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Article

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BANKING & FINANCE | RESEARCH ARTICLE

Institutional ownership and cost of debt: evidence from Thailand

Yordying Thanatawee^{1*}

Abstract: This article aims to investigate whether institutional investors aid in lowering the cost of debt using a sample of 311 nonfinancial firms listed on the Stock Exchange of Thailand (SET) over 2011–2020. All data were obtained from the SETSMART database. Controlling for firm characteristics, industry effect, and year effect, we analyze the link between institutional ownership and the cost of debt using pooled ordinary least squares and fixed effects models and find that institutional ownership has a negative relationship with the cost of debt in both models. The fixed effects model also shows that profitability, growth potential, and operating cash flow negatively affect the cost of debt while financial leverage and asset tangibility positively affect the cost of debt. Additionally, the dynamic GMM model indicates that the connection between institutional holdings and debt expenses is significantly negative. Overall, the results suggest that institutional investors provide effective oversight that decreases conflicts between management and lenders, ultimately cutting the cost of borrowing for listed companies in Thailand. In addition, our supplementary analysis suggests that institutional investors must possess a sizeable proportion of shares (at least 23%) to actively perform monitoring duties.

Subjects: Corporate Finance; Business, Management and Accounting

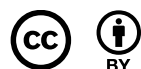
Keywords: Cost of Debt; Institutional Ownership; Monitoring; Agency Problem; Corporate Governance; Thailand

JEL Classification: G23; G32; G34

1. Introduction

A fundamental responsibility of managers is to secure adequate funding for project investments. In addition, managers will strive to minimize the cost of capital to make the projects financially feasible. One method for accomplishing this is to borrow at the lowest possible interest rate. Prior research has shown that ownership structure, especially institutional ownership, is a crucial factor influencing the borrowing cost (Ashbaugh-Skaife et al., 2006; Aslan & Kumar, 2012; Lin et al., 2011; Sánchez-Ballesta & García-Meca, 2011).

It is well known that institutional investors are influential participants in global stock markets. According to Heredia et al. (2021) the global asset management industry would manage a record \$103 trillion USD by the end of 2020. In addition, earlier research (e.g., Chung et al., 2002; Boone and White, 2015; Vo, 2016; Thanatawee, 2021; Hong and Linh, 2023) indicates



that institutional investors provide several benefits to stock markets, including improved corporate governance, lower information asymmetry, greater management disclosure, more analyst coverage, greater stock liquidity, and reduced stock return volatility. Furthermore, a vast body of research indicates that institutional investors assist in lowering debt costs through their effective monitoring, thereby improving the corporate governance and reducing the agency cost of debt (Bhojraj & Sengupta, 2003; Jabbouri and Naili, 2020; Tee, 2018). These authors document a negative and significant association between institutional ownership and cost of debt. This is in accordance with Shleifer and Vishny's (1986) theory of large shareholders, which proposes that active monitoring by institutional investors may reduce conflicts between managers and creditors. Moreover, Harford et al. (2008) note that institutional investors' monitoring is crucial to maximizing firm value and shareholders' wealth. Institutional investors are essential to corporate governance because of the expertise they bring to the monitoring process (Ameer, 2010).

In contrast, several studies document that equity held by institutions has insignificant effect on the debt expenses or a positive influence on the borrowing cost (Han et al., 2016; Minh Ha et al., 2022; Roberts & Yuan, 2010; Utami, 2021). As it is unclear whether institutional investors help reduce the cost of debt, more empirical research is necessary to shed light on this topic. Based on this research gap, the motivation for conducting this study is to contribute further research evidence regarding the impact of institutional ownership on borrowing costs.

The objective of this article is to examine whether institutional investors help lower the debt expenses for Thai listed companies. While much current research has focused on advanced economies (e.g., Bhojraj and Sengupta, 2003; Elyasiani et al., 2010; Sánchez-Ballesta and García-Meca, 2011), the impact of institutional holdings on the borrowing cost in emerging economies, and particularly Thailand, is less well understood. Thailand is an attractive venue for research on the topic because its capital market differs significantly from that of advanced economies. Relative to stock markets in developed countries, the Thai stock market is far smaller, less liquid, riskier, and more volatile (Thanatawee, 2021). In addition, the level of equity held by institutions in listed nonfinancial companies in Thailand between 2011 and 2020 was substantial, ranging between 31.45% and 43.55% of total equity (Thanatawee, 2022). Despite the high level of institutional ownership, research into the relationship between institutional holdings and the cost of debt in Thailand remains sparse.

Furthermore, there is a lack of robust legislative safeguards for public investors in Thailand, and the ownership structure of Thai listed companies is extremely lopsided (La Porta et al., 2000). Moreover, most Thai public companies are operated by family members or persons with close ties to the same family (Claessens et al., 2000; Connelly et al., 2012; Wiwattanakantang, 2001). These characteristics contribute to an atmosphere of inadequate corporate governance, which may result in an increase in borrowing rates. For example, research by Godlewski and Le (2022) reveals that family firms incur higher interest rates than nonfamily firms, and that this effect is exacerbated in settings with inadequate investor protection. In light of this, an empirical evaluation of the connection between the existence of institutional investors in Thailand and lower debt costs is necessary.

We analyze the connection between equity held by institutions and debt cost using a sample of 295 nonfinancial firms listed on the Thai stock exchange between 2011 and 2020. Accounting for firm characteristics, and endogeneity, the results show a negative and statistically significant association between institutional ownership and debt expenses. Our findings imply that institutional investors provide vigilant oversight that aids in enhancing corporate governance, hence reducing interest expenses for listed companies in Thailand.

This paper adds to the current body of prior research as follows: Firstly, it shows that as institutional investors acquire more shares, the cost of debt falls, so reconciling seemingly

contradictory findings about the impact of institutional investors on the borrowing cost. Secondly, the findings give light on how institutions play in determining debt costs in a developing country such as Thailand, where this issue remains underexplored. Finally, this study lays the groundwork for investigating how institutional investors affect the loan costs in other emerging economies.

The remaining structure of this paper is as follows. The second section presents literature review and hypotheses. The third section describes data, research model, and variable definitions. The fourth section presents research results. The last section wraps up the paper.

2. Literature review

This study is predicated mostly on the agency theory introduced by Jensen and Meckling (1976), particularly the agency cost of debt, and the notion of large shareholder proposed by Shleifer and Vishny (1986). A seminal paper of Jensen and Meckling (1976) establishes that owners, managers, and creditors all have competing interests. According to Kim and Sorensen (1986) and Chen (2021), the agency cost of debt arises when managers and debtholders have conflicting goals. For instance, managers may use borrowed money to engage in riskier investment projects to create a better rate of return for shareholders (the risk-shifting problem). Consequently, debtholders who prefer a safer investment may require debt covenants and impose limits on the use of funds to reduce risk. Another instance is that managers may distribute large cash dividends to satisfy shareholders while leaving a minimal amount for debtholders.

According to the theory of large shareholders introduced by Shleifer and Vishny (1986), active monitoring by institutional investors might alleviate contentions between managers and creditors. Lemmon and Lins (2017) make a similar point, arguing that important parties like institutional investors can help resolve disagreements between managers and debtholders by providing an effective monitoring function and enforcing disciplinary action against management. In addition, Ward et al. (2018) point out that a firm with sizeable proportion of institutional ownership is better able to ensure that its management makes smart financial policy decisions and utilizes financial resources to increase both the firm's worth and its shareholders' wealth. In addition, Harford et al. (2008) indicate that firm value and shareholders' wealth can be maximized with the help of institutional investors' effective monitoring functions. According to Ameer (2010), institutional investors are crucial to corporate governance due to their specialized monitoring skills. In a similar vein, research by Thanatawee (2014) suggests that domestic institutional investors actively monitor and boost corporate value of listed companies in Thailand. Another study by Kuan et al. (2011) demonstrates that the agency costs related to cash reserves held by managers are lower in Taiwanese firms with bigger institutional holdings.

Numerous studies have shown that debt costs can be lowered by institutional investors' vigilant monitoring. By analyzing a sample of 1,005 newly issued U.S. bonds between 1991 and 1996, (2003) document that firms with larger institutions were assigned better creditworthiness and offered lower interest rate on bonds issued. Based on an analysis of 9,913 bond-year observations for 769 U.S. firms between 1990 and 1997, Elyasiani et al. (2010) conclude that long-term institutional investors have a strong motivation to oversee management closely and employ an effective mechanism for addressing agency problems, thereby reducing debt costs. In their analysis of how different forms of ownership influence borrowing costs of Spanish firms, (2011) report that banks actively oversee managers, which helps to minimize tensions between management and lenders. To analyze the influence of institutional investors on loan cost, Tee (2018) uses 5,632 firm-year observations from the stock market in Malaysia between 2002 and 2015. The author finds that the borrowing costs go down as equity owned by institutions increases, thereby suggesting that institutional investors are performing their monitoring function well. Kim et al. (2019) analyze data on private loans in the U.S. and find that institutional investors' horizons are inversely proportional to

the number of loan covenants. In addition, they show evidence that banks offer more favourable loan spreads to companies that have a higher proportion of long-term institutional ownership. In a recent study on the impact of foreign investors, mostly institutional investors, on the debt expenses of listed firms in Vietnam, Tran (2022) discover that foreign institutional ownership is inversely connected with debt costs. Institutional ownership horizons and firm creditworthiness are studied by Driss et al. (2021) across 57 countries from 2000 to 2016. They find that firms with significant agency concerns can issue more debts and improve their credit ratings with the help of long-term institutional investors through effective monitoring, resulting in lower borrowing costs. Based on the preceding discussion of prior studies, we propose that:

H1: The cost of debt is negatively related to institutional ownership.

Although several papers report a negative connection between institutional ownership and debt expenses, other research suggests that institutional investors have little to no effect on debt costs and may even increase interest rates. For instance, Roberts and Yuan (2010) use data on around 7,800 loans made in the U.S. between 1995 and 2004 to test the effect of equity owned by institutions on firms' borrowing costs. They find that the connection between equity held by institutions and loan interest rates has a U-shape. Loan spreads initially decline when firms acquire institutional ownership because institutional investors undertake active monitoring, hence reducing agency problems. However, when institutional ownership is increasingly concentrated, loan spreads widen because lenders are more concerned about a risk-shifting issue. In their analysis of Korean corporate bonds from 2001 to 2010, Han et al. (2016) show that bonds issued by firms with more institutional holdings obtain a lower risk premium. According to an analysis of data on private debts in the U.S. conducted by Kim et al. (2019), equity owned by short-term institutional investors is associated with greater borrowing cost. This study lends credence to the argument that the agency cost of debt is exacerbated by the shortsighted judgments made by management in response to pressure from short-term institutional investors. According to Utami (2021), who studied the effect of institutional investors on the interest rates paid by Indonesia's publicly traded firms during the period from 2017 to 2019, most of these firms are privately held by members of the same family, so institutional ownership has little to no effect on the interest rates paid by these firms. Similarly, Minh Ha et al. (2022) utilize the data from 207 firms traded on the Vietnamese stock exchange between 2008 and 2016 find that equity holdings of institutions have insignificant influence on the loan cost. Considering these discussions, we propose that:

H2: The cost of debt is not significantly influenced by institutional ownership.

3. Research method

3.1. Data and sample

We obtained the data for debt expenses, equity owned by institutions, and all control variables from the SETSMART database. The sample consisted of nonfinancial companies listed on the Stock Exchange of Thailand (SET) between 2011 and 2020. We did not include firms listed in the banking, financial institutions, and insurance sectors since their operations and financial data differ from those of other industries. The initial sample included 3,110 firm-year observations. After deleting missing data and screening outliers, the final sample is a balanced panel data consisting of 2,950 observations from 295 nonfinancial firms over 10 years. The data were examined mainly by the pooled ordinary least squares (OLS) and the fixed effects estimations.

3.2. Research model

Following Tee (2018) and Tran (2021), we propose the following model for estimating the link between institutional ownership and cost of debt.

$$\text{COD}_{i,t} = \alpha + \beta_1 * \text{INST}_{i,t} + \beta_2 * \text{ROA}_{i,t} + \beta_3 * \text{SIZE}_{i,t} + \beta_4 * \text{LEV}_{i,t} + \beta_5 * \text{MTB}_{i,t} + \beta_6 * \text{OCF}_{i,t} + \beta_7 * \text{CR}_{i,t} + \beta_8 * \text{TANG}_{i,t} + \text{Year dummies} + \text{Industry dummies} + \epsilon_{i,t} \quad (1)$$

3.3. Definition of variables

In model (1), the dependent variable is the cost of debt (COD), which is calculated by dividing interest expenses by the average value of short-term and long-term debts (Tee, 2018; Jabbouri & Naili, 2020; Tran, 2022). The primary determinant, institutional ownership (INST), shows the percentage of shares owned by institutions who are among the Top10 largest shareholders as provided by SETSMART database.

We use firm characteristics that have been found to affect debt expenses in past research as control variables. Measured by the ratio of net income to total assets, return on assets (ROA) is widely used as a key performance indicator for businesses; the natural logarithm of total assets is used as a proxy for firm size (SIZE); financial leverage (LEV) is total debt over total assets; growth opportunities are proxied by market-to-book ratio (MTB), which is stock price divided by book value per share at year end; operating cash flow (OCF) is cash flow from operations over total assets; liquidity is proxied by current ratio (CR), current assets divided by current liabilities; and tangible assets (TANG), which is property, plant, and equipment scaled by total assets.

Previous research (e.g., Shailer and Wang, 2015; Tee, 2018; Khaw et al., 2019; Tran, 2021) indicates that firms with more profitability, larger size, lower debts, greater growth opportunities, more operating cash flows, higher liquidity, and more tangible assets tends to receive higher credit ratings and should enjoy lower debt expenses due to their higher solvency. Hence, we predict that INST, ROA, SIZE, MTB, OCF, CR, and TANG have negative associations with COD while LEV has a positive effect on COD. To control for the effects of industry and unobserved economic fluctuations, we further incorporate industry dummies and year dummies. The variables used in this study and their expected directions of relationship with the cost of debt are listed in Table 1.

4. Results and discussion

4.1. Descriptive statistics

Table 2 provides descriptive statistics for cost of debt, institutional ownership, and control variables. The mean and median cost of debt of Thai listed companies are 3.99% and 3.87%, respectively. The average cost of debt in this study is lower than those found in other studies, e.g., 11% in China (Shailer & Wang, 2015), 5.1% in Malaysia (Khaw et al., 2019), and 4.83% in Vietnam (Tran, 2022). On average, the shares held by institutional investors in Thai public companies is 38.09%. The sample firms' return on assets is 4.14 %, firm size is 15.77, financial leverage is 43.97%, market to book ratio is 2.07, operating cash flow is 7.22%, current ratio is 2.31, and tangible assets ratio is 33.78%.

4.2. Differences in the cost of debt classified by independent variables

In this section, we conduct univariate tests to determine whether firms with significantly distinct characteristics incur significantly different debt costs. Accordingly, based on the mean and median values of independent variables, we divide the sample firms into high and low groups and compare their debt costs. Table 3 summarizes the results.

Panel A of Table 3 displays the outcomes of dividing the sample into high and low categories based on the means of the independent variables. It demonstrates that firms

Table 1. Definition of variables

Variable	Definition	Measurement	Expected sign
COD	Cost of debt	Interest expenses divided by average of short-term and long-term debts.	
INST	Institution ownership	The percentage of shares held by institutional investors among Top10 shareholders.	-
ROA	Return on assets	Net income over total assets.	-
SIZE	Firm size	Natural logarithm of total assets.	-
LEV	Leverage ratio	Total debt divided by total assets.	+
MTB	Market-to-book ratio	Stock price divided by book value per share at the end of year.	-
OCF	Operating cash flows	Cash flow from operating activities divided by total assets.	-
CR	Current ratio	Current assets over current liabilities.	-
TANG	Tangible assets	Fixed assets scaled by total assets.	-

Table 2. Descriptive statistics

Variable	N	Mean	Median	Minimum	Maximum	Std. Dev.
COD (%)	2,950	3.99	3.87	0.01	13.81	2.84
INST (%)	2,950	38.09	35.05	0.00	98.48	29.31
ROA (%)	2,950	4.14	3.99	-74.76	45.83	7.94
SIZE	2,950	15.77	15.54	12.45	21.66	1.56
LEV (%)	2,950	43.97	45.00	1.00	98.00	20.15
MTB (times)	2,950	2.07	1.33	0.12	21.79	2.28
OCF (%)	2,950	7.22	7.00	-66.01	62.00	10.31
CR (times)	2,950	2.31	1.49	0.01	19.91	2.39
TANG (%)	2,950	33.78	31.40	0.14	97.82	23.13

Table 3. Differences in the cost of debt classified by independent variables

Variable	Panel A: COD (%)		Difference in COD	Panel B: COD (%)		Difference in COD
	High	Low		High	Low	
INST	2.5934	3.0057	-0.4123***	3.6423	4.3396	-0.6973***
ROA	3.1528	4.7176	-1.5648***	3.2630	4.8079	-1.5449***
SIZE	4.1989	3.8292	0.3697***	4.1851	3.7952	0.3899***
LEV	4.8061	3.0847	1.7214***	4.7857	3.2079	1.5778***
MTB	3.6710	4.1341	-0.4631**	3.8451	4.1370	-0.2919***
OCF	3.8616	4.1009	-0.2393***	3.9198	4.0634	-0.1436
CR	2.6647	4.5891	-1.9244***	3.1480	4.8281	-1.6801***
TANG	4.6705	3.3969	1.2736***	4.5744	3.4098	1.1646***

Notes: The symbols ***, **, and * indicate statistical significance at 1%, 5%, and 10%, respectively.

with greater institutional ownership have significantly lower debt costs. This finding suggests that institutional investors contribute to the reduction of borrowing costs. In addition, the results reveal that firms with a greater return on assets have a much lower debt cost. Moreover, firms with higher market-to-book ratios, operating cash flows, and current ratios have significantly lower loan costs. However, the borrowing cost is significantly higher for larger firms. In addition, firms with more financial leverage and tangible assets incur a significantly greater debt expense.

The results of dividing the sample into high and low categories based on the median values of independent variables are shown in Panel B of Table 3. Aside from the fact that firms with variable levels of operating cash flow (OCF) have insignificantly different costs of debt, most results are qualitatively identical to those in Panel A. In general, the results of this section align with our expectations, except for the results indicating that larger firms and firms with more tangible assets have higher borrowing costs.

4.3. Correlation matrix

Table 4 displays a matrix depicting the bivariate correlations between the variables. It demonstrates that institutional ownership inversely links to the cost of debt. This finding suggests that, for listed companies in Thailand, increased equity holdings by institutional investors leads to reduced borrowing costs. Debt costs tend to be lower for firms that have a higher market value to book value ratio, indicating that these firms have greater growth potential. Both operating cash flow and the current ratio are found to be inversely correlated with the loan cost. These findings suggest that the borrowing cost is lower for firms that generate more cash from operations and maintain a healthy level of short-term liquidity.

The results, however, reveal that firm size is positively connected with cost of cost. As a result, the average cost of debt financing is greater for larger firms. Greater financial leverage correlates positively and significantly with a higher default risk and, in turn, a higher loan cost. We also find that the value of tangible assets is positively correlated with the interest rate on debt. Therefore, firms with more fixed assets incur a higher debt expense. One possible explanation for this finding is that most Thai public companies fund their fixed assets with debt, which in turn lowers their credit scores and raises their interest rates on loans.

Overall, the absolute values of bivariate correlation coefficients between any pairs of independent variables in Table 4 are in the range of 0.5, which are lower than 0.7 guideline (Lind et al., 2017). Thus, the variables in Model (1) above can be used to perform multiple regression analysis without severe multicollinearity problem.

Table 4. Correlation matrix

Variable	COD	INST	ROA	SIZE	LEV	MTB	OCF	CR	TANG
COD	1								
INST	-0.147***	1							
ROA	-0.236***	0.115***	1						
SIZE	0.111***	0.351***	0.079***	1					
LEV	0.312***	-0.077**	-0.240***	0.403***	1				
MTB	-0.054***	0.123***	0.293***	0.133***	0.160***	1			
OCF	-0.051***	0.143***	0.458***	-0.007***	-0.157***	0.330***	1		
CR	-0.265***	-0.062***	0.102***	-0.254***	-0.168***	-0.150***	-0.009	1	
TANG	0.247***	0.055***	-0.061***	-0.009	0.005	0.066***	0.194***	-0.225***	1

Notes: The symbols ***, **, and * indicate statistical significance at 1%, 5%, and 10%, respectively.

4.4. Multiple regression results

The link between institutional ownership and loan cost is displayed in Table 5. The OLS estimation indicates that INST has a significantly negative connection with COD. This finding suggests that Thai firms benefit from lower borrowing costs thanks to active monitoring by institutional investors. For the control variables, an inverse and significant connection between ROA and COD is observed. This finding indicates that profitable firms are associated with cheaper loan rates. The larger a company is, the higher its borrowing cost will be, as seen by a significantly positive link between SIZE and COD. This finding is not consistent with our prediction. A possible reason is that larger firms borrow larger amounts of money because they have easier access to debt financing than smaller firms. As a result, larger firms have lower credit ratings and higher borrowing costs.

A positive and statistically significant LEV coefficient indicates that debt-burdened firms incur greater debt expenses due to their reduced creditworthiness. Additionally, the result shows that MTB has a negative and statistically significant coefficient, suggesting that firms with greater growth potential have lower debt expenses. Furthermore, a significantly inverse link between OCF and COD suggests that firms with higher operating cash flow incur reduced borrowing costs. In line with our prediction, we find that firms with greater liquidity have a lower debt cost, as indicated by a negative and significant link between CR and COD. Finally, there is a positive and significant connection between TANG and COD. Hence, firms with more tangible assets incur higher interest rate. A possible reason for this result is that

Table 5. Impact of institutional ownership on cost of debt

Dependent Variable: COD		
Variable	OLS	FE
Constant	0.1371	4.1357**
	(0.2166)	(2.2228)
INST	-0.0189***	-0.0121***
	(-10.7998)	(-2.8507)
ROA	-5.3748***	-2.5986***
	(-7.6857)	(-4.2185)
SIZE	0.1899***	-0.1872
	(5.1291)	(-1.5625)
LEV	0.3088***	3.6422***
	(9.6914)	(8.0091)
MTB	-0.1795***	-0.1192***
	(-7.5492)	(-4.5894)
OCF	-2.3518***	-2.6111***
	(-4.4505)	(-8.4455)
CR	-0.1214***	-0.0379
	(-4.8456)	(-1.4908)
TANG	2.6494***	4.6719***
	(12.1145)	(11.0207)
Industry dummies	Yes	No
Year dummies	Yes	Yes
Hausman (χ^2)		66.5098***
Adjusted R ²	0.2769	0.6480

Notes: The values enclosed in parenthesis represent t-statistics. The symbols ***, **, and * indicate statistical significance at 1%, 5%, and 10%, respectively.

most of Thai listed companies finance their fixed assets with debt, which decreases their credit scores and increases their loan interest rates.

For panel data analysis, we make use of the Hausman (1978) test to choose between the fixed effects model and the random effects model. The significant value of Hausman chi-square (χ^2) indicates that the fixed effects (FE) model is superior to the random effects (RE) model. Hence, we rely on the outcomes of the FE model. The FE estimation reveals that INST is negatively linked with COD, providing support for Hypothesis 1. This finding suggests that institutional investors perform an effective monitoring function that contributes to lower debt expenses. Most of the control variables in the FE model have the same directions of relationship with COD as in the OLS model, except for SIZE and CR, which have insignificant impacts on COD.

Overall, Table 5 demonstrates that equity holdings of institutional investors have a significant and negative influence on debt expenses. This is consistent with H1. This finding suggests that institutional investors provide effective oversight, which aids in reducing the cost of borrowing for Thai listed companies. The conclusion is similar with previous studies such as Bhojraj and Sengupta (2003), (2011), Tee (2018), and Tran (2021), but in contrast to Han et al. (2016), Utami (2021), and (2022).

4.5. Possible endogeneity

According to Vo (2016), Arellano and Bond's (1991) dynamic generalized method of moment (GMM) estimation is suitable for short and wide panel data set because it can handle endogeneity concerns. We use the dynamic GMM estimation to examine the connection between equity owned by institutional investors and debt expenses.

The result is displayed in Table 6. It demonstrates the inverse link between equity held by institutional investors and the debt expenses. This finding agrees with the estimation provided by fixed effects model. Hence, over-identification issues are ruled out and suitable instruments utilized in the dynamic GMM model are verified by the Sargan test. Due to the significant J-statistic value, we may conclude that there are no endogeneity problems with the models.

Table 6. Impact of institutional ownership on cost of debt using the dynamic GMM

Dependent Variable: COD		
Variable	Coefficient	t-Statistic
COD(-1)	0.5698***	14.5111
INST	-0.0557***	-2.6187
ROA	0.1849	0.1762
SIZE	-0.3165	-1.4656
LEV	3.1351***	3.0559
MTB	0.0622	1.2631
OCF	-0.2690	-0.4041
CR	0.0479	1.3682
TANG	2.5644*	1.9381
Industry dummies	No	
Year dummies	Yes	
J-statistic	60.4694**	

Notes: The symbols ***, **, and * indicate statistical significance at 1%, 5%, and 10%, respectively.

4.6. Possible nonlinear association between institutional ownership and cost of debt

In this section, we test for a nonlinear link between institutional ownership and the cost of debt of Thai listed companies by adding the square term of institutional ownership (INST²) to the research model (1) and performing regression analysis. The results of the OLS and fixed effects estimations in Table 7 do not show any nonlinear relationship between institutional ownership and borrowing cost. Thus, our finding is not compatible with that of Roberts and Yuan (2010) who establish a U-shape effect of institutional ownership on loan cost.

4.7. Additional analysis

In this part, we divide the sample into quintiles based on the degrees of institutional ownership (6.48%, 22.99%, 44.18%, and 69.40%) and perform fixed effects regressions. The purpose is to test the premise that institutional investors must control a substantial number of shares to have a significant impact on the cost of debt. The result is presented in Table 8.

Table 8 demonstrates that the coefficient of INST is negative and statistically significant for Quintiles 3, 4, and 5. This result suggests that institutional investors must control at least 22.99% of a company's shares in order to have incentives to offer effective monitoring, which has a significantly negative influence on borrowing costs. Therefore, this finding corresponds with our anticipation and earlier research pertaining to major stockholders (Burkart et al., 1997; Shleifer & Vishny, 1986).

Table 7. Nonlinear relationship between institutional ownership and cost of debt

Variable	Dependent Variable: COD	
	OLS	FE
Constant	-0.5949	4.4686**
	(-1.0493)	(2.3993)
INST	-0.0018	0.0140
	(-0.3211)	(1.3311)
INST ²	-0.0002***	-0.0003***
	(-3.1699)	(-2.7088)
ROA	-5.4872***	-2.5319***
	(-7.8485)	(-4.1119)
SIZE	0.1831***	-0.2254*
	(4.9425)	(-1.8702)
LEV	3.2537***	3.7199***
	(9.5390)	(8.1736)
MTB	-0.1726***	-0.1174***
	(-7.2403)	(-4.5210)
OCF	-2.3356***	-3.5588***
	(-4.4265)	(-8.3249)
CR	-0.1217***	-0.0368
	(-4.8649)	(-1.4498)
TANG	2.6644***	4.7251***
	(12.1990)	(11.1496)
Industry dummies	Yes	No
Year dummies	Yes	Yes
Hausman (χ^2)		68.4692***
Adjusted R ²	0.2850	0.6488

Notes: The values enclosed in parenthesis represent t-statistics. The symbols ***, **, and * indicate statistical significance at 1%, 5%, and 10%, respectively.

Table 8. Impact of different levels of institutional ownership on the cost of debt

Dependent Variable: COD					
Quintile	1	2	3	4	5
INST level	<6.48%	6.48% – 22.99%	22.99% – 44.18%	44.18 % – 69.40%	>69.40%
Model	FE	FE	FE	FE	FE
Constant	8.0119* (1.7104)	-2.9716 (-0.5128)	-6.4780 (-1.2441)	7.6007 (1.5897)	-5.6433 (-1.2907)
INST	0.0223 (0.3935)	-0.0121 (-0.4528)	-0.0417** (-2.1026)	-0.0644*** (-3.7963)	-0.0466*** (-2.5356)
ROA	-4.3124** (-2.5859)	-0.6995 (-0.5584)	-4.7873*** (-3.1657)	-4.9255*** (-2.9678)	-6.3177*** (-4.5449)
SIZE	-0.4770 (-1.5109)	0.2244 (0.5861)	0.5706* (1.6922)	-0.1029 (-0.3487)	0.6529** (2.5453)
LEV	5.1160*** (4.5229)	2.5111** (2.3017)	1.1830*** (1.1230)	-0.3201 (-0.2929)	1.1454 (1.0751)
MTB	-0.0861 (-0.9511)	0.0599 (0.9511)	-0.0379 (-0.5748)	-0.1374** (-2.4289)	-0.0301 (-0.7594)
OCF	-6.9805*** (-7.6358)	-3.4372*** (-3.3062)	-2.4431*** (-2.7727)	-2.2219** (-2.3297)	1.0742 (1.1817)
CR	-0.0727 (-1.4031)	-0.0530 (-1.1139)	-0.0224 (-0.3077)	0.0973 (1.6329)	-0.0673 (-1.0354)
TANG	3.5549*** (3.7978)	7.1694*** (5.7113)	5.7578*** (5.1208)	4.4296*** (5.3376)	3.0170*** (3.2985)
Industry dummies	No	No	No	No	No
Year dummies	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.7693	0.7217	0.7314	0.7254	0.7336

Notes: The values enclosed in parenthesis represent t-statistics. The symbols ***, **, and * indicate statistical significance at 1%, 5%, and 10%, respectively.

5. Conclusion

In this study, we investigate the effect of institutional ownership on the borrowing costs of listed companies in Thailand over the period 2011–2020. After controlling for firm characteristics, industry and year effects, and accounting for endogeneity, the results show an inverse connection between institutional ownership and the cost of debt. This finding suggests that institutional investors actively monitor management, reducing conflicts between managers and lenders and lowering borrowing costs. Our additional analysis suggests that institutional ownership must be sufficiently large for institutional investors to actively perform their monitoring role.

This research sheds light on how institutional investors affect debt expenses. The findings lend credence to the assumption that agency costs of debt are reduced due to the vigilant oversight provided by institutional investors. In addition, institutional investors need to have a sizable holding in the company in order to participate in monitoring duty. In light of the negative association between institutional ownership and loan costs, the results have important implications for policymakers and managers in Thailand. They can encourage institutions to acquire a bigger proportion of equity in order to have more incentives to mitigate the agency cost of debt and enhance corporate governance. Moreover, investors in the Thai stock market should choose to invest in firms with high institutional ownership because these firms have strong corporate governance and lower debt expenses. There are still some limitations to this study.

One is that it does not differentiate between domestic and foreign investors as the source of a drop in loan costs. Future research could look into how the different compositions of a company's owners and board members affect its debt costs. It will also be fascinating to evaluate the impact of institutional ownership, stability, and horizons on the cost of debt in Thailand.

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