Factors Influencing Corporate Debt Maturity:
An Empirical Study of Listed Companies in Vietnam

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Abstract

The maturity structure of corporate debt is one of the significant financing choices that a firm must make simultaneously while deciding how to finance its operational and investment decisions. Even though the capital structure is one of the scrutinized topics of interest in the corporate finance literature, scarce studies have investigated corporate debt maturity, even less so in the context of emerging markets. The choice of a suitable debt maturity structure is exceptionally relevant for firms. It can enable them to avoid mismatch by aligning assets in line with liabilities, addressing agency-related problems, sidestep the ill effects of cost of capital, and signaling the firms' earning quality and value. The study investigates the firm-specific and macroeconomic determinants significant for the debt maturity structure of Vietnamese corporate firms. A sample of 722 non-financial firms listed on the Ho Chi Minh and Hanoi Stock Exchange in Vietnam from 2007 to 2018 was taken to test the hypothesis. The study's methods fixed effects panel data analysis provides empirical evidence that firm size, firms' quality, liquidity, leverage, asset maturity, tax impact, and macro variables are significantly related to the debt maturity structure.

Keywords: Debt Maturity, Firm Characteristics, Macroeconomic Variables

JEL Classification Code: C23, G20, G32

1. Introduction

The cutting-edge work of Modigliani and Miller (1958) presented a basis for what is conventionally characterized as modern corporate finance. The basic Modigliani-Mille (M&M) theorem states that in the absence of taxes, bankruptcy costs, agency costs, and asymmetric information, and an efficient market, the value of a firm is unaffected by how that firm is financed. In their paper Miller (1977), Miller and Modigliani (1961), Modigliani and Miller (1963), elaborated on the conditions under which the firm would be mostly indifferent to its financing source's efficient capital structure. We will argue that even in a world in which interest payments are fully deductible in computing corporate income taxes, the firm's value, in equilibrium, will still be independent of its capital structure (Miller, 1977). In other words, decisions about debt maturity can never improve the value of a firm.

Nevertheless, in a real market, especially in a transitional economy like Vietnam, where the capital markets are not efficient, choosing the appropriate debt maturity structure can primarily affect the firms' value, avoid mismatch. In contrast, aligning assets structure in line with liabilities can mitigate the ill effects of capital cost, address agency-related problems, and signal important information about firms' earning quality (Cai et al., 2008). Capital structure and dividend policy are presumably the widely studied issues in corporate finance. However, the maturity structure of the firm's financing has attracted little attention until now, particularly in the context of emerging economies like Vietnam. In this study, we extend the existing literature on corporate debt in Vietnam to analyze the determinants of the maturity structure of the firm's debt using a significant sample of 722 non-financial firms listed on the Ho Chi Min and Hanoi Stock Exchange in Vietnam. Further, focusing on a single country brings out country-specific details and characteristics not emphasized in cross-country studies.

Almeida et al. (2009) further revealed a novel link between the debt maturity structure and corporate investment in the

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light of the 2007 credit crisis and pointed out the importance of the debt maturity structure for corporate financial flexibility. It becomes evident from this that focusing firms in emerging markets will even face stricter financial constraints than similar firms in the developed market if such a situation arises. Evidence suggests that the debt maturity structure is a significant variable in understanding how credit supply shocks get transmitted in the corporate sector. The fact that the debt maturity structure has crucial implications for macroeconomic and financial stability in developing economies (Schmukler & Vesperoni, 2006) makes this issue worthy of note. In such a context, understanding how firms manage their debt thus becomes more than an academic question than becoming a real-world problem for practicing managers and economic policymakers.

Agent theory, signaling and liquidity risk theory, matching principles, tax, and financial development hypotheses try to identify corporate debt's maturity structure. However, which is the best factor in explaining the debt maturity structure? One approach to the problem is to revisit the determinants of the debt maturity structure using a more robust technique. There are hardly any empirical studies concerning the debt maturity structure in the Vietnam context to the best of our understanding. This study bridges this gap in the literature. It attempts to update the existing inconclusive evidence and further analyze the monetary authorities' role in promoting long-term debt (LTD) finance. The importance of non-mutually exclusive views on agency costs, liquidity, signaling, and taxes for the liability term structure of firms operating in a transition economy has been confirmed in this study. The study presents robust evidence that constrained and unconstrained firms respond differently to liquidity risk and, therefore, practice distinct debt maturity strategies (Stephan et al., 2011).

The article's objective is to identify firm-specific and macroeconomic determinants that are significant for Vietnam corporate firms' debt maturity structure. The alternate hypothesis is that the firm-specific and macroeconomic determinants do not impact Vietnam corporates' debt maturity structure.

2. Literature Review

Before the study proceeds to develop an empirical model for the determinants of the corporate debt maturity structure in Vietnam, there is a strong need to present a theoretical literature survey to depart towards our empirical research. There are four types of debt maturity theories: agency costs signaling and liquidity risks, matching principles, and tax effect theories. We consider each in turn by defining the suggested variables that could impact the debt maturity structure. In literature, there has been a practice of using corresponding proxies to formulate the hypothesis regarding the relationship of debt maturity with other firm characteristics and macroeconomic variables.

2.1. Agency Hypothesis

External financing comes with costs and benefits. On the one hand, it disciplines management, but on the other hand, it makes the firm vulnerable in its product markets (Bolton & Scharfstein, 1990). Thus, there is a role of debt in reducing agency costs between shareholders and managers. Myers (1977) represented that short-term debt mitigates the underinvestment problem. Firms do not pursue relatively riskier projects because creditors get more benefits from these investments. The underinvestment problem gets severe if a firm has more growth opportunities. When firms overgrow, their financing needs exceed their internal resources, while large firms tend to grow at rates that could be financed without access to long-term credit or the stock market (Demirgüç-Kunt, & Maksimovic, 1998). The faster the firm's growth, the more restricted is their access to credit. Following earlier research, the study operationalizes agency-related costs with growth opportunities and firm size. Therefore, the testable hypotheses under the agency (or contracting cost) theory are:

H1: High growth opportunities hurt the debt maturity structure.
H2: Firm size has a positive effect on the debt maturity structure.

2.2. Signaling and Liquidity Risk Hypothesis

As per Flannery (1986) asymmetric information and risky debt maturity choice, the firm's choice of risky debt maturity can signal insiders information about firm quality. With favorable transaction costs, high-quality firms sometimes effectively signal their sound quality to the market. Therefore, the signaling hypothesis is also extracted from information asymmetry, and it suggests that firms use the maturity choice to signal their high quality to the market. As a result, this signal reduces the firm's cost of capital (Flannery, 1986). This theory suggests that short-term debt is a positive signal of the firm's excellent quality.

Thus, Flannery (1986) derived a separating equilibrium with favorable transaction costs. Riskier borrowers cannot afford short-term debt costs and prefer LTD, while low-risk borrowers prefer short-term debt. Kale and Noe (1990) suggested that similar separating equilibrium is possible even in a framework without transaction costs. Consequently, the testable hypotheses under the signaling and liquidity risk theories can be stated as:

H3: Firms' quality hurts the debt maturity structure.
H4: Liquidity has a positive impact on the debt maturity structure.
H5: Leverage hurts the debt maturity structure.

2.3. Matching Principles Hypothesis

Stohs and Mauer (1996) found that larger, less risky firms with longer-term asset maturities use longer-term debt. They measure the asset maturity by calculating the weighted maturity of current assets and the weighted maturity of fixed assets. If physical assets, these assets can be used as collateral, reducing the creditor's risk of suffering such agency costs of debt. Hence, high tangible assets are expected to be associated with high LTD. Accordingly, the testable hypothesis under the matching principle theory is stated as:

H6: The asset maturity structure has a positive impact on the debt maturity structure.

2.4. Tax Hypothesis

As per Gordon and Lee (2006), the net tax gain from the use of corporate debt is proportional to nominal interest rates so that firms respond in times of high-interest rates. On the same grounds, it can be hypothesized that firms should shift towards more LTD as long-term rates rise relative to short-term rates. LTD is expensive, so the firm can avoid more taxes while having higher profitability. This theory represents that the optimum debt maturity structure is a tradeoff between tax advantages for firm debts and disadvantages of agency costs. However, by constructing an option valuation model, Kane et al. (1985) have provided empirical evidence against such advantages' universal validity. They state that a meaningful measure of debt benefit is the different return rate, net of the market premium for bankruptcy risk. It indicates that the tax shield advantage is negatively related to debt maturity. In other words, if the effective tax rate is low, then firms prefer to issue LTD. Further, as per Graham (2000), large, liquid, and profitable firms with low expected distress costs use debt conservatively. The testable hypothesis under the tradeoff theory can be:

H7: Tax effects hurt the corporate debt maturity structure.

2.5. Financial Development Hypothesis

2.5.1. Debt Maturity and the Banking Sector

Two primary forms of long-term financing are term loans from financial intermediaries and corporate bonds. Regarding monitoring, gathering information, and imposing contract terms, Cai et al. (2008) see that bank financing is more efficient than funding through corporate bonds. Chami et al. (2010) also state that bank loans play an essential role in the firms' financing in developing countries. For example, Vietnam's financial system is typically bank-based since almost all private loans are from banks (Vo, 2016). Thus, the development of the banking sector will facilitate access to bank loans for firms. However, the effect of the banking sector's Growth on the debt

maturity structure is empirically weak and mixed. Alcock et al. (2012) have not examined the impact of the banking sector on debt maturity, even though they argue that Australian firms rely on bank debt rather than public debt. Likewise, Antoniou et al. (2006) established the integrated model to test both major theories and market conditions, but they capture only the effect of equity market conditions.

In the debt maturity literature, Demirguc-Kunt and Maksimovic (1999) showed that the development of the banking system is irrelevant to debt maturity for larger firms and positively impacts debt maturity decisions for small firms. Agarwal and Mohtadi (2004) highlight that the banking sector's development positively affects leverage. Overall, we would expect the development of the banking sector would lead to an increase in funds availability and, in turn, provide more long-term loans to firms.

H8: Domestic credit to the private sector is negatively related to debt maturity.
H9: Liquid liabilities to GDP is positively related to debt maturity.
H10: Domestic credit provided by the financial sector is positively related to debt maturity.

2.5.2. Debt maturity and stock markets

Due to the stock market's development, firms have more opportunities to diversify their corporate financing structure by issuing more equity than long-term debt. However, the transmission of information, which is useful to creditors, needs to be emphasized more. Grossman (1976) and Grossman and Stiglitz (1976) noted that the stock's market price at least partially discloses how much information investors are holding, making lending to a listed firm less risky. Therefore, stock market information on a firm enhances the firm's ability to obtain long-term debt. Furthermore, Demirgüç-Kunt and Maksimovic (1996) confirm that the larger the stock market's size, the stronger the informational effect.

In later works, Demirguc-Kunt and Maksimovic (1999) investigate the debt maturity in 30 entities from 1980 to 1991 concerning the financial markets. The paper shows that debt maturity is unrelated to stock market developments for small firms, whereas larger firms' issue has more long-term debt. However, Kirch and Terra (2012) use the dataset of 359 firms in five South American countries to find that the development of the financial markets does not affect debt maturity choices. Thus, our hypothesis is as following:

H11: Stocks traded, the total value is positively related to debt maturity.
H12: Stock market turnover ratio is negatively related to debt maturity.
H13: Stock market capitalization to GDP is negatively related to debt maturity.

Past studies on the subject of debt maturity have been leveraged to constrain variable selection efforts in the initial stage. Variables were selected considering all aspects such as agency costs, signaling, and liquidity risks, tax effect theories, and matching principles. Macroeconomic variables have been used as control variables in the study. As described in Table 1, apart from the dependent variable long-term debt to total debt (*DebtMaturity*), 13 independent variables have been defined: potential determinants or predictor variables.

3. Data and Methodology

3.1. Data Sources

The data has been taken from the annual financial reports of VN-Index constituent Vietnam public-listed firms listed on the HOSE and HNX for 2007–2018. Banks are excluded due to their unique regulatory capital requirements and for information homogeneity of the firms. A sample of 722 Vietnam non-financial firms listed on the HOSE and HNX during 2007–2018 was taken to test the hypothesis.

Thomson Reuters DataStream has been used to extract detailed balance sheets and income statements for VN-Index companies. Amongst these, the basis of selection for the companies is the availability of financial data and positive value of total debt for the period under study to rule out the possibility of an undefined dependent variable. These firms do not hold any changes in their financial year during the research period. According to these criteria, the study finally considers 722 firms listed on the HOSE and HNX of the Vietnam stock market and over 6.000 firm-year observations.

3.2. Descriptive Statistics

The preliminary visualization of dependent variables across the 722 firms has been carried out. After that, the descriptive statistics for all the variables have been presented in Table 1. Now we take a look at the variables in the data set.

Table 1: Definition of Variables and Expected Signs

Variables	Symbol	Measure	Expected Sign
Debt maturity	DebtMaturity	The ratio of long-term debt (debt maturing in more than one year) to total debt	NA
Agency (Contracting Cost) Theory			
Growth rate	Growth	Sales growth to total asset growth	−
Firm size	Size	Natural logarithm of the firm's total sales	+
Signaling and Liquidity Risk Theories			
Firm quality	profitability	Earnings before interest and tax to net sales	−
Liquidity	CurrentRatio	The ratio of current assets to current liabilities	+
Leverage	Leverage	The ratio of the book value of the total debt to the book value of total assets.	−
Matching Principle Theory			
Asset maturity	AssetMaturity	The ratio of net fixed assets to gross block depreciation. (Measures the rate at which assets are being consumed.)	+
Tax Hypothesis			
Effective tax rate	taxes1	The ratio of current year taxes to profits before tax	−
Financial Development Hypothesis			
Debt maturity and the banking sector	private	Domestic credit to the private sector	−
	Liq	Liquid liabilities to GDP	−
	Domescre	Domestic credit provided by the financial sector	+
Debt maturity and stock markets	sm_trade	Stocks traded, the total value	+
	sm_turnover	Stock market turnover ratio	+
	sm_capliz	Stock market capitalization to GDP	−

A preliminary investigation into the data can provide insights about the variance distributions in the panel data, which, to a great extent, help in determining the analysis techniques to be used for the study. As shown in Table 1, debt maturity (*DebtMaturity*) varies between 0 and 1 by definition. Here in most firms (denoted by Compiled), it follows a decreasing trend over the years. Table 2 reports the summary statistics of the variables used in our analysis. As observed in the table, the dependent variable *DebtMaturity* varies from 0 to 0.9873, with an average value of 0.51. Since balanced panel data has been used, there are no missing values to be treated in the data set.

3.3. Methodology

The study classifies the determinants of corporate debt maturity into two categories: firm-specific and macroeconomic determinants. Firm-specific determinants are adapted from the extant strand of the literature and uncover most of the firm-specific determinants used in previous empirical studies on this topic. We control for firm characteristics such as growth opportunities (Antoniou et al., 2006; Guedes & Opler, 1996; Myers, 1977; Vijayakumaran & Vijayakumaran, 2019), firm size (PHAN, 2020), profitability (Demirgüç-Kunt & Maksimovic, 1999; Fan et al., 2012; Khan et al., 2020), leverage (Barclay et al., 2003; Custódio et al., 2013; Johnson, 2003; Myers, 1977; Stohs & Mauer, 1996), asset maturity (Antoniou et al., 2006; Cai et al., 2008; Custódio et al., 2013; Morris, 1976), liquidity risk (Diamond,

1991), tangibility (Antoniou et al., 2006; Demirgüç-Kunt & Maksimovic, 1999; Fan et al., 2012; Myers & Rajan, 1998), tax effects (Brick & Ravid, 1985; Kane et al., 1985; Zheng et al., 2012). A growing body of literature regarding macroeconomic determinants contends that several country characteristics affect the firms' debt maturity choice.

The dependent variable 'debt maturity' is influenced by many more variables that do not form parts of this exercise, such as efficient management practices, business conditions as per the firm's geographical location, marketing strategies employed, and relationships with stakeholder's distributors. Due to this effect, the estimates in the regression model can be inconsistent. This study uses firm-specific control variables, which can be of fixed effect type or random effect type.

Fixed effect explores the relationship between the dependent variable *DebtMaturity* and predictor variables within a firm. However, predictor variables may or may not be influenced by the individual characteristics of a firm. That is why there is an assumption of the correlation between a firm's error term and predictor variables. This influence is controlled. It eliminates the effect of those time-invariant characteristics so that the predictors' net impact on the outcome variable can be assessed (Baltagi, 2008).

When the within-firm variance is minimal, it implies that the variables are more of time-variant nature. Since fixed effects control the time-invariant characteristics, it will not work well in such cases. The fixed-effects model controls all time-invariant differences between the individuals.

Table 2: Descriptive Statistics of the Variables

Variables	Obs	Mean	Std. Dev.	Min	Max
DebtMaturity	7,342	0.16963	0.219254	−0.01108	0.993706
Growth	6,626	0.246513	5.03291	−0.85893	406.3115
Size	7,351	27.06812	1.689895	20.97462	34.81112
profitability	7,284	0.073698	0.109463	−5.24713	0.827633
CurrentRatio	7,146	2.864979	8.976074	0.031938	337.5161
Leverage	7,351	0.512148	0.232731	0.001981	1.748409
AssetMaturity	7,343	−0.2475	0.313793	−0.99658	1.481639
TaxEs1	7,117	−0.06191	0.072914	−0.95492	0.135305
Demetre	8,664	116.8009	18.21243	86.86342	141.8508
Private	8,664	106.6577	15.77786	82.87277	133.136
Liq	8,664	99.98002	35.61583	0	145.319
sm_capliz	8,664	13.95547	9.226597	0	31.13683
sm_turnover	8,664	57.57177	38.8555	0	148.378
sm_trade	8,664	23.092	10.31248	0	43.842

The estimated coefficients of the fixed effects models cannot be biased due to omitted time-invariant characteristics. One side effect of the fixed effects model's features is that it cannot investigate the dependent variables' time-invariant causes. Technically, the time-invariant characteristics of the individuals are perfectly collinear with the dummy variables used for firms. Practically, fixed-effects models are designed to study the causes of changes within a firm. A time-invariant characteristic cannot cause such a difference because it is constant for each person. Another method to apply fixed effects is to introduce dummy variables into the model. So the equation of the fixed-effects model becomes.

$$
\begin{aligned}
\text{DebtMaturity}_{it} = {} & \beta_0 + \beta_1(\text{Growth}_{it}) + \beta_2(\text{Size}_{it}) \\
& + \beta_3(\text{Profitability}_{it}) + \beta_4(\text{CurrentRatio}_{it}) \\
& + \beta_5(\text{Leverage}_{it}) + \beta_6(\text{AssetMaturity}_{it}) \\
& + \beta_7(\text{Taxes1}_{it}) + \beta_8(\text{Domecre}) \\
& + \beta_9(\text{Privatecre}) + \beta_{10}(\text{Liq}) \\
& + \beta_{11}(\text{sm\_capliz}) + \beta_{12}(\text{sm\_turnover}) \\
& + \beta_{13}(\text{sm\_trade}) + \sum_{i=1}^{n}\eta_i(\text{DC}_i) + \varepsilon
\end{aligned}
$$

Where i represents the firm and t is the time; η_i is a coefficient of the firm's dummy variable $DC_i{}^{ith}$; β_0 is the intercept; β_n are coefficients for independent variables, x_{it} ε and is the error term.

4. Results

The study suggests that debt maturity choice is mainly determined by its internal characteristics and the external environment. Table 3 summarizes the estimation results based on balanced panel data from the year 2007 to 2018. Several notable products surface from our analysis. The findings concerning the growth rate (*profitability*) lend support to Myers (1977) proposed that firms with high growth opportunities shorten the debt maturity, as the observed relation is negative but not statistically significant. The firm size (*size*) variable, though substantial, is not consistent with the predicted sign as the results depict that fit size varies *negatively* with debt maturity. The observed relation of firm quality (*profitability*) with debt maturity is not consistent with the signaling theory, and the same is found insignificant. Hence, it implies that more significant LTD is required in firms' capital structure with a higher amount of current assets. Asset maturity (*AssetMaturity*) is found to have a positive and significant association with the debt maturity structure, which is highly consistent with the matching principle theory. If the debt has a shorter maturity compared to the assets, the company may not have sufficient cash readily available to repay the principal on the due date.

Likewise, if the debt's maturity is longer than that of the assets, the cash flows accruing from the investments might drain, while the debt payments might remain outstanding. Also, as defined in this study, the higher the value of *AssetMaturity*, the slower is the speed of consuming assets. Thus, it is consistent with the matching principles theory that if tangible assets are high, then these assets can be used as collateral, diminishing the lender's risk of suffering such agency costs of debt. The association between the effective tax rate and the debt maturity structure is statistically insignificant in theory and against the hypothesized relationship between flotation costs, tax shields, and debt maturity.

Macroeconomic variables are significantly positive or negative, contrary to the predicted sign, thereby implying that depending on the banking system rather than the stock market, firms prefer lower LTD, which seems inconclusive. The observed relation of macro variables with debt maturity is by the predicted one. In contrast, the association between macroeconomic variables and debt maturity is negative or positive in line with the expected sign, but it is statistically significant.

In the model estimates, R^2 is 75.7 percent, and adjusted R^2 is 0.726 percent; hence, indicating that the explanatory variables can explain more than 70% percent of debt maturity variation (*DebtMaturity*).

5. Conclusion

The study empirically investigates the firm-specific and macroeconomic determinants of debt maturity structure decisions using a sample of 722 non-financial Vietnam firms listed on the HoSE and HNX during the period 2007 to 2018. The results suggest that firm size, liquidity, asset maturity, and macro variables are the significant determinants of the debt maturity choice. However, the fit size and macro variables do have the predicted effect on debt maturity as hypothesized. Growth rate, leverage, and macro variables do have the expected impact on debt maturity; however, results are not statistically significant. A reason for the significant coefficients can be attributed to the measurement issues. The study does not produce any statistical evidence to conclude that effective tax rate and firm quality impact debt maturity, which can be a probable outcome of an underdeveloped debt market. Macroeconomic control variables are significant barring macro variables, for which, also, the study does provide conclusive evidence as opposite signs are shown by LSDV models.

It further suggests that the present theoretical framework provides an ample and general explanation of its corporate debt maturity structure. Theories are a mere collection of partial explanations for this phenomenon. In this instance, the theoretical research gap becomes apparent in the empirical analysis, where various hypotheses at best are only partially supported.

Table 3: Results of Regression Analysis

ESTIMATOR	POLS	FE	RE	IV-GMM	LSDV
Variables	**DebtMaturity**	**DebtMaturity**	**DebtMaturity**	**DebtMaturity**	**DebtMaturity**
Growth	0.001*	−0.000	0.000	0.018*	−0.000
	[0.000]	[0.000]	[0.000]	[0.010]	[0.000]
Size	0.038***	0.042***	0.040***	0.039***	0.043***
	[0.002]	[0.009]	[0.005]	[0.002]	[0.007]
Profitability	−0.112***	−0.060***	−0.060**	−0.102*	−0.064***
	[0.024]	[0.023]	[0.025]	[0.058]	[0.011]
CurrentRatio	0.003***	0.002***	0.002***	0.002***	0.002***
	[0.000]	[0.001]	[0.001]	[0.001]	[0.000]
Leverage	−0.356***	−0.119**	−0.193***	−0.362***	−0.120***
	[0.015]	[0.052]	[0.042]	[0.029]	[0.015]
AssetMaturity	0.484***	0.311***	0.362***	0.454***	0.309***
	[0.011]	[0.037]	[0.031]	[0.017]	[0.016]
Taxes1	0.084**	0.083	0.089	0.113*	0.089**
	[0.038]	[0.080]	[0.075]	[0.066]	[0.039]
domecre	0.002	0.001	0.002	0.007	0.001***
	[0.001]	[0.001]	[0.001]	[0.008]	[0.000]
privatecre	−0.002	−0.002	−0.002	−0.006	−0.001***
	[0.001]	[0.001]	[0.001]	[0.008]	[0.000]
liq	−0.001	−0.000	−0.000	−0.003	0.000**
	[0.001]	[0.000]	[0.000]	[0.003]	[0.000]
sm_capliz	−0.001	−0.002	−0.001	−0.007	−0.001*
	[0.002]	[0.001]	[0.001]	[0.007]	[0.000]
sm_turnover	0.001*	0.001***	0.001***	0.003	0.000***
	[0.000]	[0.000]	[0.000]	[0.002]	[0.000]
sm_trade	0.001	0.001	0.001	0.006	−0.001***
	[0.001]	[0.001]	[0.001]	[0.008]	[0.000]
Constant	−0.529***	−0.803***	−0.693***	−0.647***	−0.858***
	[0.060]	[0.238]	[0.133]	[0.091]	[0.171]
Observations	6,238	6,238	6,238	4,187	6,238
R-squared	0.344	0.140	0.138	0.327	0.757
Adj *R*-squared	0.343				0.726
Number of id1		691	691		
Wald/*F* test (*p*-value)	0.000	0.000	0.000	NA	NA
Hansen *J* test (*p*-value)				0.117	
Endogeneity test (*p*-value)				0.608	
Standard errors in [ ]					

Note: *, **, *** are significant levels at 10%, 5%, 1%, respectively.

The current study has certain limitations. First, the sample size is relatively small relative to listed firms' universe in the Vietnam stock markets. Second, the definition of debt maturity used in the study tends to consider LTD as homogenous, while in reality, debt issues might have provisions that make them mostly heterogeneous. Third, the other macroeconomic indicators, such as regulatory quality, the rule of law, voice, and accountability, can be considered in future studies. Lastly, cross-country variation in the debt maturity structure can be empirically investigated in depth in the context of emerging economies.

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