CAPITAL STRUCTURE AND FIRM PERFORMANCE: EVIDENCE FROM THE RETAIL INDUSTRY OF VIETNAM

PhD. Nguyen Huu Tan* - Vu Thi Ha Uyen**

Abstract: ***This study examines the impact of capital structure on firm performance in the Vietnamese retail industry using panel data from listed firms from 2018 to 2024. By employing fixed-effects (FE), random-effects (RE), and feasible generalized least squares (FGLS) models, the analysis investigates the relationship between total debt (TTD), short-term debt ratio (SD), long-term debt ratio (LTD), asset turnover (TURN), firm size (SIZE), and growth rate (GROWTH) with profitability, measured by Return on Equity (ROE). The findings indicate that while total debt exhibits a positive but insignificant effect on profitability, both short-term and long-term debt negatively impact ROE, highlighting the challenges of debt financing in the retail sector. Additionally, growth rate positively influences firm performance, suggesting that expansion strategies contribute to profitability. The study contributes to the literature on capital structure in emerging markets and provides practical implications for managers, policymakers, and investors. Retail firms should adopt conservative debt policies, focus on operational efficiency, and leverage growth opportunities to enhance financial performance.***

• Keywords: *capital structure, firm performance, retail industry, vietnam, panel data, debt financing.*

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1. Introduction

In recent years, the retail industry in Vietnam has experienced remarkable growth, driven by rapid economic development, rising consumer purchasing power, and increasing urbanization. As one of the most dynamic sectors in the Vietnamese economy, retail businesses play a critical role in job creation, domestic consumption, and overall economic growth. However, operating in a highly competitive environment characterized by thin profit margins and volatile consumer demand poses significant challenges for firms in this sector. To sustain growth and enhance competitiveness, retail enterprises must carefully manage their financial resources, particularly their capital structure.

Capital structure, defined as the mix of debt and equity financing used to fund a firm's operations, is a key determinant of financial performance. The optimal balance between debt and equity can help firms minimize costs, maximize returns, and maintain financial stability. However, excessive reliance on debt may lead to financial distress, while over-reliance on equity could dilute ownership and reduce shareholder value. For retail firms in Vietnam, which often face liquidity constraints and seasonal fluctuations in revenue, determining the appropriate capital structure is particularly crucial.

Despite the growing importance of the retail sector in Vietnam, there remains a lack of empirical research examining the relationship between capital structure and firm performance within this context. Most existing studies focus on broader industries or are conducted in developed economies, where market conditions and institutional frameworks differ significantly from those in Vietnam. This gap in the literature highlights the need for a more localized investigation into how capital structure decisions impact the financial performance of retail firms in Vietnam.

This study aims to address this gap by analyzing the effect of capital structure on firm performance in the Vietnamese retail industry. Using panel data from retail firms over the period 2018 - 2024, we examine how various components of capital structure influence Return on Equity, a widely used measure of profitability. By employing both fixed-effects (FE) and random-effects (RE) models, we seek to provide robust insights into the dynamics of capital structure and its implications for retail firms in Vietnam.

The remainder of this paper is structured as follows: Section 2 provides a review of relevant literature and develops the research hypotheses. Section 3 outlines the methodology, including data collection and model specification. Section 4 presents the empirical results and discusses their implications. Finally, Section 5 concludes the study with key findings and recommendations for future research.

2. Literature review and research hypothesis

2.1. Literature review

The relationship between capital structure and firm performance has been a central topic in corporate

** Academy of Finance; email: nguyenhuutan@hvtc.edu.vn*

finance research for decades. This section reviews key theoretical frameworks and empirical studies that have explored this relationship, with a focus on their relevance to the retail industry in Vietnam.

Global evidence on capital structure and firm performance

Empirical research conducted across various global markets has underscored the pivotal role that capital structure plays in influencing firm performance. Studies from North America, Europe, and emerging markets reveal that the combination of debt and equity financing directly affects a firm's profitability, risk profile, and long-term sustainability. Early theoretical contributions, such as those by Modigliani and Miller (1958), laid the foundation for understanding that in perfect markets, financing decisions do not affect firm value. However, as researchers began to account for real-world factors such as taxes, bankruptcy costs, and agency issues, a substantial body of evidence emerged demonstrating that the choice and balance between debt and equity can have significant financial implications.

This global body of research highlights the complexity of the relationship between capital structure and firm performance. Studies have found that while moderate levels of debt can lead to improvements in profitability - mainly through tax advantages and a lower weighted average cost of capital (WACC) - excessive leverage may impose considerable financial risk. The evidence suggests that an optimal mix exists where the benefits of debt financing are maximized without exposing the firm to the heightened risk of financial distress. Such findings provide a robust context for analyzing the nuanced trade-offs inherent in capital structure decisions.

Moderation of debt levels and financial performance

A considerable portion of the literature focuses on the positive aspects of moderate debt utilization. Researchers have demonstrated that debt financing, when employed judiciously, provides a valuable tax shield because interest expenses are tax deductible. This advantage helps reduce the overall cost of capital and, in many cases, enhances Return on Equity (ROE). Empirical investigations from well-developed markets, such as those by Frank and Goyal (2003), have shown that firms with a balanced approach to debt financing typically outperform their over-leveraged counterparts.

However, the relationship between debt and performance is not linear. Several studies suggest a U-shaped or non-linear pattern where the initial benefits of increased leverage eventually plateau and may even reverse if the firm becomes too reliant on debt. This non-linearity implies that while moderate debt can drive growth and operational efficiency, excessive reliance on debt increases the risk of liquidity problems and financial distress. In turn, this can lead to higher borrowing costs and decreased financial flexibility, ultimately offsetting the initial performance benefits.

Differential impacts of short-term and long-term debt

The literature also makes an important distinction between short-term and long-term debt, recognizing that each type affects firm performance in different ways. Short-term debt is often utilized for managing day-to-day operational needs, such as inventory financing and covering working capital requirements. While this form of financing can provide the necessary liquidity and flexibility, it is also associated with significant risks. Studies have consistently shown that an over-reliance on short-term borrowings can lead to heightened liquidity risks and increased refinancing pressures, especially during periods of economic uncertainty. This vulnerability can lead to volatility in earnings and reduced overall performance.

In contrast, long-term debt is typically used to finance capital investments and strategic expansions. Although long-term debt offers the advantage of spreading repayment obligations over an extended period, thereby reducing immediate financial strain, it often comes with higher interest rates and stricter covenants. Empirical evidence from cross-country analyses, including research by Rajan and Zingales (1995), suggests that the heavier interest burden associated with long-term debt can constrain a firm's cash flow. This constraint is particularly problematic during revenue fluctuations, as the fixed cost of servicing long-term debt may erode net income and diminish firm profitability.

Equity financing and the pecking order theory

Complementing the findings on debt financing, extensive research has also investigated the role of equity financing within the capital structure. According to the pecking order theory developed by Myers and Majluf (1984), firms prefer internal financing over external sources due to concerns over information asymmetry and the potential negative signals associated with external equity issuance. This theory suggests that when firms must seek external funding, they tend to choose debt financing over issuing new equity in order to avoid diluting existing ownership and to mitigate adverse market perceptions.

Global evidence supports this notion, showing that many firms across diverse markets maintain a conservative equity base, opting instead to utilize internal funds or take on debt. This behavior is particularly evident in industries where market conditions or regulatory environments make equity financing more costly or less accessible. The preference for debt, however, is tempered by the need to manage the inherent risks associated with excessive borrowing.

Thus, maintaining an optimal balance between internal funds, debt, and equity is critical for sustaining firm performance and achieving long-term growth.

2.2. Research hypothesis

Building on the global empirical evidence, the following hypotheses are proposed to further investigate the impact of capital structure on firm performance in the retail industry:

Hypothesis 1: Total Debt has a positive impact on firm performance.

Moderate levels of debt financing can enhance profitability by providing tax shields and reducing the cost of capital.

Hypothesis 2: Short-Term Debt Ratio has a negative impact on firm performance.

Over-reliance on short-term debt increases liquidity risk and refinancing pressure, leading to reduced operational flexibility and lower profitability.

Hypothesis 3: Long-Term Debt Ratio has a negative impact on firm performance.

Although long-term debt can offer financial stability, its higher interest costs may erode net income and thus negatively affect firm performance.

3. Research methodology

3.1. Research design

The study employs a quantitative research approach using panel data analysis. Panel data combines cross-sectional and time-series dimensions, allowing for a more comprehensive understanding of the dynamics between capital structure and firm performance. The dataset includes financial information from retail firms in Vietnam over the period 2018 - 2024.

3.2. Variables and measurement

Table 1 presents the variables employed in the econometric models, including their measurement formulas and references to prior research. The dependent variable, ROE, is a widely accepted measure of firm performance, while the independent variables capture different aspects of capital structure and operational efficiency. The ratios for total, short-term, and long-term debt help differentiate the impacts of overall leverage, short-term financing, and long-term borrowing on firm performance. Control variables such as asset turnover, firm size, and revenue growth further enhance the model's explanatory power by accounting for operational efficiency, scale, and growth potential.

Table 1. Variables in the models

Variable	Calculation/Definition	Previous Research / Source
ROE	Net Income / Shareholders' Equity	Frank & Goyal (2003); Rajan & Zingales (1995)
TTD	Total Debt / Total Assets	Modigliani & Miller (1958); Trade-off Theory
SD	Short-Term Debt / Total Assets	Various empirical studies on liquidity risk and capital structure
LTD	Long-Term Debt / Total Assets	Rajan & Zingales (1995); studies on long-term borrowing impacts
TURN	Sales / Total Assets	Ohlson (1980); literature on asset efficiency
SIZE	Natural Logarithm of Total Assets	Titman & Wessels (1988); standard measure in capital structure research
GROWTH	Annual Revenue Growth Rate	Rajan & Zingales (1998); studies on growth opportunities

Source: Authors' synthesis

3.3. Research models

To analyze the impact of capital structure on firm performance, two panel data regression models are employed: the Fixed Effects (FE) model and the Random Effects (RE) model . These models account for unobserved heterogeneity across firms and time periods. The general form of the regression model is as follows:

$$ROE_{it} = \beta_0 + \beta_1 TTD_{it} + \beta_2 SD_{it} + \beta_3 LTD_{it} + \beta_4 TURN_{it} + \beta_5 SIZE_{it} + \beta_6 GROWTH_{it} + \epsilon_{it}$$

Where:

i represents the firm,

t represents the time period,

β_0 is the intercept,

β_1, β_2, …, β_6 are the coefficients of the independent variables,

ϵ_{it} is the error term.

4. Research results

4.1. Descriptive statistic

Table 2. Descriptive statistics of variables in the model

Variables	Mean	Std. Dev.	Min	Max
ROE	.178275	.1182809	-.1747	.4527
TTD	.5534429	.1675575	.2239	.8688
SD	.5002202	.1796553	.1209	.8687
LTD	.0782262	.1136963	0	.4478
TURN	3.120481	2.184233	.2155	9.4113
SIZE	16.23145	4.052027	12.5922	28.9278
GROWTH	.1341214	.3041786	-.4758	1.0672

Source: Authors' calculations

Table 2 presents the descriptive statistics for the key variables used in this study. These statistics offer an overview of the central tendencies, dispersion, and range of the data, which provides insight into the variability and distribution of the sample.

The dependent variable, Return on Equity (ROE), exhibits a mean value of 0.1783, indicating an average profitability of approximately 17.83% relative to shareholders' equity. However, ROE values range from -0.1747 to 0.4527, suggesting significant variability among firms in terms of performance.

The Total Debt (TTD) ratio has a mean of 0.5534, implying that, on average, about 55.34% of a firm's assets are financed by debt. The TTD values range from 22.39% to 86.88%, reflecting a wide dispersion in firms' overall leverage. Similarly, the Short-Term Debt (SD) ratio shows a mean of 0.5002 with a comparable

range, indicating that a substantial portion of firms rely on short-term financing.

In contrast, the Long-Term Debt (LTD) ratio has a much lower mean of 0.0782, which suggests that only a small proportion of the total debt is in the form of long-term borrowings. This lower reliance on long-term debt might indicate firms' preference for short-term financing or challenges in accessing long-term credit markets.

4.2. Correlation analysis

Table 3 shows that all correlation coefficients among the variables are below 0.8. This indicates that there is no significant multicollinearity among the independent variables.

Table 3. Pearson correlation coefficients among the variables in the model

	ROE	TTD	SD	LTD	TURN	SIZE	GROWTH
ROE	1.0000						
TTD	0.0455	1.0000					
SD	0.0858	0.7580	1.0000				
LTD	-0.2302	-0.0988	-0.5922	1.0000			
TURN	-0.1684	0.2027	0.2755	-0.4048	1.0000		
SIZE	-0.0187	0.3123	0.1960	-0.0210	-0.1897	1.0000	
GROWTH	0.2274	0.2095	0.1882	-0.1092	0.2271	0.0665	1.0000

Source: Authors' calculations

4.3. Regression results

In table 4, the Hausman test yields a p-value of 0.0184, which is below the conventional 5% threshold. This result indicates that the Fixed Effects model is preferable to the Random Effects model since the individual effects are correlated with the regressors.

However, diagnostic tests reveal some issues with the FE estimates. The Modified Wald test reports a p-value of 0.0000, signaling the presence of heteroskedasticity in the FE model. Additionally, the Wooldridge test for autocorrelation returns a p-value of 0.0306, indicating that autocorrelation is also a concern. In contrast, the Variance Inflation Factor (VIF) is 3.24, which is well below the typical cutoff of 10, suggesting that multicollinearity is not a serious issue among the explanatory variables.

Table 4. Regression results

ROE	FE	RE	FGLS
TTD	.4188027***	.4076535**	.3936774*
SD	-.2805562***	-.4370569**	-.4972113*
LTD	-.6033344**	-.7538507*	-.7450536*
TURN	.0256555	-.0247688*	-.0227896*
SIZE	-.0420157	-.0056867	-.0047203
GROWTH	.026513*	.1070004*	.0972898*
const	.7323907	.3854997*	.3978105*
Hausman Test	Prob>chi2 = 0.0184		
Modified Wald test	Prob>chi2 = 0.0000		
Wooldridge test	Prob > F = 0.0306		
VIF	3.24		

Source: Authors' calculations

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

The regression results from the FGLS model in table 4 provide important insights into how capital structure affects firm performance in Vietnam's retail industry. Given the rapid expansion of modern retail chains, e-commerce platforms, and omnichannel strategies, understanding the financial dynamics behind profitability is crucial. The findings suggest that different forms of debt, operational efficiency, firm size, and growth rates all play a role in shaping the return on equity (ROE) of retail firms.

The analysis shows that total debt (TTD) has a positive and significant impact on ROE. This suggests that Vietnamese retail firms benefit from financial leverage, as debt financing allows them to expand store networks, invest in logistics, and enhance digital capabilities. The positive effect may also be linked to the tax shield advantage, where interest expenses reduce taxable income, thereby increasing net profitability. However, retail firms must manage debt levels carefully, as excessive borrowing could lead to financial distress, especially in times of economic downturn or declining consumer demand.

In contrast, short-term debt (SD) and long-term debt (LTD) have a strong negative relationship with ROE. This finding highlights the risks associated with high debt dependency in Vietnam's retail industry. Short-term debt often involves high-interest rates and frequent refinancing, which can create cash flow instability, particularly for firms with thin profit margins. Many Vietnamese retailers operate in a highly competitive market where price wars and promotional campaigns reduce profitability, making it difficult to service short-term liabilities.

For long-term debt, the negative impact suggests that excessive reliance on long-term loans may not be an efficient financing strategy for Vietnamese retailers. Many firms in this sector prioritize quick expansion but may struggle with long payback periods on large investments in new stores, warehouses, and technology. The low-margin nature of retailing means that the cost of long-term borrowing can outweigh the financial benefits if revenue growth does not keep pace.

While total debt positively impacts ROE, the composition of debt matters. Short-term and long-term debt carry different risks: short-term debt increases liquidity pressure, while long-term debt can lead to inefficient capital allocation. This suggests that Vietnamese retailers benefit from leveraging debt but need to maintain an optimal debt structure to avoid financial strain.

Interestingly, asset turnover (TURN) is negatively associated with ROE. In theory, higher asset turnover should indicate greater operational efficiency, leading to improved profitability. However, in the Vietnamese retail industry, this may reflect the growing dominance of low-margin, high-volume business models. Supermarkets, convenience stores, and online platforms prioritize rapid inventory turnover and aggressive discounting strategies, which can erode profitability

despite strong sales performance. Additionally, large-scale promotions and price competition in Vietnam's retail market may drive revenue but fail to translate into higher returns for shareholders.

A key finding is that growth rate (GROWTH) significantly improves ROE. This aligns with the current trends in Vietnam's retail sector, where firms that focus on expansion, technology adoption, and customer experience tend to outperform competitors. High-growth companies, such as those investing in e-commerce, digital payments, and data-driven marketing, are able to capture a larger share of Vietnam's rapidly growing consumer market. The strong relationship between growth and profitability reinforces the importance of continuous investment in new retail formats, omnichannel strategies, and personalized shopping experiences.

Firm size appears to have an insignificant impact on ROE, suggesting that being larger does not necessarily lead to higher profitability in Vietnam's retail industry. While large retail chains benefit from economies of scale, bulk purchasing power, and brand recognition, they also face challenges such as high operating costs, complex supply chain management, and increased competition from online retailers. The rise of digital transformation has also blurred the lines between small and large retailers, allowing even smaller firms to compete effectively through e-commerce and social media-driven sales.

5. Conclusion

5.1. Summary of key findings

This study examines the impact of capital structure on firm performance in the Vietnamese retail industry using panel data from 12 firms over the period 2018 – 2024. The analysis employs both fixed-effects (FE) and random-effects (RE) models to assess the relationship between total debt (TTD), short-term debt ratio (SD), long-term debt ratio (LTD), asset turnover (TURN), firm size (SIZE), and growth rate (GROWTH) with profitability, measured by Return on Equity (ROE).

The results reveal several key insights. Total debt (TTD) has a positive but statistically insignificant effect on ROE, suggesting that moderate leverage does not significantly enhance profitability. Short-term debt (SD) negatively affects ROE, highlighting that reliance on short-term financing may harm profitability due to increased financial costs and liquidity constraints. Similarly, long-term debt (LTD) shows a strong negative impact on ROE, indicating potential inefficiencies and high costs associated with long-term borrowing in the retail sector.

Asset turnover (TURN) negatively influences ROE, suggesting that higher operational efficiency does not necessarily translate into improved profitability. Firm size (SIZE) has a negative but insignificant impact, implying that larger firms do not necessarily outperform smaller ones in terms of profitability. In contrast, growth rate (GROWTH) positively affects ROE, emphasizing the importance of pursuing expansion strategies to enhance financial performance.

5.2. Contributions to theory and practice

This study contributes to the academic literature by providing empirical evidence on the relationship between capital structure and firm performance in the under-researched context of the Vietnamese retail industry. The findings highlight the unique challenges faced by retail firms in emerging markets, such as limited access to long-term financing and intense competition. The results align with both the trade-off theory and pecking order theory, reinforcing the need for firms to balance debt and equity financing carefully.

From a practical standpoint, the findings offer valuable insights for managers and policymakers. Retail firms in Vietnam should adopt conservative leverage policies to avoid excessive debt, which can lead to financial distress. Additionally, improving operational efficiency and implementing sustainable growth strategies can help firms enhance profitability and competitiveness in a dynamic market environment.

5.3. Limitations and future research directions

While this study provides important insights, certain limitations should be acknowledged. First, the sample size may limit the generalizability of the findings. Future research could expand the dataset to include a larger sample or a longer time period to enhance robustness. Second, this study focuses solely on the retail industry in Vietnam, which may differ from other industries or markets. Comparative studies across sectors or countries could offer broader insights.

Future research could also explore additional aspects of capital structure, such as the role of equity financing, hybrid instruments, and non-financial factors like corporate governance and macroeconomic conditions. Incorporating qualitative methods, such as interviews with managers, could provide deeper insights into the strategic decision-making processes behind capital structure choices.

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