

# THE IMPACT OF DEBT FINANCING ON FINANCIAL PERFORMANCE OF LISTED FIRMS IN THE BUILDING MATERIALS IN VIETNAM

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**Abstract:** This research aims to provide empirical data on the impact of debt structure on the financial performance of 86 publicly listed firms in Vietnam's building materials sector over the period 2016 to 2023. Employing econometric approaches. The study proposes several recommendations to optimize debt structure and enhance the financial results within the building materials industry.

• Keywords: debt structure, capital structure, financial performance, building materials industry, Vietnam.

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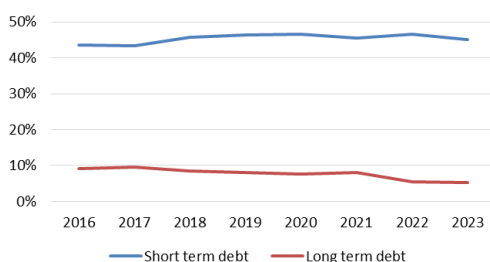
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## 1. Introduction

Debt structure, categorized by maturity, is typically divided into short-term and long-term debt. The use of short-term debt and long-term debt exerts different impacts on a firm's financial performance. Short-term debt, while offering advantages such as reasonable cost of financing and easier accessibility compared to long-term debt (Lê Thị Mai, 2024), carries higher liquidity risks and the constant pressure to secure ongoing funding (Zeitun & Goaid, 2022). On the other hand, although long-term debt is typically associated with higher costs, it provides greater stability and entails lower risk than short-term debt (Nenu et al., 2018). For these reasons, analyzing the overall impact of debt on corporate financial performance without accounting for the debt structure may lead to misleading findings (Zeitun & Goaid, 2022). This underscores the necessity for further research to explore the effects of debt structure on corporate financial outcomes.

**Figure 1.1. Debt structure of Building Material Firms from 2016 to 2023**



Source: Author's compilation and calculation based on Thomson Reuters database

In Vietnam, firms in the building material industry are facing fierce challenges in managing debt structures due to unstable cash flows and the disruptive effects of fluctuations in the real estate market. The use of short-term debt and long-term debt by listed companies in Vietnam's building materials sector from 2016 to 2023 is illustrated in the following chart.

It can be seen from the chart that during 2016 and 2023, building materials firms in Vietnam heavily relied on short term debt, with its proportion to total capital of approximately 45%. In contrast, long-term debt remained relatively low and displayed a declining trend, decreasing from 10% in 2016 to below 5% in 2023. This pronounced dependence on short-term debt underscores a financial strategy focused on addressing the working capital demands of firms within the building materials sector. However, this situation has revealed numerous challenges as the real estate market faces difficulties. Disruptions in operating cash flows have made it increasingly difficult for building materials firms to manage working capital and meet the short-term debt obligations. Simultaneously, previous long-term debts, often used to invest in production lines or construction of new factories have become substantial burdens as revenues decline. The interest expenses from both short-term and long-term debts have further intensified financial pressures, deepening the financial distress faced by many firms in the sector.

This situation has underscored the urgent need to examine the impact of debt structure on the financial performance of building materials firms in Vietnam.

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This study aims to provide additional empirical evidence on the influence of debt financing, as well as the structure of debt for financial outcomes of firms in the building materials sector in Vietnam. Furthermore, while previous research has mainly focused on the effects on total debt ratios on corporate financial performance, this study will delve deeper into analyzing the impacts of specific types of debt (including long-term and short-term debt) on financial performance. These two categories of debt possess distinct characteristics and exert different effects, which managers should consider when optimizing capital structure.

To address the aforementioned issues, the study will be organized into four main sections, including the Introduction to the research topic; Literature review, Research methodology and Discussion on the research findings.

## 2. Literature review

### *Theoretical background*

According to the M&M theorem of Modigliani and Miller (1963) with the consideration of taxes, the use of debt financing can enhance a firm's earnings. This is because debt is generally a more cost-effective source of capital compared to equity and also provides a tax shield for the firm. This tax shield arises from the deductibility of interest expenses, which effectively reduces the firm's taxable income. Although the trade-off theory emphasizes that leveraging debt can reduce taxable income, it extends the M&M proposition by incorporating factors such as bankruptcy costs and financial distress expenses. According to this theory, as leverage increases beyond a certain level, the associated financial costs rise significantly, exposing firms to higher risks of liquidity constraints and potential bankruptcy (Nazir et al., 2021). Under such circumstances, an excessive debt ratio exerts a negative impact on financial performance. Therefore, the trade-off theory concludes that firms aim to determine an optimal debt level that balances the tax benefits of debt financing with the costs arising from its use (Zeitun & Goaid, 2022).

### *Short-term debt, long-term debt and financial performance*

Several studies have emphasized the significance of decisions regarding debt structure, particularly the proportion of short-term and long-term debt in the firm's capital structure. Research by Rahman et al. (2019) indicates that compared to long-term debt, short-term debt is less costly and tends to help firms

reduce the risk of financial distress. Moreover, the frequent financing pressure associated with short-term debts makes it more effective than long-term debt in improving the firm's financial performance.

Lê Thị Mai (2024) highlights that while short-term debt provides firms with greater accessibility and flexibility in utilization, it also poses significant risks, including refinancing challenges, increased short-term payment pressures and financial cost volatility. If not effectively managed, these risks can undermine financial performance. On the other hand, long-term debt offers the advantages of stable funding over extended periods and more predictable financing costs. Studies examining the impact of long-term debts on corporate financial outcomes have produced mixed results. Lamichhane & Dhungel (2024) found a significant negative relationship between the proportion of long-term debt and financial performance. Taking a different approach, other research focusing on industry-specific differences revealed a positive relationship between long-term debt and return on assets (ROA) for firms in insurance, investment and industrial sector. In contrast, this relationship was negative for firms in the service sector (Abuamsha & Shumali, 2022).

For these reasons, we propose the following hypothesis regarding the impacts of short-term and long-term debt on financial performance:

*H1a: Short-term debt negatively affects financial performance.*

*H1b: Long-term debt negatively affects financial performance.*

### *Firm size, inflation, GDP and corporate financial performance.*

Firm size plays a crucial role in shaping corporate financial performance. However, firms also encounter higher management costs and more pronounced agency problems than smaller firms, potentially exerting a negative impact on financial performance (Susanti, 2023). Among the various metrics available for measuring firm size, this study employs total assets as the primary indicators. Total assets provide a comprehensive and stable measure for a firm's resources, offering advantages over other metrics such as revenue or profit, which may exhibit greater variability. In light of these considerations, this study formulates the following research hypothesis

*H2: Firm size has either a positive or negative impact on financial performance.*

Besides, macroeconomic factors, including inflation and gross domestic product (GDP), are critical determinants of corporate financial performance. Inflation, by driving up costs for raw materials and labor, can adversely affect financial outcomes, particularly in developing economies where inflation rates are volatile and financial instability is prevalent (Cevik et al., 2024). On the other hand, GDP growth is generally linked to increased consumer spending, which boost corporate revenues and profitability (Egbunike & Okerekeoti, 2018). This positive correlation between GDP growth and financial performance has also been found in the research of Zeitun & Goaid (2022). Building on these observations, this study introduces the following hypotheses to examine the effects of inflation and GDP growth on financial performance.

*H3: Inflation has a negative impact on financial performance.*

*H4: GDP growth has a positive impact on financial performance.*

### 3. Research Methodology

#### 3.1 Research Model

From the literature review, the authors propose the following research model:

$$FP = \beta_0 + \beta_1 Shortdebt_{it} + \beta_2 Longdebt_{it} + \beta_3 Size_{it} + \beta_4 GDP_t + \beta_5 INF_t + \varepsilon_{it}$$

The variables used in the study are described in the table below:

**Table 1: Description of variables in the research model**

No	Variables	Expected relationship	Explanation	Measurement	References
Dependent variable – Financial performance (FP)					
1	ROA		Return on assets	ROA= Profit/Total assets	Ahmed et al(2018); Nazir et al (2021); Zeitun & Goaid (2022)
2	ROE		Return on equity	ROE= Profit/Total equity	Ahmed et al (2018); Javeed & Tabassam (2018)
3	EPS		Earning per share	EPS = Net profit/ Number of outstanding common shares	Shah & Rehman, (2013); S (2016)
Independent variables					
Firm-level variables					
1	Size	+/-	Total assets	Log(Total Assets)	Niresh & Velnampy (2014); Widawati (2023)
2	Shortdebt	-	The ratio of short-term debt to total assets	Shortdebt= Total short-term debt/ total assets	Doan (2020); Nazir et al, (2021); Sike et al. (2023)
3	Longdebt	-	The ratio of long-term debt to total assets	Longdebt= Total long-term debt/ total assets	Lamichhane & Dhungel (2024); Nazir va et al (2021); Doan (2020)
Macroeconomic variables					
1	INF	-	Inflation rate		Cevik et al (2024); Egbunike & Okerekeoti (2018)

No	Variables	Expected relationship	Explanation	Measurement	References
2	GDP	+	Gross domestic product	GDP growth rate	Egbunike & Okerekeoti (2018); Zeitun & Goaid, (2022)

Source: Compiled by the authors

#### 3.2. Research Data

The study employs annual data from 86 companies in the building materials sector listed on the Hanoi Stock Exchange (HNX) and the Ho Chi Minh City Stock Exchange (HOSE) during the period from 2016 to 2023. The variables measuring financial performance, firm debt structure, and some firm-specific variables were collected from the Thomson Reuters database, while macroeconomic data such as inflation rates and GDP growth rates were obtained from the World Bank database. This approach helps ensure reliability and comprehensiveness in analyzing the relationships between variables in the research model.

#### 3.3. Research method

The authors use panel data analysis to investigate the factors affecting financial performance. To assess the impact of the debt structure, we use static estimation methods: the Fixed Effects Model (FEM), the Random Effects Model (REM), and the Feasible Generalized Least Squares (FGLS) method in the model to correct for autocorrelation.

In this study, Hausman test is employed to choose between the FEM and REM models. The assumption for the Hausman model is that the individual effects of each variable are not correlated with the other regression variables in the model. If there is a correlation, the REM model will yield biased results. Additionally, the authors used the Wald test and the Breusch-Pagan Lagrangian multiplier to check for heteroscedasticity with the FEM and REM models, respectively. Finally, to test for autocorrelation in the panel data, the study uses the Wooldridge test. If the model exhibits autocorrelation, the Feasible Generalized Least Squares (FGLS) method will be used to address this issue.

### 4. Results and Discussion

#### 4.1 Descriptive statistics

Table 2 displays the results of the Pearson's product-moment correlation coefficient. The correlation coefficients do not provide any statistical evidence of multicollinearity issues. Additionally, the variance inflation factor (VIF) has been used to assess the presence of multicollinearity in our research dataset. The model shows a VIF score of 2.47, indicating no

multicollinearity issues. This finding is consistent with the research of Baccouche and Hadriche, where a VIF value below 5 is considered acceptable. It can be seen that the variables of short-term debt ratio and long-term debt ratio have an inverse correlation with the variables of the company’s financial performance.

**Table 2: Correlation Matrix**

Variables	Shortdebt	Longdebt	GDP	INF	SIZE	ROA	ROE	EPS
Shortdebt	1							
Longdebt	0.2653	1						
GDP	-0.0058	0.0045	1					
INF	-0.0019	-0.0086	0.4952	1				
SIZE	-0.0974	0.1263	-0.0095	-0.0050	1			
ROA	-0.3372	-0.1406	0.0234	-0.0277	0.1522	1		
ROE	-0.2338	-0.1567	-0.0525	-0.0542	0.1374	0.5399	1	
EPS	-0.3682	-0.2965	-0.0329	-0.0409	0.1713	0.8131	0.5007	1

Source: Calculated by the authors using the Stata 14 software

**4.2. Regression results**

**4.2.1. Regression with ROA as the dependent variable**

**Table 3: Output for Regression Analysis with ROA as the dependent variable**

	ROA			
	OLS	REM	FEM	FGLS
Shortdebt	-9.080*** (-8.03)	-0.0746 (-0.04)	-3.915** (-2.80)	-4.580*** (-4.07)
Longdebt	-3.861** (-2.06)	-1.284 (-0.39)	-4.881** (-2.01)	-4.948** (-2.89)
GDP	0.193 -1.18	0.194 -1.62	0.201* -1.67	0.0567 -1.23
INF	-0.803 (-1.28)	-0.827* (-1.81)	-0.812* (-1.76)	-0.537*** (-3.34)
SIZE	0.642*** (-3.59)	-0.329 (-0.43)	0.567* (-1.7)	0.0754 (-0.38)
N	669			
R-SQ	0.136	0.007		

\*: 1% significance level, \*\*: 5% significance level, and \*\*\*: 10% significance level

Source: Calculated by the authors using the Stata 14 software

The results of the regression show that in the period 2016-2023, the variables Shortdebt and Longdebt both have negative effects on the ROA of building material manufacturing enterprises and are statistically significant in all three models: OLS, FEM, and FGLS. This indicates that when building materials manufacturing enterprises use more debt, including short-term and long-term debt, it reduces the efficiency of the additional resources. This result is consistent with the findings of studies (Ahmed et al., 2018; Doan, 2020; Nazir et al., 2021). Especially during the period of a sluggish real estate market, maintaining a high debt ratio will be a burden for construction companies. In addition, raising additional debt also increases the overall capital scale, which in turn increases the total asset value, thereby reducing

the return on assets (Ahmed et al., 2018).

**4.2.2. Regression with ROE as the dependent variable**

**Table 4: Output for Regression Analysis with ROE as the dependent variable**

	ROE			
	OLS	REM	FEM	FGLS
Shortdebt	-62.33*** (-6.69)	-73.98*** (-4.45)	-74.73*** (-5.96)	-15.41** (-2.56)
Longdebt	-99.55*** (-5.93)	-174.4*** (-6.56)	-156.2*** (-7.39)	-16.21 (-1.08)
GDP	-0.271 (-0.30)	0.714 -0.94	0.294 -0.37	-0.0269 (-0.14)
INF	-3.417 (-0.98)	-3.827 (-1.33)	-3.806 (-1.26)	-1.263* (-1.91)
SIZE	6.145*** (-5.94)	19.02*** (-3.77)	9.119*** (-5.25)	3.404*** (-3.5)
N	630			
R-SQ	0.136	0.007		

\*: 1% significance level, \*\*: 5% significance level, and \*\*\*: 10% significance level

Source: Calculated by the authors using the Stata 14 software

The results indicate that both short and long-term debt have negative and significant impacts on firm performance in profitability. This demonstrates that when building materials manufacturing companies employ too much debt in their capital structure, whether short-term or long-term debt, it has a detrimental influence on financial performance. Several prior investigations have validated this finding (Ahmed et al., 2018; Doan, 2020; Javed & Tabassam, 2018; Nazir et al., 2021). Because the majority of the listed building materials companies on the Vietnamese stock exchange are in a growth phase, additional borrowed capital is frequently used to invest in fixed assets, with returns realized in the long run. Furthermore, the challenges in the real estate market as a whole, a long with the specific economic conditions, have caused the profit generation of building material firms to stall. When combined with a high debt ratio and considerable interest expenditures, the debt ratio reduces the potential to create profits from equity capital.

**4.2.3. Regression with EPS as the dependent variable**

**Table 5: Output for Regression Analysis with EPS as the dependent variable**

	EPS			
	OLS	REM	FEM	FGLS
Shortdebt	-3080.3*** (-7.98)	-73.07 (-0.14)	-1385.3** (-3.05)	-1530.6*** (-4.63)
Longdebt	-4285.3*** (-6.70)	-212.4 (-0.21)	-2562.2** (-3.22)	-2285.3*** (-4.17)

	EPS			
	OLS	REM	FEM	FGLS
GDP	-19.75 (-0.35)	-13.61 (-0.37)	-14.96 (-0.40)	3.512 (-0.24)
INF	-193.3 (-0.90)	-222.9 (-1.59)	-220.6 (-1.55)	-142.4** (-2.80)
SIZE	301.6*** (-4.95)	690.9** (-3.01)	408.9*** (-3.47)	288.7*** (-4.35)
N	675			
R-SQ	0.209	0.024		

\*: 1% significance level, \*\*: 5% significance level, and \*\*\*: 10% significance level

Source: Calculated by the authors using the Stata 14 software

The results of the study show that in the period 2016-2023, both of Shortdebt and Longdebt variables negatively and significantly influenced financial performance measured using earnings per share. Notably, the beta coefficients are all very high. For example, in the OLS model, the impact coefficient of the long-term debt ratio on EPS is -4285.3 with 99% reliability, meaning that a 1-unit increase in the short-term debt ratio leads to a 4285.3-unit decrease in the EPS ratio. Or in the FEM model, the impact coefficient of the long-term debt ratio on EPS is -2562.2 with a 95% confidence level, indicating that a 1-unit increase in the long-term debt ratio leads to a 2562.2-unit decrease in the EPS ratio. This result is consistent with the studies of Shah & Rehman, (2013) and S (2016).

#### 4.3. Discussion and policy implications

The results of the quantitative model have shown a significant and opposite impact of both short-term debt (shortdebt) and ratio of long-term debt (longdebt) on the firm's financial performance, as measured by ROE, ROA, and EPS. This result is consistent with the trade-off theory and the findings of Ahmed et al. (2018); Doan (2020); Nazir et al (2021); Shah & Rehman (2013)

Short-term debt makes up a substantial portion of the total capital structure, accounting for approximately 45%, causing building materials companies to bear significant and frequently fluctuating interest expenses. In addition, fluctuations in the real estate market disrupt the firm's operating cash flow, making it increasingly difficult to meet pay interest and negatively affecting financial stability. In contrast, although long-term debt represents a smaller proportion of the capital structure (ranging from 5% to 10%). In summary, the debt ratio, including both short-term and long-term debt, increases liquidity risk and creates significant pressure on large building materials firms to repay both interest and principal.

To improve the debt structure and enhance financial efficiency, firms in the building materials industry can restructure their debts by gradually reducing the proportion of short-term debt, and shift to long-term debt to ensure stable cash flow. Additionally, firms in this field can combine the increased use of equity capital through raising funds from shareholders, which will help reduce dependence on loans and provide more financial flexibility. Besides, seeking preferential loans from the government and international organizations at reasonable costs is also a good option to help businesses reduce the burden of interest payments. To achieve this goal, firms need to focus on sustainable development projects such as producing environmentally friendly materials or improving circular production processes. Only then can they easily access green capital sources at low costs. Additionally, strengthening relationships with banks to negotiate more favorable interest rates, using derivative instruments to hedge against exchange rate risks for foreign currency loans, are also some measures to support businesses in the building materials industry, especially those with a high import-export ratio. From a policy perspective, the government and regulatory agencies can play a supportive role through measures such as tax reductions, interest rate cuts, or extending repayment periods for firms in the building materials sector. These policies not only reduce financial pressure but also create conditions for the industry to recover and develop in the current challenging economic context.

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