EARNINGS MANAGEMENT AND COST OF DEBT FINANCING: EVIDENCE FROM VIETNAMESE LISTED COMPANIES

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ABSTRACT

While earnings management has been employed to conceal corporations' true performance, concerns have risen regarding its adverse impact on financing costs, particularly the cost of debt. This study, therefore, aims to examine the impact of earnings management on the cost of debt in Vietnam. Using data on 197 companies during 2016-2020 in a wide variety of industries and a quantile regression approach, which allows different magnitudes in the impact of earnings management on the cost of debt, the study indicates the negative impact of earnings management on the cost of debt. Earnings management leads to a higher cost of debt. The result supports the garbling theory that Vietnamese firms engage in earnings management exhibit a higher cost of debt as a form of punishment for gaming earnings. In Vietnam, the impact of earnings management is more severe at high levels of debt.

Keywords: earnings management; cost of debt; quantile regression

INTRODUCTION

Earnings management is not a new topic in Vietnam. Many companies have employed it to present financial statements and achieve certain goals. Some typical cases include Maritime Supply & Technology Service Joint Stock Company (MAC), which reported a profit of 0.13 billion Vietnamese Dong instead of a loss of 4.4 billion, Saigon-Hanoi Securities Joint Stock Company (SHS), which reported a profit of 27 billion Vietnamese Dong even though it suffered from a loss of 68 billion, and Binh Duong Building Materials & Construction Corporation (MVC) recorded a profit of 33,7 billion Vietnamese Dong in 2021, three times higher than its previous year, however this number was adjusted to a loss of 38.6 billion in its audited financial statement. These examples illustrate the extensive practice of earnings management in Vietnam in various sectors, from manufacturing to finance. These manipulations, on the one hand, are employed to provide a favorable outlook on firm performance, which results in an increase in investor confidence and easy access to capital (Alareeni, 2018; Carmo et al., 2016). On the other hand, they have been perceived by the market as a bad signal, pose significant challenges for the business, and increase asymmetric information, which then creates greater difficulties for finding sources of finance as well as higher cost of capital (Amiram & Owens, 2018; Chen et al., 2011; Li & Richie, 2016).

This study, therefore, brings further evidence of the impact of earnings management on the cost of debt in the context of Vietnam. The relationship between earnings management and the cost of debt is of concern for the following reasons. First, ownership concentration is attributed to earnings management. Highly concentrated ownership

provides major shareholders motivation and power to monitor and cause managers to engage in earnings management (Gabrielsen et al., 2002; Habbash, 2010). Ownership concentration of listed companies in Vietnam is quite high: large equity investors own approximately 49% of the equity (Tran & Le, 2020). A second explanation is due to the institutional setting in Vietnam. Compared to developed countries, Vietnam has been characterized by a low level of legal enforcement, poor investor protection, and no strict punishment in securities law and other related laws (Nguyen et al., 2024). Third, the dominant role of the State Securities Commission of Vietnam (SSC) and the reliance on financial reporting information to monitor the listing rules and M&A deals instigate earnings management (Nguyen et al., 2024). Under the current regulations in Vietnam, firms must be delisted after three consecutive years of losses, or the accumulated losses must exceed the capital. These reasons put pressure on the listed firm when presenting financial statements.

Last but not least, in Vietnam the banking sector plays an important role in financing business. Most businesses rely on bank-based credit to access capital. For this reason, understanding the relationship between earnings management and the cost of debt - the essential source of finance – is necessary for all business in Vietnam.

Quantile regression allows different sets of coefficients for different distributions of the data; thus, it can illustrate the impact on different levels of debt cost. It is more efficient than mean regression, which may be affected by outliers (Koenker & Hallock, 2001). Data on 197 companies from 2016 to 2020 was employed, including listed companies in a wide variety of industries. The results suggest that firms with higher levels of earnings management exhibit higher costs of debt. The finding supports the garbling theory over signaling theory. Earnings management is considered as garbling – an attempt to obscure financial information; thus, firms associated with earnings management take on higher costs of debt. The impact differs among different levels of debt cost and is stronger at a high quantile level. It suggests the pronounced importance of high-quality financial reporting on the cost of financing.

The study is organized as follows. Section 2 presents the earnings management practices in Vietnam. Section 3 reviews the literature and proposes hypothesis testing, while section 4 describes the data and research model. Section 5 discusses regression results and section 6 summarizes the study and makes recommendations.

LITERATURE REVIEW

Theoretical perspective

The relationship between earnings management and debt borrowing has been examined theoretically using agency theory. Agency theory illustrates the principal-agent relationship and its conflicts of interest (Jensen & Meckling, 1998). Creditors lend money to borrowers to receive stated interest and principal on time, while lenders invest in different projects at different risk levels. Debt covenant is considered as a means of solving the agency problem. Debt provides external control on a firm's performance and debt usage (Jensen & Meckling, 1998). Debt contracts prevent managers from making discretionary, inefficient investments and distributing cash flow (Hart & Moore, 1994). The cost of debt illustrates default probability and how it has been incorporated into pricing decisions (Aslan & Kumar, 2012). Firms, therefore, engage in earnings manipulation to hide losses and reduce earning volatility, thus lowering the possibility of being interventions (Alareeni, 2018). It enhances the confidence of the lenders, thus decreasing the cost of debt, which is consistent with the signaling theory that the business outlook is considered as a signal of the firm performance, thereby influencing lender's perceptions and its cost of debt (Alareeni, 2018; Carmo et al., 2016).

In contrast, garbling theory views earnings management as a tool to fool stakeholders, including investors, lenders, analysts, and government authorities, for compensation or career purposes (Demski & Frimor, 1999; Healy, 1985). Garbling is the process in which original information undergoes distortions to impact decision-making processes. Earnings management can be applied differently in different companies during different periods. Firms can increase accounting earnings when the earnings in previous years are low or reduce the reported numbers when they are high in the previous periods (Kallunki & Martikainen, 2003). The management of reported earnings distorts financial information and misleads stakeholders, thus increasing the cost of debt (Amiram & Owens, 2018). The negative impact of this school of thought is considered as a punishment for gaming earnings (Li & Richie, 2016).

Empirical studies

When it comes to earnings management and the cost of debt, inconsistent results exist in the relationship. Francis et al. (2005) argued that the pricing decisions of investors depend on accrual quality and high accrual quality is associated with lower debt costs and vice versa (Francis et al., 2005). Lenders depend on accounting information and its quality to determine loan interest rates, and high-quality reported financial information reduces the cost of debt. Firms engaged in earnings management have to pay a premium on information risk, represented by a higher interest rate (Prevost et al., 2008). Even if rating agencies are fooled by discretionary behavior, debt markets can discern managerial discretion and require higher costs of debt (Prevost et al., 2008). This finding favors the garbling theory (Demski & Frimor, 1999; Healy, 1985) but is opposite to Li and Riche (2016), favoring the signaling theory (Li & Richie, 2016). High-income smoothing decreases a corporation's risk level, as assessed by the lender, which results in a lower cost of debt (Li & Richie, 2016).

In the context of emerging markets, even though the reported earnings are considered to be less reliable compared to the reported earnings of developed countries (Orazalin & Akhmetzhanov, 2019), they have been used as a main source of information in lending decisions. Firms with poor-quality financial information have to pay higher debt costs than firms with high-quality financial information (Francis et al., 2005; Orazalin & Akhmetzhanov, 2019). Carmo et al. (2016) provided complementary evidence on this relationship from the Portuguese market. The authors shed light on the economic consequence of earnings management and the incentive to have better quality financial statements in Portugal. Le et al. (2021) examined the relationship between 2012 and 2017 in the context of Vietnam and deliver the same message on the positive impact of accrual quality on the cost of debt. Accrual quality has been ranked into different deciles. Firms in the best decile have lower costs of debt than firms in the worst decile (Le et al., 2021). Zaher et al. (2020) examined the interaction among 56 countries, including developed and developing nations. They found that good accrual quality reduces the cost of debt, creating a negative association between accrual quality and bond spread (Francis et al., 2005; Zaher et al., 2020). However, the impact is dependent on different levels of financial development and law enforcement (Zaher et al., 2020).

Overall, these previous studies provide inconsistent findings on earnings management and the cost of equity relationship. Due to the widely prevailing practice of earnings management in Vietnam and the different institutional characteristics, this study aims to examine whether earnings management increases the cost of debt in Vietnam. This leads to the following hypothesis:

H1: The cost of debt in Vietnam is positively related to earnings management.

METHODOLOGY

Variables measurement

Earnings management can take two types: accrual earnings management and real earnings management. Because real earnings management is costly (Graham et al., 2005) and not as popular as accrual manipulation in Vietnam, this study focuses on figuring out the relationship between accrual-based earnings management and the cost of debt.

To measure accrual-based earnings management, this study employs the standard Jones (1991) model regressing total accruals on sales, changes in sales, and changes in receivables (Jones, 1991).

$$\frac{TA_{it}}{A_{it-1}} = \alpha_o + \alpha_1(\frac{1}{A_{it-1}}) + \alpha_2(\frac{\Delta SALES_{it}}{A_{it-1}}) + \alpha_3(\frac{PPE_{it}}{A_{it-1}}) + \varepsilon_{it}$$

In this equation, TA_{it} represents total accruals in year t of firm i, A_{it-1} is total assets at time t-1 of firm i, $\Delta SALES_{it}$ is total revenues of firm i at time t, PPE_{it} represents property, plant, and equipment at time t of firm i. $\alpha_1, \alpha_2, \alpha_3$ are estimated coefficients. The discretionary part is the difference between total accruals and estimated accruals calculated from the regression. It is proxied as earnings management measurement.

As for the cost of debt, it can be measured by the yield on newly issued bonds (Sengupta, 1998), bond ratings (Francis et al., 2005; Ge & Kim, 2014), or the ratio between total interest expenses and total debt (Carmo et al., 2016). Because borrowing from bank loans is more popular in Vietnam, while corporate bonds are not easily accessible for medium and small enterprises (SMEs), this study employs the yield between interest expenses and average debt as the cost of debt (Le & Phan, 2017).

As for control variables, variables illustrating financial leverage, firm age, firm size, profitability ratio, liquidity ratio, market to book are added based on previous studies (Anderson et al., 2004; Margaritis & Psillaki, 2010; Orazalin & Akhmetzhanov, 2019; Prevost et al., 2008). Financial leverage represents the level of debt and, the level of financial pressure on firm performance. Highly leveraged firms have to pay the higher cost of debt for higher risk levels (Magnanelli & Izzo, 2017). However, the opponents believed that highly leveraged firms that can take advantage of economies of scale are associated with lower financing costs (Francis et al., 2005; Minnis, 2011). Liquidity shows the ease of making payments on outstanding debts, thus banks charge lower financing costs on high-liquid companies (Carmo et al., 2016; Orazalin & Akhmetzhanov, 2019). Market-to-book value is an indicator of investment opportunities, whereby high growth opportunities are associated with a higher risk of financial distress, default, and higher cost of debt (Ortiz-Molina, 2006). In some cases, higher market-to-book value is an indicator of efficiency; hence, the cost of debt for these firms decreases (Li & Richie, 2016; Prevost et al., 2008). As for profitability, higher financial performance is associated with a lower cost of debt because these firms are believed to be low-default-risk firms (Margaritis & Psillaki, 2010). The other variables, including firm age and firm size answer the questions of whether the firm is well established and solvent, thus they have a negative impact on the cost of debt (Kim et al., 2020; Orazalin & Akhmetzhanov, 2019).

Research sample and model

The study employs data collected from listed companies in different sectors of the Vietnam stock exchange, including two stock exchanges, Ho Chi Minh City Stock Exchange (HOSE) and Hanoi Stock Exchange (HNX). Due to the availability of data, this study covers approximately 200 companies from 2016 to 2020, with 898 observations. Real estate, food and beverage, construction and materials, and industrials are those industries having a high proportion in this sample.

To test the impact of earnings management on the cost of debt capital, this study employs traditional OLS regression and panel data analysis together with the quantile regression approach.

Quantile regression, in contrast, separates the distribution into different parts. so the regression results show the impact of explanatory variables on different quantiles of dependent variables. This method minimizes the absolute deviations at each quantile and it is not limited to any distribution (Koenker & Hallock, 2001), giving less weight to the outliners and therefore is more suitable for analyzing data with extreme values. When comparing the quantile regression approach with the OLS approach on subsets, Heckman (1979) proved that bias estimators resulting from "truncation of the dependent variable" can be avoided when applying quantile regression (Zietz et al., 2008).

According to Koenker and Hallock (2001), quantile regression can be illustrated as follows:

$$CoD_{it} = \beta_0 + \beta_1 EM_{it-1} + \beta_2 ROA_{it-1} \\ + \beta_3 LEV_{it-1} + \beta_4 AGE_{it-1} \\ + \beta_5 SIZE_{it-1} + \beta_6 MB_{it-1} + \beta_7 LIQ_{it-1} \\ + \varepsilon_{it}$$

DISCUSSION

Descriptive statistics

The table below describes summary statistics on the variables used in the study. The mean of the dependent variable *cod* is 0.144 (14.4%), indicating that the cost of debt in Vietnamese listed companies is quite high. The difference between the mean (0.144) and median (0.075) is substantial, indicating that the variable is skewed to the right (Figure 1)

Figure 1: Distribution of dependent variable
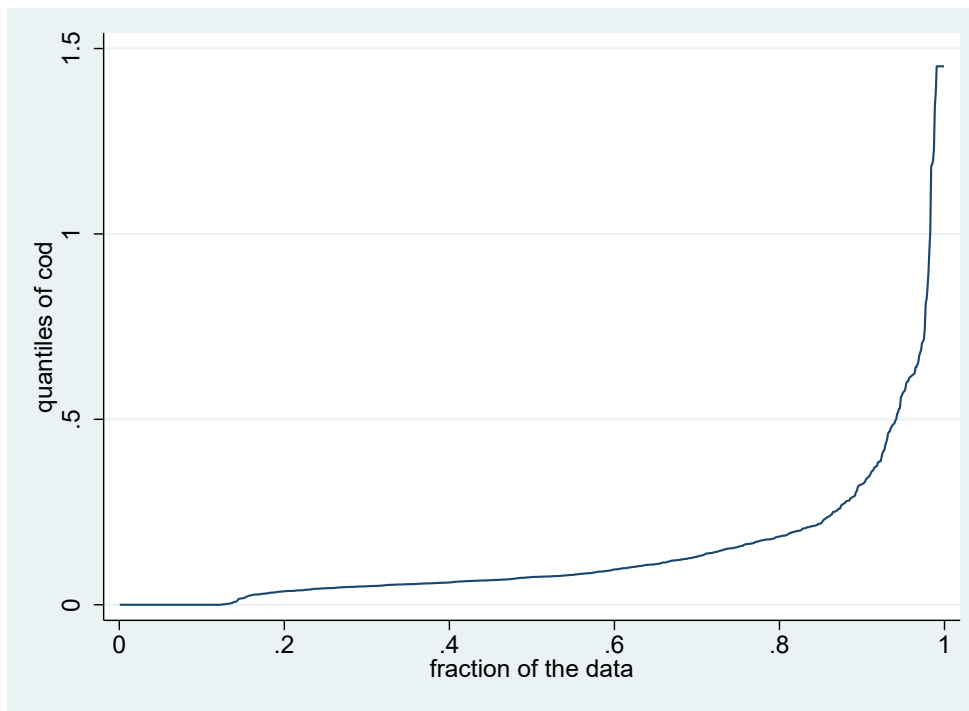
The value of skewness for all the explanatory variables is greater than zero, indicating the asymmetric distribution of the variables. The kurtosis values for almost all variables except the size and roa of the variable are larger than 3, showing the presence of extreme values in these variables.

Table 1: Summary statistics of the cost of debt, earning management, and other control variables

Variables	Obs	Mean	Std. Dev.	Min	Max	p1	p50	p99	Skew.	Kurt.
cod	898	.144	.218	0	1.452	0	0.075	1.452	3.717	19.525
em	898	.198	.18	0	1.323	.003	0.148	.812	1.937	8.504
lev	898	.121	.135	0	.474	0	0.066	.474	1.132	3.29
size	898	28.599	1.431	25.583	32.48	25.735	28.409	32.48	.466	2.86
roa	898	.021	.036	-.053	.09	-.053	0.006	.09	.747	2.948
current	883	2.555	3.704	.131	43.017	.421	1.542	21.508	5.927	48.676
Lage	898	2.658	.374	1.099	3.784	1.609	2.639	3.738	.321	4.453

Skewness and kurtosis tests for normality have been employed to confirm the nonnormality of the variables. The results (provided if requested) show that the data is not normally distributed. Therefore, the quantile regression is more efficient than the OLS technique.

Results of OLS regression and panel regression

Table 2 shows regression results from OLS regression and panel regression using the fixed effects model and random effects model. The results from OLS regression in column (1) indicate the positive association between earnings management and cost of debt: high level of earnings management is associated with a high cost of debt. To check the robustness of this finding, panel regressions have been employed. Fixed effects regression in column (2) reports the statistically negative relationship while the random effects model reports the negative results, but insignificantly. However, due to the problem of non-normality and skewness in the data analysis, quantile regression is employed.

Table 2: Relationship between cost of debt and earning management in OLS, FEM, REM

	(1) OLS	(2) FE	(3) RE
	cod	cod	cod
lem	.14***	-.078*	-.021
	(.038)	(.044)	(.037)
llev	.619***	.503***	.575***
	(.055)	(.165)	(.121)
lsize	-.011**	-.002	-.01
	(.006)	(.023)	(.008)
lroa	.186	.616**	.494**
	(.197)	(.245)	(.229)
lcurrent	-.003	-.005	-.005
	(.002)	(.004)	(.003)
llage	-.017	-.14	-.027
	(.018)	(.112)	(.022)
_cons	.41**	.501	.433*
	(.166)	(.646)	(.232)
Observations	705	705	705
Pseudo R^2	0.197	0.120	0.178
Robust standard errors are in parentheses			
*** p<.01, ** p<.05, * p<.1 The table reports results from OLS regression (1), and panel regressions including fixed effects FE (2) and random effects RE (3).			

Results of quantile regression

It can be seen from Table 3 that the impact of earnings management on the cost of debt differs among different quantiles and increases when the quantile level moves up. Earnings management is statistically significant and negatively related to borrowing cost. The coefficients at the 10th, 25th, 50th, 75th, and 90th quantiles are 0.029, 0.035, 0.059, 0.08, and 0.35, respectively, indicating that the impact of earnings management on this financing cost is more pronounced for firms with high costs of debt. This result coincides with the theoretical perspective illustrating the garbling theory: higher earnings manipulation and higher cost of debt as a means of punishment (Demski & Frimor, 1999; Healy, 1985). The result is consistent with previous empirical studies favoring the importance of high-quality financial statements in lowering the cost of debt for both developed and developing countries (Francis et al., 2005; Le et al., 2021; Orazalin & Akhmetzhanov, 2019; Prevost et al., 2008). The impact is more severe at a high level of cost of debt, implying that at a high level of cost of debt, the agency conflict between bondholders and shareholders increases, thus bondholders have to include many requirements to protect their principal and interest as well as pay more attention to the debt usage due to the high probability of default (Gong et al., 2017).

Table 3: Regression results

cod	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Panel: 0.1 quantile level							
lem	.029	.015	1.89	.059	-.001	.059	*
llev	.076	.033	2.33	.02	.012	.14	**
lsize	.004	.002	1.63	.103	-.001	.009	
lroa	.012	.005	2.21	.027	.001	.022	**
lcurrent	-.006	.002	-2.83	.005	-.01	-.002	***
llage	.013	.011	1.21	.228	-.008	.035	
Constant	-.118	.078	-1.51	.131	-.272	.035	
Panel: 0.25 quantile level							
lem	.035	.017	2.08	.038	.002	.067	**
llev	.195	.032	6.03	0	.131	.258	***
lsize	.003	.002	1.52	.128	-.001	.008	
lroa	.003	.006	0.53	.595	-.009	.016	
lcurrent	-.005	.002	-3.27	.001	-.008	-.002	***
llage	.004	.007	0.57	.566	-.01	.018	
Constant	-.07	.067	-1.04	.301	-.202	.062	
Panel: 0.5 quantile level							
lem	.059	.024	2.42	.016	.011	.107	**
llev	.41	.059	6.90	0	.293	.526	***
lsize	-.003	.002	-1.48	.141	-.007	.001	
lroa	-.006	.007	-0.93	.354	-.02	.007	
lcurrent	-.004	.001	-4.68	0	-.006	-.002	***
llage	.003	.004	0.66	.509	-.006	.012	
Constant	.119	.052	2.27	.023	.016	.221	**
Panel: 0.75 quantile level							
lem	.08	.036	2.22	.027	.009	.151	**
llev	.892	.079	11.32	0	.737	1.047	***
lsize	-.007	.003	-2.49	.013	-.012	-.001	**
lroa	-.012	.016	-0.76	.45	-.043	.019	
lcurrent	-.002	.001	-2.93	.004	-.004	-.001	***
llage	-.003	.006	-0.51	.613	-.015	.009	
Constant	.243	.078	3.13	.002	.091	.396	***
Panel: 0.9 quantile level							
lem	.32	.111	2.88	.004	.102	.538	***
llev	1.22	.17	7.17	0	.886	1.554	***
lsize	-.014	.005	-2.81	.005	-.024	-.004	***
lroa	.026	.036	0.71	.48	-.046	.097	
lcurrent	.013	.015	0.89	.375	-.016	.043	
llage	-.028	.015	-1.87	.062	-.058	.001	*
Constant	.504	.162	3.11	.002	.186	.822	***
Mean dependent var		0.140	SD dependent var			0.197	

*** p<.01, ** p<.05, * p<.1

Turning to the control variables, the impact of financial leverage on the cost of debt increases monotonically from 0.076 at the 10th quantile to 0.46 at the 50th quantile and 1.22 at the 90th quantile. High levels of debt usage and high default risk require higher debt costs (Magnanelli & Izzo, 2017). Liquidity is statistically significant to earnings management, and the negative sign related to current trends shows that high-liquid firms are charged lower costs of debt. This finding coincides with previous studies supporting the idea that liquidity reduces default risk, which in

turn reduces the cost of the debt (Carmo et al., 2016; Orazalin & Akhmetzhanov, 2019; Sánchez-Ballesta & García-Meca, 2011). At extremely high levels of cost of debt, 90th quantile, liquidity is no longer significant in determining the cost of debt of the listed companies in Vietnam.

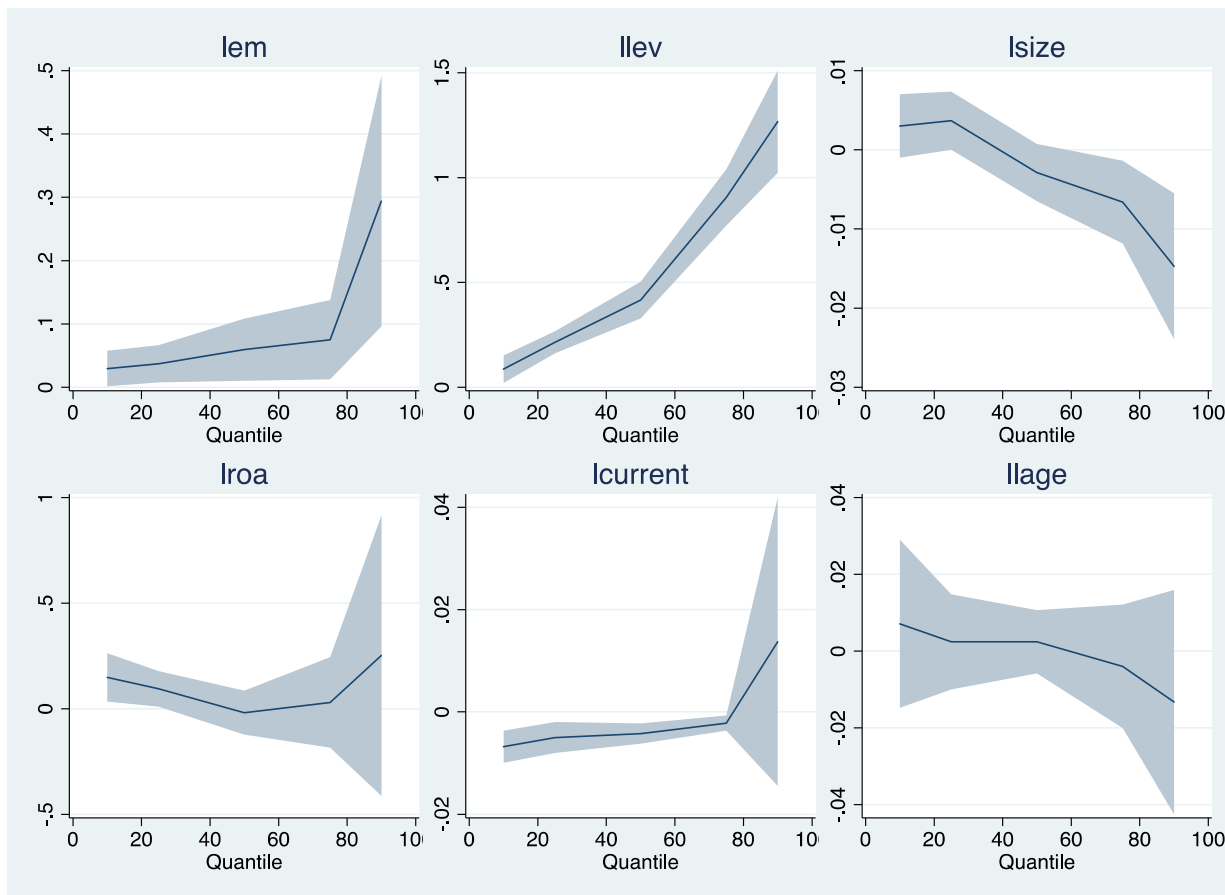**Figure 2:** Coefficient estimates in quantile regression

Figure 2 above shows these results in an informative visual presentation, displaying quantile regression estimates for the variables together with their 95% confidence intervals depicted in a shaded area. As for earnings management and debt leverage, the 95% confidence intervals do not intersect with the horizontal axis on the graph, which shows that earnings management activities and capital structure are positively related to the cost of debt for all quantiles. The impact changes across different quantiles and increases when moving from the lower quantile to the upper quantile. As for the liquidity factor, the impact is significant at the 10th, 25th, 50th, and 75th quantiles, but not significant for the upper quantiles, indicating that the ability to repay debt is meaningful only at low and moderate levels of debt cost. When it comes to the profitability ratio, the shaded area representing a 95% confidence interval for the estimates overlaps with the zero line, which indicates that profitability does not have a significant impact on the cost of debt.

The estimation results related to firm size differ across quantiles. The shaded area illustrating the 95% confidence interval intersects the horizontal line and is lower than 0 for the upper quantiles, which explains the role of firm size in the cost of debt calculation. At a low level of debt, firm size is not significant in determining the cost of debt; however, at a high level of debt, large firms help reduce the cost of debt. In other words, the hypothesis is accepted at a high level of debt.

As for firm age, the shaded area spreading both below and above the zero line demonstrates no significant impact of business tenure on the financing cost.

CONCLUSION AND RECOMMENDATION

Due to the inclusive results from previous studies on the relationship between earnings management and the cost of debt, this study sheds light on this relationship in the Vietnamese market. A quantile regression technique has been employed to show the effect on different levels of debt cost rather than showing the mean, leading to the interpretation of the useful results on the direction and extent of the influence of earnings manipulation on the cost of borrowing. The regression results show that a high level of earnings management is associated with a higher cost of debt, favoring the garbling theory that earnings management is seen as unfavorable, and as a result the market demands a higher debt premium. The impact is more severe at a high quantile level of debt due to the high degree of the agency problem (Chen et al., 2011; Gong et al., 2017). As for capital structure, a high level of debt is associated with higher borrowing costs. Profitability and firm age do not account for the cost of debt at all quantiles, while the enhancement in liquidity reduces the cost of debt at low and intermediate levels.

The findings of the study not only contribute to the literature on the relationship between earnings management and the cost of debt financing but also help regulators and corporate managers in their decision-making. Regulators can develop standards and regulations to improve transparency in financial reporting. Corporate managers can enhance the quality of financial statements, reduce earnings management activities, and utilize a moderate level of debt to avoid being charged a high cost of debt. They should also pay attention to liquidity because liquidity helps decrease the cost of debt, especially for low and moderate levels.

Despite the contribution of our findings, the study has some limitations. Most of the limitations are derived from the limited data sample. A larger and updated data set should be used in future studies to examine this relationship as well as test the impact of Covid-19 on the relationship. Another limitation lies in the method of calculating the cost of debt. Even though there are several ways of calculating that source of financing, the study employs the ratio between interest expenses and the amount borrowed due to the unavailability of the other methods. Furthermore, future studies can examine real earnings management together with the accrual method to compare the relationship between the two ways of earnings management.

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