

Working Paper 2026.2.4.17
- Vol. 2, No. 4

HÀNH VI ĐIỀU CHỈNH ĐÒN BẨY TÀI CHÍNH BẤT ĐỐI XỨNG CỦA DOANH NGHIỆP VIỆT NAM

Cao Hà Yến Nhi[1], Nguyễn Thanh Tú, Phạm Lê Hạnh Duyên, Lê Ngọc Khánh Linh, Nguyễn Hoàng Khánh Linh

Sinh viên Khóa 63 – Chương trình Chất lượng cao – Khoa Quản trị kinh doanh và Tài chính Kế toán

Phân hiệu Trường Đại học Ngoại thương tại Thành phố Hồ Chí Minh, Việt Nam

Chu Mai Linh

Giảng viên Khoa Quản trị kinh doanh và Tài chính Kế toán

Phân hiệu Trường Đại học Ngoại thương tại Thành phố Hồ Chí Minh, Việt Nam

Tóm tắt

Nghiên cứu này xem xét cách thức các công ty phi tài chính niêm yết trên Sở Giao dịch Chứng khoán Hà Nội (HNX) và Sở Giao dịch Chứng khoán Thành phố Hồ Chí Minh (HOSE) điều chỉnh cơ cấu vốn không đối xứng trong giai đoạn từ 2015 đến 2024. Trong bài nghiên cứu này, chúng tôi phân tách các quyết định tài chính quản lý chủ động khỏi các tác động định giá thụ động bằng cách sử dụng sự thay đổi hàng năm về đòn bẩy sổ sách làm biến số phụ thuộc chính. Nghiên cứu đã chỉ ra một cơ chế điều chỉnh phụ thuộc

[1] Tác giả liên hệ, Email: k63.2411315011@ftu.edu.vn

vào trạng thái. Cụ thể, khi vốn chủ sở hữu được định giá cao, các công ty Việt Nam thường xuyên điều chỉnh đòn bẩy sổ sách của họ phù hợp với định giá thị trường; ngược lại, họ thể hiện sự trì trệ đáng kể trong thời kỳ thị trường suy thoái. Các công ty có đòn bẩy quá cao đặc biệt dễ bị ảnh hưởng bởi hành vi tái cân bằng này, sử dụng chi phí vốn chủ sở hữu thấp hơn để giảm áp lực nợ. Ngoài ra, phân tích phân rã cho thấy rằng thay vì tái cấu trúc nợ mạnh mẽ, những điều chỉnh này được thực hiện thông qua việc sửa đổi vốn chủ sở hữu và nợ phải trả. Do vậy, kết quả nhấn mạnh tầm quan trọng của việc xác định thời điểm thị trường ở các nước đang phát triển và cho thấy những hạn chế về thể chế của Việt Nam dẫn đến ít lựa chọn điều chỉnh hơn so với các nước phát triển.

Từ khoá: cơ cấu vốn, điều chỉnh bất đối xứng, định thời điểm thị trường, doanh nghiệp dư nợ, Việt Nam

ASYMMETRIC LEVERAGE ADJUSTMENT AMONG VIETNAMESE FIRMS

Abstract

The study examines how non-financial companies listed on the Hanoi Stock Exchange (HNX) and the Ho Chi Minh Stock Exchange (HOSE) adjusted their capital structures asymmetrically from 2015 to 2024. In this research, we separate active managerial financing decisions from passive valuation impacts by using annual changes in book leverage as the main dependent variable. A state-dependent adjustment mechanism is revealed by the study. In particular, when their equity is highly valued, Vietnamese firms regularly realign their book leverage with market valuations; in contrast, they show significant inertia during market downturns. Overleveraged firms are especially prone to this rebalancing behavior, which uses lower equity costs to reduce debt pressure. In addition, decomposition analysis shows that rather than drastic debt restructuring, these adjustments are made through modifications of equity and liabilities. Therefore, the results highlight how important market timing is in developing countries and imply that Vietnam's institutional limitations result in fewer options for adjustments than in developed ones

Keywords: capital structure, asymmetric adjustment, market timing, overleveraged firms, Vietnam

1. Introduction

1.1. Rationale of the study

The empirical results have revealed that the process of leverage adjustment is a gradual process, as the issuance of stocks and bonds takes time. Keeping this in view, the dynamic partial adjustment approach has come into use, as it allows for the possibility that firms may adjust their leverage by partially closing the gap between the current leverage and target leverage in any particular period. This approach was first suggested by Leary and Roberts (2005) and Flannery and Rangan (2006) (Leary and Roberts, 2005; Flannery and Rangan, 2006).

Although the partial adjustment approach gives a better perspective on the dynamic leverage adjustment model, it still relies on the wrong assumption that the speed of adjustment for all firms is the same. This is not correct, as the speed of adjustment varies greatly depending upon the financial constraints of the firm (Shukla et al., 2025). Furthermore, changes in book leverage are a reasonable measurement of corporate capital structure, as such changes show the active behavior of leverage management in any particular period (Chua et al., 2021).

This study contributes to the literature in several ways. Firstly, it attempts to capture changes in book leverage to distinguish between actual management decisions and changes driven by valuation effects, which are significant in volatile markets like Vietnam. Secondly, it attempts to provide empirical evidence relating to leverage adjustment behavior in the context of emerging markets like Vietnam, which has not been conducted before. Finally, it attempts to bridge the gap between the trade-off theory and the market timing theory by including market valuation in the analysis.

1.2. Aim and Objectives of the study

The primary goal of this study is to analyze the dynamic adjustment of corporate capital structure by focusing on active financing decisions. The research uses Ferris framework to study changes in book leverage which help researchers pinpoint intentional management activities that differ from automatic historical outcomes (Ferris et al., 2018). Thus, the study has three specific research objectives which it will pursue

to accomplish its goals.

The first objective is to ascertain if firms tend to rebalance their capital structure if they move away from their target leverage.

The second objective is to extend the empirical evidence of asymmetric adjustment to the Vietnamese market.

The research is guided by the following three main research questions

Q1: Do firms in emerging markets actively adjust their capital structure toward a target leverage?

Based on dynamic theory, firms are expected to have adjustment cost, which affects the speed of adjustment (Flannery and Rangan, 2006). This question seeks to find out whether changes in book leverage are due to intentional actions by examining Vietnamese firms.

Q2: Is the speed and magnitude of leverage adjustment asymmetric across different market valuation states?

According to market timing theory (Baker and Wurgler, 2002), the study tests whether companies adjust at higher speeds during favorable market valuations. It also examines if companies adjust their leverage depending on circumstances or if they maintain consistency in their approach in all time periods.

1.3. Object and Scope of the study

The study illustrates how non-financial companies listed on Vietnam's main stock exchanges, including the Ho Chi Minh Stock Exchange (HOSE) and the Hanoi Stock Exchange (HNX), use their leverage from 2015 to 2024.

The primary focus of this research is on changes in book leverage, which measures the actual action of the firm in raising debt or repurchasing equity. This is a very important part of the book leverage that differentiates actual capital structure changes from those that result from valuation effects.

Finally, the scope is confined to understanding the process of adjustment. With the

incorporation of time effects and control variables to capture the impacts of macroeconomic shocks, the research will be able to test the responses of firm financing behavior to changing market conditions.

1.4. Research methods of the study

A fundamental technical aspect of this approach is the use made of changes in book leverage as a dependent variable. Indeed, changes in book leverage are influenced by actual decisions made during a given year, such as bonds issued or debts paid off. It is an essential element in separating intentional balance changes from those caused by accounting or stock price fluctuations (Lemmon, Roberts and Zender, 2008).

The study uses estimation methods which incorporate both firm-specific fixed effects and time fixed effects to manage unknown variables, such as company culture or macroeconomic shocks.

2. Literature review

2.1. Independent variables

2.1.1. Corporate leverage

Leverage, in general, is a financial indicator that reflects the use of borrowed funds to finance asset acquisition and business operations (Tripathy and Shaik, 2020; SUBAGYO, 2021)

Earlier foundation work such as that of Welch (Welch, 2004) in the U.S. shows that market leverage fluctuates strongly mainly due to stock price variability, while firms play a largely passive role in adjusting book leverage toward the target and rarely issue debt or repurchase shares because leverage management is not their top corporate priority.

Firm book leverage adjustment

More recent evidence on firm adjustment behavior in the markets, however, indicates that firms partially adjust book leverage because of high adjustment costs (Zhou *et al.*, 2016), which is also linked to institutional differences, the level of financial

development (T. Lemma and Negash, 2014), and firms' access to the bond market (Kim, Khil and Lee, 2024).

In general, the research of Getzmann and his team in 2014 also sheds light on the target capital structure in firm performance with the background of the Asian market by employing GMM in measuring determinant of leverage and system-GMM in examining speed of adjustment (Getzmann, Lang and Spremann, 2014). Through observations and past studies, we find a common conclusion that firms actively adjust their book leverage in the current period when there is a discrepancy between market leverage and book leverage in the previous period, which occurs partially.

H1: The gap between market leverage and book leverage in the previous period ($\Delta Leverage_{i,t-1}$) have a positive effect on the book leverage adjustment in this period ($book\ leverage_{i,t} - book\ leverage_{i,t-1}$)

In addition, some recent studies in developed countries have discovered that the adjustment toward the target leverage is asymmetric. Specifically, in U.S (Ferris *et al.*, 2018) find that firms adjust book leverage only when market leverage decreases, and hardly adjust when market leverage increases leading to asymmetric adjustment. Therefore, it is evident that the lower the adjustment cost the firm needs to spend, the quicker the speed of adjustment the firms apply to their observed leverage. This result supports the asymmetric adjustment behavior of firms since when market leverage is lower than book leverage, the adjustment cost is cheaper since such a firm is likely to be perceived as more attractive for investment by potential shareholders, leading to lower costs of raising capital to adjust its leverage.

H2: Firms adjust leverage asymmetrically and in the DOWN case firms adjust their book leverage faster than in the UP case.

Numerous studies in developing countries also discuss the distinction of the speed of adjustment among firms with different levels of leverage. Particularly, with the sample of non-financial listed firms in the Vietnamese economy in the duration commencing from 2008 to 2017, Dai finds that there is a difference between over-leveraged firms and under- leveraged firms (Dai *et al.*, 2024). As a result, by employing

GMM estimations in the independent partial model combined with advanced model that applies both pecking order theory and trade-off theory, the speed of adjustment in over-leveraged firms is three times faster than those of under-leveraged firms as they gain more benefit when adjusting compared to the cost of adjustment. It is evident that the more leverage employed in the operation, the faster a firm adjusts their leverage since the usage of leverage can reduce the cost of the adjustment process. To test this relationship, we examine overleveraged firms separately in the two cases: UP (book leverage < market leverage) and DOWN (book leverage > market leverage), with the initial hypothesis as follows:

H3: Overleveraged firms adjust their book leverage faster than the industry median

3. Research methodology

3.1. Research design

To control for time shocks, the full regression model of the study is specified as follows:

$$d_{i,t}^{B} - d_{i,t-1}^{B} = \lambda\left(d_{i,t-1}^{M} - d_{i,t-1}^{B}\right) + \lambda_{Q1}\left(d_{i,t-1}^{M} - d_{i,t-1}^{B}\right) \times Q1_{i,t} + \lambda_{Q2}\left(d_{i,t-1}^{M} - d_{i,t-1}^{B}\right) \times Q2_{i,t} + \lambda_{Q4}\left(d_{i,t-1}^{M} - d_{i,t-1}^{B}\right) \times Q4_{i,t} + \lambda_{Shock}\left(d_{i,t-1}^{M} - d_{i,t-1}^{B}\right) \times Shock_{t} + \delta X_{i,t-1} + \nu_{i,t}$$

Model 1

In this research, therefore, we put a lot of emphasis on the generalized method of moments (GMM) estimator (Hansen, 1982) as we believe that future adjustments in leverage of the book are conditioned by their previous data.

As discussed above, our analysis employs a partial adjustment model in which leverage adjustment is examined under two distinct conditions. First, when market leverage exceeds book leverage, and second, when market leverage is lower than book leverage. Under these two scenarios, we examine the reaction of firms and their adjustment of book leverages in the following period. The generalized method of moments (system GMM) estimator is used to overcome endogeneity, dynamic persistence related and unobserved heterogeneity of firms.

3.2. Data source and sample construction

The research sample is constructed using financial data from listed firms on the Ho Chi Minh Stock Exchange (HOSE) and Hanoi Stock Exchange (HNX) over the period from 2015Q1 to 2024Q4. The firm-level data is collected from FiinPro-X, a reliable financial database in Vietnam. Macroeconomic figures such as CPI are collected from Vietnam General Statistics Office (GSO). The corresponding cleaned dataset includes 15,965 firm- quarter observations for 563 firms. Consistent with previous studies, we require each firm to have fully consolidated financial statements reported. To avoid distortion due to specific capital structures and regulations, financial firms (banks, insurance and financial services) and highly regulated firms (utilities) are omitted from the sample. We also exclude firms with over 8 quarters of missing data and those with too low book leverage (less than 1%).

We employ firm-quarter data because quarterly financial statements act as an important communicator between the manager and the market during the researched period. This frequency provides timely information for investors to correctly assess firms' growth potential as well as their true value. Moreover, high-frequency data also helps to mitigate information lags and reflects more accurately financing decisions in such an emerging economy with developing legal framework as Vietnam (Vo, 2017). Also, the focus on quarter-level data allows the research to record details about the time and manners of leverage adjustment, thereby elaborating the asymmetry in capital restructuring that yearly data may fail to capture (Dang, Kim and Shin, 2012). This approach ensures that the model records firms' most updated reaction to economic shocks and changes in transaction costs in the capital market.

To ensure the robustness of the empirical results and mitigate the risk of outliers, we winsorize all the continuous variables at the 1% and 99% levels. In addition, the dummy shock is included to capture Vietnam economic downturns during the COVID-19 period. This helps record the impacts of systematic instability on adjustment speed.

3.3. Research model

Model 1: The General Friction Model (Table 3)

We use the following interaction model to analyze the impact of seasonal timing andexogenous shocks on the speed of adjustments.

$$\begin{aligned} d_{i,t}^{B} - d_{i,t-1}^{B} = {} & \lambda\left(d_{i,t-1}^{M} - d_{i,t-1}^{B}\right) + \lambda_{Q1}\left(d_{i,t-1}^{M} - d_{i,t-1}^{B}\right) \times Q1_{i,t} \\ & + \lambda_{Q2}\left(d_{i,t-1}^{M} - d_{i,t-1}^{B}\right) \times Q2_{i,t} + \lambda_{Q4}\left(d_{i,t-1}^{M} - d_{i,t-1}^{B}\right) \times Q4_{i,t} \\ & + \lambda_{Shock}\left(d_{i,t-1}^{M} - d_{i,t-1}^{B}\right) \times Shock_{t} + \delta X_{i,t-1} + \nu_{i,t} \end{aligned}$$

To assess the behavior of firms in emerging markets that exhibit a partial adjustment toward target leverage (T. Lemma and Negash, 2014), we provide dummies for seasons $(1, 2, 4)$ and one for an exogenous shock ($Shock$).

Where:

$d_{i,t}^{B} - d_{i,t-1}^{B}$ is the quarterly change in book leverage

$d_{i,t-1}^{M} - d_{i,t-1}^{B}$ is the leverage gap, which represents the difference between the target

(proxied by market leverage) and the actual book leverage at time t - 1 , the start of the period

λ represents the baseline speed of adjustment (SOA), which measures how quickly a firm closes the leverage gap.

$\lambda_{Q1,Q2,Q4}$ are coefficients representing the change in adjustment speed during specific fiscal quarters.

λ_{Shock} represents the changes in adjustment speed of firms during the Covid-19 period.

$X_{i,t-1}$ is a vector of lagged firm-specific control variables, which includes Size, Profitability (EBITDA/Assets), Tangibility (Tangible Fixed Assets/Assets), Volatility (standard deviation of cash flows), and the Market-to-Book ratio.

$\nu_{i,t}$ and $\epsilon_{i,t}$ are composite error terms, which account for firm-fixed effect and time-fixed effect, respectively.

Model 2: Asymmetric Adjustment Model (Table 4)

To test for asymmetry, the leverage gap is divided into "UP" and "DOWN" regimes:

$$d_{i,t}^{B} - d_{i,t-1}^{B} = \lambda_{UP}\left(d_{i,t-1}^{M} - d_{i,t-1}^{B}\right) \times D(UP)_{i,t-1} + \lambda_{DOWN}\left(d_{i,t-1}^{M} - d_{i,t-1}^{B}\right) \times D(DOWN)_{i,t-1} + \delta X_{i,t-1} + \nu_{i,t}$$

$D(UP)$ and $D(DOWN)$ are dummy variables that show whether market leverage is higher or lower than book leverage. This form of specification, when incorporated into existing models, differentiates between periods when market leverage is higher than book leverage (UP) and when it is lower than book leverage ($DOWN$).

Model 3: Overleverage Adjustment Model (Table 5).

$$\boldsymbol{d_{i,t}^{B} - d_{i,t-1}^{B} = \lambda_1 DiffUp_{i,t-1} + \lambda_1 DiffDown_{i,t-1} + \lambda_{Q1} DiffQ1_{i,t} + \lambda_{Q2} DiffQ2_{i,t} + \lambda_{Q4} DiffQ4_{i,t} + \ + \lambda_{Shock} DiffShock_{t} + \delta X_{i,t-1} + \nu_{i,t}}$$

This model focuses on firms that experience high levels of leverage.

This model specifically captures the “overleveraged” firms as (Dai *et al.*, 2024) point out that financially distressed firms face more severe financing pressures that force them to make quicker adjustments.

4. Research result and discussion

4.1. Data description and errors adjustment

4.1.1. Data description

Results from Table 2 (Summary statistics) provides an overview of financial characteristics and capital structure of 15,965 firm-quarter observations in this research sample. The statistics including mean, standard deviation, median, 5th percentiles, 10th percentiles, 90th and 95th percentiles reveal critical insights into the firms' financial positions. The statistics are comparable to those exhibited in previous studies such as those by Leary & Roberts (2005) and Flannery & Rangan (2006) (Leary and Roberts, 2005; Flannery and Rangan, 2006).

Table 2: Summary statistics

	Obs	Mean	Median	SD	5th	10th	90th	95th
Book leverage	15965	0.255	0.233	0.165	0.029	0.048	0.496	0.556
Market leverage	15965	0.435	0.434	0.259	0.047	0.084	0.792	0.851
Firm size	15965	21.390	21.399	1.694	18.557	19.393	23.475	24.194
Profitability	15965	0.092	0.077	0.079	-0.002	0.011	0.198	0.244
CF volatility	15965	0.026	0.020	0.023	0.005	0.007	0.054	0.073
Market-to-book	15965	0.882	0.727	0.580	0.316	0.389	1.536	2.029
Tangibility	15965	0.182	0.121	0.184	0.003	0.008	0.453	0.575

Book leverage, with a mean of 0.255 and a standard deviation of 0.165, indicates substantial cross-sectional variation in leverage across firms. On the contrary, market leverage has a mean of up to 0.435, significantly higher than its book counterpart. This reflects the fact that firms' market value of assets tends to be lower than total book assets, illustrating the sensitivity of market-based leverage to equity valuation, where fluctuations in market equity mechanically affect the leverage ratio. This distribution aligns with results from prior studies on emerging markets conducted by Vo (2017). However, market leverage of Vietnam is high relative to other developed countries, which hovers around 20 - 30% (Ferris *et al.*, 2018). The

gap between the 5% and 95% percentiles of market leverage (from 0.047 to 0.851) illustrates substantial heterogeneity in leverage usage across firms.

Regarding firm size, this variable has a mean of 21.390 and median of 21.399, demonstrating a symmetric distribution and a balanced sample of small and large firms. Specifically, profitability reaches a mean of 9.2% per quarter. Meanwhile, the -0.2% value at 5% percentiles indicates that a small portion of firms in the sample report operating loss, which may have implications for financing capacity explored in subsequent analyses.

As regards asset structure, tangible fixed assets make up 18.2% of total assets on average. A median of 12.1%, lower than the mean demonstrates right-tailed distribution of the collected data. This means that a large proportion of firms have few fixed assets as collateral while several firms (such as those in the manufacturing or facilities industries) possess large volumes of tangible assets with 57.5% at the 95% percentile.

The mean of 0.882 for market-to-book ratio reflects the market's insights towards firms' growth potentials. The fluctuation of this metric from 0.316 to 2.029 provides sufficient variation for clarifying asymmetric capital adjustment, specifically whether firms issue equity when highly valued by the market.

The consistency in the number of observations and winsorized outliers ensures the robustness and reduces the influence of extreme values on regression results and further analyses in this research

Table 3: Pairwise correlation matrix

	LEVDIFF	DIFFUP	DIFFDOWN	BOOKLEV	MARKETLEV	SIZE	PROF	CF_VOLA	TANG	MARBOOK
LEVDIFF	1									
DIFFUP	0.549***	1								
DIFFDOWN	-0.330***	-0.267***	1							
BOOKLEV	0.417***	0.863***	0.171***	1						
MARKETLEV	0.825***	0.847***	-0.0806***	0.857***	1					
SIZE	0.118***	0.299***	0.155***	0.372***	0.298***	1				
PROF	-0.204***	-0.0996***	0.0111	-0.109***	-0.183***	0.214***	1			
CF_VOLA	-0.181***	-0.138***	0.0257***	-0.130***	-0.183***	-0.104***	0.147***	1		
TANG	0.0272***	0.214***	0.00182	0.209***	0.145***	0.127***	0.370***	0.0203***	1	
MARBOOK	-0.465***	-0.207***	0.300***	-0.0676***	-0.306***	0.149***	0.521***	0.155***	0.114***	1

*, **, and *** indicate significance at 10%, 5%, and 1% levels.

$^{*}\ p < 0.10,\ ^{**}\ p < 0.05,\ ^{***}\ p < 0.01$

Results from Table 3 (Pairwise correlation matrix) provides fundamental pivotal evidence for the relationships among the variables before officially running regression. Most correlation coefficients are significant at 1% level, confirming a strong interconnectedness among the chosen indicators.

The coefficient between market leverage and leverage change is high at 0.825, indicating a strong mechanical association between market leverage and changes in book leverage. Adjustment behaviors of firms with market leverage higher than book leverage (DIFFUP) reveal high correlation with both book leverage (0.863) and market leverage (0.847). This result implies that firms which are maintaining high debt obligations tend to report a market leverage higher than its book counterpart. In contrast, the variable DIFFDOWN exhibits a negative correlation with market leverage at -0.0806 and a positive correlation with book leverage at 0.171, reflecting the case when firms' market leverage falls lower than their book leverage.

The market-to-book ratio having a strong negative correlation with both book and market leverage reflects that when a firm rises in market value, the ratio of debt over firm's total value will decrease naturally. Noticeably, market-to-book is positively correlated with the

status of market leverage lower than book leverage (DIFFDOWN) and negatively correlated with the opposite status. This polarization suggests that highly valued firms are usually those with book leverage higher than market leverage.

Firm size indicates a positive correlation with book leverage and the status up (market leverage higher than book leverage), meaning that large firms tend to have high debt levels and market leverage higher than book leverage. On the other hand, profitability has obvious negative relationships with leverage change and market leverage. In addition, this variable is positively correlated with market-to-book, meaning that firms with good returns tend to have good valuation and low leverage. Cash flow volatility moves in opposite directions with most selected indicators. Specifically, this indicates that firms with volatile cash flow may maintain a low leverage to minimize risk and ensure their solvency. Negative correlation with firm size reveals that large firms tend to have more stable cash flows. On the contrary, those with high profitability or growth opportunities are commonly associated with high levels of cash flow volatility, which may reflect greater uncertainty in operating cash flows due to risky investments or fluctuating markets.

4.1.2. Addressing econometric issues

To mitigate the negative effects of extreme outliers, the research applies the winsorization techniques at the 1% and 99% for all continuous variables. This pushes these extreme values close to the sample's distribution, thereby preventing them from distorting the linear correlation coefficients among the independent variables. With this procedure, we can ensure that the reported relationship reflects the true characteristics of the majority of firms within the sample. By reducing the sample's fluctuation through winsorization, the model limits the inflation of standard error, ensuring the significance of the estimated coefficients.

4.2. Core empirical results

4.2.1. Dynamics in Leverage Adjustment

Table 4: Baseline speed of adjustment analysis

	(1)	(2)	(3)	(4)
VARIABLES			DELTABL	

$LEVDIFF_{t-1}$	0.067*	0.063*	0.056*	0.056*
	(0.036)	(0.037)	(0.031)	(0.031)
DIFF_Q1			0.017*	0.015
			(0.010)	(0.010)
DIFF_Q2			-0.018*	-0.019*
			(0.010)	(0.010)
DIFF_Q4			-0.020**	-0.020**
			(0.009)	(0.009)
DIFF_SHOCK		-0.028*		-0.024*
		(0.015)		(0.014)
Constant	0.013	0.011	0.013	0.012
	(0.009)	(0.009)	(0.009)	(0.008)
Observations	15,494	15,494	15,494	15,494
Number of code	539	539	539	539
Firm controls	Incl.	Incl.	Incl.	Incl.
Firm and time FE	Yes	Yes	Yes	Yes
Interacted with recession		Incl.		Incl.
Interacted with quarter			Incl.	Incl.

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

To test whether the previous period gap between book and market leverage (L.LEVDIFF) encourages firms to actively adjust book leverage in the subsequent period, we estimate four submodels as described above, where model (1) is the most basic and model (4) is the most complete model. Evidence of active adjustment by Vietnamese firms is supported if the coefficient in equation (1) is statistically significant. Overall, the results reported in the table

indicate that, at significance levels of 10%, the key coefficients are statistically significant across the 4 models. More specifically, in model (1), when the additional dummy variables are set to zero, firms adjust book leverage in the direction implied by market leverage at a speed of approximately 6.7% per quarter. In sub-model (2), after introducing a dummy variable for economic shock/recession, where we isolate the period in which COVID-19 hit the economy most severely from other economic phases, the result shows that the speed of leverage adjustment for firms in this period declines to 2.8% (the coefficient for DIFF_SHOCK is -0.028), make the actual speed of adjustment come to roughly 3.5% per quarter.

A reasonable explanation is that during downturns such as COVID-19, Rehman, Wu and Liu, (2024) argue that a sharp increase in adjustment costs (e.g. transaction and legal costs) makes it more difficult for firms to rebalance their capital structures. At the same time, intensified conflicts between shareholders and creditors raise the required risk premium and strain the resources available for the adjustment process (Rehman, Wu and Liu, 2024). Moreover, creditors tend to tighten monitoring and loan contract terms for distressed firms, creating additional barriers to raising new debt to reach target leverage Li, Liu and Chiang, (2022). In conclusion, cost frictions and risk avoidance motives lead firms to prioritize internal stability rather than immediately adjusting book leverage in response to market fluctuations.

Results from model (3) further suggest seasonal variation. Specifically, in quarters 2 and 4, book leverage adjustment is slightly lower (by about -2 percentage points per quarter) relative to quarter 3, while quarter 1 shows the fastest adjustment speed (by about 1.7 percentage point per quarter) relative to quarter 3; the results shown above are proved to be consistent with prior studies and our arguments in the moderating variable section. And finally, model (4) which is the most comprehensive specification, provides joint controls for recession and quarter specific effects, and gives out results that are considerably consistent with those from the preceding standalone models. Accordingly, we conclude that the model proposed by the study is well specified and robust across alternative individual specifications. At the same time, the significance of the coefficient through the four sub models greatly support our first hypothesis about the active leverage adjustment of firms.

Secondly, to examine whether firms adjust book leverage asymmetrically and how changes in market leverage shape firms capital structure strategies and their responses to such changes,

we split firms into two groups, which is the UP group, where market leverage exceeds book leverage, and the DOWN group, where market leverage is below book leverage.

4.2.2. Asymmetric Leverage Adjustment

Table 5: Asymmetric adjustment by book-market difference

	(1)	(2)	(3)	(4)
VARIABLES	DELTABL			
DIFFUP	0.046	0.039	0.017	0.014
	(0.028)	(0.028)	(0.016)	(0.016)
DIFFDOWN	0.188**	0.175**	0.163**	0.153**
	(0.079)	(0.077)	(0.075)	(0.073)
DIFF_Q1			0.010	0.010
			(0.009)	(0.009)
DIFF_Q2			-0.015	-0.014
			(0.009)	(0.009)
DIFF_Q4			-0.016*	-0.015*
			(0.008)	(0.008)
DIFF_SHOCK		-0.005		0.000
		(0.018)		(0.017)
Constant	-0.010	0.010	0.012	0.011
	(0.010)	(0.009)	(0.008)	(0.008)
Observations	15,494	15,494	15,494	15,494
Number of code	539	539	539	539
Firm controls	Incl.	Incl.	Incl.	Incl.
Firm and time FE	Yes	Yes	Yes	Yes

Interacted with recession	Incl.		Incl.
Interacted with quarter		Incl.	Incl.

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The model results indicate that firms show little to no detectable adjustment in book leverage under the UP case. By contrast, adjustment in the DOWN group is statistically significant at the 5% level and is relatively faster around 17% per period than the average adjustment reported for firms in table 4. This pattern suggests that firms' book leverage adjustment is asymmetric, similar with our second hypothesis and with related evidence from other countries. It also supports the view that firms adjust book leverage actively rather than behaving passively, contrary to the conclusion of Welch (2004).

To further interpret these findings, Ferris *et al.* (2018) discusses the linkage between firms' stock prices and market leverage. Specifically, when stock prices decline it will cause the market leverage to rise mechanically. At the same time, the associated deterioration in earnings reduces retained earnings and increases book leverage within the same period (the UP case) so firms barely adjust their book leverage in the next period. In contrast, when stock prices increase and market leverage falls mechanically, it typically reflects firms' growth and investment opportunities. Consequently, adjustments in book leverage are more likely to happen through firms' financing activities in subsequent periods (the DOWN case).

Next, to examine the behaviour of different firms in the UP and DOWN cases, we will separate firms whose leverage is higher than the industry average into a distinct subsample (over-leveraged firm) and investigate how their capital structure policies and the way these policies are reflected differ across the UP and DOWN group. Our third hypothesis stated that overlevered firms have stronger incentives to adjust book leverage toward the target, given their high debt pressure and greater difficulty in attracting external investment. This encourages immediate adjustment when conditions are favorable and adjustment costs are relatively low (particularly in the DOWN case).

Table 6: Adjustment behavios of over-leveraged firms

	(1)	(2)	(3)	(4)
VARIABLES	DELTABL			
DFFFUP	0.090**	0.082*	0.114***	0.107***
	(0.041)	(0.042)	(0.036)	(0.036)
DIFFDOWN	0.262***	0.243**	0.239**	0.217**
	(0.099)	(0.096)	(0.095)	(0.090)
DIFF_Q1			0.008	0.006
			(0.011)	(0.011)
DIFF_Q2			-0.027**	-0.027**
			(0.011)	(0.011)
DIFF_Q4			-0.016	-0.014
			(0.011)	(0.011)
DIFF_SHOCK		0.030		0.020
		(0.025)		(0.025)
Constant	-0.016	0.007	0.005	0.006
	(0.020)	(0.017)	(0.016)	(0.017)
Observations	9,713	9,713	9,713	9,713
Number of code	448	448	448	448
Firm controls	Incl.	Incl.	Incl.	Incl.
Firm and time FE	Yes	Yes	Yes	Yes
Interacted with recession		Incl.		Incl.
Interacted with quarter			Incl.	Incl.

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The results in table 6 indicate that, among over-levered firms, active adjustment is clearly

observed and is statistically stronger in both the UP and DOWN regimes compared to the industry median. In particular, in the sub model (4) for the DOWN case, the speed of book leverage adjustment is 21.7% per period, which is substantially faster than the corresponding estimate for the full sample in table 5 of 15.3% per period. This evidence supports the third hypothesis and is consistent with related findings in other countries.

In addition, under the UP regime in the full specification model (4), overlevered firms also actively adjust book leverage at a rate of 10.7% per period, approximately half the speed observed in the DOWN regime. This differential pattern reflects intentional adjustment behavior and indicates that in the DOWN case, firms face stronger incentives to adjust book leverage as discussed earlier in the literature review.

5. Conclusion

After collecting and analyzing the financial data of firms listed on the Ho Chi Minh Stock Exchange (HOSE) and Hanoi Stock Exchange (HNX) from Q1 2015 to Q4 2024, we found that, consistent with prior studies in developed countries such as (Liu, 2009; Zhou *et al.*, 2016) and developing countries such as (Ur Rehman, Wang and Mirza, 2017; Dai *et al.*, 2024), firms exhibit asymmetric adjustment in book leverage.

Specifically, after applying the generalized method of moments (GMM) model, we found a statistically significant dependence of current-period book leverage adjustment on the previous-period leverage gap (market leverage - book leverage) in Table 1. At the same time, when examining this adjustment closely, we observed an asymmetry in that firms appear to adjust book leverage toward market value mainly when the previous period market value is lower than the book value, or in other words, when the firm's stock is more highly valued, leading to an increase in the overall firm value, similar to the conclusion by (Ferris *et al.*, 2018). In the opposite case, we do not find clear evidence supporting the active adjustment in book leverage of firms.

In addition, we also found that variables such as macroeconomic factors, time, and firm specific characteristics affect the speed of firms' active adjustment of book leverage, consistent with the arguments of (Leary and Roberts, 2005; Ferris *et al.*, 2018). The results

show that firms classified as overleveraged (firm with debt levels higher than the industry average) tend to adjust book leverage faster than other firms when the firm's stock is more highly valued (market leverage < book leverage), with the proposed explanation being that the lower cost of raising equity creates an opportunity to reduce overleveraging pressure for the firm, according (Dufour, Luu and Teller, 2018).

REFERENCE

Asia-Pacific Journal of Financial Studies, 43(1), pp. 1–30. Available at: https://doi.org/10.1111/ajfs.12038.

Baker, M. and Wurgler, J. (2002) "Market Timing and Capital Structure," *The Journal of Finance*, 57(1), pp. 1–32.

Chua, M., Ab Razak, N.H., Nassir, A.M. và Yahya, M.H., 2021. Speed of adjustment towards target leverage in the ASEAN countries. International Journal of Business and Society, 22(1), pp.313-331

Dai, Y. *et al.* (2024) "Reassessing theories of capital structure: Empirical insights from companies listed in Vietnam," *Journal of Corporate Accounting & Finance*, 35(2), pp. 171–186.

Dang, V.A., Kim, M. and Shin, Y. (2012) "Asymmetric capital structure adjustments: New evidence from dynamic panel threshold models," *Journal of Empirical Finance*, 19(4), pp. 465–482.

Dufour, D., Luu, P. and Teller, P. (2018) "The influence of cash flow on the speed of adjustment to the optimal capital structure," *Research in International Business and Finance*, 45, pp. 62–71.

Econometrica, 50(4), p. 1029. Available at: https://doi.org/10.2307/1912775.

Ferris, S.P. *et al.* (2018) "Asymmetries in the Firm's use of debt to changing market values." Flannery, M.J. and Rangan, K.P. (2006) "Partial adjustment toward target capital structures$."

Getzmann, A., Lang, S. and Spremann, K. (2014) "Target Capital Structure and Adjustment Speed in Asia,"

Hansen, L.P. (1982) “Large Sample Properties of Generalized Method of Moments Estimators,”

Journal of Corporate Finance, 39, pp. 99–120.

Kim, S., Khil, J. and Lee, Y.K. (2024) “The relationship between changes in corporate payout policy and capital structure,” *Journal of Derivatives and Quantitative Studies:* 선물연구, 32(2), pp. 116–144.

Leary, M.T. and Roberts, M.R. (2005) “Do Firms Rebalance Their Capital Structures?”

Lemmon, M.L., Roberts, M.R. and Zender, J.F. (2008) “Back to the Beginning: Persistence and the Cross-Section of Corporate Capital Structure,” *The Journal of Finance*, 63(4), pp. 1575–1608.

Li, M., Liu, H. and Chiang, Y.-M. (2022) “Government intervention, leverage adjustment, and firm performance: Evidence from defaulting firms,” *Pacific-Basin Finance Journal*, 76, p. 101885.

Liu, L.X. (2009) “Historical market-to-book in a partial adjustment model of leverage,” *Journal of Corporate Finance*, 15(5), pp. 602–612.

Rehman, O.U., Wu, K. and Liu, J. (2024) “COVID-19 exposure, financial flexibility, and corporate leverage adjustment,” *International Review of Economics & Finance*, 96, p. 103651. Available at: https://doi.org/10.1016/j.iref.2024.103651.
Shukla, R.N., Vyas, V., Roy, A. và Chaturvedi, A., 2025. Leverage adjustment analytics: Effect of macroeconomic conditions on emerging economies. IIMB Management Review, 37(1), p.100619

SUBAGYO, H. (2021) “Relationships between Debt, Growth Opportunities, and Firm Value: Empirical Evidence from the Indonesia Stock Exchange,” *The Journal of Asian Finance, Economics and Business*, 8(1),

T. Lemma, T. and Negash, M. (2014) “Determinants of the adjustment speed of capital structure: Evidence from developing economies,” *Journal of Applied Accounting Research*, 15(1), pp. 64–99.

Tripathy, S. and Shaik, A.R. (2020) “Leverage and firm performance: Empirical evidence from Indian food processing industry,” *Management Science Letters*, pp. 1233–1240.

Ur Rehman, A., Wang, M. and Mirza, S.S. (2017) “How do Chinese firms adjust their financial leverage: an empirical investigation using multiple GMM models,” *China Finance and Economic Review*, 5(1), p. 8.

Vo, X.V. (2017) “Determinants of capital structure in emerging markets: Evidence from Vietnam,” *Research in International Business and Finance*, 40, pp. 105–113.

Welch, I. (2004) “Capital Structure and Stock Returns,” *Journal of Political Economy*, 112(1), pp. 106–132.

Zhou, Q. *et al.* (2016) “Deviation from target capital structure, cost of equity and speed of adjustment,”