A panel threshold model of institutional ownership and firm value in Taiwan

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Abstract

Using a panel of 221 listed Taiwanese companies for the 1997-2006 period, this paper seeks to determine whether or not institutional ownership affects firm value. To this end, we adopt an advanced panel threshold regression model to test whether there is an “optimal” institutional ownership, which causes threshold effects and asymmetrical relationships between institutional ownership and firm value. Tobin’s Q is used as a proxy for firm value.

I find that there is one threshold effect between institutional ownership and firm value, 81.2%. When the institutional ownership is less than 81.2%, I find that there is no relationship between institutional ownership and Tobin’s Q. When the institutional ownership is greater than 81.2%, the Tobin’s Q increases by 1.25%, with a 1% increase in the institutional ownership. These results are consistent with the effective monitoring hypotheses when the institutional ownership greater than 81.2% at which point the firm’s value will start to increase.

Keywords: Tobin’s Q, Panel threshold effect, Institutional ownership
1. Introduction

Institutional investors have come to play an important part in the debate about shareholder value creation and the corporate governance of public companies (Hellman, 2005). On one hand, they can be the major proponents of sound corporate governance. As the owners of stocks in publicly traded companies, they have the primary objective of maximizing shareholder value. On the other hand, most of these investors have multiple owners and could themselves provide clear examples of good or bad corporate governance (Belev, 2003). Prior empirical evidence presents four alternative hypotheses on the relationship between institutional ownership and firm value, namely, “efficient monitoring” (Shleifer and Vishny, 1997), “cost of capital” (Fama and Jensen, 1983), “strategic alignment,” and “conflict-of-interest” (Pound, 1988). Therefore, the efficient monitoring hypothesis predicts a positive relation between institutional ownership and firm value, whereas the cost of capital, conflict-of-interest, and strategic alignment hypotheses predict a negative relationship between the two. Theoretically, concentrated shareholdings by institutions represent a method of reducing agency problems between shareholder and managers and increase firm value, but too large an ownership stake by institutions could potentially lead these groups to worry more their own interests and not those of minority investors and may give rise to another agency problem. It is possible that institutions will decrease firm value once their ownerships exceed a certain level. That is, active monitoring may improve firm value only up to a certain level of ownership. Therefore, at higher levels of equity ownership, institutions may encourage sub-optimal decisions that could be harmful to the firm value. A combination of these effects leads to the prediction of a non-linear relation between equity ownership and firm value. Whether such a non-linear relation exists for institutions has not been investigated in prior studies in Taiwan.

Furthermore, there are two fundamental questions that are yet to be resolved. First, “do firms revert to a threshold institutional ownership to reduce agency costs and increase firm value?” Secondly, does the positive effect or the negative effect dominate?” In seeking to answer these two unresolved questions, the present study applies a panel threshold regression model to observe the balanced panel data in order to test whether there is a threshold institutional ownership at which point the threshold effect and asymmetrical relationship between institutional ownership and firm value may be determined. If this “threshold” value is confirmed, I suppose that a positive relationship can be expected between institutional ownership and firm value, (the positive effect) when the institutional ownership is less than “threshold” value. Conversely, a negative relationship is expected between institutional ownership and firm value (the negative effect) when the institutional ownership is higher than “threshold” value.

This empirical study contributes to the previous literature in three respects. First, I apply Hansen’s (1999) advanced panel threshold regression model to determine whether there is a “threshold” institutional ownership. In contrast to traditional linear models, this nonlinear threshold model is able to determine whether the positive effect or the negative effect dominates. Secondly, I use panel data for listed Taiwanese companies to fully explore the ownership structure characteristics of various industries in Taiwan. Thirdly, unlike the U.S., Taiwan is characterized by
low institutional ownership and an inactive market for corporate control. Thus, Taiwan provides a
natural setting for examining the influence of positive and negative effects on institutional
ownership.

The remainder of this study is organized into three sections. Section 2 reviews the results of
previous empirical research. Section 3 provides the sample data and the variables I use in my
empirical analysis. Section 4 describes the methodology. Section 5 discusses the empirical results,
and section 6 concludes and presents a few implications that emerge from my findings.

2. Institutional Ownership and Firm Value
A number of studies have sought to evaluate empirically the link between institutional ownership
and firm performance. However, their results are unclear. For instance, Agrawal and Knoeber (1996)
find no significant correlation between institutional ownership and firm performance based on a list
samples for 1986 and 1989, respectively and find no significant correlation between institutional
ownership and firm performance. In examining a sample of 867 acquisitions of publicly traded
firms in the US between 1978 and 1988, Loderer and Martin (1997) find no significant relationship
between institutional ownership and firm performance. By partitioning institutional investors into
institutions that have appointed a representative to the board of directors of the firms in which they
have a block investment and institutions with a similar holding but without a representative on the
board of directors in the New Zealand, Navissi and Naiker (2006) find that institutions with board
representation have greater incentives to monitor management. Therefore, their presence should
have a positive influence on firm value. However, at high levels of ownership, institutional
investors with board representation may induce boards of directors to make sub-optimal decisions.

In contrast, using a cross-sectional sample of 1173 firms listed on NYSE/AMEX in 1976
and another 1093 firms in 1986, McConnell and Servaes (1990) find a positive relationship between
institutional ownership and firm value. They further claimed that such a relationship reveals an
efficient monitoring role assumed by institutional investors. Similarly, Chaganti and Damanpour
(1991) provide evidence of a positive relationship between institutional ownership and return on
equity in the US manufacturing sector continuously surveyed by the Value Line between 1983 and
1985. Han and Suk (1998) also find that stock returns are positively related to institutional
ownership for 301 NYSE/AMEX firms during 1988–1992. They attributed this observed significant
relationship to effective management monitoring by institutional investors. In the same manner,
Clay (2001) finds a positive impact of institutional ownership on firm performance in which a 1%
increase in institutional ownership translates into a 0.75% firm performance enhancement.
Selecting the 1,914 firms included in Standard & Poor’s from 1992 through 1997, Hartzell and
Starks (2003) find that institutional ownership concentration is positively related to the
pay-for-performance sensitivity of executive compensation, while it is negatively related to the
level of compensation even after controlling for firm size, industry, investment opportunities, and
performance. They suggest that institutions serve a monitoring role in mitigating the agency problem between shareholders and managers. Examining the relationship between institutional ownership and firm performance in the North American casino industry from 1999–2003, Tsai and Gu (2007) reveals that investing institutionally in casino firms may help casino industry investors mitigate the agency problem caused by the separation of management from ownership. Finally, Mahoney and Roberts (2007) examine the relationship between corporate social performance and financial performance and institutional ownership for publicly held Canadian firms. They find a significant relationship between firms’ corporate social performance and the number of institutions investing in firms’ stock.

3. Data

3.1. Sample Description

To explore the relationship between institutional ownership and firm value, I employ a panel threshold regression model to test if there is a threshold institutional ownership. I conduct my investigation using balanced panel data for a sample of 221 selected Taiwan Stock Exchange (TSE)-listed companies in Taiwan covering the period from 1997 to 2006. I obtain all my data from the Taiwan Economic Journal (TEJ) database of Taiwan. I exclude financial and insurance firms, because the nature of capital and investment in these industries is not comparable to those of non-financial firms. The final sample is 221 public trading companies distributed across the eighteen industry sectors as follows: Electron (47), Textiles (28), Plastics (17), Steel and Iron (17), Chemical (16), Food (12), Transportation (11). The residual 73 companies are from the remaining sectors. The electronics and textiles industries together account for about one-third of the sample, while the remaining industries each make up less than eight percent.

3.2 Variables

As the proxy for firm value, I adopt the Tobin’s Q which is the most common measure in empirical corporate governance research (e.g., Morck et al., 1988; McConnell and Servaes, 1990; Himmelberg et al., 1999) rather than accounting-based measures because it takes risk into account and is not as likely to distort the results as other measures, such as the return on assets (Lindenberg and Ross, 1981). Tobin’s Q is defined as the ratio of the market value of a firm divided by the book value of its assets. For firm market value, I follow Chung and Pruitt (1994) and use the sum of the market value of common equity, the book value of preferred stock, the book value of long-term debt and net current liabilities. I do not calculate replacement values, used by Lindenberg and Ross (1981), since there are few qualitative differences between those measures and the simplified version of Chung and Pruitt (1994).

There are two categories of explanatory variables in my panel data. The threshold variables, i.e., the percentage of equity owned by the governmental institutions, financial institutions, corporate institutions, mutual funds, foreign financial institutions, foreign institutions, foreign
mutual funds and other institutions as a proxy for institutional ownership are the key variables that I use to investigate whether or not there is an asymmetric threshold effect of institutional ownership on firm value.

I also include control variables commonly used in the analysis of firm value, namely, the natural log of the book value of total assets (Size) to capture intangibles related to the firm’s size; the ratio of total liabilities to total assets (Leverage); the rate at which a firm is growing (Sales growth), which is calculated as the annual percentage change in sales. In addition, consistent with Dushnitsky and Lenox (2006), I employ measures of average industry q to control for time-variant, industry-specific variations. Industry q is measured as the average q of all firms within one of our eighteen industries in a given year.

Table 1 presents the descriptive statistics for the pooled sample of the 1997-2006 period. The total number of firms is 221, and there are a total of 2,210 firm-year observations. The Tobin’s Q is more evenly distributed with a pooled mean (median) of 0.88 (0.74). The pooled mean (median) institutional ownership is 36% (36%). As for the control variables, on average for the pooled sample, the size distribution of the sample firm is also skewed by the large differences between mean (20500 million NT$) and median (7720 million NT$) total assets for the pooled sample, the ratio for Leverage is 40%, the rate of Sales growth is 9%, the pooled mean of Industry q is 0.88. On the basis of the Jarque-Bera test results, I reject the normality of all the variables.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Maximum</th>
<th>Median</th>
<th>Minimum</th>
<th>Jarque-Bera</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobin’s Q</td>
<td>0.88</td>
<td>0.74</td>
<td>7.91</td>
<td>0.68</td>
<td>0.01</td>
<td>31481***</td>
</tr>
<tr>
<td>Family ownership</td>
<td>0.26</td>
<td>0.15</td>
<td>0.86</td>
<td>0.24</td>
<td>0</td>
<td>120.37***</td>
</tr>
<tr>
<td>Institutional</td>
<td>0.36</td>
<td>0.20</td>
<td>0.92</td>
<td>0.36</td>
<td>0</td>
<td>72.92 ***</td>
</tr>
<tr>
<td>ownership</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total assets (NT$ millions)</td>
<td>20500</td>
<td>41500</td>
<td>508000</td>
<td>7720</td>
<td>486</td>
<td>148970***</td>
</tr>
<tr>
<td>Leverage</td>
<td>0.40</td>
<td>0.15</td>
<td>0.97</td>
<td>0.39</td>
<td>0.05</td>
<td>64.14***</td>
</tr>
<tr>
<td>Sales growth</td>
<td>0.09</td>
<td>0.5</td>
<td>14.51</td>
<td>0.04</td>
<td>-0.96</td>
<td>16068821***</td>
</tr>
<tr>
<td>Industry q</td>
<td>0.88</td>
<td>0.46</td>
<td>2.77</td>
<td>0.77</td>
<td>0.14</td>
<td>1371.63***</td>
</tr>
</tbody>
</table>

The sample size is 221 firms for each of the 1997-2006 period and is a total of 2210 firm-year observations results. Tobin’ Q is measured as the ratio of the market value of equity and book values of debt, preferred equity long-term debt, and net current liabilities to the book valued of assets. Institutional ownership is measured as the percentage of equity owned by the governmental institutions, financial institutions, corporate institutions, mutual funds, foreign financial institutions, foreign institutions, foreign mutual funds and other institutions. Leverage is measured as the ratio of total liabilities to total assets. Sales growth is calculated as the annual percent change in sales. Industry q is measured as the average q of all firms within one of the eighteen industries in this study in a given year.
4. Research Methodologies

4.1 Panel Unit Root models

An extension of the traditional least squared estimation method, Hansen’s (1999) panel threshold regression model requires that the variables in the model be stationary in order to avoid spurious regressions and go further estimations of the panel threshold regression. Thus, I first perform the unit root test. Since I only use panel data in this investigation, I adopt the Levin-Lin-Chu (LLC) (Levin et al., 2002), the Im-Pesaran-Shin (IPS) (Im et al., 2003), the Augmented Dickey-Fuller (ADF) (Dickey and Fuller, 1979), and the PP - Fisher Chi-square (Phillips and Perron, 1988) approaches. Based on the results of the unit test of each panel (i.e. the explained variables, the threshold variable and the control variables) in Table 2, it is abundantly clear that all the variables have stationary characteristics since the nulls of the unit root are mostly rejected.

Table 2 Panel unit root tests for the model

<table>
<thead>
<tr>
<th>Method</th>
<th>Levin, Lin &amp; Chu</th>
<th>IPS</th>
<th>ADF - Fisher Chi-square</th>
<th>PP - Fisher Chi-square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobin’s Q</td>
<td>-40.4404</td>
<td>-11.3829</td>
<td>921.9540</td>
<td>1653.2600</td>
</tr>
<tr>
<td>Institutional ownership</td>
<td>[0***]</td>
<td>[0***]</td>
<td>[0***]</td>
<td>[0***]</td>
</tr>
<tr>
<td>Size</td>
<td>-10.0519</td>
<td>0.0718</td>
<td>549.3420</td>
<td>1372.5600</td>
</tr>
<tr>
<td>Leverage</td>
<td>-19.5276</td>
<td>-3.4045</td>
<td>637.9460</td>
<td>735.8250</td>
</tr>
<tr>
<td>Sales growth</td>
<td>-20.9626</td>
<td>-8.36876</td>
<td>821.214</td>
<td>1521.18</td>
</tr>
<tr>
<td>Industry q</td>
<td>-16.6767</td>
<td>-8.4984</td>
<td>806.5520</td>
<td>1947.3100</td>
</tr>
</tbody>
</table>

Notes: The numbers in brackets denote p-values. ***, **, and * indicate significance at the 0.01, 0.05 and 0.1 levels, respectively. Tobin’s Q is measured as the ratio of the market value of equity and book values of debt, preferred equity long-term debt, and net current liabilities to the book value of assets. Institutional ownership is measured as the percentage of equity owned by the governmental institutions, financial institutions, corporate institutions, mutual funds, foreign financial institutions, foreign institutions, foreign mutual funds and other institutions. Size is measured as the natural log of the book value of total assets. Leverage is measured as the ratio of total liabilities to total assets. Sales growth is calculated as the annual percent change in sales. Industry q is measured as the average q of all firms within one of the eighteen industries in this study in a given year.

4.2 Panel Threshold Regressive model

I assume that there is an optimal institutional ownership ratio and use the threshold model to estimate this ratio as this can capture the relationship between institutional ownership and firm value; this should help financial managers understand the conditions under which the theory holds and in turn, this should help them formulate corporate governance policy. I introduce the procedures briefly as follows.

According to Hansen (1999), I set up the panel threshold regression model with fixed effects as follows first:

1 For the detailed illustration, please refer to Hansen (1999).
\[ v_{it} = \begin{cases} 
\mu_i + \theta' h_{it} + \alpha_1 d_{it} + \varepsilon_{it} & \text{if } d_{it} \leq \gamma \\
\mu_i + \theta' h_{it} + \alpha_2 d_{it} + \varepsilon_{it} & \text{if } d_{it} > \gamma 
\end{cases} \]

(1)

\[ \theta = (\theta_1, \theta_2, \theta_3, \theta_4)', \quad h_{it} = (s_{it}, l_{it}, g_{it}, q_{it})' \]

where \( v_{it} \) represents firm value, and Tobin’s Q is used as the proxy; \( d_{it} \) institutional ownership is also a threshold variable, and \( \gamma \) is the specific estimated threshold value. There are four control variables \( h_{it} \) that may affect firm value, and these are \( s_{it} \) a natural log of total assets (Size); \( l_{it} \) the ratio of total liabilities to total assets (Leverage); \( g_{it} \) the sales growth rate (Sales growth); \( q_{it} \) the average q of all firms within one of the eighteen industries in a given year(Industry q). Aside from these, there is \( \mu_i \) : the fixed effect which represents the heterogeneity of companies under different operating conditions. I assume the errors \( \varepsilon_{it} \) are independent and identically distributed, with the mean being zero. The finite variance is \( \sigma^2(\varepsilon_{it} \sim iid(0, \sigma^2)) \), \( i \) represents different companies, and \( t \) represents different periods. Panel threshold model from Hansen only allow one variable to switching. Hence, I only use \( d_{it} \) to switching.

For the estimation procedures, I first eliminate the individual effect \( \mu_i \) using the ‘within transformation’ estimation techniques in the traditional fixed effect model of panel data. By using the ordinary least squares and minimizing the concentrated sum of squares of errors, \( S_1(\gamma) \), I can obtain the estimators of our threshold value and the residual variance, \( \hat{\gamma} \) and \( \hat{\sigma}^2 \), respectively.

For the testing procedures, first, I have to go on to test the null hypothesis of no threshold effect, \( H_0 : \alpha_1 = \alpha_2 \), which can be based on the likelihood ratio test: \( F_1 = (S_0 - S_1(\hat{\gamma})/\hat{\sigma}^2 \), where \( S_0 \) and \( S_1(\hat{\gamma}) \) are sum of squared errors under null and alternative hypotheses, respectively. However, as the asymptotic distribution of \( F_1 \) is non-standard, I use the procedure of bootstrap to construct the critical values and p-value.

Upon the existence of threshold effect, \( H_0 : \alpha_1 = \alpha_2 \), I should test for the asymptotic distribution of threshold estimate, \( H_0 : \gamma = \gamma_0 \), and adopt the likelihood ratio test:

\[ LR_1(\gamma) = \left( S_1(\gamma) - S_1(\hat{\gamma}) \right) / \hat{\sigma}^2 \]

with the asymptotic confidence intervals:

\[ c(\alpha) = -2\log\left(1-\sqrt{1-\alpha}\right) \]

It is also possible to have two thresholds, which suggest the model to be

\[ v_{it} = \begin{cases} 
\mu_i + \theta' h_{it} + \alpha_1 d_{it} + \varepsilon_{it} & \text{if } d_{it} \leq \gamma_1 \\
\mu_i + \theta' h_{it} + \alpha_2 d_{it} + \varepsilon_{it} & \text{if } \gamma_1 < d_{it} \leq \gamma_2 \\
\mu_i + \theta' h_{it} + \alpha_3 d_{it} + \varepsilon_{it} & \text{if } \gamma_2 < d_{it} 
\end{cases} \]

(2)

where threshold value \( \gamma_1 < \gamma_2 \).

Following the same procedure, I can go further to the ones with triple or multiple thresholds \((\gamma_1, \gamma_2, \gamma_3, \Lambda, \gamma_n)\).

\(^2\) Note that \( LR_1(\gamma_1) \) is testing for \( H_0 : \gamma = \gamma_0 \), while \( F_1 \) is testing \( H_0 : \alpha_1 = \alpha_2 \).
5. Empirical Results

As indicated by Hansen (1999), if there is a threshold effect, then the existence of a double and single threshold effect must be tested. I follow the bootstrap method proposed by Hansen (1999) to obtain the approximations of the F statistics and then calculate the p-values. The bootstrap procedure is repeated 1000 times for each of the three panel threshold tests.

Table 3 presents the test statistics $F_1$, $F_2$, and $F_3$, along with their bootstrap p-values. I find that the test for a single threshold $F_1$ is significant with their bootstrap p-value of 0.01, the test for a double threshold $F_2$ is insignificant with their bootstrap p-value of 0.55 and the test for a triple threshold $F_3$ is insignificant with their bootstrap p-value of 0.71. Thus, I conclude that institutional ownership has a single threshold effect on firm value. The point estimates of the single threshold ($\gamma_1$) is 81.2%. For the remainder of the analysis, I work this single threshold model.

<table>
<thead>
<tr>
<th>Table 3 Tests for threshold effects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td><strong>Single threshold effect test</strong></td>
</tr>
<tr>
<td>Threshold -value</td>
</tr>
<tr>
<td>F</td>
</tr>
<tr>
<td>p-value</td>
</tr>
<tr>
<td>Critical Value of F</td>
</tr>
<tr>
<td>1%</td>
</tr>
<tr>
<td>5%</td>
</tr>
<tr>
<td>10%</td>
</tr>
</tbody>
</table>

*Notes:* F Statistics and p-values result from repeating the bootstrap procedure 1000 times for each of the three bootstrap tests. ***, **, and *, represent significance at the 1%, 5%, and 10% levels, respectively.

Table 4 presents the regression slope estimates together with the conventional OLS standard errors for two regimes. The estimates $\hat{\alpha}_1$ is insignificant and $\hat{\alpha}_2$ is significant at the 1% level under the consideration of both homogenous standard errors and heterogeneous standard errors. When there exists a single threshold effect of institutional ownership on firm value, all observations are split into two regimes.

The estimated model from the empirical results is represented as follows:

$$\nu_i = \mu_i - 0.5488s_i - 0.0227\lambda_i + 0.0214g_i + 0.2483q_i$$

$$+ 0.0840d_i I(d_i \leq 0.812) + 1.2484d_i I(d_i > 0.812) + \epsilon_i$$

$\gamma_1$ splits the observations into two regimes depending on whether the threshold variable $d_i$ is
smaller or larger than the threshold value (\(\hat{\gamma}\)). The regimes are distinguished by differing regression slopes, \(\hat{\alpha}_1\) and \(\hat{\alpha}_2\). In the first regime, where the institutional ownership is less than 81.2%, the estimate of coefficient \(\hat{\alpha}_1\) is insignificant and indicates that there is no relationship between institutional ownership and firm value. In the second regime, where the institutional ownership is greater than 81.2%, the estimate of coefficient \(\hat{\alpha}_2\) is 1.2484, which is significant at the 1% level and indicates that Tobin’s Q increased by 1.2484% with a 1% increase in institutional ownership. The empirical results consistent with the effective monitoring hypotheses when the institutional ownership greater than 81.2%.

Table 4  
Estimation of Coefficients

<table>
<thead>
<tr>
<th></th>
<th>Coefficient estimate</th>
<th>OLS se</th>
<th>(t_{OLS})</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\hat{\alpha}_1)</td>
<td>0.8146</td>
<td>0.1408</td>
<td>0.5964</td>
</tr>
<tr>
<td>(\hat{\alpha}_2)</td>
<td>0.0649</td>
<td>0.2578</td>
<td>4.8418***</td>
</tr>
</tbody>
</table>

Notes. \(\hat{\alpha}_1\) and \(\hat{\alpha}_2\) are the coefficient estimates for regimes of \(d_i \leq \hat{\gamma}_1\) and \(d_i > \hat{\gamma}_2\).

Table 5 presents the percentage of firms which fall into the two regimes of institutional ownership each year. I find that the percentage in the first regime ranges from 96.83% to 100% of the sample over the sample period. Approximately 98.87% of firms fall within the low institutional ownership regime. The second regime of firms ranges from 0% to 3.17% of the sample over the same period, and approximately 1.13% of the firms fall within the high institutional ownership regime.

Table 5  
Number [Percentage] of Firms in Each Regime by Year

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratio (\leq 0.812)</td>
<td>220</td>
<td>220</td>
<td>221</td>
<td>220</td>
<td>219</td>
<td>219</td>
<td>217</td>
<td>216</td>
<td>214</td>
<td></td>
</tr>
<tr>
<td></td>
<td>99.55%</td>
<td>99.55%</td>
<td>100%</td>
<td>99.55%</td>
<td>99.1%</td>
<td>99.1%</td>
<td>98.19%</td>
<td>97.74%</td>
<td>96.83%</td>
<td></td>
</tr>
<tr>
<td>Ratio (&gt; 0.812)</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>0.45%</td>
<td>0.45%</td>
<td>0%</td>
<td>0.45%</td>
<td>0.90%</td>
<td>0.90%</td>
<td>0.90%</td>
<td>1.81%</td>
<td>2.26%</td>
<td>3.17%</td>
</tr>
</tbody>
</table>
In the estimations of the coefficients of the control variables, shown in Table 6, I note that Firm Size is significantly and negatively related to Tobin’s Q. The interpretation here is that larger firms have lower value because they are hampered by operational inefficiencies, such as lack of focus or a lesser degree of transparency in managerial actions (Bhabra, 2007). This result is consistent with Maury and Pajuste (2005) and Fama and French (1992). Industry Q is significantly and positively related to Tobin’s Q. Finally, Leverage and Sales growth are not significantly related to Tobin’s Q.

Table 6 Estimation of Coefficients of Control Variables

<table>
<thead>
<tr>
<th>Coefficient estimate</th>
<th>OLS se</th>
<th>( t_{OLS} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size -0.5488</td>
<td>0.0396</td>
<td>-13.8442***</td>
</tr>
<tr>
<td>Leverage -0.0227</td>
<td>0.1390</td>
<td>-0.1630</td>
</tr>
<tr>
<td>Sales growth 0.0214</td>
<td>0.0252</td>
<td>0.8489</td>
</tr>
<tr>
<td>Industry q 0.2483</td>
<td>0.0319</td>
<td>7.7804***</td>
</tr>
</tbody>
</table>

Notes:***, **, and *, represent significance at the 1%, 5%, and 10% levels, respectively.

6. Conclusion
Two main agency theories currently dominate the corporate ownership structure debate, namely, the positive alignment effect and the negative entrenchment effect. This paper analyzes whether institutional ownership affects firm value by using a panel of Taiwanese listed companies in 18 industries during the eleven-year 1997-2006 period. I employ an advanced panel threshold regression model to test whether there is a threshold institutional ownership, which may cause there to be threshold effects and asymmetrical relationships between institutional ownership and firm value. This shift in financing sources propels the nonlinear relationship that I uncover in this study and sheds fresh light on existing agency theories of corporate ownership structure.

The results substantiate the view that there is a single threshold effect between institutional ownership and firm value. When the institutional ownership is less than 81.2, I find that there is no relationship between institutional ownership and Tobin’s Q. When the institutional ownership is greater than 81.2%, Tobin’s Q increases by 1.2484%, with a 1% increase in the institutional ownership. These results are consistent with the effective monitoring hypotheses when the institutional ownership greater than 81.2% at which point the firm’s value will start to increase.

The results shed light on the functioning of corporate governance, particularly, on the role of ownership structure and investor protection. The results should also provide a new perspective for the ongoing debate on corporate governance reforms. I suggest future research to continue this line of work. While my study offers some solid evidence with regard to the influence of institutional ownership affects firm value, it might be expected that this influence should be felt beyond mere ownership structure. These structures differ across firms because of differences in the
circumstances facing firms, particularly in regard to scale economies, regulation, transactional events (e.g., mergers and acquisitions, CEO turnover, etc.). For a greater understanding, I suggest an examination of the alternative circumstances face firms and how they relate to corporate ownership characteristics. This would also confirm the findings herein. Second, since our study is limited to relatively large firms with public ownership, the use of a data set comprised of smaller firms, some of which are privately held, could shed even more light on the determinants of the firm value of firms in Taiwan and, therefore, would be desirable.

References


