© IJARW | ISSN (O) - 2582-1008
September 2026 | Vol. 8 Issue. 3
www.ijarw.com

BANK CHARACTERISTICS AND CAPITAL STRUCTURE IN VIETNAM: EVIDENCE FROM A 2012–2024 PANEL

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ABSTRACT

Bank funding decisions reflect a tension between the benefits of liability-based intermediation and the need to preserve loss-absorbing capital. This study examines the associations of bank characteristics and macroeconomic conditions with the reported liabilities-to-assets ratio in a panel of 24 Vietnamese commercial banks over 2012–2024. The empirical record comprises 312 bank-year observations and pooled ordinary least squares, fixed-effects, random-effects, and feasible generalized least squares estimates. In the reported generalized least squares specification, size, asset tangibility, return on equity, and the tax-to-profit ratio are positively associated with leverage, whereas business growth is negatively associated with leverage. Liquidity is not statistically distinguishable from zero. The positive profitability coefficient does not establish a preference for debt because profitability and leverage may be jointly determined and mechanically related through equity. Macro-level estimates are treated as provisional: an accompanying data-consistency screen identifies conflicting calendar coding, while variable definitions and the provenance of terminal-year observations remain unresolved. The analysis distinguishes accounting leverage from regulatory capital adequacy and financing capacity from optimal financing. Its managerial implication is therefore conditional rather than prescriptive: capital planning should integrate funding composition, earnings retention, asset quality, and liquidity resilience, rather than interpret positive leverage coefficients as a mandate to increase debt. Independent data validation and re-estimation are required before the reported associations can support substantive policy conclusions.

Keyword: bank capital structure, accounting leverage, profitability, capital planning, panel data, Vietnam

1. INTRODUCTION

The capital structure of a commercial bank cannot be understood simply as the financing mix of a non-financial firm. Deposits and other liabilities support intermediation, but equity absorbs losses and protects the continuity of banking services. A larger liability share can accompany an expansion of the banking franchise without necessarily indicating a deterioration in financing access. Equally, a high return on equity can coexist with a thin equity cushion. The central research problem is therefore not whether banks should maximize debt, but which observable characteristics are associated with their funding structure and what those associations can legitimately reveal about financing decisions. Gropp and Heider distinguish persistent bank-specific capital choices from the effects of conventional firm characteristics [1]. DeAngelo and Stulz further explain why the production of liquid claims makes banking liabilities economically different from ordinary corporate borrowing [2].

This distinction matters when interpreting Vietnamese banking data. A debt-to-assets measure describes the accounting composition of funding; it is not the Basel regulatory leverage ratio and is not interchangeable with risk-weighted capital adequacy. The Basel framework evaluates eligible capital and risk exposures through a separate prudential architecture [3]. More recent Vietnamese regulation, including Circular 14/2025/TT-NHNN, underscores the continuing importance of capital management, but that instrument postdates the observation window used here and is not an intervention evaluated by this study [4]. Contemporary relevance should not be confused with identification of a regulatory effect.

Recent evidence also cautions against assuming that capital-structure relationships are universal.

Doan Van Dinh and Vu Thi Thu Huyen examine 26 Vietnamese banks during 2010–2022 and report negative relationships of profitability, taxation, and liquidity with their leverage measure, alongside a positive growth relationship [5]. Mohammad documents changes in the relevance of bank characteristics during the COVID-19 crisis in Pakistan [6]. These studies motivate attention to measurement, period, and institutional context rather than the expectation that every coefficient must replicate an earlier sign. Differences between net debt and total liabilities, or between return on assets and return on equity, are especially consequential.

The present manuscript develops the capital-structure analysis contained in the underlying Vietnamese thesis, Factors affecting the capital structure of joint-stock commercial banks in Vietnam [7]. The analysis asks how size, tangibility, profitability, business growth, liquidity, taxation, economic growth, inflation, and the pandemic-period indicator relate to the reported leverage ratio.

The contribution is a bank-specific interpretation of the reported evidence, not the identification of an optimal debt ratio or a new causal effect. Three distinctions organize the analysis: liability-based intermediation versus loss absorption; contemporaneous profitability versus internally generated capital; and bank-level variation versus common calendar conditions. The empirical record is also subject to an explicit validation boundary. Estimates are transcribed from the thesis's statistical appendix, not independently re-estimated, and material inconsistencies in calendar coding and terminal-year data must be resolved before external submission. Reporting these limitations prevents methodological precision in the manuscript from overstating the reliability of the underlying observations.

2. THEORETICAL BACKGROUND AND HYPOTHESES

2.1. Competing financing mechanisms in banking

The tax-based capital-structure argument predicts a benefit from deductible interest payments, but the existence of that benefit does not imply that unlimited borrowing is optimal. Modigliani and Miller's tax correction concerns a particular valuation mechanism, not a blanket recommendation for bank leverage [8]. In banking, the assessment must also consider funding instability, asset risk, and the ability to absorb losses. Diamond and Dybvig show why the combination of liquid deposits and illiquid investments can create vulnerability to withdrawals [9]. Accordingly, a liabilities-to-assets ratio is informative about financing composition but incomplete as a measure of resilience.

The pecking-order mechanism provides a different prediction. When outside investors have less information than managers, internally generated funds can be preferable to issuing external claims; profitable institutions may therefore accumulate equity rather than increase reliance on debt [10]. However, bank liabilities are also inputs into customer-facing intermediation. Retained earnings can rise at the same time as deposits expand, so neither a positive nor a negative profitability coefficient by itself identifies the financing hierarchy. Conventional capital-structure determinants remain useful organizing variables, as in Titman and Wessels, but their mechanisms require adaptation to banks rather than direct transplantation from industrial firms [11].

2.2. Bank size and asset tangibility

A larger bank may have a broader customer base, more diversified funding channels, and greater capacity to spread financing and monitoring costs. Under a financing-access interpretation, these features can support a larger liabilities share. The competing possibility is that larger institutions maintain stronger capital buffers or have accumulated more internal resources. Gropp and Heider's evidence that both bank characteristics and persistent bank effects matter supports treating size as a conditional predictor rather than a sufficient explanation of financing behavior [1]. The original study's positive directional expectation is retained.

H1: Bank size is positively associated with the reported liabilities-to-assets ratio.

Tangibility may support financing where assets can be independently valued or pledged, an argument related to the collateral channel in conventional capital-structure analysis [11]. Nevertheless, a bank's premises and equipment should not be conflated with borrowers' collateral, tradable securities, or the entire stock of assets eligible for liquidity operations. The present tangibility variable concerns the bank's own fixed-

asset structure. The hypothesized positive relationship is therefore a limited financing-access proposition, not a claim that expanding physical infrastructure necessarily improves banking resilience or profitability.

H2: Asset tangibility is positively associated with the reported liabilities-to-assets ratio.

2.3. Profitability and business growth

Profitability can support the accumulation of retained earnings and reduce the need for external finance. This is the mechanism behind the negative expectation inherited from the pecking-order framework [10]. Vietnamese evidence using return on assets also reports a negative profitability–leverage relationship, although its operational measures differ from those used here [5]. A competing mechanism is that profitable banks can attract more funding and expand their balance sheets. Because the present explanatory variable is return on equity, a further complication arises: leverage can increase the measured return to a given amount of equity. The hypothesis is retained, but its assessment cannot isolate retained-earnings behavior from these alternatives.

H3: Return on equity is negatively associated with the reported liabilities-to-assets ratio.

Business growth raises financing requirements, which can increase liabilities when internal resources are insufficient. Conversely, institutions seeking to preserve flexibility may finance growth with retained earnings or new equity, especially when future opportunities are uncertain. The distinction between realized revenue growth and investment opportunities is important: a realized growth rate does not directly observe management's expectations or financing constraints. The source study adopts the latter, flexibility-oriented interpretation and predicts a negative relationship. This expectation is not universal; the positive growth association in recent Vietnamese evidence provides a relevant competing result [5].

H4: Business growth is negatively associated with the reported liabilities-to-assets ratio.

2.4. Liquidity and the tax-to-profit ratio

Liquidity can substitute for additional external funding when banks can meet obligations from readily available resources. It can also complement liability growth by supporting depositors' confidence. The first mechanism motivates the original negative expectation, while the second explains why the sign is not theoretically inevitable. The liquidity-transformation literature makes clear that funding liquidity and asset liquidity are related but distinct concepts [9]. Consequently, interpretation of the hypothesis depends on verifying the numerator and denominator of the source liquidity measure; the manuscript does not equate that undocumented measure with a Basel liquidity ratio.

H5: The reported liquidity measure is negatively associated with the liabilities-to-assets ratio.

Tax incentives can alter the relative attractiveness of debt and equity. Schepens provides bank-specific evidence that reducing tax discrimination against equity can increase bank capitalization [12]. This supports examining taxation, but the source variable is an accounting tax-to-profit ratio, not an exogenous statutory tax change or a direct estimate of the marginal debt tax shield. A positive coefficient could reflect profitable taxable activities, tax adjustments, or financing choices operating simultaneously. The proposed hypothesis preserves the tax-incentive argument while recognizing that its empirical proxy is imperfect.

H6: The tax-to-profit ratio is positively associated with the reported liabilities-to-assets ratio.

2.5. Economic conditions and the pandemic-period indicator

An expanding economy may support deposits, credit demand, and confidence, allowing banks to finance a larger balance sheet with liabilities. Whether liabilities grow faster than equity remains an empirical question. Inflation can influence funding costs, nominal balance-sheet growth, and the real value of contractual claims; these channels need not operate in the same direction. The original study predicts a positive GDP-growth association and a negative inflation association. They are maintained as prior directional expectations, not retrospectively altered to match the estimates. Evidence on crisis-period financing also suggests that common conditions may change the relative importance of bank-specific factors [6].

H7: GDP growth is positively associated with the reported liabilities-to-assets ratio.

H8: Inflation is negatively associated with the reported liabilities-to-assets ratio.

The pandemic may have weakened funding capacity through uncertainty and credit deterioration, but policy support and precautionary deposit accumulation could work in the opposite direction. Demirgüç-Kunt and colleagues document heterogeneous banking-sector responses to the crisis and associated policy measures rather than a single uniform banking outcome [13]. The source study's negative expectation is retained. Its empirical assessment, however, requires an internally consistent calendar indicator. A national crisis-period dummy cannot have different values for different banks in the same year unless a different exposure concept has explicitly been defined.

H9: The pandemic-period indicator is negatively associated with the reported liabilities-to-assets ratio.

3. Data and methodology

3.1. Empirical scope and source hierarchy

The underlying thesis reports secondary data drawn from consolidated financial statements and annual reports of 24 Vietnamese banks, together with annual macroeconomic information. The appendix contains one row for each bank-year over 2012–2024, giving 312 observations. The sample is availability-based rather than a probability sample. The claim that it represents a particular percentage of national banking assets is not independently substantiated here and is not used to justify external validity.

The statistical results reproduced below come from Appendix 2 of the thesis. Where chapter tables differ from that appendix, the printed command output is the stated transcription source; this is a reporting convention, not proof that the underlying data are correct. For example, the FGLS intercept is −1.131184 in the output, rather than −1.331 in the chapter table. The appendix also supplies the distinction among within, between, and overall R-squared measures. No missing standard errors, alternative regressions, or robustness results have been manufactured. The accompanying editorial memorandum records the discrepancies and validation tasks separately from the article's substantive argument.

3.2. Variables and measurement boundaries

Table 1 summarizes the variables and identifies the operational details that remain unresolved. Ratios in the statistical output are stored as fractions rather than percentages. Therefore, multiplying a ratio by 100 changes its presentation, not the estimated relationship. SIZE is a logged amount, but the original monetary unit and logarithm convention must be documented before interpreting a particular percentage change in assets.

Table 1. Variables and measurement boundaries

Variable	Source definition or description	Qualification
LEV	Total liabilities / total assets, as conceptually described.	Reconcile observations with balance-sheet items.
SIZE	Logarithm of total assets.	Monetary unit and log base require confirmation.
TANG	Tangible fixed assets / total assets, as described in the text.	Verify the included fixed-asset categories.
ROE	Return on equity.	Confirm period-end versus average equity and profit definition.
GROW	Business growth.	Exact formula and underlying growth series are not supplied.
LIQ	Liquidity ratio.	Exact numerator and denominator are not supplied.

Variable	Source definition or description	Qualification
TAX	Corporate income tax / profit, as described in the text.	Confirm the tax item and profit denominator.
GDP	Annual national GDP growth.	Some bank-year records have conflicting annual values.
CPI	Annual national inflation.	Some bank-year records have conflicting annual values.
COVID	Pandemic-period dummy.	Written definition: 2020–2021; most appendix coding: 2020–2022, with additional exceptions.

Accounting leverage is conceptually distinct from regulatory capital adequacy. If liabilities and equity exhaust the same balance-sheet total, liabilities/assets equals one minus book equity/assets. That identity does not hold for a regulatory capital ratio with eligible capital and risk-weighted exposures. Similarly, a tax-to-profit ratio does not directly measure the value of an interest tax shield. These distinctions determine what a coefficient can mean and prevent managerial recommendations from exceeding the variables actually observed.

3.3. Econometric specification and estimation

The source specification can be represented as follows:

$$LEV_{it} = \alpha + \beta_1 SIZE_{it} + \beta_2 TANG_{it} + \beta_3 ROE_{it} + \beta_4 GROW_{it} + \beta_5 LIQ_{it} + \beta_6 TAX_{it} + \beta_7 GDP_t + \beta_8 CPI_t + \beta_9 COVID_t + \varepsilon_{it} \quad (1)$$

Here, i indexes banks, t indexes years, and the regressors retain the definitions in Table 1. The source analysis first estimates pooled OLS, bank fixed effects, and random effects. The fixed-effects model adds a bank-specific intercept; the random-effects specification instead imposes an orthogonality assumption between its bank component and the regressors. The three models are not interchangeable, even when their coefficients have similar signs.

The final printed command is xtgls LEV SIZE TANG ROE GROW LIQ TAX GDP CPI COVID, panels(h) corr(ar1). It estimates separate panel error variances and a common first-order serial-correlation coefficient, reported as 0.5138. It assumes no contemporaneous error correlation across banks and includes neither bank dummy variables nor full year effects. According to the command's documented structure, this is not a fixed-effects regression with corrected standard errors; it is a different GLS specification [14]. This distinction is particularly important because the source's model-comparison stage favors bank fixed effects, subject to a covariance warning discussed below.

The interpretation is associational. There is no external instrument, policy discontinuity, or other design that isolates exogenous variation in profitability, taxation, or financing choices. The macroeconomic variables are intended to vary by year rather than bank. Even after their coding is repaired, 13 years of common conditions do not become 312 independent macroeconomic realizations. Cluster-aware inference and explicit treatment of common shocks would be necessary in a validated re-estimation; a covariance adjustment alone would not remove reverse causality or measurement error [15].

3.4. Data-consistency screen

A separate transcription-based screen was undertaken for manuscript preparation, without re-estimating the models. It confirms the appendix's 312 bank-year rows but identifies material inconsistencies. GDP and CPI vary across some banks within the same recorded year. For LIENVIET, the pandemic indicator equals one in 2018–2019 and zero in 2020–2021, despite the stated calendar interpretation. The written definition also specifies 2020–2021, whereas most appendix rows use 2020–2022. These conflicts cannot be resolved by choosing the more convenient definition after observing significance.

The screen also finds unusually regular terminal-year relationships: several 2024 bank-level series, including the already logged SIZE variable, are approximately 1.01 times their 2023 values across all 24 banks. This pattern does not establish how the data were produced, but it requires documentation of whether observations were reported, imputed, extrapolated, or otherwise transformed. Consequently, the following tables preserve the reported empirical record rather than certify an independently validated dataset. Country-year effects and policy implications remain provisional, and any correction to source observations requires rerunning all estimates.

4. RESULTS

4.1. Descriptive profile

Table 2 reports the descriptive statistics printed in the statistical appendix. Mean leverage is 0.5396, with a standard deviation of 0.2598 and a range from 0.0066 to 0.9811. The breadth of this range warrants reconciliation with the stated total-liabilities definition and the underlying financial statements. It should not be interpreted automatically as evidence of successful deleveraging by particular institutions. Tangibility averages 0.1691, return on equity 0.0874, and business growth 0.2465. Liquidity reaches 1.2417, reinforcing the need to verify its operational denominator before treating it as a conventional asset share.

Table 2. Reported descriptive statistics

Variable	Mean	Standard deviation	Minimum	Maximum
LEV	0.5396	0.2598	0.0066	0.9811
SIZE	33.2609	1.5887	30.3178	37.6757
TANG	0.1691	0.0471	0.0675	0.3289
ROE	0.0874	0.0620	0.0008	0.2639
GROW	0.2465	0.1456	0.0408	1.0568
LIQ	0.3729	0.1859	0.0086	1.2417
TAX	0.2508	0.0493	0.1014	0.4300
GDP	0.0603	0.0164	0.0256	0.0802
CPI	0.0367	0.0202	0.0063	0.0909
COVID	0.2308	0.4220	0.0000	1.0000

The appendix's GDP and CPI means differ from those in the chapter summary table. The values in Table 2 are retained for traceability to the printed regressions, not substituted with externally sourced macroeconomic data. Because the bank-year calendar merge is inconsistent, these statistics must not be described as verified national annual averages. This is a data-construction issue, distinct from ordinary sampling variability or an econometric choice about standard errors.

4.2. Baseline estimates and diagnostic evidence

Table 3 compares the three baseline estimators. Profitability, taxation, and inflation have positive coefficients with p-values below 0.05 in all three printed models. Size is positive throughout, but its pooled-OLS p-value is 0.084. Tangibility is positive but not significant at 0.05 in fixed effects. Growth is negative throughout, although its evidence weakens after accounting for the panel structure. Liquidity remains statistically indistinguishable from zero. The substantive lesson is not that all specifications confirm the same model, but that some associations are more stable than others.

Table 3. Reported baseline regression estimates

Variable	Pooled OLS	Bank fixed effects	Random effects
SIZE	0.0138 (0.084)	0.0345 (0.001)	0.0300 (0.001)
TANG	0.9336 (<0.001)	0.6330 (0.082)	0.8006 (0.012)
ROE	2.2392 (<0.001)	1.7020 (<0.001)	1.7899 (<0.001)
GROW	−0.2030 (0.019)	−0.1145 (0.153)	−0.1339 (0.091)
LIQ	−0.0351 (0.554)	−0.0339 (0.479)	−0.0344 (0.480)
TAX	1.1322 (<0.001)	1.0459 (<0.001)	1.0703 (<0.001)
GDP	1.4296 (0.081)	1.0421 (0.110)	1.1025 (0.095)
CPI	2.5898 (<0.001)	2.5099 (<0.001)	2.4867 (<0.001)
COVID	0.0154 (0.633)	0.0195 (0.448)	0.0197 (0.449)
Constant	−0.6775 (0.014)	−1.2450 (<0.001)	−1.1350 (<0.001)
Observations	312	312	312
OLS R^2	0.4977	—	—
Within R^2	—	0.4089	0.4069
Between R^2	—	0.5299	0.5664
Overall R^2	—	0.4656	0.4806

The correct fixed-effects-versus-pooled test is $F(23,279)=9.51$, $p<0.001$; $F(9,279)=21.45$ is the fixed-effects model's joint slope test and answers a different question. The reported Hausman statistic is $\chi^2(9)=46.27$, $p<0.001$, but its output explicitly warns that the covariance-difference matrix is not positive definite. That warning limits a mechanical model-selection interpretation. Variance-inflation factors range from 1.08 to 1.65, with a mean of 1.38. These values address linear collinearity, not data accuracy or endogeneity.

The modified Wald statistic for groupwise heteroskedasticity is $\chi^2(24)=334.19$, $p<0.001$. The Wooldridge serial-correlation test gives $F(1,23)=7.034$, $p=0.0142$. These diagnostics motivate examining the error structure; the serial-correlation procedure is described by Drukker [16]. They do not validate the omitted bank effects in the final FGLS command. The fixed-effects within R-squared is 0.4089, whereas 0.5299 is its between R-squared; neither is a fit statistic for the final FGLS model.

4.3. Reported generalized least squares estimates

Table 4 presents coefficients, standard errors, p-values, and confidence intervals directly from the FGLS output. The reported Wald statistic is $\chi^2(9)=267.31$, $p<0.001$. Eight regressors have nominal p-values below 0.05, while LIQ does not.

The table uses explicit p-values rather than reproducing inconsistent significance-star conventions. A displayed p-value of 0.000 is written as p<0.001, not as a probability of exactly zero.

Table 4. Reported FGLS estimates and nominal confidence intervals

Variable	Coefficient	Standard error	p-value	95% confidence interval
SIZE	0.0255	0.0091	0.005	[0.0077, 0.0432]
TANG	1.3566	0.2812	<0.001	[0.8055, 1.9077]
ROE	2.0349	0.1876	<0.001	[1.6673, 2.4025]
GROW	−0.1866	0.0735	0.011	[−0.3306, −0.0426]
LIQ	0.0103	0.0356	0.771	[−0.0594, 0.0801]
TAX	1.0233	0.2570	<0.001	[0.5197, 1.5270]
GDP	1.4726	0.4506	0.001	[0.5895, 2.3557]
CPI	2.3260	0.4562	<0.001	[1.4320, 3.2201]
COVID	0.0481	0.0215	0.025	[0.0059, 0.0902]
Constant	−1.1312	0.3123	<0.001	[−1.7433, −0.5191]

For ratio regressors, the coefficient gives the change in leverage percentage points associated with a one-percentage-point difference in that regressor, conditional on the specification. Thus, the reported ROE coefficient corresponds to 2.0349 percentage points of leverage, with a nominal interval of 1.6673 to 2.4025. The tangibility and tax coefficients correspond to 1.3566 and 1.0233 percentage points, respectively. A ten-percentage-point difference in the source growth measure corresponds arithmetically to −1.8662 percentage points of leverage. These are translations of the supplied coefficients, not estimated causal responses or forecasts.

The liquidity interval spans −0.0594 to 0.0801, providing no clear directional evidence under the reported covariance assumptions. The positive GDP, CPI, and pandemic coefficients are retained as part of the output record, but the coding defects preclude treating them as validated national-cycle or pandemic effects. In particular, the pandemic coefficient of 0.0481 cannot establish that an economically defined pandemic period increased bank leverage by 4.81 percentage points.

4.4. Assessment of the original hypotheses

At the level of the printed FGLS signs and nominal p-values, H1, H2, H4, H6, and H7 align with the output. H3 is contradicted by the positive profitability coefficient; H5 lacks statistically discernible support; H8 and H9 have coefficients opposite to their anticipated direction. This comparison does not validate H7–H9 substantively because the corresponding calendar variables require reconstruction. More broadly, hypothesis support remains conditional on resolving the data and specification limitations. An insignificant coefficient is not evidence that a variable has no role in banking behavior, and a significant opposite sign is not proof that an entire financing theory is false.

5. DISCUSSION

5.1. Financing capacity is not an optimal leverage prescription

The positive size coefficient is compatible with a financing-access explanation: a larger banking franchise may sustain a larger liability base. However, size can also capture persistent institutional differences, ownership, business models, or funding composition. The considerable relevance of bank effects in the baseline estimates makes omission of those effects in the final command especially consequential. The coefficient therefore should not be interpreted as an intervention effect of expanding assets. Gropp and Heider's emphasis on persistent bank-specific

capital structures provides a relevant conceptual caution [1].

The tangibility result also requires a narrower interpretation than a general collateral argument. The observed fixed-asset share does not identify the value of assets pledged in borrowing transactions or the quality of collateral securing customer loans. The result cannot justify purchasing premises merely to increase debt capacity. Digitalisation adds a further consideration: operational capabilities increasingly depend on data, systems, and organizational arrangements that a tangible-fixed-asset ratio may not capture. The Basel Committee's digitalisation report emphasizes both technological benefits and associated operational risks, making a simple physical-assets-based financing prescription incomplete [17].

5.2. Profitability, equity denominators, and retained earnings

The strong positive ROE association is the main departure from the original pecking-order expectation. One explanation is that profitable banks attract liabilities and expand intermediation. Another is accounting and simultaneity: a smaller equity denominator increases ROE for a given profit, while a smaller equity share implies greater accounting leverage. If balance-sheet and profit definitions were aligned, the familiar relation ROE=ROA/(equity/assets) would make this interdependence transparent. The source does not establish the timing alignment needed to impose that identity numerically, so it is used only as an interpretive illustration.

This distinction prevents a common inferential error. A positive ROE coefficient does not show that managers used profits to increase debt instead of retaining earnings. To investigate that mechanism directly would require retained-earnings flows, equity issuance, dividend decisions, and the composition of liability changes. The negative profitability result in the recent Vietnamese study uses a different profit measure and funding definition [5]. Its contrast with the present estimate is therefore a reason to examine operational measures, not a basis for claiming that one study overturns the other.

5.3. Growth, liquidity, and taxation

The negative growth coefficient is compatible with financing expansion from equity or retained profits, but the observation is insufficient to identify either channel. A ratio can fall because equity increases, liabilities decline, or assets and liabilities change at different rates. Without financing-flow decomposition, the manuscript cannot describe the result as demonstrated self-financing. The missing growth formula further limits interpretation: revenue growth, loan growth, and asset growth represent different economic processes and should not be interchanged.

For liquidity, the absence of clear statistical evidence may reflect offsetting mechanisms, an imperfect proxy, limited within-bank variation, or a genuinely small conditional association. It does not imply that liquidity management is unimportant. For taxation, the positive result is compatible with the tax-incentive channel, but it is less informative than an exogenous change in the relative treatment of debt and equity. Schepens's identification strategy illustrates that distinction [12]. The practical implication is to evaluate financing choices under the actual tax and prudential setting rather than maximize an accounting tax ratio or infer a causal tax shield from its regression coefficient.

5.4. Common shocks and the limits of crisis narratives

The original macroeconomic interpretation is particularly fragile. A calendar merge that assigns different national growth or inflation values to banks in the same year breaks the stated meaning of those variables. A statistically precise coefficient cannot repair that conceptual failure. Even after correction, common policy responses, interest rates, credit demand, and time trends could confound the relationships. The reported crisis coefficient is thus not an event-study estimate, a difference-in-differences result, or a comparison with an untreated banking system.

Published crisis research provides plausible mechanisms but cannot validate this dataset by analogy. Mohammad's Pakistan results show that banks may adjust capital pre-emptively and that the role of bank characteristics can change during a crisis [6]. Such evidence supports a research question about context dependence. It does not supply missing Vietnamese observations or

resolve inconsistent dates. Repairing the calendar series and documenting its provenance are prior requirements for any substantive crisis interpretation.

6. MANAGERIAL IMPLICATIONS, LIMITATIONS, AND FUTURE RESEARCH

6.1. Conditional implications for capital planning

The framework suggests that bank management should assess financing composition and loss-absorption capacity together. A liability ratio belongs alongside the maturity profile of funding, deposit concentration, liquidity resources, asset quality, and regulatory capital. The empirical coefficients do not identify a preferred leverage target. Similarly, a high ROE should be decomposed into operating profitability and the contribution of the equity multiplier before it is used as evidence of superior management. These are implications of the analytical framework, not estimated benefits of a particular managerial intervention.

Growth plans should also distinguish their funding requirements from their accounting outcomes. A bank can expand while strengthening equity, but that pattern must be demonstrated through retained earnings, issuance, and funding flows. Investments in physical infrastructure or digital systems should be appraised for service capacity, operating returns, and resilience, rather than their association with a liabilities ratio. Tax considerations can enter the financing assessment, but they should not supersede liquidity and capital constraints. The documented capacity of capital to support bank survival and market share during financial stress offers a broader performance perspective than leverage alone [18].

6.2. Limitations and a feasible validation agenda

The principal limitations are unresolved measurement, inconsistent common-year coding, and unverified terminal-year provenance. These affect the meaning of the observations, not merely the presentation of the article. The next empirical version requires an auditable bank-year dataset, definitions for every numerator and denominator, a bank-code crosswalk, and links to the underlying financial-statement items. Reported, imputed, and projected observations must be explicitly distinguished. No interpretation of terminal-year observations as audited historical outcomes should be retained without that documentation.

Once the data are validated, the reported models should be replicated and compared with bank fixed effects and appropriately clustered inference. A specification with year effects can examine bank-level associations while absorbing common shocks; it cannot simultaneously identify a full set of national annual regressors. The short time dimension requires caution with macroeconomic inference. Endogeneity should be addressed with a defensible identification strategy rather than by presenting FGLS as a universal correction. Alternative profit measures, liability components, and capital definitions would clarify whether the main relationships reflect financing behavior or accounting construction. These are proposed analyses, not robustness tests already completed.

7. CONCLUSION

The supplied 2012–2024 panel output reports positive leverage associations for size, tangibility, profitability, and the tax-to-profit ratio, a negative association for business growth, and no statistically clear liquidity association. The positive profitability result is inconsistent with the original directional hypothesis but remains compatible with several competing mechanisms, including equity-denominator effects and joint determination. The macroeconomic estimates cannot yet support substantive conclusions because their calendar coding is inconsistent. Taken together, the analysis argues for interpreting bank capital structure through funding composition, retained earnings, and loss-absorption capacity rather than treating leverage maximization as an objective. The empirical contribution remains conditional on data validation and re-estimation; neither an optimal capital structure nor a causal policy effect has been identified.

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