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Financial flexibility and firm performance: The mediating role of operating cash flow efficiency in an emerging market

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A B S T R A C T

This study investigates how financial flexibility influences firm performance among Thai listed firms during 2021–2025. The analysis additionally evaluates whether operating cash flow helps clarify the linkage between financial flexibility and firm performance. Cash holdings, leverage, and the current ratio are employed as proxies for financial flexibility, while cash flow from operations relative to total assets is used to capture cash flow efficiency. Firm-level fixed-effects regressions with heteroskedasticity-robust standard errors are applied to control for unobserved firm heterogeneity. The empirical evidence indicates that firms holding larger cash reserves generally achieve stronger profitability, whereas excessive leverage weakens performance. By contrast, the current ratio does not exhibit statistical significance. Stronger operating cash flow efficiency is positively related to ROA, while robustness tests using ROE yield consistent results. Additional estimations support partial mediation. The findings further suggest that cash-based liquidity measures provide greater explanatory relevance than broader accounting-oriented indicators, particularly within emerging-market environments.

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1. Introduction

Economic uncertainty and market volatility have intensified pressure on firms to maintain liquidity and sustain business operations. The ability to obtain and reorganize financial resources at reasonable cost enables firms to respond more effectively to changing economic conditions and sustain long-term stability (Gamba & Triantis, 2008; Denis, 2011). Prior research generally recognizes this capability as an important factor supporting corporate resilience, investment continuity, and organizational success (Bagh et al., 2024). However, the mechanisms through which financial conditions influence firm performance remain insufficiently explained, particularly in emerging economies where firms commonly face limited access to external financing, higher borrowing costs, and stronger liquidity constraints (Saona et al., 2024).

This study therefore investigates whether operating cash flow functions as an internal mechanism linking financial conditions to firm performance. Operating cash flow scaled by total assets reflects firms' ability to generate cash from operations. Unlike accounting earnings, operating cash flow reflects actual cash generated from operations and may therefore provide additional insight into how firms transform available resources into business outcomes (Ball & Nikolaev, 2022). Existing literature frequently treats financial strength as a unified concept, potentially overlooking differences among its individual dimensions. Cash holdings represent readily available liquidity that can support daily operations and investment decisions during periods of economic pressure, whereas traditional liquidity measures such as the current ratio also include non-cash assets that may not be easily converted into cash. Accordingly, the analysis separately evaluates cash holdings, leverage, and liquidity ratios to provide a broader understanding of their relationships with firm performance.

Several theoretical perspectives help explain these relationships. From the Resource-Based View (RBV), liquid financial resources may function as strategic assets that strengthen adaptability and competitive advantage (Barney, 1991). Trade-off Theory further proposes that excessive debt increases financial risk and weakens organizational capacity (Kraus &

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Litzenberger, 1973). Perspectives emphasizing internal financial efficiency also argue that firms with stronger cash inflows from operations are generally better able to sustain activities during periods of financial constraint. Taken together, these perspectives imply that firms' financial conditions may influence performance through both direct and indirect pathways associated with internal cash generation.

Firm performance is primarily proxied by ROA, while ROE is employed as a robustness measure. Fixed-effects panel estimations with firm-level controls are employed using data from companies listed on the Stock Exchange of Thailand over the 2021–2025 period to address unobserved heterogeneity. The findings indicate that stronger liquidity positions are generally associated with improved firm performance, whereas excessive leverage adversely affects profitability. Among the examined dimensions, cash holdings demonstrate the strongest positive association with performance. The results additionally suggest that operating cash flow partially mediates the linkage between financial flexibility and firm performance.

2. Literature Review and Hypothesis Development

2.1 Financial Flexibility

Financial flexibility refers to a firm's ability to obtain, manage, and reallocate financing resources efficiently under changing economic and investment conditions (Gamba & Triantis, 2008; Denis, 2011). The concept is commonly linked to Trade-off Theory and Pecking Order Theory, both of which suggest that firms make financing decisions by balancing funding capacity with financing-related costs. Organizations with stronger financial flexibility are generally better positioned to withstand financial constraints and accommodate unexpected investment opportunities (Marchica & Mura, 2010; Saona et al., 2024). Prior studies frequently measure financial flexibility using liquidity and capital structure indicators such as cash holdings, current ratio, and leverage. These measures reflect firms' ability to preserve liquidity, maintain debt capacity, and access financing when needed. Organizations with stronger liquidity positions and sustainable debt structures are generally less exposed to financing constraints and underinvestment risk during periods of uncertainty. Accordingly, financial flexibility is expected to strengthen firms' ability to adapt to changing financial conditions.

2.2 Financial Flexibility and Firm Performance

Financial flexibility is commonly viewed as an important factor influencing firm performance in finance and strategic management research. From the Resource-Based View perspective, liquid assets may strengthen firms' adaptability, investment capability, and resilience under changing business conditions. Firms with stronger liquidity positions and balanced debt structures are generally more capable of supporting investments, responding to financial pressure, and sustaining operations without excessive dependence on external funding.

Prior studies further suggest that firms anticipating future investment opportunities tend to preserve financial slack in order to maintain borrowing capacity and financing flexibility (Marchica & Mura, 2010). Greater financial flexibility may therefore reduce underinvestment risk and support long-term growth during periods of economic uncertainty. However, excessive financial slack may also create agency-related concerns. Jensen (1986) argues that abundant financial resources may encourage inefficient investment decisions that prioritize managerial interests over shareholder value. This implies that the performance effects of financial flexibility may depend on how effectively available resources are utilized within firms. Overall, prior evidence indicates that financially adaptable firms generally exhibit stronger performance during periods of economic instability (Aktas et al., 2015; Nguyen et al., 2025). This perspective highlights the importance of examining the internal mechanisms through which financial flexibility translates into firm performance.

H_1: *Financial flexibility positively affects firm performance.*

2.3 Financial Flexibility and Operating Cash Flow Efficiency

Firms with greater financial adaptability are generally more capable of maintaining liquidity and sustaining operations under changing economic conditions. Companies holding sufficient liquid assets and moderate debt levels are typically in a stronger position to support routine operations, manage working capital efficiently, and reduce pressure arising from fixed financing commitments. These conditions may strengthen firms' ability to generate stable operating cash flows from business activities.

Operating cash flow efficiency reflects firms' ability to convert operational activities into sustainable cash inflows. Compared with accounting earnings, operating cash flow provides a clearer indication of internally available funding capacity. Firms with stronger cash inflows are generally less dependent on external financing and better able to sustain operational activities during periods of financial pressure. Prior evidence from emerging markets also suggests that firms with stronger financial conditions are generally more capable of maintaining stable cash flow generation under uncertain economic environments (Nguyen, 2024). Accordingly, firms with greater financial flexibility are likely to exhibit stronger operating cash flow efficiency.

H2: *Financial flexibility positively affects operating cash flow efficiency.*

2.4 Operating Cash Flow Efficiency and Firm Performance

Operating cash flow efficiency contributes to firm performance by reflecting firms' ability to generate stable cash inflows from operating activities. Compared with accounting earnings, operating cash flow provides a more direct indication of firms' operational strength and available funding support (Ball & Nikolaev, 2022). Firms maintaining stable cash inflows are generally better able to support investment activities, sustain business operations, and adapt to uncertain economic conditions. Prior studies further suggest that stronger operating cash flow contributes positively to profitability and long-term organizational stability (Stewart, 1995; Aktas et al., 2015).

Stable internally generated cash flows may also reduce reliance on costly external financing while supporting strategic decision-making and operational expansion. In emerging-market environments, where access to external capital may become more limited during periods of economic pressure, internal cash inflows may play an increasingly important role in sustaining organizational performance. Overall, prior evidence indicates that stronger operating cash flow contributes positively to firm performance by supporting operational continuity and financial adaptability.

H3: *Operating cash flow efficiency positively affects firm performance.*

2.5 The Mediating Role of Operating Cash Flow Efficiency

Although prior research generally supports the positive relationship between financial flexibility and firm performance, the underlying mechanisms remain relatively underexplored. Existing research has mainly emphasized governance quality and investment efficiency as factors shaping the relationship between financial flexibility and organizational performance (Wu et al., 2025). Extending this perspective, operating cash flow efficiency is proposed as an internal mechanism through which financial flexibility contributes to firm performance. Unlike governance-related explanations that primarily emphasize monitoring and resource allocation, operating cash flow efficiency reflects firms' ability to convert available financial support into sustainable cash inflows from business activities.

From the Resource-Based View and internal efficiency perspectives, financial flexibility contributes to performance when available resources are utilized effectively within firms. Organizations with stronger liquidity conditions are generally better positioned to maintain stable business activities and internally generated cash inflows, which may subsequently strengthen performance outcomes. This perspective suggests that operating cash flow efficiency helps explain how financial flexibility influences firm performance. Examining this mediating effect may improve understanding of how financial flexibility influences firm performance in emerging-market settings.

H4: *Operating cash flow efficiency mediates the relationship between financial flexibility and firm performance.*

Based on the preceding discussion, financial flexibility is expected to influence corporate outcomes both directly and indirectly through operating cash flow efficiency. As an internal transmission channel, operating cash flow efficiency reflects firms' ability to convert financial capacity into sustainable operational outcomes. Figure 1 outlines the research framework.

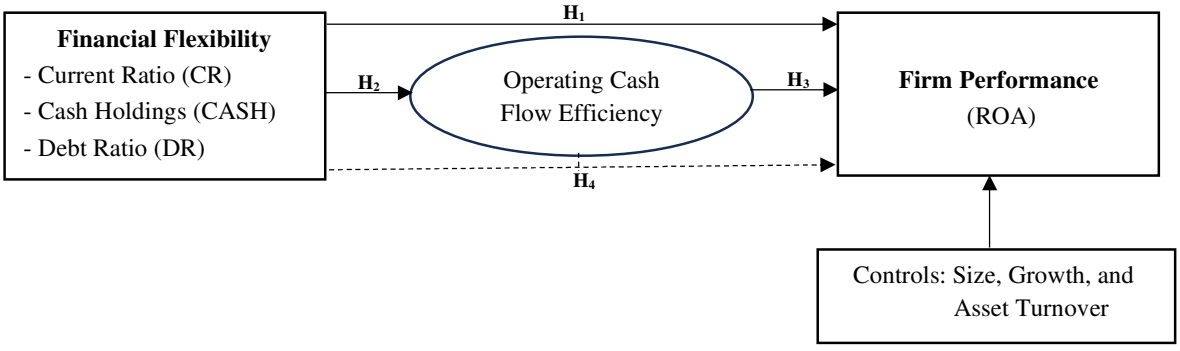

Fig. 1. Research framework.

3. Research design and methodology

3.1 Data description

This study employs firm-level observations from companies listed on the Stock Exchange of Thailand over the 2021–2025 period. Accounting and financial information are retrieved from the Bloomberg L.P. database. To mitigate the influence of

outliers, continuous variables are winsorized at the 1st and 99th percentile levels. Firms operating in the financial sector, such as banks, insurance businesses, and investment funds, are omitted due to their distinct financial characteristics and regulatory frameworks relative to non-financial firms. Observations with incomplete accounting information are removed from the dataset. The final dataset comprises 2,482 firm-year observations representing 563 companies, as summarized in Table 1.

Table 1
Sample Selection

Description	Observations
Total observations before screening	3,366
Less: Financial-sector observations	(355)
Less: Missing financial data	(529)
Final dataset	2,482

3.2 Variable Measurement

The analysis incorporates variables related to firm performance, liquidity, operating cash flow, and firm characteristics. Variable definitions and measurement procedures are presented in Table 2.

Table 2
Variable Definitions

Variable	Measurement
Return on Assets (ROA)	Net income scaled by total assets
Current Ratio (CR)	Ratio of current assets to current liabilities
Cash Holdings (CASH)	Cash and cash equivalents scaled by total assets
Debt Ratio (DR)	Total debt relative to total assets
Operating Cash Flow to Total Assets (CFO_TA)	Operating cash flow scaled by total assets
Firm Size (SIZE)	Natural logarithm of firm total assets
Firm Growth (GROWTH)	$(Sales_t - Sales_{t-1}) / Sales_{t-1}$
Asset Turnover (TAT)	Sales scaled by total assets

3.3 Research models

The following panel-data models examine the relationships among financial flexibility, operating cash flow efficiency, and firm performance.

Model 1: Financial Flexibility and Firm Performance

$$ROA_{it} = \beta_0 + \beta_1 CR_{it} + \beta_2 CASH_{it} + \beta_3 DR_{it} + \beta_4 SIZE_{it} + \beta_5 GROWTH_{it} + \beta_6 TAT_{it} + \varepsilon_{it}$$

Model 2: Financial Flexibility and Operating Cash Flow Efficiency

$$CFO_TA_{it} = \beta_0 + \beta_1 CR_{it} + \beta_2 CASH_{it} + \beta_3 DR_{it} + \beta_4 SIZE_{it} + \beta_5 GROWTH_{it} + \beta_6 TAT_{it} + \varepsilon_{it}$$

Model 3: Operating Cash Flow Efficiency and Firm Performance

$$ROA_{it} = \beta_0 + \beta_1 CFO_TA_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \beta_4 TAT_{it} + \varepsilon_{it}$$

Model 4: Mediating Effect of Operating Cash Flow Efficiency

$$ROA_{it} = \beta_0 + \beta_1 CR_{it} + \beta_2 CASH_{it} + \beta_3 DR_{it} + \beta_4 CFO_TA_{it} + \beta_5 SIZE_{it} + \beta_6 GROWTH_{it} + \beta_7 TAT_{it} + \varepsilon_{it}$$

3.4 Estimation Technique

Fixed-effects panel regressions are used to control for unobserved firm heterogeneity (Wooldridge, 2010; Baltagi, 2021). The Hausman test supports the fixed-effects specification ($p < 0.05$). Continuous variables are winsorized at the 1st and 99th percentiles before estimation. The models additionally include firm-clustered robust errors and year indicators.

4. Main Findings

4.1 Descriptive Statistics

Table 3 presents the descriptive statistics of the study variables. The results show considerable variation across firms, particularly in profitability and firm growth. ROA exhibits relatively wide dispersion, indicating differences in firm performance across the sample.

Table 3
Descriptive Statistics

Variable	Mean	Median	Min	Max	Std. Dev.	Skewness	Kurtosis
ROA	3.492	3.195	-23.701	24.178	7.313	-0.318	2.220
CR	2.532	1.623	0.23	16.617	2.693	2.747	9.063
CASH	0.084	0.055	0.002	0.462	0.087	2.045	4.768
DR	0.245	0.222	0.000	0.667	0.194	0.397	-1.042
CFO_TA	0.065	0.062	-0.194	0.314	0.089	0.059	0.697
SIZE	9.901	9.803	8.724	11.86	0.676	0.705	0.153
GROWTH	0.110	0.030	-0.687	3.577	0.512	3.977	22.381
TAT	0.735	0.615	0.036	3.253	0.606	1.798	4.159

Among the financial flexibility variables, CR and CASH display relatively high skewness, suggesting uneven liquidity distribution among firms, whereas DR appears more symmetrically distributed. CFO_TA shows relatively low skewness and kurtosis, indicating a reasonably stable distribution for the panel-data analysis. Among the control variables, GROWTH exhibits substantial variability, while SIZE remains comparatively stable across firms. Overall, the distributional characteristics support the use of panel-data estimation with firm-clustered robust standard errors.

Table 4
Correlation Matrix

Variable	ROA	CR	CASH	DR	CFO_TA	SIZE	GROWTH	TAT
ROA	1							
CR	0.110***	1						
CASH	0.214***	0.432***	1					
DR	-0.257***	-0.488***	-0.384***	1				
CFO_TA	0.510***	0.025	0.239***	-0.216***	1			
SIZE	0.041*	-0.271***	-0.177***	0.466***	-0.027	1		
GROWTH	0.146***	-0.059*	0.005	0.015	0.007	0.055*	1	
TAT	0.293***	-0.060*	0.070*	-0.174***	0.246***	-0.145***	0.085***	1

Note: *** p < 0.01, ** p < 0.05, * p < 0.10.

Table 4 presents the pairwise correlations among the variables. The observed relationships are generally consistent with theoretical expectations. ROA is positively associated with the current ratio, cash holdings, operating cash flow, and asset turnover, whereas leverage (DR) is negatively associated with ROA. The pairwise correlations do not indicate severe multicollinearity concerns. To further assess multicollinearity, variance inflation factors (VIFs) are examined. The results show that all VIF values range from 1.015 to 1.729, well below the commonly accepted threshold of 10. This suggests that multicollinearity is unlikely to materially affect the reliability of the regression estimates.

Table 5
Fixed-Effects Regression Results

Variables	Model 1	Model 2	Model 3	Model 4
CR	0.178	-0.003**	-	0.223
	(1.272)	(-2.088)		(1.537)
CASH	15.546***	0.285***	-	11.846***
	(4.688)	(7.082)		(3.529)
DR	-16.383***	-0.195***	-	-13.854***
	(-6.013)	(-5.463)		(-4.927)
CFO_TA	-	-	18.041***	13.001***
			(7.509)	(5.41)
SIZE	14.306***	0.065*	10.412***	13.456***
	(6.159)	(1.928)	(3.552)	(5.724)
GROWTH	1.309***	-0.001	1.310***	1.317***
	(5.169)	(-0.155)	(5.155)	(5.392)
TAT	7.080***	0.093***	6.236***	5.869***
	(5.839)	(5.356)	(5.211)	(5.061)
DYear_2022	0.737***	-0.032***	1.551***	1.149***
	(2.832)	(-7.587)	(5.455)	(4.274)
DYear_2023	-1.123***	-0.035***	-0.141	-0.666**
	(-3.353)	(-7.592)	(-0.384)	(-1.997)
DYear_2024	-1.704***	-0.022***	-0.924**	-1.412***
	(-4.804)	(-4.825)	(-2.228)	(-4.050)
DYear_2025	-2.151***	-0.023***	-1.347***	-1.853***
	(-6.022)	(-4.645)	(-3.315)	(-5.286)
Observations	2,482	2,482	2,482	2,482

Variables	Model 1	Model 2	Model 3	Model 4
Firms	563	563	563	563
Within R^2	0.251	0.162	0.219	0.278
F-statistic	31.957***	27.542***	36.128***	39.346***

Note: *** p < 0.01, ** p < 0.05, * p < 0.10.

Table 5 presents the fixed-effects estimation results. Cash holdings are positively associated with firm performance, whereas leverage (DR) exhibits a significant negative association. The current ratio shows no significant direct relationship with performance, while operating cash flow efficiency is positively related to it. Moreover, the reduced magnitudes of the CASH and DR coefficients after incorporating CFO_TA, while remaining statistically significant, provide evidence consistent with partial mediation.

Table 6
Robustness Check Using ROE

Variables	ROE	ROE with Mediator
CR	0.035 (0.144)	0.105 (0.413)
CASH	34.340*** (4.732)	28.568*** (3.774)
DR	-46.780*** (-6.510)	-42.834*** (-5.550)
CFO_TA	-	20.284*** (3.589)
SIZE	28.920*** (4.400)	27.594*** (4.123)
GROWTH	3.071*** (4.970)	3.082*** (5.037)
TAT	14.869*** (5.541)	12.979*** (4.953)
DYear_2022	1.333** (2.296)	1.976*** (3.334)
DYear_2023	-2.454*** (-3.286)	-1.742** (-2.296)
DYear_2024	-3.787*** (-4.346)	-3.330*** (-3.872)
DYear_2025	-5.304*** (-5.682)	-4.839*** (-5.157)
Observations	2,482	2,482
Firms	563	563
Within R^2	0.244	0.256
F-statistic	30.419***	34.224***

Note: *** p < 0.01, ** p < 0.05, * p < 0.10.

Table 6 presents the robustness analysis using ROE as an alternative performance measure. The findings remain broadly consistent with the baseline results in Table 5. CASH continues to exhibit a positive association, whereas DR remains negatively associated across the specifications, while CR does not show statistical significance. The inclusion of CFO_TA also reduces the coefficients of CASH and DR, providing additional evidence consistent with partial mediation. Overall, the findings remain qualitatively unchanged under the alternative performance specification.

5. Discussion

5.1 Financial Flexibility and Firm Performance

Firms with greater financial flexibility generally exhibit stronger performance. Among the examined measures, cash holdings consistently exhibit a positive effect, whereas leverage negatively affects profitability. By contrast, the current ratio remains statistically insignificant, suggesting that immediately available liquid assets provide greater explanatory relevance than broader accounting-based liquidity indicators.

The positive effect of cash holdings supports the Resource-Based View (RBV), which considers liquid assets as strategic resources that strengthen firms' adaptability and resilience under uncertain conditions (Barney, 1991; Gamba & Triantis, 2008; Denis, 2011). Firms holding larger cash reserves are generally more capable of maintaining operations, responding to financial pressure, and pursuing investment opportunities during periods of economic instability. This interpretation is

consistent with prior studies reporting that financially adaptable firms exhibit stronger performance in emerging-market environments (Nguyen et al., 2025; Wu et al., 2025). The negative effect of leverage is consistent with Trade-off Theory, which emphasizes the financial distress costs associated with excessive debt (Kraus & Litzenberger, 1973). High leverage may weaken firms' capacity to respond effectively to changing business conditions. The findings also imply that liquidity indicators differ in their ability to explain performance outcomes. While prior studies highlight the importance of maintaining financial flexibility for investment capacity (Marchica & Mura, 2010), the present findings suggest that readily deployable liquid resources may be more relevant to firm performance than broader current asset measures in an emerging-market setting.

5.2 Financial Flexibility and Operating Cash Flow Efficiency

The evidence suggests that firms with stronger liquidity positions and lower leverage are generally better able to maintain stable internally generated funds. Cash holdings exhibit a positive association with operating cash flow efficiency, whereas leverage demonstrates a negative effect. By contrast, the current ratio shows only a weak negative association, implying that broader accounting-based liquidity measures may not accurately reflect readily available financing capacity. Effective liquidity and working capital management are important for supporting day-to-day operations and maintaining firms' financial capacity (Kiymaz et al., 2024). The negative relationship associated with the current ratio further highlights the distinction between accounting liquidity and usable financial capacity because inventories and receivables may not provide immediate funding support. The evidence also suggests that liquidity should not be viewed solely as a static accounting indicator, but also as a factor supporting firms' operational capability during periods of economic pressure. This interpretation is consistent with prior evidence suggesting that firms with stronger financial conditions are generally better positioned to sustain business activities under uncertain environments (Nguyen, 2024; Ebben & Johnson, 2011).

5.3 Operating Cash Flow Efficiency and Firm Performance

Stronger operational cash inflows are associated with superior profitability. Firms with higher operating cash flow relative to total assets exhibit stronger performance in the ROA model, with consistent evidence from the ROE robustness analysis, indicating that internally available financial capacity plays an important role in supporting investment activities and shareholder-oriented outcomes (Stewart, 1995; Aktas et al., 2015). The significant positive association observed in the ROE robustness analysis further suggests that efficient cash utilization may also be important for enhancing shareholder returns. In addition, stable operational funding may reduce external financing pressure and strengthen long-term business stability.

5.4 The Mediating Role of Operating Cash Flow Efficiency

Internal cash generation appears to clarify how financial conditions shape firm performance. After incorporating the mediator into the regression models, the coefficients associated with liquidity and leverage decline relative to the baseline estimations, providing evidence consistent with partial mediation. This pattern suggests that financial capacity influences performance both directly and through internally generated operating funds.

The results further indicate that available financial resources create value when effectively utilized within business activities rather than functioning solely as passive reserves. This interpretation is consistent with prior studies emphasizing that the value of financial flexibility depends on firms' ability to deploy available financial resources effectively (Gamba & Triantis, 2008; Marchica & Mura, 2010; Nguyen et al., 2025). The mediation pattern remains consistent in the ROA model and is further supported by the ROE robustness analysis, suggesting that operating cash flow contributes to different dimensions of firm performance.

6. Conclusion and Implications

Firms with stronger financial flexibility and balanced financing structures generally exhibit superior performance in emerging-market environments. The empirical evidence highlights the importance of internally available cash resources in supporting resilience, operational continuity, and shareholder-oriented outcomes. In particular, immediately deployable liquid assets appear more relevant than broader accounting-based liquidity indicators in explaining firm performance. Financial capacity creates value not merely through its availability, but through firms' ability to utilize available resources effectively within business activities. This perspective contributes to prior literature by emphasizing effective operational funding management as an important contributor to long-term firm resilience. Robustness analysis using ROE produces findings consistent with the main estimations, supporting the overall stability of the results. From a managerial perspective, maintaining adequate liquidity, balanced leverage structures, and stable operational funding may strengthen firms' ability to withstand financial pressure and sustain long-term performance. For investors, cash-based indicators may provide additional insight into firms' underlying resilience beyond conventional accounting measures.

This study has several limitations. The analysis focuses on firms within a single emerging-market setting and primarily relies on accounting-based measures. Future research may extend the analysis to alternative institutional settings, incorporate

market-based measures, or apply more advanced econometric approaches to further examine the underlying mechanisms linking financing conditions to performance outcomes.

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