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What Drives the Valuation Premium of ASEAN Banks?

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ABSTRACT

This study examines whether operating profitability, financial leverage, debt-service capacity, cash-flow quality, and balance-sheet liquidity explain within-bank variation in the market valuation of listed banks in Southeast Asia. Using a longitudinal panel of 116 banks from Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam observed over the fiscal years 2016 through 2025, the analysis relates the price-to-book value ratio (PBV) to one-period-lagged operating margin, assets-to-equity, interest coverage, cash-flow margin, and cash-to-deposits, while controlling for bank size. The preferred specification combines bank and period fixed effects with standard errors clustered at the bank level and is estimated on 940 lag-matched observations from 115 banks; robustness checks address regressor timing, non-linear liquidity, balanced-panel composition, and multicollinearity. Descriptive and bivariate evidence reproduces the familiar negative association between reported fundamentals and PBV. However, none of the five hypothesized channels is statistically significant at the 5% level once time-invariant bank heterogeneity and common period shocks are absorbed, and explanatory power remains modest, with a within R^2 of approximately 6%. Country-specific estimates point to potential heterogeneity, with leverage positively associated with valuation in Malaysia and the Philippines and interest coverage negatively associated in Vietnam. At the same time, variance inflation factors of 14.0 and 13.6 indicate that operating margin and cash-flow margin are nearly indistinguishable. The findings suggest that valuation premiums among ASEAN banks are driven mainly by persistent structural and institutional differences rather than by short-run movements in reported ratios, cautioning managers and investors against expecting single-ratio improvements to translate into higher multiples.

Keywords: *bank valuation; price-to-book value; ASEAN banks; panel fixed effects; balance-sheet liquidity; cash-flow quality*

JEL Classification: *G21; G32; G12; O53*

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1. Introduction

Banks are valued not only as intermediaries that transform deposits into loans, but also as institutions whose market worth depends on their capacity to generate sustainable earnings while preserving liquidity and resilience. The price-to-book value ratio (PBV) is particularly informative in banking because book equity is both a regulatory loss-absorbing resource and a central investor benchmark. Persistent discounts to book value therefore signal doubts about future profitability, asset quality, or the credibility of reported capital. In contrast, valuation premiums indicate confidence that a bank can earn returns above its cost of equity. Cross-country evidence shows that bank profitability reflects both bank-specific fundamentals and the institutional and macroeconomic environment (Demirgüç-Kunt & Huizinga, 1999; Pasiouras & Kosmidou, 2007; Athanasoglou, Brissimis, & Delis, 2008; Dietrich & Wanzenried, 2011). Recent global evidence documents a tight connection among bank profitability, market valuation, and resilience: stronger expected profitability and larger capital buffers are associated with higher price-to-book ratios (Caparusso, Lewrick, & Tarashev, 2023). From a valuation perspective, dynamic models emphasize the interaction of profitability, capital, and franchise value. At the same time, empirical evidence also shows that liquidity creation is positively correlated with bank value, although the capital–liquidity relationship varies across bank size classes (Berger & Bouwman, 2009). These findings make valuation a strategic outcome rather than a purely market-based statistic.

This issue is especially relevant in Southeast Asia, where listed banks operate across heterogeneous regulatory regimes, market structures, and stages of financial development. Asian banking evidence indicates that capital affects both profitability and risk, with effects varying across bank types (Lee & Hsieh, 2013). ASEAN banking research has established that bank-specific characteristics, capitalization, costs, and market structure shape profitability and stability (Hamid, 2017), while recent evidence highlights liquidity risk as an important and still evolving dimension of ASEAN banking (Duong, Tran, & Dang, 2025). Bank governance and regulation can also alter risk-taking incentives, implying that identical balance-sheet ratios may be priced differently across institutional settings (Laeven & Levine, 2009). However, profitability, leverage, liquidity, and cash-flow quality may transmit different signals to equity investors. Higher operating margins can indicate pricing power and efficiency; excessive assets relative to equity can magnify both returns and fragility; stronger interest coverage can indicate debt-service capacity; and cash-flow margins and liquid resources can improve confidence in earnings quality and shock absorption. Importantly, operating cash flows have been shown to contain value-relevant information even for banks, challenging the traditional view that bank cash-flow statements have limited usefulness (Burke & Wieland, 2017). Whether these channels jointly explain valuation premiums among ASEAN banks remains an empirical question.

Four gaps motivate the study. First, the established bank-performance literature largely explains accounting profitability rather than equity-market valuation, relating profitability to capitalization, efficiency, size, market structure, and macroeconomic conditions (Demirgüç-Kunt & Huizinga, 1999; Pasiouras & Kosmidou, 2007; Athanasoglou et al., 2008; Dietrich &

Wanzenried, 2011); profitability and valuation, however, are not interchangeable outcomes. Second, leverage-related mechanisms are institutionally contingent rather than universally linear (Laeven & Levine, 2009; Lee & Hsieh, 2013), yet ASEAN-focused work concentrates on profitability, stability, efficiency, or liquidity risk (Hamid, 2017; Duong et al., 2025) without identifying why some banks trade above book value while others remain discounted. Third, bank cash-flow information is value relevant (Burke & Wieland, 2017), but cash-flow quality is rarely integrated with profitability and liquidity in ASEAN bank-valuation models. Fourth, evidence linking profitability, valuation, and resilience is concentrated on global systemically important banks or developed banking systems (Caparusso et al., 2023; Berger et al., 2016), leaving its external validity for the institutionally diverse ASEAN setting uncertain. A multi-country panel that connects operating performance, leverage, debt-service capacity, cash-flow quality, and balance-sheet liquidity to PBV can bridge these otherwise fragmented streams of research.

This study offers five contributions. It shifts the ASEAN banking discussion from accounting performance alone to the market valuation of book equity, using PBV as the principal outcome; it integrates operating profitability, financial leverage, interest coverage, cash-flow quality, and liquidity within one valuation framework rather than testing them separately; it introduces cash-to-deposits and cash-flow margin as investor-relevant signals that complement conventional profitability and capitalization measures; it connects operating cash-flow information—shown to be value relevant in banking (Burke & Wieland, 2017)—with balance-sheet liquidity and market valuation; and it exploits within-bank variation over ten fiscal periods using bank and period fixed effects, supported by lagged regressors, lead-PBV tests, non-linear liquidity specifications, alternative winsorization, country-by-time effects, and a balanced-panel subsample. Collectively, these features provide a more granular explanation of ASEAN bank valuation premiums and help distinguish scalable fundamentals from persistent institutional differences.

Accordingly, this study asks: To what extent do operating profitability, financial leverage, debt-service capacity, cash-flow quality, and balance-sheet liquidity explain within-bank variation in the price-to-book valuation of listed ASEAN banks? A subsidiary question is whether liquidity exhibits a non-linear association with valuation, such that adequate liquid resources support investor confidence but excessive liquidity signals inefficient asset allocation. The preferred empirical model relates PBV to lagged operating margin, assets-to-equity, interest coverage, cash-flow margin, cash-to-deposits, and bank size, while incorporating bank and period fixed effects and bank-level clustered standard errors.

2. Literature Review

Bank valuation can be understood as the market's assessment of whether the resources recorded in book equity can generate sustainable returns after accounting for risk. A PBV above one implies that investors assign a premium to the bank's franchise, expected profitability, customer relationships, and capacity to deploy capital productively; a PBV below one indicates skepticism about future earnings, asset quality, or the reliability of reported capital. Activity-based valuation models show that the composition and persistence of bank assets, liabilities,

income, expenses, and risks explain substantial cross-sectional variation in market-to-book values (Calomiris & Nissim, 2014). International evidence further identifies earnings expectations, asset quality, costs, deposits, capital strength, and persistent bank-specific characteristics as important PBV drivers (Bogdanova, Fender, & Takáts, 2018; Caparusso, Lewrick, & Tarashev, 2023). Accordingly, this study treats PBV as a forward-looking market outcome through which investors jointly price operating performance, financial risk, cash-flow credibility, and liquidity resilience.

2.1. Profitability and Bank Valuation

Profitability is the most direct channel through which a bank can create value above its book equity. Strong operating margins indicate that revenue generation exceeds operating costs by a wider margin and may therefore signal pricing power, cost discipline, and a business model capable of producing distributable earnings. The broader banking literature consistently identifies bank-specific operating conditions and efficiency as determinants of profitability (Demirgüç-Kunt & Huizinga, 1999; Pasiouras & Kosmidou, 2007; Athanasoglou, Brissimis, & Delis, 2008; Dietrich & Wanzenried, 2011). Valuation evidence extends this argument: income measures and expected returns increase bank PBV, whereas higher non-interest expenses reduce it (Bogdanova et al., 2018). Caparusso et al. (2023) likewise show that more favorable expected ROE is associated with higher price-to-book ratios. Although operating margin is not identical to ROE, it captures recurring earnings capacity before the effects of capital structure. Investors should therefore assign higher valuation multiples to banks that demonstrate stronger operating profitability, all else equal.

H1. Operating margin is positively associated with the price-to-book value of listed ASEAN banks.

2.2. Financial Leverage and Bank Valuation

Leverage creates a risk–return trade-off in banking. A larger asset base relative to equity can amplify shareholder returns when asset performance is favorable. However, it also leaves a thinner equity cushion to absorb credit, market, and operational losses. Evidence from Asian banking shows that capital affects both profitability and risk and that the relationship varies across bank types (Lee & Hsieh, 2013). Governance and regulation further condition how capital structures translate into risk-taking incentives (Laeven & Levine, 2009). During the global financial crisis, better-performing large banks generally entered the shock with less leverage, illustrating the downside of thin capitalization under stress (Beltratti & Stulz, 2012). Consistently, Calomiris and Nissim (2014) show that leverage shifted from being rewarded before the crisis to being associated with lower bank values during and after it. In the present model, assets-to-equity is therefore interpreted primarily as exposure to balance-sheet risk. Holding profitability and size constant, a higher ratio implies lower equity protection and should reduce the valuation premium.

H2. Assets-to-equity is negatively associated with the price-to-book value of listed ASEAN banks.

2.3. Debt-Service Capacity and Bank Valuation

Interest coverage captures the extent to which recurring earnings can absorb interest obligations. A stronger ratio indicates greater capacity to service fixed financing costs without eroding capital, curtailing investment, or relying on new external funding. This signal is relevant to equity investors because weak coverage can transmit funding-cost shocks into earnings volatility and increase the probability that losses will consume book equity. Creditors and investors widely use interest-coverage thresholds to identify financial pressure, and deteriorating coverage is associated with covenant pressure and distress risk (Bräuning, Joaquim, & Stein, 2023). For banks, however, interest coverage requires cautious interpretation because interest is embedded in core intermediation and negative or extreme observations may arise from accounting and business-model differences. Conditional on profitability, leverage, liquidity, and bank fixed effects, higher coverage should nevertheless signal a greater margin of safety and more sustainable earnings. The study therefore predicts a positive association, winsorizes extremes, and reports sensitivity tests.

H3. Interest coverage is positively associated with the price-to-book value of listed ASEAN banks.

2.4. Cash-Flow Quality and Bank Valuation

Accrual-based earnings can reflect managerial estimates on provisions, timing, and recognition, whereas operating cash flow provides a complementary signal of how well reported performance converts into cash. This distinction matters when investors question whether accounting profits are persistent and can support dividends, capital accumulation, and balance-sheet growth. Banks have historically argued that cash-flow statements are less informative because deposits and lending are operating activities. However, Burke and Wieland (2017) provide direct evidence that banks' operating cash flows are value relevant, challenging the view that such information is immaterial in bank valuation. Gao, Li, and O'Hanlon (2019) further document the informativeness of U.S. banks' statements of cash flows for valuation and distress prediction. A higher cash-flow margin indicates that operating activities generate more cash relative to revenue and strengthens the credibility of reported performance. By reducing uncertainty about earnings quality and internal capital generation, stronger operating cash-flow conversion should be rewarded through a higher PBV.

H4. Cash-flow margin is positively associated with the price-to-book value of listed ASEAN banks.

2.5. Liquidity and Bank Valuation

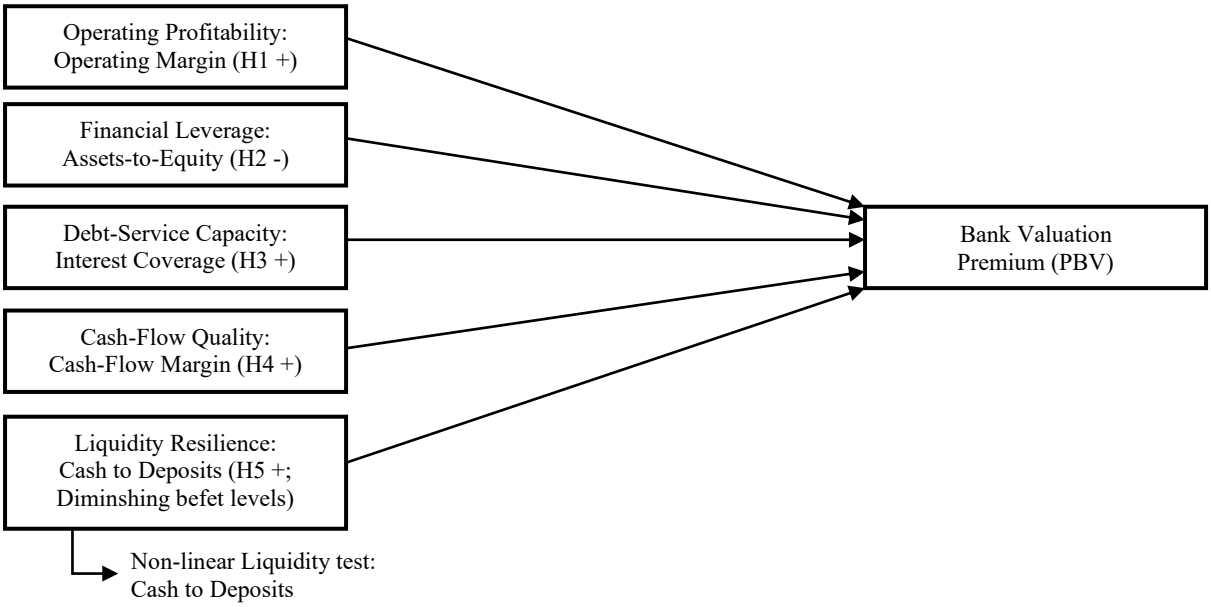
Liquidity protects banks against withdrawals, funding disruptions, and forced asset sales. The maturity-transformation model of Diamond and Dybvig (1983) explains why banks' creation of liquid claims against illiquid assets makes them productive yet vulnerable to runs. Deposits can also provide a natural hedge when market-wide liquidity deteriorates, allowing banks to meet loan demand without exhausting liquid assets (Gatev & Strahan, 2006). Cash and equivalents relative to deposits therefore capture an intuitive buffer against deposit-based obligations. Empirically, liquidity creation is related to bank value, capital, and institutional scale (Berger & Bouwman, 2009), while regulatory capital and liquidity are jointly determined and sensitive to how illiquidity is measured (Distinguin, Roulet, & Tarazi, 2013). ASEAN-5 evidence reports that liquidity-risk measures have differing effects on profitability and firm

value, reinforcing the need to distinguish adequate liquidity from idle resources (Ebenezer et al., 2019). Recent evidence similarly finds that liquidity close to an adequate level supports operating performance and stability, whereas excess liquidity can depress profits by displacing higher-yield assets (Chen et al., 2024). The baseline hypothesis is positive, with a squared term testing diminishing benefits or an inverted-U relationship.

H5. Cash-to-deposits is positively associated with the price-to-book value of listed ASEAN banks, with diminishing marginal benefits at high liquidity levels.

2.6. Integrated Framework and Empirical Alignment

Taken together, the five hypotheses describe complementary channels rather than competing explanations. Operating margin captures recurring profitability; assets-to-equity captures fragility from a thin equity cushion; interest coverage captures the ability to absorb financing costs; cash-flow margin captures the credibility and cash conversion of reported performance; and cash-to-deposits captures short-run liquidity resilience. The integrated approach follows evidence that bank valuation depends jointly on the composition of banking activities, earnings persistence, leverage, and risk rather than on a single accounting ratio (Calomiris & Nissim, 2014; Bogdanova et al., 2018). Bank size is included as a control because scale may proxy for diversification, market power, complexity, or implicit support. The preferred specification lags explanatory variables by one period, includes bank and year fixed effects, and clusters standard errors at the bank level. This design focuses inference on within-bank changes and reduces bias from time-invariant differences in business model, country, and institutional setting. Interpret the results as conditional associations rather than definitive causal effects.



Control: Bank Size (Ln Deposits). Two-way fixed effects: Bank FE + Year FE (FY2016–FY2025); regressors lagged t−1; bank-clustered SE

Figure 1. Conceptual framework of the study.
Source: Authors

3. Methodology

This study adopts a quantitative explanatory design to examine whether changes in operating fundamentals and financial resilience are associated with changes in the market valuation of listed ASEAN banks. The unit of analysis is the bank–fiscal-period observation, and the design exploits the longitudinal structure of the data rather than a single cross-section so that time-invariant heterogeneity in business model, governance, market positioning, and home-country institutions can be absorbed. The outcome is the price-to-book value ratio (PBV); the explanatory variables represent operating profitability, financial leverage, debt-service capacity, cash-flow quality, and liquidity. The preferred specification uses one-period-lagged regressors, bank and year fixed effects, and bank-clustered standard errors, and therefore estimates conditional within-bank associations rather than causal effects (Wooldridge, 2010).

3.1. Population, Sample, and Data Structure

The population consists of listed banks in Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam. The analysis-ready dataset contains 116 banks observed over ten fiscal years (FY2016–FY2025), for up to 1,160 bank-period observations. Fiscal-year labels are uniform across banks, so year fixed effects absorb shocks that are strictly contemporaneous across banks and countries. The panel is unbalanced because data availability differs across banks and variables: the contemporaneous complete-case screen identifies 1,029 observations (88.7% of the full panel), while the preferred model additionally requires a valid PBV at t and complete regressors at t−1, yielding 940 observations from 115 banks (90.0% of the 1,044 possible lag pairs) over an FY2017–FY2025 estimation window. No missing values are imputed; incomplete observations are excluded specification by specification.

3.2. Data Source and Preparation

The financial data are retrieved from LSEG (Refinitiv) for FY2016–FY2025, and the long-format panel is transformed from the original wide-format screening output: each source-bank row is expanded into ten bank-period records and linked to the underlying financial fields, with blank source values left missing rather than replaced by zero. Monetary amounts are denominated in U.S. dollars. Deposits are log-transformed to reduce right skew and provide scale control, and cash-to-deposits is derived as cash and cash equivalents divided by total deposits. Before estimation, observations are screened for duplicate bank-period keys, impossible denominators, nonpositive deposits prior to logarithmic transformation, and consistency between the fiscal-period label and Period_Index.

3.3. Variable Measurement

Table 1. Variable measurement and operational definitions.

Construct	Workbook field	Operational definition	Expected sign	Baseline treatment	Timing	Scale
Bank valuation	PBV	Market price per share/book value per share	—	Winsorize 1%/99% by period	t	Ratio (×)
Operating profitability	Operating_Margin	Operating margin	+	Winsorize 1%/99% by period	t−1	Proportion
Financial leverage	Assets_to_Equity	Total assets / total equity	−	Winsorize 1%/99% by period	t−1	Ratio (×)
Debt-service capacity	Interest_Coverage	Earnings measure/interest expense	+	Winsorize; inspect negatives	t−1	Ratio (×)

Cash-flow quality	Cash_Flow_Margin	Operating cash flow/revenue	+	Winsorize 1%/99% by period	t−1	Proportion
Liquidity	Cash_to_Deposits	Cash and equivalents/deposits	+	Winsorize; squared term in robustness	t−1	Proportion
Bank size (control)	Ln_Deposits	Natural log of deposits in USD	+/−	No baseline winsorization	t−1	Natural log

Source: authors' compilation.

3.4. Empirical Specification

The baseline analysis begins with pooled ordinary least squares (OLS) as a transparent benchmark, and the preferred model applies a within-bank fixed-effects estimator with year effects. Bank fixed effects absorb characteristics that do not vary over the sample window, including persistent business-model and country attributes; year fixed effects absorb shocks common to all banks in the same fiscal year, such as regional monetary conditions, regulatory phase-ins, and market-wide repricing of bank equity. Country fixed effects are not entered separately because they are time-invariant and therefore collinear with bank fixed effects. Following panel-data guidance, inference is based on bank-clustered standard errors, which permit arbitrary heteroskedasticity and serial correlation within each bank (Petersen, 2009; Wooldridge, 2010).

Baseline contemporaneous model:

$$PBV_{it} = \beta_0 + \beta_1 OM_{it} + \beta_2 AE_{it} + \beta_3 IC_{it} + \beta_4 CFM_{it} + \beta_5 CD_{it} + \beta_6 SIZE_{it} + \alpha_i + \tau_t + \varepsilon_{it}$$

Preferred lagged model:

$$PBV_{it} = \beta_1 OM_{i,t-1} + \beta_2 AE_{i,t-1} + \beta_3 IC_{i,t-1} + \beta_4 CFM_{i,t-1} + \beta_5 CD_{i,t-1} + \beta_6 SIZE_{i,t-1} + \alpha_i + \tau_t + \varepsilon_{it}$$

In these equations, OM denotes operating margin, AE assets-to-equity, IC interest coverage, CFM cash-flow margin, CD cash-to-deposits, and SIZE the natural logarithm of deposits. α_i represents bank fixed effects, τ_t year fixed effects, and ε_{it} the idiosyncratic error. The coefficient β_k measures the expected within-bank change in PBV associated with a one-unit change in the corresponding regressor, holding the other included variables and common period shocks constant. Percentage variables are retained as numerical proportions in the dataset; economic-magnitude reporting should therefore translate coefficients into a one-standard-deviation or ten-percentage-point change as appropriate.

3.5. Outlier Treatment and Descriptive Analysis

PBV and the continuous explanatory variables may contain economically meaningful but highly influential extremes. The primary treatment winsorizes continuous variables at the 1st and 99th percentiles within each fiscal year, preserving observations while limiting tail influence; Ln_Deposits is not winsorized in the baseline because the logarithmic transformation already compresses scale. Alternative specifications use unwinsorized data and 2.5%/97.5% limits. Descriptive statistics report N, mean, standard deviation, median, minimum, and maximum before and after treatment, and variance inflation factors accompany Pearson correlations; pairwise correlation alone is not used as a deletion rule. Outlier treatment precedes lag construction so that each lagged regressor retains the year-specific distribution of its original period.

3.6. Estimation Sequence and Diagnostic Assessment

Estimation proceeds in five steps: (i) descriptive statistics and correlations with variance inflation factors on both raw and winsorized data; (ii) pooled OLS as a transparent benchmark without heterogeneity control; (iii) bank fixed effects to absorb time-invariant bank heterogeneity; (iv) bank and year fixed effects as the preferred specification for H1–H5 inference and economic magnitude; and (v) a random-effects/Hausman comparison reported as a diagnostic only, because theory and identification retain priority for the fixed-effects estimator (Hausman, 1978). Every specification reports bank-clustered standard errors, within-bank R^2, effective sample size, and bank count so coefficient stability can be compared across models rather than judged on statistical significance alone.

Diagnostic assessment addresses seven issues. Heteroskedasticity and within-bank serial correlation are evaluated through residual inspection, modified Wald, and panel serial-correlation tests where available, and are addressed by clustering standard errors at the bank level. Cross-sectional dependence is examined with a Pesaran-type CD test and probed through Driscoll–Kraay sensitivity. Multicollinearity is assessed using the correlation matrix and variance inflation factors, retaining theory-led variables while flagging unstable estimates and reporting maximum and mean VIF. Influential observations are handled through year-wise winsorization with an untreated comparison and disclosed thresholds; functional form is tested with a squared liquidity term and its turning point relative to the observed support; and missingness is documented by bank, country, and period coverage, along with complete-case and balanced-panel comparisons.

3.7. Robustness and Endogeneity-Oriented Tests

Robustness analysis proceeds along six dimensions: contemporaneous regressors to assess timing sensitivity; PBV at t+1 as the dependent variable to strengthen temporal ordering; a squared cash-to-deposits term to test diminishing marginal benefits, where an inverted-U pattern requires $\beta CD > 0$, $\beta CD^2 < 0$, and a turning point within the observed support; country-by-period effects to absorb shocks that vary across national banking systems over time; re-estimation on unwinsorized data, alternative winsorization cut-offs, and a balanced-panel subsample; and standard errors robust to cross-sectional dependence, such as Driscoll–Kraay errors, where the time dimension and software implementation permit (Driscoll & Kraay, 1998). Coefficient stability, confidence intervals, economic magnitude, and effective sample size are compared across specifications.

4. Findings

The empirical analysis uses 1,029 contemporaneous complete observations and 940 lag-matched observations from 115 banks for the preferred specification. Continuous variables are winsorized at the 1st and 99th percentiles within each fiscal year. The results are presented in four stages: distributional evidence, bivariate associations, progressively controlled panel estimates, and robustness tests. Because every observation is dated to a calendar fiscal year between 2016 and 2025, the estimated time effects are interpretable as dated common shocks rather than as generic period offsets.

4.1. Descriptive Statistics

Table 2. Descriptive statistics of PBV and explanatory variables.

Variable	N	Mean	Std. dev.	Median	Minimum	Maximum
PBV	1,029	1.462	1.901	1.019	0.251	28.791
Operating_Margin	1,029	0.236	0.510	0.326	-3.951	1.301
Assets_to_Equity	1,029	8.532	3.787	7.983	1.171	24.413
Interest_Coverage	1,029	0.764	1.374	0.591	-9.810	20.287
Cash_Flow_Margin	1,029	0.232	0.433	0.304	-3.082	1.407
Cash_to_Deposits	1,029	19.375	612.526	0.077	0.002	19648.046
Ln_Deposits	1,029	22.519	2.271	22.792	2.776	27.008

Source: STATA Ver. 19, 2026

The descriptive statistics in Table 2 show that valuation levels are unevenly distributed across the panel. PBV averages 1.462 with a median of 1.019 and a maximum of 28.791, indicating that a small number of bank-period observations trade at extreme premiums while the typical bank trades close to book value. Operating margin averages 0.236 against a median of 0.326, and cash-flow margin behaves similarly (mean 0.232; median 0.304); in both cases, the minima of −3.951 and −3.082 reveal loss-making periods that pull the means below the medians. Assets-to-equity averages 8.532 within a range of 1.171 to 24.413, consistent with heterogeneous capital structures among listed ASEAN banks, while interest coverage averages 0.764 with a standard deviation of 1.374. Cash-to-deposits is by far the most volatile regressor: its mean of 19.375 exceeds its median of 0.077 by more than two orders of magnitude, and its standard deviation reaches 612.526 even after period-wise winsorization. Ln deposits averages 22.519 with comparatively modest dispersion (SD = 2.271), confirming that the size control is well behaved. Taken together, these distributions justify the winsorized treatment and warn that any inference about liquidity based on means should be interpreted with caution.

4.2. Correlation Analysis

Table 3. Correlation matrix among study variables.

Variable	PBV	Operating_Margin	Assets_to_Equity	Interest_Coverage	Cash_Flow_Margin	Cash_to_Deposits	Ln_Deposits
PBV	1.000	-0.220	-0.143	-0.062	-0.224	-0.016	-0.150
Operating_Margin	-0.220	1.000	0.099	0.427	0.961	0.002	0.289
Assets_to_Equity	-0.143	0.099	1.000	-0.132	0.122	0.007	0.372
Interest_Coverage	-0.062	0.427	-0.132	1.000	0.380	0.062	-0.068
Cash_Flow_Margin	-0.224	0.961	0.122	0.380	1.000	-0.010	0.315
Cash_to_Deposits	-0.016	0.002	0.007	0.062	-0.010	1.000	-0.187
Ln_Deposits	-0.150	0.289	0.372	-0.068	0.315	-0.187	1.000

Source: STATA Ver. 19, 2026

Table 3 reports the bivariate structure among the study variables and conveys two early signals. First, every fundamental regressor correlates negatively with PBV: cash-flow margin (−0.224), operating margin (−0.220), ln deposits (−0.150), assets-to-equity (−0.143), interest coverage (−0.062), and cash-to-deposits (−0.016). At the bivariate level, therefore, more profitable and larger banks are not more highly valued, a pattern more consistent with structural differences across banks than with the within-bank mechanisms the hypotheses postulate. Second, operating margin and cash-flow margin correlate at 0.961, so the two constructs are nearly

indistinguishable in this panel. Interest coverage is moderately correlated with operating margin (0.427) and cash-flow margin (0.380), and ln deposits correlates with assets-to-equity (0.372), while all remaining pairs fall below |0.30|. These magnitudes anticipate the collinearity diagnostics discussed in Section 4.7 and imply that the two profitability coefficients should be read jointly rather than as cleanly separated effects.

4.3. Main Regression Results

Table 4. Main regression results: pooled OLS, bank FE, and two-way FE.

Variable	(1) Pooled OLS	(2) Bank FE	(3) Bank + year FE
Operating margin (t−1)	-0.4940	0.3350	0.1960
	(0.8174)	(0.6687)	(0.6712)
Assets-to-equity (t−1)	-0.0304	0.0810	0.0587
	(0.0307)	(0.0536)	(0.0541)
Interest coverage (t−1)	0.1389	0.2446	0.2558
	(0.1541)	(0.2036)	(0.1899)
Cash-flow margin (t−1)	0.2389	-0.3262	-0.1225
	(1.2068)	(1.2034)	(1.2070)
Cash-to-deposits (t−1)	-0.0002*	0.0001	0.0001
	(0.0001)	(0.0001)	(0.0001)
Ln deposits (t−1)	-0.1340	-0.5165	-0.4761
	(0.0997)	(0.4103)	(0.4282)
Observations	940	940	940
Banks	115	115	115
R^2 / within R^2	0.0546	0.0616	0.0608
Bank/year FE	No / No	Yes / No	Yes / Yes

*Notes: Bank-clustered standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.*
Source: STATA Ver. 19, 2026

Table 4 traces how the estimates change as heterogeneity is progressively absorbed. In the pooled OLS column, operating margin is negative (−0.4940), and only cash-to-deposits is significant, and only at the 10% level (−0.0002). Once bank fixed effects are introduced, operating margin (0.3350) and assets-to-equity (0.0810) turn positive. In contrast, cash-flow margin turns negative (−0.3262), showing that the pooled signs were driven by differences between banks rather than changes within them. In the preferred two-way fixed-effects column, operating margin is 0.1960 (SE = 0.6712), assets-to-equity 0.0587 (0.0541), interest coverage 0.2558 (0.1899), cash-flow margin −0.1225 (1.2070), cash-to-deposits 0.0001 (0.0001), and ln deposits −0.4761 (0.4282); none is statistically significant at the 5% level. Explanatory power is low and essentially unchanged across specifications, moving from an R^2 of 5.5% in the pooled model to a within R^2 of 6.2% with bank fixed effects and 6.1% with both bank and period fixed effects, estimated on 940 observations from 115 banks. Because the clustered standard errors are three to ten times the size of most point estimates, the data cannot reject economically meaningful effects in either direction.

4.4. Robustness Tests

Table 5. Robustness tests: timing, non-linearity, and balanced panel.

Variable	Contemporaneous FE	Non-linear liquidity	Balanced-panel FE
Operating margin (t−1)	-0.6137	0.2856	0.3658
	(0.4455)	(0.6732)	(0.5905)
Assets-to-equity (t−1)	-0.0156	0.0634	0.1020
	(0.0618)	(0.0548)	(0.0941)
Interest coverage (t−1)	-0.0428	0.2694	0.1851
	(0.0417)	(0.1945)	(0.3085)
Cash-flow margin (t−1)	0.1725	-0.2360	-0.6624
	(0.7779)	(1.1842)	(1.2506)
Cash-to-deposits (t−1)	-0.0000*	0.0273	1.1731
	(0.0000)	(0.0216)	(2.0387)
Ln deposits (t−1)	0.0769	-0.6398	-0.4881
	(0.1956)	(0.5051)	(0.6545)
Cash-to-deposits²	—	-0.0000	—
		(0.0000)	
Observations	1029	940	711
Banks	115	115	79
Within R^2	0.0182	0.0690	0.0172

*Notes: Bank-clustered standard errors in parentheses. * p < 0.10, ** p < 0.05, *** p < 0.01.*
Source: STATA Ver. 19, 2026

Table 5 subjects the preferred model to three alternative designs, and none produces a stable relationship. Replacing lagged with contemporaneous regressors flips the sign of operating margin to −0.6137 and leaves cash-to-deposits weakly negative at the 10% level, while R^2 falls to 1.8% on 1,029 observations. Adding a squared liquidity term yields a linear coefficient of 0.0273 (SE = 0.0216) and a squared coefficient indistinguishable from zero, so the concavity implied by H5 is not detectable, even though this column attains the highest within R^2 of the three at 6.9%. Restricting the panel to banks observed in every period reduces the sample to 711 observations from 79 banks and moves the coefficients materially, with operating margin at 0.3658, assets-to-equity at 0.1020, and cash-to-deposits at 1.1731 against a standard error of 2.0387, while within R^2 drops to 1.7%. No regressor is significant at the 5% level in any column, and the sign instability across timing rules and sample definitions indicates fragility rather than a robust structural association.

4.5. Country Heterogeneity (Preferred Two-Way FE)

Table 6. Country heterogeneity under the preferred two-way fixed-effects model.

Country	N	Banks	OM	A/E	IC	CFM	Cash/Deposits
Malaysia	97	11	-0.109	0.111**	0.031	0.113	-1.601
Thailand	88	12	0.154	0.008	0.045	0.263	-5.493
Indonesia	402	49	0.231	0.074	0.295	-0.16	0
Philippines	139	16	0.028	0.091**	-0.052	0.727	0.185
Vietnam	187	24	1.207	-0.003	-0.471***	-0.992	0.178
Singapore	Not separately estimated	<5 banks	—	—	—	—	—

*Notes: Country-by-country estimates from the preferred two-way fixed-effects specification, with bank-clustered standard errors. * p < 0.10, ** p < 0.05, *** p < 0.01.*
Source: STATA Ver. 19, 2026

Table 6 re-estimates the preferred specification country by country and shows that the regional average conceals divergent patterns. Indonesia contributes the largest subsample (402 observations from 49 banks), followed by Vietnam (187 from 24), the Philippines (139 from 16), Malaysia (97 from 11), and Thailand (88 from 12); Singapore is not separately estimated

because fewer than five banks are available. Three coefficients reach conventional significance: assets-to-equity is positive at the 5% level in Malaysia (0.111) and the Philippines (0.091), and interest coverage is negative at the 1% level in Vietnam (−0.471). The remaining estimates are insignificant and vary widely in both sign and magnitude, with operating margin ranging from −0.109 in Malaysia to 1.207 in Vietnam and cash-flow margin from −0.992 in Vietnam to 0.727 in the Philippines. Because each country subsample is small relative to the number of fixed effects absorbed, these results are best read as exploratory evidence that the valuation mechanism is country-contingent, not as country-specific effect estimates.

4.6. Hypothesis Assessment

Table 7. Hypothesis assessment summary.

Hypothesis	Predicted sign	Preferred coefficient	Clustered SE	Decision	Interpretation
H1: Operating margin	+	0.1960	0.6712	Not supported	Positive but statistically imprecise
H2: Assets-to-equity	−	0.0587	0.0541	Not supported	Positive sign contradicts H2
H3: Interest coverage	+	0.2558	0.1899	Not supported	Positive but statistically imprecise
H4: Cash-flow margin	+	-0.1225	1.2070	Not supported	Negative sign contradicts H4.
H5: Cash-to-deposits	+	0.0001	0.0001	Not supported	Positive but statistically imprecise

Source: STATA Ver. 19, 2026

Table §7 consolidates the formal test by pairing each hypothesis with its predicted sign, the preferred two-way fixed-effects coefficient, the bank-clustered standard error, and the resulting decision. Two of the five estimates carry signs opposite to prediction: assets-to-equity is positive (0.0587), whereas H2 expects a negative effect, and cash-flow margin is negative (−0.1225), whereas H4 expects a positive one. The three remaining coefficients carry the predicted positive sign. However, each standard error is of the same order as or larger than its point estimate, so the confidence intervals comfortably span zero. Accordingly, none of H1 through H5 is supported at the 5% level.

The contrast between descriptive and fixed-effects evidence is substantively important. PBV averages 1.46 but has a median of 1.02, confirming right-skewed valuation premiums. Bivariate correlations between PBV and operating margin ($r = -0.220$), assets-to-equity ($r = -0.143$), and cash-flow margin ($r = -0.224$) primarily describe differences across observations. They should not be read as within-bank causal effects. Once bank and period effects are included, these associations weaken or change sign. This suggests that persistent franchise, institutional, or business-model differences may account for more valuation dispersion than annual movements in the selected ratios.

4.7. Multicollinearity and Distribution Diagnostics

Variance inflation factors for the six regressors of the preferred model reveal a localized collinearity problem. Operating margin (VIF = 14.0) and cash-flow margin (VIF = 13.6) are diagnosed as severe, whereas assets-to-equity (1.2), interest coverage (1.3), cash-to-deposits (1.0), and ln deposits (1.4) are all comfortably acceptable. The collinearity problem is therefore

confined to the two profitability constructs already flagged by their 0.961 correlation in Table 3, rather than affecting the specification as a whole.

Operating margin and cash-flow margin are highly correlated (r = 0.961), producing VIF values of 14.0 and 13.6. Their individual coefficients should therefore not be interpreted as cleanly separated profitability and cash-flow effects without additional specifications that enter them separately. Cash-to-deposits remains highly right-skewed after period-wise 1%/99% winsorization: its mean is 1937.5% compared with a median of 7.7%. Alternative 2.5%/97.5% winsorization or log(1 + cash-to-deposits) should be reported before drawing a liquidity conclusion.

5. Discussion

This study investigates whether operating profitability, financial leverage, debt-service capacity, cash-flow quality, and liquidity explain within-bank variation in the price-to-book valuation of listed ASEAN banks. The central result is more nuanced than a simple confirmation or rejection of the proposed framework. In the preferred specification—940 lag-matched observations from 115 banks with bank and year fixed effects—none of the five hypothesized relationships is statistically significant at the 5% level. Operating margin, interest coverage, and cash-to-deposits retain the predicted positive signs, but their confidence intervals are wide. Assets-to-equity is positive rather than negative, and cash-flow margin is negative rather than positive. The model explains 6.1% of within-bank variation in PBV. Collectively, these estimates suggest that annual changes in the selected accounting ratios do not translate into uniform short-run valuation responses once persistent bank characteristics and common year shocks are removed.

5.1. Interpreting the Overall Pattern

The weak within-bank findings should not be interpreted as evidence that fundamentals are irrelevant to bank valuation. Instead, they indicate that the valuation signal may operate primarily through persistent levels, forward-looking expectations, or omitted risk dimensions rather than through year-to-year movements in the selected measures. PBV averages 1.46, whereas its median is 1.02, revealing a market in which a limited group of bank-periods attracts substantial premiums. The negative bivariate correlations of PBV with operating margin (r = −0.220), assets-to-equity (r = −0.143), and cash-flow margin (r = −0.224) describe pooled differences across observations. These associations weaken or reverse in the fixed-effects specification, implying that between-bank heterogeneity and within-bank dynamics convey different information. This distinction is consistent with valuation research showing that bank-specific characteristics and the composition of banking activities explain substantial PBV variation (Calomiris & Nissim, 2014; Bogdanova, Fender, & Takáts, 2018).

5.2. Profitability and PBV (H1)

H1 predicts that operating margin increases PBV. The preferred coefficient is positive (β = 0.196) but highly imprecise (clustered SE = 0.671), and the contemporaneous estimate becomes negative. Thus, H1 is not supported. One explanation is that a high operating margin does not necessarily represent sustainable value creation in banking. It may reflect temporary

spreads, revenue mix, low provisioning, or accounting classification rather than persistent risk-adjusted profitability. Investors may instead focus on expected ROE, asset quality, capital consumption, and income durability. This interpretation is compatible with evidence that profitability expectations and capital headroom jointly shape PBV (Caparusso et al., 2023) and that heterogeneous income streams are capitalized differently according to persistence and market conditions (Calomiris & Nissim, 2014).

5.3. Leverage and PBV (H2)

H2 expects a negative association between assets-to-equity and PBV because higher leverage weakens the equity loss-absorption cushion. The preferred estimate is positive ($\beta = 0.059$; SE = 0.054) and insignificant, so H2 is not supported. In banking, leverage is inherently conditional. A higher assets-to-equity ratio can indicate fragility, but it can also reflect greater intermediation, balance-sheet efficiency, or a business model that markets view as able to manage leverage. The sign may therefore vary with asset risk, funding stability, regulatory capital, and the state of the financial cycle. This is consistent with Calomiris and Nissim (2014), who show that the market pricing of bank leverage changed across the financial crisis, and with Lee and Hsieh (2013), who document heterogeneous capital–profitability–risk relationships across Asian banks.

5.4. Interest Coverage and PBV (H3)

H3 predicts a positive valuation effect from stronger interest coverage. The preferred coefficient is positive ($\beta = 0.256$; SE = 0.190) but not statistically significant. This direction is consistent with the view that a larger earnings cushion reduces distress exposure, although the estimate does not provide sufficient evidence to support H3. The variable is especially difficult to interpret for banks because interest expense and interest income are integral to intermediation rather than peripheral financing items. Negative and extreme ratios may also result from unusual earnings or denominator behavior. Consequently, a corporate-style interest coverage measure may not isolate debt-service capacity as cleanly in banks as measures such as net interest margin, cost of funds, non-performing loans, or regulatory capital buffers.

5.5. Cash-Flow Quality and PBV (H4)

H4 expects cash-flow margin to strengthen PBV by increasing confidence in earnings quality. Instead, the preferred coefficient is negative ($\beta = -0.123$) and extremely imprecise (SE = 1.207). The result does not support H4, but it should be interpreted in light of the distinct nature of bank cash flows. Deposits, loan originations, repayments, and securities transactions generate operating cash movements that may be large without having the same meaning as operating cash flows in nonfinancial firms. Although Burke and Wieland (2017) and Gao, Li, and O'Hanlon (2019) demonstrate that bank cash-flow statements contain value-relevant and distress-related information, value relevance does not imply that a simple cash-flow-to-revenue ratio must have a stable positive coefficient in every institutional setting.

5.6. Liquidity and PBV (H5)

H5 proposes a positive liquidity effect with diminishing marginal benefits. In the preferred linear model, cash-to-deposits is positive but insignificant (β = 0.000064; SE = 0.000058). In the non-linear model, the linear term is positive and the squared term negative, but neither is statistically significant; therefore, an inverted-U relationship is not established. The contemporaneous coefficient is negative and only marginally significant at the 10% level. Together, these patterns illustrate the fundamental liquidity trade-off: liquid resources reduce funding and risk, but excessive cash can depress returns by displacing higher-yield assets. This trade-off is consistent with Berger and Bouwman (2009), Distinguin, Roulet, and Tarazi (2013), and Chen et al. (2024).

5.7. Robustness, Heterogeneity, and Credibility

The robustness analysis strengthens the conclusion that the current coefficients are not stable enough for affirmative hypothesis claims. The contemporaneous two-way fixed-effects model uses 1,029 observations but explains only 1.8% of within variation. The non-linear liquidity model raises within R^2 to 6.9%, yet neither liquidity term is significant. The balanced-panel model uses 711 observations from 79 banks, has a within R^2 of 1.7%, and yields no significant coefficients for H1–H5. These changes show that inference is sensitive to timing, sample composition, and functional form. The appropriate conclusion is therefore not selective confirmation from isolated signs, but a lack of support across the principal specifications.

5.8. Theoretical Contributions

The study contributes to bank-valuation research in three ways. First, it separates structural valuation differences from within-bank dynamics. Much prior evidence emphasizes cross-sectional or pooled relationships between profitability, capital, and PBV. The present results show that such relationships may weaken after persistent bank heterogeneity is absorbed, underscoring the importance of matching theoretical claims to the variation the estimator identifies. Second, the study integrates profitability, leverage, debt-service capacity, cash-flow quality, and liquidity within a single ASEAN framework. The resulting instability reveals that these channels are not empirically separable when accounting proxies overlap. Third, the findings qualify universal directional hypotheses: in banking, the valuation meaning of leverage, cash flow, and liquidity depends on business model, risk composition, institutional setting, and macro-financial conditions. The contribution is therefore boundary-setting rather than confirmatory.

5.9. Managerial, Investor, and Policy Implications

For bank managers, the results imply that improving a single reported ratio may not automatically raise PBV. Investors appear unlikely to reward higher operating margins, liquidity buffers, or leverage changes uniformly without evidence that these improvements are sustainable, risk-adjusted, and compatible with the bank's business model. Managers should therefore communicate how earnings translate into capital generation, how liquidity supports resilience without excessive carry costs, and how leverage is backed by asset quality and stable funding; investors should combine accounting ratios with forward-looking profitability, non-performing loans, regulatory capital headroom, funding concentration, and governance indicators rather than applying one ASEAN-wide threshold. For regulators, the findings

emphasize assessing profitability, solvency, and liquidity jointly rather than in isolation, because a high cash buffer may signal resilience or inefficient asset allocation, high leverage may indicate fragility or productive intermediation, and strong reported earnings may be less informative when cash-flow and asset-quality signals conflict. Supervisory interpretation should thus remain conditional on bank size, business model, asset quality, and funding structure, and the exploratory country differences support coordinated regional disclosure standards alongside country-specific prudential analysis.

6. Conclusion

This study asked whether operating profitability, financial leverage, debt-service capacity, cash-flow quality, and balance-sheet liquidity explain within-bank variation in the market valuation of listed ASEAN banks. Using a panel of 116 banks from Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam over FY2016–FY2025, and a preferred two-way fixed-effects specification estimated on 940 lag-matched observations from 115 banks with bank-clustered standard errors, the answer is largely negative. None of the five hypothesised channels is statistically significant at the 5% level: operating margin ($\beta = 0.196$), interest coverage ($\beta = 0.256$), and cash-to-deposits ($\beta = 0.000064$) carry the predicted positive signs but are imprecisely estimated, while assets-to-equity is positive ($\beta = 0.059$) rather than negative and cash-flow margin is negative ($\beta = -0.123$) rather than positive. The model explains approximately 6.1% of within-bank variation in PBV. Accordingly, H1 through H5 are not supported.

Three conclusions follow. First, the familiar negative bivariate association between reported fundamentals and PBV is a between-bank phenomenon: it weakens or reverses once bank and period fixed effects absorb persistent heterogeneity, indicating that valuation premiums among ASEAN banks rest mainly on durable structural and institutional differences rather than on annual movements in accounting ratios. Second, the evidence is fragile rather than merely weak, because signs and magnitudes shift across timing rules, functional form, and sample composition, and variance inflation factors of 14.0 for operating margin and 13.6 for cash-flow margin show that the two profitability constructs are not empirically separable in this panel. Third, the mechanism appears country-contingent, with leverage positively associated with valuation in Malaysia and the Philippines and interest coverage negatively in Vietnam. However, these subsamples are small and remain exploratory. The practical implication is that neither managers nor investors should expect single-ratio improvements to translate mechanically into higher multiples: valuation appears to respond to the credibility and durability of a bank's earnings model rather than to year-to-year changes in individual reported ratios. For research, the results argue for measurement refinement—separating or orthogonalizing the profitability and cash-flow constructs, transforming liquidity, and adding asset quality, regulatory capital, and expected profitability—before affirmative claims about valuation channels in ASEAN banking can be sustained.

7. Limitations and Future Study

Several limitations define the scope of inference. First, the complete-case approach may introduce selection bias if banks with stronger disclosure differ systematically. Second, PBV and liquidity remain right-skewed despite winsorization. Third, operating margin and cash-flow margin exhibit severe multicollinearity. Fourth, the models omit asset quality, regulatory capital, expected profitability, governance, and macroeconomic variables because their historical coverage over FY2016–FY2025 is thinner or inconsistent across countries. Fifth, lagging regressors improve temporal ordering but do not eliminate reverse causality, measurement error, or omitted-variable bias. Sixth, year fixed effects absorb shocks common to all banks in a fiscal year but not country-specific shocks within that year, which the exploratory country models only partially address. Finally, country models rely on limited bank clusters and should be treated as exploratory.

Future research should exploit the panel's calendar dating by incorporating country-year macroeconomic controls or country-by-year fixed effects. Second, test operating margin and cash-flow margin separately and through a composite or residualized earnings-quality construct. Third, transform liquidity and compare it with alternative proxies such as loans-to-deposits, liquid assets-to-total assets, and regulatory liquidity ratios where coverage permits. Fourth, add asset quality, CET1 buffers, governance, and analyst expectations incrementally, reporting sample loss transparently. Fifth, consider dynamic panel or instrumental-variable approaches only when credible identification assumptions and instruments are available. Finally, quantile or regime-dependent models could test whether fundamentals matter more for deeply discounted or highly valued banks.

Author Contributions

Kiandra Putri Susanto: literature review, data collection and validation, panel construction, visualization, writing — original draft. Panji Priyanto: conceptualization, research design, methodology, data curation, formal analysis, writing — original draft, writing — review and editing, supervision, corresponding author. Ni Putu Mila Suhandi: methodology support, robustness and diagnostic testing, interpretation of results, writing — review and editing. All authors have read and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

Declarations

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Conflict of Interest

The authors declare no known competing financial interests or personal relationships that could have appeared to influence the work reported in this article.

Data Availability

The financial data underlying this study were retrieved from LSEG (Refinitiv) for fiscal years 2016 through 2025 and are subject to the provider's licensing terms; therefore, the authors

cannot redistribute them. The derived analysis-ready panel, variable definitions, and estimation code are available from the corresponding author upon reasonable request.

Ethical Approval

This study uses secondary, publicly reported financial data on listed banks and involves no human participants or animal subjects. Ethical approval was therefore not required.

Use of Generative AI

The authors declare that generative artificial intelligence tools were not used to generate the substantive content, analysis, or conclusions of this manuscript. Any use was limited to language editing, and the authors take full responsibility for the integrity and accuracy of the published work.

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