

## Capital Structure and Financial Performance: Evidence from Listed Financial Sector Firms in ASEAN

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### ABSTRACT

This study investigates the relationship between capital structure and financial performance among 1,483 listed firms in the TRBC Financials sector across Indonesia, Malaysia, and Singapore. Capital structure is measured using a composite leverage index, while financial performance is proxied by retained earnings scaled to total assets — a measure that captures cumulative rather than current-period profitability. Simple linear regression via SPSS yields no statistically significant association ( $R = 0.002$ ;  $R^2 < 0.001$ ;  $F = 0.005$ ;  $p = 0.945$ ;  $B = 0.002$ ;  $\beta = 0.002$ ). The adjusted  $R^2$  is negative ( $-0.001$ ), indicating that the model offers no predictive value beyond the unconditional mean of the dependent variable. Three factors account for this null result: heterogeneity of business models within the broad TRBC classification, the cumulative nature of the retained-earnings proxy, and the moderate leverage levels that prevail across ASEAN-listed financial firms. The findings align with the institutional contingency perspective and point toward multivariate panel designs as the appropriate empirical strategy for future research in this area.

**Keywords:** *Capital Structure; Financial Performance; Asean; Leverage; Simple Linear Regression.*

**Contribution/Originality:** This study contributes to the capital structure literature by providing evidence that capital structure has no statistically significant effect on financial performance in a large cross-sectional sample of 1,483 listed financial sector firms across Indonesia, Malaysia, and Singapore. Its originality lies in the use of a broad TRBC Financials sector sample, a composite leverage index that includes firms with negative equity, and the demonstration that aggregate bivariate analysis may fail to capture theoretically expected relationships under conditions of regulatory and institutional heterogeneity.

## 1. INTRODUCTION

The question of how firms finance their operations and whether that choice matters for performance has generated an extensive body of scholarship since Modigliani and Miller (1958) first proposed that capital structure is irrelevant under idealised market

conditions. Decades of subsequent research have consistently shown that real-world frictions including taxation, bankruptcy costs, information asymmetry, and agency conflicts give financing decisions genuine economic consequences (Esghaier, 2024; Qin, 2024). For financial institutions, these consequences are amplified: banks and other financial entities are structurally leveraged, and their capacity to generate returns is directly tied to how they balance deposits, debt, and equity.

The three markets examined in this study Indonesia, Malaysia, and Singapore together represent a substantial share of ASEAN banking assets, yet each operates under a markedly different regulatory architecture. Indonesia's financial sector is supervised by the Otoritas Jasa Keuangan (OJK); Malaysia maintains a dual conventional-Islamic banking system governed by Bank Negara Malaysia (BNM); and Singapore enforces one of Asia's most stringent supervisory regimes through the Monetary Authority of Singapore (MAS) (AMRO, 2024; International Monetary Fund, 2024). The post-crisis Basel III regulatory transformation has reshaped capital adequacy requirements across all three jurisdictions (Le et al., 2023). These institutional differences mean that capital structure decisions are made against structurally different backdrops a fact that complicates cross-country generalisation and makes comparative analysis particularly instructive.

The empirical literature on the leverage-performance relationship remains unsettled. Positive effects have been documented in some markets (Nguyen et al., 2025; Tian et al., 2024), negative effects in others (Khan & Qasem, 2024; Mutumanikam & Adelin, 2024), and null or context-dependent results elsewhere (Ghardallou, 2022; Ie et al., 2025). This inconsistency reflects the fact that the relationship between leverage and financial performance is shaped by institutional arrangements, regulatory regimes, and firm-level characteristics that vary considerably across settings. The absence of consensus in the literature justifies examining ASEAN economies where regulatory regimes differ sharply even among neighbouring countries as a laboratory for studying this contingency.

Against this backdrop, the present study uses simple linear regression to test whether a composite capital structure measure predicts financial performance across 1,483 firm-level cross-sectional observations drawn from the TRBC Financials sector in Indonesia, Malaysia, and Singapore. Two specific objectives guide the analysis: (1) to determine whether capital structure has a statistically significant effect on financial performance in listed ASEAN financial sector firms; and (2) to assess, at a descriptive level, whether any such relationship is consistent across the three countries given their distinct institutional environments.

### **1.1 Trade-off Theory**

The trade-off theory, formalised by Kraus and Litzenberger (1973) and extended by Myers (1984), holds that firms select an optimal capital structure by balancing the tax-shield benefits of debt against the expected costs of financial distress. Firms that overshoot the optimum face rising bankruptcy and distress costs that erode operating returns. Esghaier (2024) finds strong empirical support for this mechanism in a panel of

U.S. industrial firms, confirming that leverage determinants respond to tax incentives and distress risk in the directions the theory predicts. Qin (2024) reaches parallel conclusions for commercial banks, where regulatory capital requirements set a floor on equity but leave room for strategic leverage decisions above the minimum.

### **1.2 Pecking Order Theory**

Myers and Majluf (1984) argue that information asymmetry between insiders and outside investors creates a financing hierarchy in which retained earnings are preferred first, then debt, with external equity as a last resort. A notable empirical implication is a negative correlation between profitability and leverage: profitable firms accumulate internal funds and borrow less not because debt is costly, but because they do not need it. Abdeljawad and Jaradat (2025) confirm this pattern in an emerging-market sample, finding that higher profitability is consistently associated with lower leverage, a relationship they trace to the preference for internal financing rather than to any distress mechanism.

### **1.3 Agency Theory**

Jensen and Meckling (1976) identify conflicts of interest among shareholders, managers, and creditors as a source of capital structure decisions. Debt can serve as a disciplining device forcing managers to generate cash flows sufficient to service obligations but it also creates incentives for asset substitution and underinvestment when distress looms. In banking, an additional agency risk arises from deposit insurance: insured depositors have little incentive to monitor risk-taking, which can encourage shareholders to exploit the implicit government subsidy. Stoiljković et al. (2024) illustrate the performance consequences of these agency frictions in a sample of Serbian manufacturing companies, showing that high-leverage firms bear measurable agency costs that reduce financial performance.

### **1.4 Regulatory Capital Theory**

For financial institutions, capital structure is not determined by market forces alone; it is bounded by prudential regulation. Berger, Herring, and Szego (1995) were among the first to examine this regulatory dimension systematically, arguing that minimum capital requirements impose a floor on equity ratios that modifies the leverage-performance relationship relative to non-financial firms. Le et al. (2023) offer direct empirical evidence from Australian and British banks under Basel III, finding that banks meeting higher capital standards record better profitability partly because adequate capitalisation lowers funding costs and partly because it signals creditworthiness to counterparties. This evidence is directly relevant here, since all three sample countries enforce Basel-aligned capital frameworks, meaning regulatory homogenisation of leverage may itself attenuate any bivariate signal in the data.

## **1.5 Hypothesis Development**

Drawing on the four theoretical frameworks, two research hypotheses are formulated. The first reflects the convergent predictions of trade-off, pecking order, and agency theories, each of which forecasts a negative leverage-performance relationship through a different mechanism:

H1: Capital structure has a statistically significant negative effect on financial performance among listed financial sector firms in Indonesia, Malaysia, and Singapore.

The second hypothesis reflects the institutional contingency view that the leverage-performance relationship is moderated by country-level regulation, market structure, and competitive dynamics (AMRO, 2024; Ghardallou, 2022). Because the present study's bivariate design does not include country interaction terms or fixed effects, H2 is framed as an exploratory proposition that descriptive evidence can illuminate but not formally test:

H2 (Exploratory): The direction and magnitude of the capital structure-performance relationship are likely to vary across Indonesia, Malaysia, and Singapore, reflecting differences in regulatory stringency, institutional development, and market structure.

## **METHOD**

### **2.1 Research Design**

This study adopts a quantitative, cross-sectional research design. Data were collected from publicly available financial databases covering firms listed on the Indonesia Stock Exchange (IDX), Bursa Malaysia, and Singapore Exchange (SGX). The sample is restricted to firms classified under the Thomson Reuters Business Classification (TRBC) Financials economic sector, which encompasses commercial banks, investment firms, insurance companies, securities firms, and diversified financial holding entities. Importantly, the sample is broader than commercial banking alone a point that bears directly on the interpretation of the results. All figures are denominated in USD to ensure cross-country comparability.

### **2.2 Population and Sample**

The study population comprises all publicly listed TRBC Financials sector firms in the three countries for the most recent fiscal year available. Firms were excluded if they had missing balance-sheet data, reported zero or negative total assets, or recorded zero or negative equity. After filtering, the usable sample comprises 1,483 firm-level observations. This figure substantially exceeds the minimum sample size required for adequate statistical power in bivariate regression analysis (Cohen, 1988), providing confidence in the stability of the regression estimates.

### **2.3 Variable Measurement**

The independent variable, Capital Structure (CS), is operationalised as a composite leverage index derived from each firm's debt position relative to its asset and equity base.

The variable assigns negative values to firms whose accumulated equity deficits make the standard debt-to-equity computation negative a condition found in approximately 31 distressed or restructuring entities in the sample. This accounts for the negative mean and extreme lower tail of the CS distribution observed in the descriptive statistics.

The dependent variable, Financial Performance (FP), is proxied by retained earnings scaled to total assets. This proxy captures cumulative profitability the accumulation of net income since the firm's founding rather than performance in any single period. A practical consequence is that firms with large historical deficits will record strongly negative FP values irrespective of recent earnings, while firms with long histories of profitable operation will show elevated FP even in down years. Findings should therefore be interpreted as characterising the relationship between leverage and accumulated historical earnings, not current-year financial performance. This is an acknowledged limitation discussed further in the conclusion.

**Table 1. Variable Definitions and Measurement**

Variable	Code	Operationalization	Type	Expected Sign	Theory
Capital Structure	CS	Composite leverage index (debt relative to asset and equity base)	Independent	(-)	TOT, PO, AT
Financial Performance	FP	Retained earnings / total assets (cumulative profitability proxy)	Dependent	—	—

Notes: TOT = Trade-Off Theory; PO = Pecking Order Theory; AT = Agency Theory. Expected sign per H1. Negative CS values arise when total equity is negative (technical insolvency).

The table above presents the definition and measurement of the variables employed in this study. Capital Structure (CS) is operationalized using a composite leverage index, which reflects the proportion of total debt relative to the firm's asset and equity base. This measure captures the firm's financing decisions and its reliance on external funding. From a theoretical perspective, the expected negative relationship between capital structure and financial performance is grounded in Trade-Off Theory, Pecking Order Theory, and Agency Theory. Excessive leverage may increase financial distress costs and agency conflicts, thereby reducing firm performance.

Financial Performance (FP), as the dependent variable, is measured by the ratio of retained earnings to total assets, representing cumulative profitability and the firm's capacity to internally generate funds over time. This proxy reflects not only current performance but also historical earnings accumulation, making it a more comprehensive indicator of long-term financial strength. In line with corporate finance theory, firms with higher retained earnings are generally more capable of sustaining operations, financing investments internally, and reducing dependence on external debt.

## **2.4 Analytical Model**

To empirically investigate the impact of capital structure on financial performance, this study specifies a linear regression model that estimates how variations in leverage influence firms' cumulative profitability across observations. The estimation equation is:

$$FP_i = \alpha + \beta(CS_i) + \varepsilon_i$$

Where:

FP is Financial Performance,

CS is Capital Structure,

$\alpha$  is the intercept,

$\beta$  is the slope coefficient,

$\varepsilon_i$  is the residual for firm  $i$ , and the subscript  $i$  indexes individual firms.

The equation is estimated by ordinary least squares (OLS) via SPSS. Statistical significance is evaluated at the conventional 5 percent threshold ( $p < 0.05$ ). H1 is directly testable within this framework. Evidence on H2 is assessed through descriptive disaggregation by country, since the pooled bivariate model does not include interaction terms or country fixed effects.

## **FINDINGS AND DISCUSSION**

### **3.1 Descriptive Statistics**

Table 2 summarises the distributional properties of CS and FP across the full sample. Two features stand out before turning to the regression results and require explicit explanation to avoid misinterpretation. First, the mean of CS is negative ( $-4.872$ ). This is not a data error. The composite leverage index assigns negative values to firms whose total equity has turned negative a condition of technical insolvency found in approximately 31 distressed or restructuring entities within the broad TRBC Financials classification. When total equity is negative, the standard debt-to-equity formulation yields a negative quotient, pulling the sample mean below zero. The extreme minimum ( $-8,219.33$ ) reflects a small number of entities with deeply negative net worth. The very wide standard deviation (213.53) is a direct consequence of this distributional tail.

Second, the mean of FP is also substantially negative ( $-6.280$ ), with the distribution extending to a minimum of  $-6,916.70$ . This pattern follows directly from the retained-earnings proxy: firms with large accumulated losses drag the mean well below zero regardless of their recent earnings trajectory. The right tail is bounded near 0.94, corresponding to the most consistently profitable firms in the sample. This left-skewed distribution with extreme lower-tail outliers is characteristic of cumulative profitability proxies applied to broad financial-sector samples spanning multiple countries with different accounting histories and institutional environments (Mutumanikam & Adelin, 2024; Ie et al., 2025).

**Table 2. Descriptive Statistics (N = 1,483)**

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Capital Structure (CS)	1,483	-8,219.33	141.19	-4.872	213.529
Financial Performance (FP)	1,483	-6,916.70	0.94	-6.280	180.640
Valid N (listwise)	1,483				

Source: SPSS output, TRBC Financials sector data — Indonesia, Malaysia, and Singapore. CS = composite leverage index; FP = retained earnings / total assets.

### 3.2 Model Summary

Table 3 presents the fit statistics for the regression of FP on CS. The bivariate correlation ( $R = 0.002$ ) is negligible, and the coefficient of determination ( $R^2 = 0.000$ ) indicates that CS accounts for less than one-tenth of one percent of the variance in FP. The adjusted  $R^2$  of  $-0.001$  is the mathematically expected outcome when the F-statistic is non-significant: the degrees-of-freedom penalty applied in the adjusted formula pushes the estimate below zero, confirming that the model performs no better than simply predicting the sample mean for every observation. Independently, the standard error of the estimate (180.701) virtually matches the unconditional standard deviation of FP (180.640), confirming the absence of any explanatory contribution from CS.

**Table 3. Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.002 <sup>a</sup>	.000	-.001	180.701

<sup>a</sup> Predictors: (Constant), Capital\_Structure.

### 3.3 ANOVA

The ANOVA results in Table 4 confirm that the overall regression model is not statistically significant ( $F = 0.005$ ;  $p = 0.945$ ). The regression sum of squares (154.138) is trivial relative to the residual sum of squares (48,358,784.484), meaning that CS captures an immeasurably small fraction of total variation in FP. The null hypothesis that the population slope coefficient equals zero cannot be rejected at any conventional significance level.

**Table 4. ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	154.138	1	154.138	0.005	.945 <sup>b</sup>
	Residual	48,358,784.484	1,481	32,652.792		
	Total	48,358,938.622	1,482			

<sup>a</sup>Dependent Variable: Financial\_Performance.

<sup>b</sup> Predictors: (Constant), Capital\_Structure.

### 3.4 Regression Coefficients

Table 5 reports the unstandardised and standardised regression coefficients. The intercept ( $-6.273$ ;  $SE = 4.694$ ;  $t = -1.336$ ;  $p = 0.182$ ) is not statistically significant. The slope on CS ( $B = 0.002$ ;  $SE = 0.022$ ;  $\beta = 0.002$ ;  $t = 0.069$ ;  $p = 0.945$ ) is positive in sign opposite to the negative direction predicted by all four theoretical frameworks but negligible in magnitude. The standardised coefficient of 0.002 implies that a one-standard-deviation shift in CS is associated with only 0.2 percent of a standard-deviation change in FP. This effect size is, for all practical purposes, indistinguishable from zero.

**Table 5. Regression Coefficients<sup>a</sup>**

Model		B	Std. Error	Beta ( $\beta$ )	t	Sig.
1	(Constant)	-6.273	4.694		-1.336	.182
	Capital_Structure	.002	.022	.002	.069	.945

<sup>a</sup> Dependent Variable: Financial\_Performance.

### 3.5 Discussion

#### H1: Capital Structure and Financial Performance

The regression results do not support H1. Capital structure shows no statistically significant effect on financial performance ( $B = 0.002$ ;  $p = 0.945$ ), and the direction of the coefficient is positive opposite to the negative relationship predicted by trade-off, pecking order, and agency theories (Abdeljawad & Jaradat, 2025; Esghaier, 2024; Stoiljković et al., 2024). Given how close the coefficient is to zero and how far the p-value is from conventional thresholds, no meaningful directional inference can be drawn from the data.

Three factors, operating together, account for this null outcome. The first is sample heterogeneity. The TRBC Financials classification pools commercial banks, insurers, investment firms, and holding companies entities whose leverage-performance dynamics differ substantially. When these sub-sectors are combined in a single regression, opposing effects tend to offset one another, leaving an aggregate coefficient near zero (Khan & Qasem, 2024; Ndruru & Ananda, 2025). Future research that stratifies by financial sub-sector is likely to recover more interpretable and theoretically consistent estimates.

The second factor is the choice of performance proxy. Retained earnings reflect cumulative profitability since a firm's founding, not performance in the period when current leverage decisions were made. A firm that was highly leveraged in prior years but profitable in recent ones may nonetheless carry a deeply negative retained-earnings figure inherited from earlier losses. This temporal mismatch weakens the contemporaneous correlation between CS and FP and is likely responsible for a portion of the near-zero association observed here (Nguyen et al., 2025).

The third factor is the moderate leverage environment. Trade-off theory predicts that distress costs become performance-relevant only beyond a critical leverage

threshold. Most firms in the sample operate within a range where Basel-aligned regulatory capital floors keep leverage relatively moderate; within this range, marginal shifts in leverage carry little incremental impact on profitability (Esghaier, 2024; Mensah & Bein, 2025). This interpretation is consistent with Ie et al. (2025), who find no significant direct effect of capital structure on ROA or ROE in Indonesian commercial banks, and with Ghardallou (2022), who shows that leverage effects are highly heterogeneous across profitability quantiles and effectively cancel out in pooled aggregate regressions.

## H2: Cross-Country Heterogeneity (Exploratory)

H2 is offered as an exploratory proposition, and the present bivariate design does not allow for its formal statistical test. Interaction terms or sub-sample Chow tests the standard tools for cross-group coefficient comparison lie beyond the scope of the current model and are recommended as a priority for subsequent research.

Nonetheless, the descriptive statistics are suggestive of genuine country-level heterogeneity. The very wide dispersion in both CS (SD = 213.53) and FP (SD = 180.64) in the pooled sample reflects real institutional diversity that a single aggregate coefficient cannot capture. Indonesia's developing regulatory framework under OJK, Malaysia's dual banking system under BNM, and Singapore's rigorous MAS supervision create structurally distinct leverage-performance environments (AMRO, 2024; International Monetary Fund, 2024).

Prior literature confirms that these institutional differences produce measurable variation in capital structure outcomes: Indonesian banks carry more variable leverage; Malaysian banks operate within a competitive but well-regulated dual system; and Singaporean entities concentrate toward lower-leverage, higher-capital profiles (Ie et al., 2025; Ponziani & Theola, 2025). That a pooled bivariate coefficient fails to detect these differences is, in itself, consistent with the heterogeneity the hypothesis anticipates.

## CONCLUSION

This study examined whether capital structure predicts financial performance in a cross-sectional sample of 1,483 listed financial sector firms from Indonesia, Malaysia, and Singapore. The regression results are unambiguous: no statistically significant relationship is detected ( $B = 0.002$ ;  $p = 0.945$ ;  $R^2 < 0.001$ ), and the model accounts for essentially none of the variation in the dependent variable. Three compounding factors explain this outcome sub-sector heterogeneity within the broad TRBC Financials classification, temporal mismatch between the composite leverage measure and the cumulative retained-earnings proxy, and the moderate leverage levels that Basel-aligned capital regulation enforces across the sample.

The null finding is theoretically instructive rather than simply negative. It demonstrates that the leverage-performance nexus predicted by trade-off, pecking order, agency, and regulatory capital theories cannot be recovered from aggregate bivariate cross-sectional analysis when samples are institutionally heterogeneous. This points directly toward panel data designs with country fixed effects, sub-sector stratification,

and current-period earnings measures as the appropriate empirical strategy for this research question.

For regulators, the results suggest that blanket leverage caps are unlikely to yield immediate and uniform profitability improvements across ASEAN financial sectors; governance-focused and firm-type-differentiated capital requirements — as reflected in Indonesia's KBMI framework and Malaysia's risk-based BNM guidelines — are better positioned to influence performance outcomes (Hayati et al., 2026; Le et al., 2023). For practitioners, the findings caution against treating leverage adjustments as a direct and near-term performance lever; performance effects, where they exist, are more likely to emerge over multi-year horizons and at leverage levels that exceed those prevailing in the current sample (Tian et al., 2024; Mensah & Bein, 2025).

Several limitations of the present study warrant acknowledgment and provide a clear agenda for future research. First, the composite CS variable conflates multiple leverage dimensions including debt-to-equity and leverage ratios that may have distinct and even opposing effects on performance; future work should decompose leverage into its components and add controls for bank size, non-performing loans, and net interest margins. Second, the retained-earnings proxy should be replaced by directly reported current-year net income to eliminate the temporal mismatch identified above. Third, a multi-year panel would permit analysis of the lagged performance effects of capital structure adjustments documented by Tian et al. (2024) and Mensah and Bein (2025). Fourth, formal testing of H2 requires either interaction models with country dummy variables or sub-sample regressions with Chow tests across the three country groups extensions that this study is unable to pursue within its current bivariate framework.

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