership, when taking a firm public, may be reduced if the original entrepreneurs and management retain a higher portion of the firm after the IPO. Therefore, Jain and Kini (1994) suggest that there should be a positive relation between equity retention by the original entrepreneurs and the change in operating performance from before the IPO to after the IPO. That is, the decrease in post-IPO operating performance should be smaller for firms with high managerial ownership. By sorting their firms into high and low ownership groups, they find evidence of this positive relationship. Mikkelsen et al. (1997) examine firms going public during the years 1980 to 1983. However, they find that the post-IPO decline in operating performance is unrelated to managerial ownership. Instead, they find that the variation in operating performance after going public is explained mostly by the size and age of the firms.

It is important to note that the way the IPO literature examines the relationship between managerial ownership and firm performance differs from the way some of the earlier research examines this relationship. Demsetz and Lehn (1985), McConnell and Servaes (1990), Morck et al. (1988), and Short and Keasey (1999) examine ownership’s affect on firm performance levels, rather than on the change in performance. The IPO literature, however, assumes that if a cross-sectional relationship exists between ownership and performance, then a change in ownership should be similarly correlated with a change in performance (e.g., if managerial ownership is positively related to firm performance, then increases in managerial ownership should lead to increases in firm performance). This assumption is also made in the leverage buyout (LBO) literature, the management buyout (MBO) literature, and in the reverse LBO literature, where changes in performance are commonly associated to changes in ownership structure (e.g., see Holthausen and Larcker, 1996; Kaplan, 1989; Muscarella and Vetsuypens, 1990; Smith, 1990). In addition, this literature almost always implicitly assumes that the relation between a change in ownership and a concurrent change in performance is linear, even though the literature on the cross-sectional relationship between ownership and firm performance levels establish curvilinear patterns. Our study will directly address both of these issues.

We are not aware of any study that investigates and supports a nonlinear relationship between firm performance and ownership structure in firms going public. A nonlinear relationship may explain the conflict in findings between Jain and Kini (1994) and Mikkelsen et al. (1997). Both studies investigate a linear relationship between operating performance and managerial ownership, while the latter study also considers a nonlinear form by including the square of ownership as a possible important variable. Jain and Kini
find a positive relationship between ownership and performance, while Mikkelson et al. fail to find any significant relationship. We investigate whether the relationship between managerial ownership and the change in firm performance of going-public firms may be a nonlinear form, as found in the prior literature with established firms using data on firm performance levels. In conducting this investigation, we also take this opportunity to validate the assumption that if a relationship between ownership and performance levels does exist, then it follows that a similar relationship between changes in managerial ownership and changes in firm performance also exists by conducting robustness checks using firm performance levels in addition to examining performance changes.

2.3. Ownership and firm performance in emerging market IPOs

In emerging capital markets, initial public offerings perform a crucial role in resource allocations. Typical of other emerging market countries, Thai companies are mainly owned, managed, and controlled by individuals, families, and their partners. Bank loans and public stock offerings are the primary sources of capital. Therefore, firms frequently go public when they believe that they can grow faster with external financing. Due to the relatively undeveloped market structure, the degree of information asymmetry among participants should be much higher than those in developed countries. Therefore, ownership structure may play a more important role in firm performance of emerging market firms than those of developed countries.

To our knowledge, there are no other studies on the relationship between the ownership structure of firms going public and firm operating performance in emerging markets. A few studies have investigated the initial underpricing and post-issue stock price performance in various emerging markets. For example, Koh and Walter (1989) find that the difference between the IPO offer price and the first publicly traded price in Singapore is 27%. Aggarwal et al. (1993) find similarly large initial returns for IPOs in Latin American firms. Consistent with large initial returns in US IPOs, large returns have also been found in Australia, Finland, and Switzerland (see Finn and Higham, 1988; Keloharju, 1993; Kunz and Aggarwal, 1994). Finally, for a summary of stock market performances of international IPOs, see Loughran et al. (1994). These studies investigate the underpricing and long-term performance of the stock issued in the public offering.

Our study adds to the literature on emerging market IPOs by investigating going-public Thai firms’ ownership structure and ensuing operating performance.

3. Data and summary statistics

3.1. Data

Our data comes from four different sources. Listing date and listing price are obtained from the New Listing Securities Report compiled by the Investor Services and Information

---

1 See, for example, Rock (1986); Beatty and Ritter (1986); Ritter (1991); Loughran and Ritter (1995), and Stoughton and Zechner (1998).
Section of the Stock Exchange of Thailand (SET). Company performance data before the IPO are from prospectuses filed with the Securities & Exchange Commission of Thailand as issuing firms are required to report up to 3 years of financial performance. Post-IPO company performance is obtained from the PACAP Thailand Database. Lastly, information on managerial ownership is found in the database compiled by the Manager Information Services (Thailand). We restrict our study sample to a period prior to the 1997 Asian crisis to avoid the confounding effects of a market-wide external shock. In addition, because we will access post-IPO performance for a 3-year period, we require the firm to have gone public prior to 1994. During the years 1987 to 1993, 262 Thai firms went public. We restrict our analysis to the sample of 133 firms for which we have complete data. Thus, because we have data on more than half of the Thai firms that went public during this time period, we feel we have a representative sample. Additionally, we find that the firms used in our study are similar to those excluded from our study (e.g., with regard to firm size, their industry membership, operating data, etc.), so we have no reason to believe that sample selection biases will affect our results. Additional institutional information that briefly describes the listing procedure is described on the SET website at http://www.set.or.th and is outlined in Appendices A–C.

3.2. Descriptive statistics

Table 1 shows the distribution of our final IPO sample by calendar year. Note that there are very few firms in our sample from the first 2 years, 1987 and 1988. Table 1 also reports firm characteristics just prior to or at the offering. The total assets of firms that go public vary from 0.26 billion baht (25th percentile) to 0.96 billion baht (75th percentile) (US$1 ≈ 24 baht during our entire study period). Firms also vary in the length of their operating history. The years of operating history variable is calculated by the difference between the year that firms were established and the year that the firms go public, denoted as “Firm Age.” Median age of the sample firms is 11.5 years. The mean size of the initial public offerings is 59.5 million baht and is sold at a mean offer price of 91 baht per share. Initial return is calculated as the difference in the first after-market price and the offering price as a proportion of the offering price. The mean initial return of 68% is similar to the 58% reported by Loughran et al. (1994) using a shorter time period and is generally consistent with their findings for other emerging markets.

To investigate the role of management ownership on firm performance, we calculate the fraction of the firm retained by the firm’s original owners. Following Jain and Kini (1994), the variable “alpha” is measured as the fraction of shares retained after the IPO by the pre-IPO (original) owners and is measured based on the assumption that over-allotment options, if any, are not exercised. The proportion of the equity of the firm retained by original owners (alpha) varies from 14.87% (25th percentile) to 58.66% (75th percentile). The mean and the median alpha are 38.56% and 35.28%, respectively.² Note that this is

² Additionally, the minimum and maximum alpha are 0.5% and 99%, respectively. There are 42 firms in the 0–20% alpha range, 34 firms in the 20–40% alpha range, 28 firms in the 40–60% alpha range, 14 firms in the 60–80% alpha range, and 15 firms in the 80–100% alpha range.
approximately half the mean, 71%, of the company that is retained by the original entrepreneurs in the United States (see Jain and Kini, 1994). An alternative measure of ownership retention would be to measure the change in management ownership from before, to after, the IPO. In our entire sample, however, we find that management owns 100% of the firm prior to the IPO. That is, there are no ‘outside’ owners (e.g., venture capitalist, etc.) among our pre-IPO firms, which is actually a common attribute for private firms in most emerging markets. Thus, our alpha measure fully reflects the degree of managerial ownership retention (or dispersion) that takes place at the IPO.

Operating performance is measured in two ways: operating returns on total assets (EBIT/TA) and operating cash flow (CF=EBIT+Depreciation) divided by total assets (CF/TA). Operating returns on assets provides a measure of the efficiency of asset utilization. Operating cash flows is a useful alternative measure of operating performance because

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of IPO in sample</th>
<th>Percentage of sample (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987</td>
<td>3</td>
<td>2.26</td>
</tr>
<tr>
<td>1988</td>
<td>6</td>
<td>4.50</td>
</tr>
<tr>
<td>1989</td>
<td>25</td>
<td>18.80</td>
</tr>
<tr>
<td>1990</td>
<td>14</td>
<td>10.53</td>
</tr>
<tr>
<td>1991</td>
<td>33</td>
<td>24.81</td>
</tr>
<tr>
<td>1992</td>
<td>26</td>
<td>19.55</td>
</tr>
<tr>
<td>1993</td>
<td>26</td>
<td>19.55</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Characteristics of IPO sample prior to or at the offering

<table>
<thead>
<tr>
<th>Descriptive measure</th>
<th>Mean</th>
<th>Median</th>
<th>25th percentile</th>
<th>75th percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total assets prior to offering (in billions)</td>
<td>0.96</td>
<td>0.51</td>
<td>0.26</td>
<td>0.96</td>
</tr>
<tr>
<td>Firm Age (since establishment)</td>
<td>14.37</td>
<td>11.50</td>
<td>8.00</td>
<td>17.00</td>
</tr>
<tr>
<td>Size of Offering (in millions)</td>
<td>59.53</td>
<td>30.00</td>
<td>19.00</td>
<td>60.00</td>
</tr>
<tr>
<td>Offer price</td>
<td>91.09</td>
<td>70.00</td>
<td>52.00</td>
<td>110.00</td>
</tr>
<tr>
<td>Initial return (%)</td>
<td>67.66</td>
<td>36.15</td>
<td>4.00</td>
<td>87.88</td>
</tr>
<tr>
<td>Alpha (%)</td>
<td>38.56</td>
<td>35.28</td>
<td>14.87</td>
<td>58.66</td>
</tr>
</tbody>
</table>

Median level of operating performance of IPO firms vs. industry median

<table>
<thead>
<tr>
<th>Median level in Year - 1</th>
<th>IPO issuing firms</th>
<th>Industry median</th>
<th>Difference: Z-statistic (p-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBIT/TA (%)</td>
<td>12.57</td>
<td>10.52</td>
<td>2.17 (0.03)**</td>
</tr>
<tr>
<td>CF/TA (%)</td>
<td>13.88</td>
<td>12.32</td>
<td>1.34 (0.84)</td>
</tr>
<tr>
<td>Sales (in billions)</td>
<td>0.40</td>
<td>0.98</td>
<td>-7.88 (0.00)**</td>
</tr>
<tr>
<td>Sales/TA</td>
<td>0.88</td>
<td>1.04</td>
<td>-2.22 (0.03)**</td>
</tr>
<tr>
<td>Capital Expenditure (in millions)</td>
<td>0.19</td>
<td>1.55</td>
<td>-1.23 (0.22)</td>
</tr>
<tr>
<td>Bank Loans (in billions)</td>
<td>0.13</td>
<td>0.25</td>
<td>-3.35 (0.00)**</td>
</tr>
</tbody>
</table>

** Statistically significant at the 5% level.
*** Statistically significant at the 1% level.

Table 1
Descriptive statistics of the IPO sample: 1987–1993

Distribution of IPO samples by calendar year

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of IPO in sample</th>
<th>Percentage of sample (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987</td>
<td>3</td>
<td>2.26</td>
</tr>
<tr>
<td>1988</td>
<td>6</td>
<td>4.50</td>
</tr>
<tr>
<td>1989</td>
<td>25</td>
<td>18.80</td>
</tr>
<tr>
<td>1990</td>
<td>14</td>
<td>10.53</td>
</tr>
<tr>
<td>1991</td>
<td>33</td>
<td>24.81</td>
</tr>
<tr>
<td>1992</td>
<td>26</td>
<td>19.55</td>
</tr>
<tr>
<td>1993</td>
<td>26</td>
<td>19.55</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>100.00</td>
</tr>
</tbody>
</table>
operating cash flows are a primary component in net-present-value (NPV) calculations used to value a firm. At the bottom of Table 1, we report the median operating performance of our IPO firms and of the industry-median firms during the fiscal year prior to the IPO (Year \(-1\)). The industry-median figures are used for the sake of comparison and are drawn from the same industry and same year as the IPO firm. The Stock Exchange of Thailand (SET) uses 30 industry classifications. For each industry of the going-public firm, the PACAP database (which follows the same industry classifications) is searched for publicly traded firms with the same industry code. However, some of the industries do not have more than two publicly traded member firms. Therefore, in order to obtain meaningful industry performance measures (i.e., the median performance of the industry), we group some of the industries together. We execute a battery of robustness checks (which we will describe shortly) to ensure that none of our findings and subsequent findings are affected by the way we group some industries together. Our industry classifications are reported in Appendix D.

We see that our firm performance measures are higher for IPO firms than for industry-median firms. The median return on assets is 12.57% and 10.52% for the IPO firms and the industry-median firms, respectively, and a \(Z\)-statistic indicates that this difference is statistically significant. The operating cash flow on assets is 13.88% and 12.32% for the IPO and industry-median firms, respectively, albeit the \(Z\)-statistic does not reject equality. We also see that our IPO firms have much lower overall sales, but somewhat similar sales-to-total assets ratios, when compared to public firms. Similarly, the lower capital expenditures (measured as the change in capital investment from the prior year, adjusting for depreciation) and bank debt of our going-public firms is also associated to firm size.

4. Operating performance of firms when they go public

4.1. Change in operating performance

Jain and Kini (1994) argue that a private firm that goes public results in the dilution of the entrepreneur’s ownership interest. The increased conflicts of interest between managers and shareholders after the IPO should therefore result in higher agency costs. These costs should cause a decline in operating performance. Their evidence supports this view. In our study of Thai IPO firms, we might also expect performance declines when firms go public, but they may be even more dramatic if the information asymmetric environment of an emerging market exacerbates agency costs.

We examine IPO-firms’ operating performance over time, as well as, compare their performance to the performance of the industry-median. To report the change in operating performance over time, we calculate the median difference between the operating performance of each firm during two time points. Specifically, we report the median change between the operating performance during the year before the IPO \((t=-1)\) to the IPO year \((t=0)\), and each of the 3 years after the IPO \((t=+1, +2, +3)\). Significance levels are tested using the Wilcoxon signed rank test. The industry-adjusted performance of an IPO firm is the difference between its change in operating performance and that of the industry median. The results are presented in Table 2.
For the EBIT/TA measure, we see that firm performance gets increasingly lower after the IPO. Relative to Year −1, the median changes in EBIT/TA are −19.57%, −44.12%, −63.23%, and −70.77% (all statistically different from zero at conventional significance levels) for Years 0, +1, +2, and +3, respectively. These estimates are nearly 10 times greater than experienced by US IPO firms. Again, these declines are not attributable to an industry effect.

Table 2
Change in operating performance of IPO firms

<table>
<thead>
<tr>
<th>Measure of operating performance</th>
<th>Year relative to completion of IPO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>From −1 to 0</td>
</tr>
<tr>
<td><strong>EBIT/TA</strong></td>
<td></td>
</tr>
<tr>
<td>Median percentage change (%)</td>
<td>−19.57***</td>
</tr>
<tr>
<td>Industry-adjusted change (%)</td>
<td>−9.07**</td>
</tr>
<tr>
<td><strong>CF/TA</strong></td>
<td></td>
</tr>
<tr>
<td>Median percentage change (%)</td>
<td>−51.59***</td>
</tr>
<tr>
<td>Industry-adjusted change (%)</td>
<td>−57.28***</td>
</tr>
<tr>
<td><strong>Sales</strong></td>
<td></td>
</tr>
<tr>
<td>Median percentage change (%)</td>
<td>24.36***</td>
</tr>
<tr>
<td>Industry-adjusted change (%)</td>
<td>13.65***</td>
</tr>
<tr>
<td><strong>Sales/TA</strong></td>
<td></td>
</tr>
<tr>
<td>Median percentage change (%)</td>
<td>−13.71***</td>
</tr>
<tr>
<td>Industry-adjusted change (%)</td>
<td>−2.42</td>
</tr>
<tr>
<td><strong>Capital expenditure</strong></td>
<td></td>
</tr>
<tr>
<td>Median percentage change (%)</td>
<td>−97.61***</td>
</tr>
<tr>
<td>Industry-adjusted change (%)</td>
<td>−44.22</td>
</tr>
</tbody>
</table>

Median change during two time points, expressed as a percentage, for initial public offering (IPO) firms during the period 1987 through 1993. We also report the industry-adjusted change, calculated as the change for the IPO firm less the change for the industry-median. Year −1 is the fiscal year preceding the year during which the firm goes public, +1 is the year after, and so forth. The significance tests are based on the Wilcoxon signed rank test. * Statistically significant at the 10% level. ** Statistically significant at the 5% level. *** Statistically significant at the 1% level.

For the EBIT/TA measure, we see that firm performance gets increasingly lower after the IPO. Relative to Year −1, the median changes in EBIT/TA are −19.57%, −44.12%, −63.23%, and −70.77% (all statistically different from zero at conventional significance levels) for Years 0, +1, +2, and +3, respectively. These estimates are nearly 10 times larger than those of Jain and Kini using US firms, which is consistent with our conjecture that the asymmetric environment of Thailand may exacerbate the agency costs associated with the separation of managers and owners. The decrease in EBIT/TA is not simply an industry effect. The industry-adjusted EBIT/TA (measured as our post-IPO sample EBIT/TA less the industry median EBIT/TA) also shows a similar result of declining operating performance (−9.07%, −21.91%, −27.44%, and −25.03%, respectively).

Operating performance measured by operating cash flow divided by total asset (CF/TA) also shows a decline in post-IPO operating performance. Without industry adjustments, the change in CF/TA is −51.6%, −89.0%, −97.9%, and −96.8% for the Years 0, +1, +2, and +3, respectively (all statistically significant at the 0.01 level). These estimates are more than 10 times greater than experienced by US IPO firms. Again, these declines are not attributable to an industry effect.
The decline in post-issue operating performance can be expected if the firms cannot generate pre-IPO levels of positive NPV projects or if managers fail to maintain the required levels of capital expenditures. Alternatively, positive NPV projects may have negative earnings early, so that operating performance declines while investment is occurring. To investigate this possibility on Thai IPO firms, we examine sales growth, asset turnover (sales/TA), and capital expenditures to determine if they can explain the declining performance.

In Table 2, we show that sales of IPO firms significantly increase over the 4 years after the firm goes public. Sales increase relative to the industry median as well. Although asset turnover (sales/TA) decreases over time, the change relative to the industry is not significant. Capital expenditures during the post-IPO period appear to decline, particularly in Year 0, but the industry-adjusted result also shows that these declines are generally not significant. Overall, our evidence suggests that changes in sales levels and capital expenditure levels do not fully explain the inferior post-IPO operating performance. We next turn to ownership structure as a possible explanation.

4.2. Managerial ownership and operating performance

If significant managerial-ownership is an effective way to align incentives between managers and shareholders, then a going-public firm that retains a significant portion of its original owners may suffer a less severe post-IPO decline in performance. However, if manager-owners value perquisite consumption in lieu of value-maximizing endeavors, then their existence may exacerbate the decline in post-IPO firm performance. Prior research finds that both effects can exist, but that each can occur at different ownership levels. Therefore, in a regression methodology where the dependent variable is the change in operating performance from before the IPO to after the IPO, we test various forms of inside-ownership as explanatory variables. Specifically, we consider a linear relationship between managerial ownership (alpha) and the change in performance, and we also consider two nonlinear relationships: a quadratic form (where alpha is squared) and a cubic form (where alpha is cubed). Including the latter form, which follows Short and Keasey (1999), allows for three levels of managerial ownership to have an effect on firm performance, while allowing the managerial-ownership turning points to be determined by the data. Additionally, we include control variables in our regressions. The three models to be tested are as follows.

\[
\text{Change in performance} = \alpha + \beta_1 \text{Alpha} + \gamma_1 \text{Age} + \gamma_2 \text{Firm Size} + \gamma_3 \text{Capital Expenditure} + \gamma_4 \text{Growth} + \gamma_5 \text{Bank Loans} + \varepsilon
\]

\[
\text{Change in performance} = \alpha + \beta_1 \text{Alpha} + \beta_2 \text{Alpha}^2 + \gamma_1 \text{Age} + \gamma_2 \text{Firm Size} + \gamma_3 \text{Capital Expenditure} + \gamma_4 \text{Growth} + \gamma_5 \text{Bank Loans} + \varepsilon
\]
Change in performance = \( \alpha + \beta_1 \text{Alpha} + \beta_2 \text{Alpha}^2 + \beta_3 \text{Alpha}^3 + \gamma_1 \text{Age} \)
\( + \gamma_2 \text{Firm Size} + \gamma_3 \text{Capital Expenditure} \)
\( + \gamma_4 \text{Growth} + \gamma_5 \text{Bank Loans} + \epsilon. \)  

(3)

The dependent variable is either the change in industry-adjusted EBIT/TA or the change in industry-adjusted CF/TA from Year \(-1\) relative to Year \(+1\).\(^3\) Alpha represents the ownership stake (in percent) held by the original owners after the IPO. Alpha\(^2\) and Alpha\(^3\) represent the quadratic and cubic forms, respectively. We control for Firm Age (calculated as the difference between the establishment year and the IPO year) and Firm Size (log Total Assets) because Mikkelson et al. (1997) suggest that firm age and firm size can explain the variation of post-IPO operating performance. Older firms tend to have better performance relative to young firms. Large firms tend to have better performance relative to small firms. Previous research (such as Morck et al., 1988; McConnell and Servaes, 1990) includes capital expenditure as a control variable for firm performance. As mentioned earlier, our measure of capital expenditure is the change in capital investment (adjusting for depreciation charges) from the prior year, but in our regression setting we standardize capital expenditures by total assets. Short and Keasey (1999) include a Growth variable to capture firm’s growth as a determinant of performance. As defined earlier, Growth is calculated as the percentage increase of annual sales from the prior year. To control for capital structure changes, we include the proportion of debt (Bank Loans) to total assets as suggested by Rajan (1992) and Pagano et al. (1998). We use bank debt as the primary leverage measure as it is well known that Thai firms primarily rely on bank loans for debt financing. However, our main findings are robust to different leverage measures, even when including both short-term and long-term debt.

Regression results using the industry-adjusted change in EBIT/TA from Year \(-1\) to Year \(+1\) as the dependent variable are reported in Table 3. In model 1, where we only consider a linear relationship between firm performance and ownership, we find that the ownership variable (alpha) is not significant. Thus, there does not seem to be a linear relationship between the change in performance of the going-public firm and its post-IPO managerial ownership. This result contradicts the findings of Jain and Kini (1994), but it supports the findings of Mikkelson et al. (1997).\(^4\) That is, the change in firm performance is not better for firms that retain a higher level of manager-owners. Instead, growing firms with less bank loans seem to fare better than other firms.

In model 2 of Table 3, we include the quadratic form, Alpha\(^2\), to test for a nonlinear relationship between ownership and the change in firm performance. Here, we again see

---

\(^3\) Performance changes from year \(-1\) to years 0, 2, and 3, are also used in regression analysis, but the results are qualitatively similar to the reported results, as we will discuss later, so they are not presented for the sake of space.

\(^4\) In the Jain and Kini (1994) study, they test the linear relationship between ownership and performance by splitting their IPO-firm sample into subsamples based on high and low post-IPO managerial ownership. They find that firms with high levels of managerial ownership outperform firms with low levels of managerial ownership. In an earlier version of our paper, we also performed this same test, but we did not observe differences between our two subsamples for Thai firms, which is consistent with our model (1) regression results reported here.
that the Alpha variable remains insignificant, but more importantly, we see that the Alpha2 variable is also not significant. This latter finding is consistent with Mikkelson et al. when they considered a nonlinear relationship.

In model 3, however, we see that the estimated coefficients on all of the ownership variables are statistically significant, and of the expected signs. That is, the coefficients for Alpha and Alpha3 are positive, while the coefficient for Alpha2 is negative. These results suggest that firms with ‘low’ and ‘high’ levels of managerial ownership experience positive relationships between managerial ownership and changes in firm performance (alignment-of-interest hypothesis), while firms with ‘intermediate’ levels of managerial ownership exhibit a negative relationship between managerial ownership and changes in firm performance (entrenchment hypothesis). These findings are actually consistent with the earlier general findings on the relationship between firm performance levels and managerial ownership (e.g., Morck et al., 1988; Short and Keasey, 1999), but this cubic form has never been considered in the IPO literature when examining the change in performance from before to after the IPO. Thus, not differentiating for three levels of managerial ownership may explain why Mikkelson et al. cannot empirically support the theoretical relationship between ownership and performance. Entrenchment can occur at high levels of ownership, but at very high ownership levels, management is essentially the owners. Here, there is perfect or near-perfect alignment between the manager and owner.

Table 3
Regression results on the change in industry-adjusted EBIT/TA

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.023 (0.22)</td>
<td>0.002 (0.02)</td>
<td>−0.010 (−0.10)</td>
</tr>
<tr>
<td>Alpha</td>
<td>0.000 (0.19)</td>
<td>0.001 (0.86)</td>
<td>0.005** (2.30)</td>
</tr>
<tr>
<td>Alpha2</td>
<td>−0.008 (−0.84)</td>
<td>−0.130** (−2.24)</td>
<td></td>
</tr>
<tr>
<td>Alpha3</td>
<td>0.087** (2.12)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm Age</td>
<td>0.001 (1.32)</td>
<td>0.001 (1.28)</td>
<td>0.001* (1.75)</td>
</tr>
<tr>
<td>Firm Size</td>
<td>−0.003 (−0.33)</td>
<td>−0.002 (−0.23)</td>
<td>−0.003 (−0.44)</td>
</tr>
<tr>
<td>Capital Expenditure</td>
<td>−0.023 (−0.23)</td>
<td>−0.038 (−0.38)</td>
<td>−0.011 (−0.11)</td>
</tr>
<tr>
<td>Growth</td>
<td>0.024* (1.86)</td>
<td>0.025* (1.93)</td>
<td>0.026* (2.00)</td>
</tr>
<tr>
<td>Bank Loans</td>
<td>−0.178*** (−3.38)</td>
<td>−0.175*** (−3.30)</td>
<td>−0.190*** (−3.62)</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.121</td>
<td>0.118</td>
<td>0.149</td>
</tr>
<tr>
<td>Sample Size</td>
<td>133</td>
<td>133</td>
<td>133</td>
</tr>
</tbody>
</table>

This table reports ordinary-least-squares regression coefficient estimates. The dependent variable is the industry-adjusted change in operating returns to total assets (EBIT/TA) from Year −1 to Year +1, where Year 0 is the year a firm goes IPO. The sample is 133 Thai firms that go IPO during the period 1987–1993. Alpha represents the ownership stake (in percent) held by the original owners after the IPO. Alpha2 and Alpha3 represent the quadratic and cubic forms, respectively. Coefficients on Alpha2 and Alpha3 are adjusted by $10^2$ and $10^3$, respectively. Firm Age is the difference between the establishment year and the IPO year, Firm Size is the natural log of total assets, Capital Expenditure is the change in capital investment from the prior year divided by total assets, Growth is calculated as the percentage increase of annual sales from the prior year, and Bank Loans is bank debt divided by total assets. *t*-statistics are reported in parentheses.

* Statistically significant at the 10% level.
** Statistically significant at the 5% level.
*** Statistically significant at the 1% level.
In Table 4, we use the change in industry-adjusted CF/TA (from Year $-1$ to Year $+1$) as the performance measure. From this table, we again see similar findings to Table 3. That is, model 3 indicates that ownership is positively related to firm performance at low and high levels of ownership (as revealed by the Alpha and Alpha$^3$ parameter coefficients), but negatively related to performance at intermediate levels of ownership (as revealed by the Alpha$^2$ coefficient). We do note, however, that in model 1 we see a positive relation between Alpha and firm performance suggesting a positive linear relationship, but model 3 reveals that this result is due to steep slopes at both the low and high levels (Alpha and Alpha$^3$) of ownership (we will also see this visually in a subsequent figure). Note that this latter result again reveals the importance of including both a quadratic and cubic form of ownership to differentiate for three levels of ownership.

Finally, in both Tables 3 and 4, we only see weak or no evidence that older firms tend to have better performance relative to younger firms, and firm size also does not seem to play an important role either (these findings are inconsistent with Mikkelsen et al). Additionally, the parameter coefficients for capital expenditure are consistently insignificant, and firms with more growth seem to enjoy higher operating returns (Table 3), but not higher cash flows (Table 4). Finally, consistent with the arguments of Rajan (1992) and Pagano et al. (1998), Thai firms lower the use of bank debt and use equity financing to substitute for the debt after going public. The negative relationship between bank loans to post-IPO operating performance demonstrates that firms using less debt will experience a better performance.

### Table 4
Regression results on the change in industry-adjusted CF/TA

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.200 (1.44)</td>
<td>0.167 (1.17)</td>
<td>0.151 (1.07)</td>
</tr>
<tr>
<td>Alpha</td>
<td>0.001*** (2.09)</td>
<td>0.002 (1.54)</td>
<td>0.007*** (2.37)</td>
</tr>
<tr>
<td>Alpha$^2$</td>
<td>−0.014 (−1.02)</td>
<td>−0.164*** (−2.05)</td>
<td></td>
</tr>
<tr>
<td>Alpha$^3$</td>
<td>0.108* (1.90)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm Age</td>
<td>−0.000 (−0.02)</td>
<td>−0.000 (−0.06)</td>
<td>0.000 (0.37)</td>
</tr>
<tr>
<td>Firm Size</td>
<td>−0.009 (−0.80)</td>
<td>−0.007 (−0.68)</td>
<td>−0.009 (−0.87)</td>
</tr>
<tr>
<td>Capital Expenditure</td>
<td>−0.039 (−0.28)</td>
<td>−0.063 (−0.46)</td>
<td>−0.029 (−0.21)</td>
</tr>
<tr>
<td>Growth</td>
<td>−0.022 (−1.24)</td>
<td>−0.021 (−1.15)</td>
<td>−0.020 (−1.13)</td>
</tr>
<tr>
<td>Bank Loans</td>
<td>−0.203*** (−2.80)</td>
<td>−0.197*** (−2.71)</td>
<td>−0.216*** (−2.98)</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.071</td>
<td>0.071</td>
<td>0.095</td>
</tr>
<tr>
<td>Sample Size</td>
<td>133</td>
<td>133</td>
<td>133</td>
</tr>
</tbody>
</table>

This table reports ordinary-least-squares regression coefficient estimates. The dependent variable is the industry-adjusted change in cash flows to total assets (CF/TA) from Year $-1$ to Year $+1$, where CF=EBIT+depreciation and Year 0 is the year a firm goes IPO. The sample is 133 Thai firms that go IPO during the period 1987–1993. Alpha represents the ownership stake (in percent) held by the original owners after the IPO. Alpha$^2$ and Alpha$^3$ represent the quadratic and cubic forms, respectively. Coefficients on Alpha$^2$ and Alpha$^3$ are adjusted by 10$^3$ and 10$^5$, respectively. Firm Age is the difference between the establishment year and the IPO year, Firm Size is the natural log of total assets, Capital Expenditure is the change in capital investment from the prior year divided by total assets, Growth is calculated as the percentage increase of annual sales from the prior year, and Bank Loans is bank debt divided by total assets. $t$-statistics are reported in parentheses.

* Statistically significant at the 10% level.
** Statistically significant at the 5% level.
*** Statistically significant at the 1% level.
transition, with regard to performance, as the firm goes public. One explanation for this finding is that firms that move away from bank financing are becoming less conservative.\(^5\)

Next, we should discuss the ownership turning points at which the inside-owners’ incentives go from alignment to entrenchment and back again to alignment, but before we do, we conduct an important robustness check in the next subsection.

4.2.1. Are the curvilinear findings robust when using the level of firm performance?

Thus far, we have tested to see if post-IPO ownership structure could explain changes in firm performance from before to after the IPO. In prior research that specifically examines the general relationship between ownership structure and firm performance, they test their models using firm performance levels. Thus, in our tests, we have assumed that their findings can be applied to performance changes as inside-ownership goes from 100% to something less in our IPO sample. Much of the other literature that looks at firm restructuring (e.g., IPO, LBO, MBO, reverse LBO) also makes this assumption as they often associate changes in performance to changes in ownership structure. The assumption is based on the premise that if ownership is supposed to explain performance levels, then changes in ownership should partially explain concurrent (or subsequent) changes in performance. To test the validity of this assumption, we would need to establish that our findings hold when we use firm performance level measures. That is, only in an environment where ownership can explain performance levels should we expect to see that changes in ownership structure partially explain changes in performance. Therefore, we reexecute our regression models using the level of performance during the year after the IPO (Year +1) as our dependent variable. Tables 5 and 6 report these results using the level of operating returns and the level of cash flows as dependent variables, respectively.

From Tables 5 and 6, we see that ownership has the same curvilinear relationships with firm performance levels, as they did with the change in performance in Tables 3 and 4. That is, ownership is only correlated with firm performance when we allow for three levels of inside-ownership, and that the alignment-of-interest effect occurs at both low and high inside-ownership levels, but that entrenchment effects occur at intermediate inside-ownership levels. These results suggest that the Morck et al. (1988) and Short and Keasey (1999) findings on a curvilinear pattern between ownership and performance levels has implications on how ownership might affect performance changes. Our findings here strengthen our overall argument that ownership structure plays an important role in post-IPO firm performance.

From these additional regression models, we continue to see that firm growth is correlated with performance, but we also see some evidence that older firms enjoy higher levels of operating returns (Table 5) and that firms with more bank loans enjoy higher levels of cash flows (Table 6). With regard to the firm age results here, and the fact that we could not detect a relationship between firm age and performance changes earlier, suggests that older firms suffer as much as newer firms when they go public, but older firms enjoy better performance levels than newer firms before and after the IPO. With regard to the

\(^5\) See Anderson and Makhija (1999) for a similar argument in their study of Japanese firms that became less reliant on bank financing.
bank loan variable being positive in the cash-flow-level regression here suggests the possible following interpretation: banks encourage firms to pursue activities that generate significant cash flows, both before and after the IPO, in order to ensure that short-term liquidity needs are being met (as bank loans are rolling short-term loans).6 Again, this conservative policy may explain why we saw earlier that firms that rely less on bank loans suffer less performance declines as the firms go public.

4.3. Managerial ownership turning points

Our nonlinear ownership models allow us to determine at which point management alignment switches to entrenchment and then back to alignment. For this purpose, we use the estimated coefficients from model 3, reported in Tables 3 and 4. Using the coefficients of these regression equations, we graph the industry-adjusted change in EBIT/TA (and the industry-adjusted change in CF/TA) versus alpha, the portion of the firm owned by the original owner-managers. Fig. 1 displays the results. For the industry-adjusted change in EBIT/TA in Year +1 relative to Year −1, the turning point from

---

6 This interpretation is similar to arguments made by Weinstein and Yafeh (1998) and Morck and Nakamura (1999) that bank stakeholders will make sure that firms tend to their liabilities.
alignment to entrenchment for management ownership is 31%. The turning point back to alignment is 71%. Incidentally, these turning points reveal that all of our ownership categories have ample sample sizes (i.e., there are 57 firms in the ‘low’ ownership category and 20 firms in the ‘high’ ownership category) attesting to the validity of our results. Using the change in industry-adjusted cash flows yields similar results, turning points at 26% and 74%. The similarity of the turning points of managerial ownership between the two performance measures indicates the relationship’s robustness. The turning points using model 3 of Tables 5 and 6 are also similar (i.e., they approximately occur at 23% and 64%).

Our study is the first to investigate a curvilinear relationship between managerial ownership and performance for firms going public. How does our finding of a managerial ownership entrenchment range of 31% to 71% compare to other settings? Morck et al. document an entrenchment range of 5% to 25% for established U.S. firms. Short and Keasey (1999) find an entrenchment range of 16% to 42% in a sample of established United Kingdom firms. Our turning points are higher than both of these studies. However, there are two important differences between our investigation and that of Morck et al. and Short and Keasey. First, we study IPO firms while they study established public firms. Second, we investigate an emerging market while they study developed markets. Thus, the differences in sample selection and the economic environment may drive the differences in results. We discuss these issues next.
Even though Morck et al. (1988) point out that theory cannot unambiguously identify at what managerial ownership levels their incentives will change, they do suggest that entrenchment probably begins to occur at a managerial-ownership level where management feels protected from market discipline. It is interesting, therefore, that Morck et al. (1988) and Short and Keasey (1999) find that management appears to feel entrenched even though they own less than 50% of the firm, i.e., where ‘outside’ shareholders have majority control. However, and as pointed out by Kole (1995), it is probably easier for inside-owners of a large established firm to feel, and to be, entrenched. Larger firms have more diffuse ownership so it is more difficult for outsider shareholders to exert control, and just as important, established firms have less value-maximizing control potential than do younger firms (i.e., an IPO firm has significant variability with regard to its future potential as compared to an established firm, so new outside shareholders of IPO firms are likely to be very motivated to exert influence and control). Thus, for an IPO firm, it may require more ownership stakes for an inside-owner to be entrenched from outsider scrutiny and discipline.\footnote{One could point out, however, that a 70% ownership stake is too large for inside-owners to engage in perquisite consumption behavior instead of value-maximizing endeavors, even though insiders accrue all of the benefits of the former while having to share the rewards of the latter. However, we should be wary of the fact that the wealth that inside-owners commit to large firms (e.g., established firms) as opposed to small firms (IPO firms) could easily be of an equal or greater magnitude despite the former having a much smaller proportional ownership stake.} Note also that IPO firms are riskier than established firms. Therefore, to the inside-owner, the payoffs to shirking is less variable than the payoffs to value-maximizing pursuits, which, in turn, means that riskier firms

---

Fig. 1. Managerial ownership turning points. The coefficients of model (3) (Tables 3 and 4) are used to graph the change in performance versus different levels of managerial ownership. The change in industry-adjusted EBIT/TA or the change in industry adjusted CF/TA from Year $-1$ to Year $+1$ is depicted on the y-axis.
require higher levels of inside-ownership to ensure that incentives are aligned. These interpretations suggest that insiders must own more to be entrenched, and at the same time inside-ownership must be very high for alignment to occur. Our results lend support for both views.

The fact that our study sample is from an emerging economy is also likely to play a role in the relationship between ownership and performance of an IPO firm. With high levels of information asymmetry, which typifies most emerging economies, insiders can more easily shield value-destroying behaviors from other shareholders. On the one hand, this suggests that insiders would not need any ownership stake to be entrenched. On the other hand, however, outside shareholders may be more wary of insiders in such an environment that they will try to diminish the insider’s ability to shirk. Here, insiders would have to secure more ownership stakes than otherwise to be entrenched. Our results describe the latter possibility. However, with regard to the two unique characteristics of our sample (that they are IPO firms and emerging market firms), subsequent research on ownership and performance should be conducted on (i) IPO firms from more developed countries and/or (ii) on established firms in emerging countries, in order to better understand the effect of each characteristic on the relationship between ownership and performance.

Finally, how do our ownership results explain, in part, the overall performance decline of our IPO firms? When inside-ownership goes from 100% (pre-IPO) to something less (post-IPO), then the resulting agency costs between owners and managers likely leads to a performance decline, which is what we observe overall. This performance decline, however, can be tempered when managers own more of the firm, but we find that this only occurs at low and high levels of managerial-ownership. At intermediate levels of managerial-ownership, the conditions for entrenchment appear to be met, which leads to value-destroying perquisite consumption by inside-owners. Here, this shirking behavior exacerbates the performance decline of the going-public firm. Therefore, both the alignment-of-interest effect and the entrenchment effect will predict a decline in firm performance when insiders own less than 100% of the firm (i.e., as the firm goes public). Because we document empirical evidence supporting the existence of both effects, we see that diffuse ownership does play an important role in explaining the performance decline of going-public firms.

4.4. Robustness checks

Robustness checks on our ownership findings include the following: We estimate all of our models using the change in firm performance from Year −1 to Years 0, +2 and +3 as the dependent variables, and we also use the average change in operating performance for Years +1 though +3. The results are similar to those reported here. We also estimate model 3 without control variables, leaving only the three ownership variables, to make sure that our control variables are not driving the results. Again, the coefficients for Alpha and Alpha are positive, while the coefficient for Alpha is negative.

We also note that 15% (20 out of 133) of our firms are in the ‘high’ ownership category (as determined by the regression turning points), suggesting that outliers are not driving

---

8 Demsetz and Lehn (1985) make a similar point.
9 A similar point is made by Fama and Jensen (1983) and by Himmelberg et al. (1998).
the Alpha\textsuperscript{3} results. This observation is not surprising because we made sure that the residuals of our regression models were normally distributed. As another check on the possibility of an outlier effect, we exclude three firms with alpha measures greater than 90\%.\textsuperscript{10} Our main results stay intact.

Next, because we focus on industry-adjusted performance measures, and because we had to combine some of the SET-defined industries, we also conduct numerous robustness checks on our industry categories. As a first pass, we noted minimal variation in various firm characteristics, such as operating performance, within our industry classifications. Second, we re-run our regressions using different possible industry groupings and we find that our results remain similar. Finally, perhaps the two most important robust checks on our industry groupings are as follows: First, we restricted our sample to only those firms \((n=76)\) that had comparative industry data specifically based on the narrower SET-defined industry classifications, and the results are qualitatively similar to what is reported here despite the smaller sample size. Second, we also executed regression analyses where the firm performance dependent variables are not industry-adjusted, and we obtain similar findings. Therefore, we feel confident that our reported results are not an artifact of our industry categorization. All unreported results are available from the authors upon request.

5. Summary and conclusions

We investigate the post-IPO operating performance of 133 firms that go public in Thailand. Because Thailand is an emerging market, the less developed market structure also leads to a general information asymmetric environment. Going public typically leads to a separation of corporate control and stock ownership. This also leads to increased information asymmetry between market participants. Therefore, we are studying managerial ownership and operating performance of firms with severe information asymmetry.

The separation of ownership and control and the information asymmetry of these IPO firms should lead to reduced operating performance after the public offering. Indeed, we find that the post-IPO decrease in operating performance is nearly one order of magnitude greater in Thailand than in the United States. For example, operating return on assets 3 years after the IPO is 70\% lower than during the year before the IPO. This result compares to a decline of 9\% in the United States (see Jain and Kini, 1994). These large performance declines for Thai IPO firms are also found using alternative performance measures and with industry-adjusted performance measures.

To counter the severe information asymmetry in our sample, management incentives may have to be closely aligned with shareholder interests to avoid the agency costs as described in Jensen and Meckling (1976). However, we fail to find a positive linear relationship between managerial ownership and IPO-firm performance. Like Mikkelson et al. (1997), and contrary to Jain and Kini (1994), we find no linear relationship.

\textsuperscript{10}Trimming our sample further will naturally lead to an insignificant parameter coefficient on Alpha\textsuperscript{3} only because we would be eliminating firms with very high ownership levels. Further, note that even when alpha is greater than 90\%, this does not necessarily make it an outlier in the typical sense, especially because Jain and Kini (1994) find the US median alpha to be 71\%.
Studies investigating the effect of managerial ownership on firm value for established firms have identified a nonlinear relationship that allows for both the existence of the alignment and entrenchment hypotheses. We model a cubic form of the relationship in IPO firms. Our findings indicate that increases in managerial ownership are associated with better firm performance within both the 0–31% and 71–100% ownership ranges. Alternatively, greater managerial ownership is negatively associated with firm performance in the 31–71% ownership range. Morck et al. report turning points of 5% and 25% for established US firms. Short and Keasey (1999) find turning points at 16% and 42% in a sample of established United Kingdom firms. Our turning points are higher than both of these studies. However, we study IPO firms from an emerging market while they study established public firms from developed markets.

We also report other determinants of firm performance. It seems that older and growing firms perform better after the IPO than other firms. In addition, firms with less bank debt suffer a greater performance decline as firms go public, but bank debt is positively related to cash-flow levels after the IPO. Most importantly, however, these additional determinants do not subsume the managerial ownership findings.

By examining the operating performance of IPO firms from an emerging market and finding a curvilinear relationship between post-IPO managerial ownership and post-IPO performance, we make two significant contributions to the IPO literature.

Acknowledgements

The authors thank an anonymous referee, Keiichi Kubota, Piman Limpaphayom, Jeff Netter (the editor), seminar participants at the Asian University of Science and Technology (in Chonburi, Thailand), the University of Wisconsin-Milwaukee, the University of Saskatchewan, Saginaw Valley State University, Texas A&M International University, and the 2001 Asia-Pacific Finance Association meetings (Bangkok, Thailand) for comments on earlier versions of this paper. Kanok Sriruttanachanchai, Amonrat Kitsabunnarat, and Nutjaree Nukngam provided superb assistance with the data. A part of this work was conducted while the first and second authors were Visiting Professor and Visiting Scholar, respectively, at the Asian University of Science and Technology. The second author dedicates her work to the memory of her mother who encouraged her to pursue academic endeavors that would benefit her homeland, Thailand. The usual disclaimer applies.

Appendix A. Institutional details

A.1. Stock Exchange of Thailand

The Stock Exchange of Thailand (SET) was established in 1975. The SET became one of the fastest growing capital markets in the world. At the end of its first year of operation, there were just 21 companies listed with a total trading turnover of 547.32 million baht. By the end of 1999, the number of listed companies had grown to 392 stocks, 20 unit trusts or mutual funds, as well as preferred shares, debentures and warrants of various types—a
total of 450 securities. The market value of the trading reached 1609.79 billion baht on a
daily average of 6570.56 million baht (US$1 ≈ 24 baht during our entire study period).

A.2. Listing procedure of Thai IPOs

To file a listing application, the applicant may either (1) submit a listing application to
the Exchange following the Securities & Exchange Commission’s (SEC) approval of the
public offering, or (2) submit listing and public offering applications to the SET and SEC
simultaneously (“Parallel Listing”). The consideration of the listing application by the
Exchange will normally be completed within 30 days after all required documents and
information has been submitted to the Exchange.

To execute an IPO, the firm must meet the listing requirements of the SET and gain
permission from the (SEC). These listing criteria (see Appendix B) set specific size,
liquidity, and ownership minimums. In addition, it also sets standards for board
governance and management.

To coordinate the listing activities with the SET and prepare listing documents, the
applicant appoints a financial advisor. The advisor manages the public offering procedure.
A successful procedure can be summarized, as diagramed in Appendix C, as follows: (1)
the initial public offering prospectus is submitted to the SEC through an authorized finance
and securities company, (2) the listing application is then submitted to the SET, (3) a
company visit and a company management interview is conducted, (4) SET Board of
Governor’s grant their approval for listing, (5) trading commences.

The average time for the approval process, from the listing application date to the issue
date, is generally 2 to 3 months. However, this can take as long as a year. Investors
wishing to subscribe in the IPO are required to pay in advance and the issuer earns interest
on all money deposited, even if over subscribed (Chowdhry and Sherman, 1996).

Appendix B. General listing criteria for applicants

To be listed on the Stock Exchange of Thailand, the following qualifications must be met:

<table>
<thead>
<tr>
<th>Qualifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status of the applicant</td>
</tr>
<tr>
<td>Nature of business</td>
</tr>
<tr>
<td>Paid-up capital for common shares (after public offering)</td>
</tr>
<tr>
<td>Distribution of minor shareholding</td>
</tr>
<tr>
<td>Number of minor shareholders</td>
</tr>
<tr>
<td>Number of shares held by minor shareholders paid-up Cap&lt;Bt 500 M</td>
</tr>
</tbody>
</table>
Public offering

Approval

Number of shares cumulatively offered for sale

- paid-up cap < Bt 500 M
  - ≥15% of paid-up capital
- paid-up cap ≥ Bt 500 M
  - ≥10% of paid-up capital or 7.5 million shares

Method of public offering

- Offering through an underwriter
  - The business must be in operation for at least 3 years.
  - The business has been operated under substantially same management for at least 1 year prior to the application date.
  - The business must comply with either one of the following qualifications: (1) Have net profit after taxes of at least Bt 30 million in the latest year. For privatized state enterprises, operations prior to privatization will be considered as continuation of operations; (2) Have sales revenue of at least Bt 2 billion in the latest year; (3) Have total market capitalization of at least Bt 1.5 billion. Market capitalization is calculated by multiplying total number of common shares with the initial public offering (IPO) price.

Financial condition and liquidity

- Has a stable and healthy financial condition and sufficient working capital.
- Have a minimum total shareholders’ equity of Bt 200 million.

Management

Management and control persons

- Be ethical and honest.
- Be competent and experienced in the business.
- Be efficient.
- Dedicated to the company’s continuous operations and growth.
- Understand and be responsible to the public.
- Not possessing any characteristics as prohibited by the SEC.

Independent directors

- Have at least two independent directors.

Scope of the audit committee

- Scope of duties and responsibilities of the audit committee member must clearly be specified.

Corporate governance and internal control

- Have good corporate governance practices and a qualified audit committee.
• Have effective auditing and internal control systems.

Conflict of interests

• No existing or potential conflicts of interest between the applicant company with parent, subsidiary, affiliated or other companies within the group, or other persons with possible conflict of interest.

• Shareholding in subsidiaries and affiliated companies of persons with possible conflict of interest must not be greater than 5% of total shares of such subsidiaries and affiliated companies unless approved by the Exchange.

Articles of association of the applicant

• Provisions regarding connected transactions, acquisitions, or disposal of significant assets must be clearly specified in the articles of association of the applicant and its subsidiaries.

Financial statements and auditors

• The applicant and its subsidiaries must have the same auditor or auditing firm that must have been approved by the SEC.

• All auditor’s reports must not contain any disclaimer of opinion, or qualified opinion due to a limitation on the scope of the auditor’s work.

• Financial statements are issued not more than 4 months before the application date.

• Financial statements for the previous year and the year of application must be audited/reviewed by the same auditor or auditing firm, provided that the most recent financial statements are issued not more than four months before the application date.

• Financial statements have been prepared in accordance with SET rules and regulations.

Dividend

• Dividend policy must be clearly stated.

Provident fund

• On the date the listing application is filed, the provident fund of the applicant must already be established.

Environmental impact

• The applicant and its subsidiaries must not have any litigation with government agency regarding environmental effects caused by their operations.

Source: The Stock Exchange of Thailand (see http://www.set.or.th).

Note:

\(^a\) Minor shareholder: A person holding shares of not greater than 0.5% of paid-up capital and not less than 100 shares.

\(^b\) Whichever is higher.
Appendix C. Diagram of listing procedure

Financial Advisor ← Limited Company

Public Limited Company

IPO Application → SEC

45 days after all required documents are submitted

IPO Approval → Public Offering

Share distribution report

Listing Application → SET

30 days after all required documents are submitted

Listing Pre-Approval

Minor Shareholding Requirement is Fulfilled

3 working days

Trading Begins

Appendix D. Industry classifications used in the study

(1) Agribusiness
(2) Chemical and plastics
(3) Commerce
(4) Packaging
(5) Printing and publishing
(6) Pulp and paper
(7) Textiles, clothing and footwear
(8) Warehouse and silo
(9) Building and furnishing materials & property development
(10) Energy & transportation & communication
(11) Health care services & professional services & hotels and travel services
(12) Entertainment and recreation
(13) Foods and beverage & household goods & jewelry and ornaments & pharmaceutical products and cosmetics, & other goods (tannery, leatherwear, and stationery)
(14) Vehicles and parts & machinery and equipment
(15) Electrical products and computers & electronic components

Any time SET-defined industries are combined, it is denoted with an ampersand: &.
References


