

Third-Party Funds, Financing Risk, and Islamic Bank Profitability: Does GDP Growth Matter?

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ABSTRACT

The profitability of Islamic commercial banks depends on their ability to transform customer funding into productive financing while controlling asset-quality risk across changing economic conditions. However, empirical evidence on the profitability effects of third-party funds (TPF) and non-performing financing (NPF) remains mixed, and the role of GDP growth as a moderator has received limited attention in Indonesian Islamic banking. This study examines whether TPF and NPF are associated with the profitability of Indonesian Islamic commercial banks and whether annual GDP growth changes those relationships. Using a balanced dataset of 12 banks during 2018–2024 (84 bank-year observations), bank-level data were obtained from annual financial reports and the Indonesian Financial Services Authority (OJK), while GDP growth data were obtained from the World Bank. Partial Least Squares Structural Equation Modeling (PLS-SEM) in SmartPLS was estimated separately for 2018–2020 and 2021–2024. Profitability is measured by return on assets (ROA). TPF is not significantly associated with ROA in either phase. NPF is negatively and significantly associated with ROA in 2018–2020 ($p = 0.015$) but not in 2021–2024 ($p = 0.668$). GDP does not significantly moderate either relationship. The findings imply that funding growth alone does not guarantee profitability and that financing quality becomes more visible as an earnings constraint during severe stress. The study contributes by testing the same funding-risk-profitability structure across two economic phases while treating GDP growth as a moderator.

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1. Introduction

Islamic commercial banks perform the core intermediation functions of mobilizing deposits and allocating financing while operating under contractual and prudential arrangements that differ from interest-based banking (Beck et al., 2013). For managers, regulators, and depositors, the sustainability of this intermediation ultimately depends on the bank's ability to generate adequate earnings from its asset base. Return on assets (ROA) is therefore widely used as an accounting indicator of bank profitability because it links net earnings to the resources employed by the institution. In Islamic banking, profitability is especially important because weak earnings can constrain internal capital formation, narrow the institution's ability to absorb financing losses, and reduce the flexibility needed to offer competitive returns to

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investment-account holders. Cross-country evidence also shows that the drivers of Islamic bank profitability are shaped by bank-specific characteristics as well as the economic environment (Safiullah, 2021; Zarrouk et al., 2016).

Indonesia provides a useful setting for examining these relationships. The country operates a dual banking system and has a sizeable Islamic banking segment whose business models range from large national institutions to regional and digitally oriented Islamic banks. Between 2018 and 2024, these institutions experienced markedly different economic conditions. The observation window includes relatively normal pre-pandemic years, the severe disruption associated with the 2020 COVID-19 shock, and a subsequent period of economic recovery. Studies of Indonesian Islamic banks show that the pandemic altered the risk and stability environment and increased the relevance of bank-specific buffers, asset quality, and policy support (S. D. N. Ajizah & Widarjono, 2023; Maria et al., 2022; Rahmadany et al., 2024; Sunarsih et al., 2022). This variation makes it possible to ask whether the determinants of profitability appear similar in stressed and recovering conditions.

One determinant is the volume of third-party funds (TPF), known in the Indonesian banking context as Dana Pihak Ketiga (DPK). TPF consists mainly of current accounts, savings, and deposits collected from customers. It is the principal external funding base for many banks and provides the resources from which financing can be extended. A larger and more stable deposit base can support earning-asset expansion and lower dependence on more expensive sources of funds. Yet the relationship with profitability is not mechanically positive. Funds that are collected but cannot be transformed into productive, appropriately priced, and sufficiently high-quality financing may remain underutilized or be placed in lower-yield instruments. Excess liquidity can consequently dilute asset returns and raise the economic cost of holding funds, a mechanism consistent with evidence that excessive liquidity does not automatically improve bank performance or stability (Ahmad et al., 2022). Indonesian evidence also suggests that the effects of liquidity and funding variables depend on how effectively banks convert available funds into productive assets (Hodi & Wardana, 2023; Hosen et al., 2021).

A second determinant is financing risk. In Islamic banking, non-performing financing (NPF) captures the proportion of financing whose repayment performance has deteriorated. Higher NPF can weaken profitability through several channels: lower realized financing income, higher impairment or provisioning needs, additional monitoring and recovery costs, and reduced capacity to recycle funds into new earning assets. The broader banking literature documents the close relationship between credit quality, liquidity conditions, and bank performance (Imbierowicz & Rauch, 2014). Recent Islamic banking research likewise emphasizes that deteriorating asset quality can become especially consequential in periods of uncertainty or crisis (Fatoni, 2022; Rahmadany et al., 2024). The economic shock of 2020 therefore provides a particularly relevant context for investigating whether NPF becomes more strongly associated with ROA under stress.

Macroeconomic conditions may further shape both mechanisms. GDP growth summarizes changes in aggregate activity, household and business income, and the general ability of borrowers to service obligations. During expansions, stronger demand can improve financing opportunities and repayment capacity; during contractions, the same balance-sheet exposures may become more difficult to manage.

Conventional banking research has long documented the cyclical nature of bank profitability (Albertazzi & Gambacorta, 2009). For Islamic banks, recent evidence similarly finds that macroeconomic conditions and uncertainty can interact with internal risk profiles, although the strength and direction of the effects are not uniform across countries and samples (S. D. Ajizah & Widarjono, 2023; Iqbal et al., 2024; Joudar et al., 2023; Nur Ajizah & Agus Widarjono, 2023; Santosa et al., 2020)

Despite this literature, three gaps remain relevant to the Indonesian setting. First, many studies treat macroeconomic growth as a direct control variable rather than asking whether it changes the relationship between internal bank conditions and profitability. A direct GDP coefficient and a moderating effect answer different questions: the former asks whether economic growth is associated with bank profitability on average, whereas the latter asks whether the profitability consequences of funding or financing risk depend on the state of the economy. Second, studies of Islamic bank stability frequently employ Z-scores or composite indicators (Alfiyan et al., 2023; Amaroh et al., 2024), while studies of profitability often focus on direct effects without a regime-based comparison. Third, evidence covering the full 2018–2024 period remains limited, especially when the same empirical structure is evaluated separately before/at the shock and during the recovery.

This article addresses those gaps by treating ROA explicitly as a measure of bank profitability rather than as a comprehensive measure of financial stability. This distinction is important. ROA measures realized accounting profitability; by itself it does not capture default distance, capital resilience, or earnings volatility. Accordingly, the article does not claim to estimate systemic or insolvency-based stability. Instead, it asks a narrower and more defensible question: how are TPF and NPF associated with Islamic bank profitability, and does GDP growth moderate these associations across two economic phases? The interpretation is deliberately confined to what the ROA-based model can support.

The study offers three contributions. First, it integrates a funding channel (TPF) and an asset-quality channel (NPF) within a single profitability model for Indonesian Islamic commercial banks. Second, it models GDP growth as a moderator of those two relationships rather than only as a background macroeconomic variable. Third, it compares the pattern of results across 2018–2020 and 2021–2024. The comparison is not presented as a formal test that the coefficients are statistically different from one another; instead, it shows whether the same focal paths are or are not detectable in each phase. This cautious interpretation is particularly important because the sample is relatively small and the annual GDP variable supplies only a limited number of distinct macroeconomic observations.

The remainder of the article is organized as follows. The next section reviews the theoretical and empirical relationships among TPF, financing risk, GDP growth, and profitability and develops the hypotheses. The methodology section describes the sample, variables, and PLS-SEM procedure. The results and discussion section reports the descriptive statistics, explanatory power, and bootstrap tests, followed by an interpretation that separates statistically supported findings from plausible but untested mechanisms. The final section presents conclusions, practical recommendations, and limitations.

1. Literature Review

2.1 Islamic Bank Profitability

Bank profitability represents the institution's ability to produce earnings from the resources under its control. ROA is one of the most common indicators because it relates net income to total assets and therefore captures how effectively management deploys the balance sheet. In Islamic banks, profitability reflects the combined outcome of funding costs, financing yields, asset quality, operating efficiency, and the broader business cycle. (Zarrouk et al., 2016) show that Islamic bank profitability is influenced by both internal and macroeconomic factors, while Safiullah (2021) emphasizes that the performance and resilience of Islamic banks cannot be separated from the efficiency with which their specific business model transforms funding into earning assets.

The present study uses ROA strictly as a profitability measure. This choice differs from research that evaluates bank stability through Z-scores or other risk-based indicators. For example, Alfian et al., (2023) evaluate Indonesian Islamic banking stability using a Z-score framework, while Amaro et al., (2024) assess stability with a broader Islamicity-oriented perspective. Those studies are valuable for insolvency or resilience questions, but they do not make ROA synonymous with stability. Reframing the outcome as profitability therefore improves construct clarity while preserving the underlying accounting data and the original SmartPLS estimation.

2.2 Third-Party Funds and Profitability

Third-party funds are the customer-supplied liabilities that finance a large share of Islamic bank intermediation. In operational terms, a larger TPF base can increase the pool of funds available for murabahah, musharakah, mudarabah, ijarah, and other earning activities. If the bank can allocate the additional funds efficiently, revenue may rise faster than funding and operating costs, improving ROA. Deposit growth can also signal customer confidence and reduce reliance on wholesale funding. Indonesian research has therefore frequently treated deposits or liquidity as important determinants of Islamic bank profitability (Hodi & Wardana, 2023; Hosen et al., 2021).

However, the positive mechanism depends on asset deployment. A bank can collect deposits faster than it can identify sufficiently profitable and prudent financing opportunities. In that case, the marginal funds may be held as cash, central-bank placements, or other relatively low-yield assets. (Ahmad et al., 2022) show that excess liquidity can have adverse implications for bank outcomes, highlighting the difference between possessing funds and converting them into productive assets. The possibility is especially relevant in Islamic banking, where permissible investment channels and risk-sharing considerations can constrain rapid asset expansion. Thus, the effect of TPF on ROA is theoretically ambiguous: it can be positive when intermediation is effective, but weak or even adverse when funding accumulation generates idle or low-yield liquidity.

This ambiguity also appears in Indonesian empirical evidence. Hodi & Wardana (2023) examine DPK, financing, and NPF in relation to ROA and demonstrate that not every balance-sheet expansion translates directly into improved profitability. Hasanah & Lutfi (2024) further show that Islamic bank funding itself can respond to economic turbulence, implying that deposit volumes are embedded in a broader behavioral and macroeconomic setting. Rather than imposing a directional prediction,

this study therefore tests whether TPF has a statistically detectable relationship with ROA in each economic phase.

H₁: Third-party funds are significantly associated with the profitability of Indonesian Islamic commercial banks

2.3 Financing Risk and Profitability

Financing risk is expected to be more directly connected to profitability because deteriorating repayment quality affects the income-producing side of the balance sheet. NPF indicates the proportion of financing that has become problematic. When NPF rises, recognized financing income may fall, impairment expenses may increase, and management resources must be diverted to collection, restructuring, or recovery. The result is a plausible negative relationship with ROA. In addition, financing deterioration can constrain subsequent risk-taking because capital and liquidity must be preserved to absorb potential losses.

The link is likely to intensify during macroeconomic stress. A widespread shock can simultaneously weaken the cash flows of households and firms, increase restructuring requests, and reduce new financing demand. The interaction between credit and liquidity risk documented by Imbierowicz and Imbierowicz & Rauch (2014) illustrates why a deterioration in asset quality can spill into broader bank performance. In the Indonesian Islamic banking context, Fatoni (2022), Sunarsih et al., (2022) and Ajizah & Widarjono (2023) show that pandemic-period conditions materially changed the risk environment faced by Islamic banks. Rahmadany et al., (2024) similarly document the importance of liquidity and credit risks during COVID-19 in a dual banking system.

At the same time, the profitability effect of NPF may weaken during recovery if problem accounts are restructured, written down, resolved, or offset by stronger income from other activities. A statistically insignificant relationship after the shock would not mean that financing quality no longer matters; it would mean only that the model does not detect a stable contemporaneous association between NPF and ROA in that subsample. The hypothesis retains the theoretically expected negative direction.

H₂: Non-performing financing is negatively associated with the profitability of Indonesian Islamic commercial banks

2.4 GDP Growth as a Moderator of the TPF–Profitability Relationship

GDP growth can change the economic value of a given funding base. In an expanding economy, business turnover and household income generally strengthen, potentially increasing demand for financing and enabling banks to deploy deposits more productively. Under this mechanism, economic growth could strengthen a positive TPF–ROA relationship. During a contraction, by contrast, weak financing demand and higher uncertainty can make it harder to transform deposit inflows into profitable earning assets. The bank may therefore experience a larger liquidity overhang even when customer funds remain available.

Yet Islamic deposit behavior may also make the moderation weak. Deposits can be influenced by institutional trust, religious preferences, service quality, and transaction needs that do not move one-for-one with the business cycle. Hasanah & Lutfi (2024) emphasize that funding dynamics under economic turbulence are

multifaceted. More generally, macroeconomic studies of Indonesian Islamic banks show that direct macro-financial relationships can vary across specifications and samples (Maritsa & Widarjono, 2021; Santosa et al., 2020). The empirical question is therefore whether annual GDP growth materially changes the profitability implication of TPF, not whether GDP matters for banking in a broader sense.

H₃: GDP growth moderates the relationship between third-party funds and the profitability of Indonesian Islamic commercial banks

2.5 GDP Growth as a Moderator of the NPF-Profitability Relationship

The business cycle can also condition the consequences of financing risk. Stronger GDP growth should, in principle, improve borrower cash flows, reduce new defaults, and facilitate the resolution of troubled exposures. This could soften the negative relationship between NPF and ROA. Conversely, a contraction can amplify the earnings effect of NPF because borrowers are simultaneously exposed to weaker sales, lower income, and tighter liquidity. The cyclical profitability mechanism identified by Albertazzi & Gambacorta (2009) provides the general banking rationale for this expectation.

For Islamic banks, however, moderation need not emerge strongly in annual data. NPF is a bank-level ratio, while national GDP growth is identical for all banks in a given year. If resolution practices, portfolio composition, provisioning, and bank-specific governance differ materially across institutions, those differences may dominate the common macroeconomic signal. Recent evidence on Islamic banks indicates that stability and risk are affected by a broad set of bank-specific and macro factors rather than a single growth indicator (Iqbal et al., 2024). The interaction is therefore an empirical proposition rather than an assumption.

H₄: GDP growth moderates the relationship between non-performing financing and the profitability of Indonesian Islamic commercial banks

3. Research Method

This study uses a quantitative explanatory design based on secondary annual data. The unit of analysis is the bank-year. The population consists of Islamic commercial banks (*Bank Umum Syariah*) operating in Indonesia during 2018–2024. Purposive sampling was applied using two practical requirements: the bank had to operate during the observation period and had to provide the annual information required to calculate ROA, TPF, and NPF. Twelve banks met the criteria, producing a balanced panel of 84 observations (12 banks × 7 years). The sample comprises Bank Syariah Indonesia, Bank Muamalat Indonesia, BTPN Syariah, BCA Syariah, Panin Dubai Syariah, Bank Victoria Syariah, Bank Mega Syariah, Bank Aladin Syariah, KB Bukopin Syariah, Bank Jabar Banten Syariah, Bank Aceh Syariah, and Bank NTB Syariah.

Bank-level data were obtained from official banking publications and annual financial reports compiled through the Indonesian Financial Services Authority (*Otoritas Jasa Keuangan*/OJK). Annual GDP growth was obtained from official macroeconomic data sources, including the World Bank series for Indonesia. OJK's Islamic Banking Statistics provide the sectoral regulatory context and the reference point for the 2024 endpoint of the dataset (Otoritas Jasa Keuangan, 2025; World Bank Group, 2024).

Profitability is measured by ROA, calculated as net income relative to total assets and expressed as a percentage. Third-party funds represent customer current accounts, savings, and deposits; because the nominal values vary substantially across banks, the TPF variable is expressed as the natural logarithm of the harmonized reported amount (Ln_TPF). Financing risk is represented by the NPF ratio, defined as non-performing financing relative to total financing. GDP growth is Indonesia's annual real GDP growth rate. The moderation terms are the product interactions $GDP \times Ln_TPF$ and $GDP \times NPF$.

Table 1. Variable Measurement

Variable	Role	Measurement	Source
ROA	Dependent	Net income / total assets $\times 100$ (%)	OJK / bank annual reports
Ln_TPF	Independent	Natural logarithm of third-party funds (current accounts, savings, deposits)	OJK / bank annual reports
NPF	Independent	Non-performing financing / total financing $\times 100$ (%)	OJK / bank annual reports
GDP growth	Moderator	Annual real GDP growth (%)	World Bank / official macro data
$GDP \times Ln_TPF$	Interaction	Product term used to test moderation	Calculated in SmartPLS
$GDP \times NPF$	Interaction	Product term used to test moderation	Calculated in SmartPLS

Source: Author's operationalization based on the study dataset.

The empirical analysis uses Partial Least Squares Structural Equation Modeling (PLS-SEM), estimated using SmartPLS. All variables are observed single-item constructs. Consequently, the analysis focuses on the structural model rather than multi-item measurement-model diagnostics such as composite reliability or average variance extracted. Following Hair et al., (2021), statistical inference for the focal paths is based on the bootstrapping procedure, with $p < 0.05$ used as the decision threshold. The moderation specification can be represented conceptually as $ROA = \beta_0 + \beta_1 Ln_TPF + \beta_2 NPF + \beta_3 GDP + \beta_4 (Ln_TPF \times GDP) + \beta_5 (NPF \times GDP) + \epsilon$.

To examine whether the pattern of relationships changes across economic conditions, the 84 observations are divided into two subsamples. Phase 1 covers 2018–2020 (36 bank-year observations) and combines the two pre-pandemic years with the peak 2020 shock. Phase 2 covers 2021–2024 (48 bank-year observations) and represents the recovery period. The two models are estimated separately. The comparison focuses on path significance and the coefficient of determination (R^2). Importantly, separate significance results do not constitute a formal statistical test that two coefficients differ across samples. Accordingly, this article describes changes in the pattern of evidence rather than claiming a formally established structural break.

PLS-SEM is used to estimate the specified associational model and its moderation terms. This choice also defines the limits of interpretation. The bank-year observations are treated as pooled records, so the model does not explicitly control for unobserved bank fixed effects or serial dependence in the manner of a conventional panel estimator. The results should therefore be read as associational evidence from the specified PLS model. A panel-data re-estimation is an appropriate robustness extension for future work.

4. Result & Discussion

4.1. Descriptive Statistics

Table 2 presents the descriptive statistics for the full sample. ROA averages 0.94%, with a minimum of -15.70% and a maximum of 13.58%. The relatively large standard deviation of 4.16 percentage points indicates substantial heterogeneity in profitability across bank-years. This dispersion matters for the empirical design because it shows that the sample includes both strongly profitable and loss-making observations rather than a narrow cluster around the industry average.

Ln_TPF has a mean of 2.35 and a standard deviation of 1.26, reflecting the pronounced size differences among Indonesian Islamic commercial banks. NPF averages 2.07%, with values ranging from 0.00% to 4.95%. The national GDP-growth variable ranges from -2.07% to 5.31%, with a mean of 3.89%. The negative minimum captures the 2020 contraction, while the positive upper range reflects the subsequent rebound. This macroeconomic variation provides the basis for the moderation test, although GDP remains a national annual variable and therefore has only seven distinct time values across the 84 bank-year observations.

Table 2. Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Dev.
ROA (%)	84	-15.70	13.58	0.94	4.16
Ln_TPF	84	-0.693	5.791	2.35	1.26
NPF (%)	84	0.00	4.95	2.07	1.30
GDP growth (%)	84	-2.07	5.31	3.89	2.50

Source: Author's calculations from the study dataset (84 bank-year observations).

4.2. Structural Model and Hypothesis Tests

The explanatory power of the model differs across the two phases. In 2018–2020, R^2 for ROA is 0.368, indicating that the set of predictors and interaction terms jointly accounts for 36.8% of the variation in profitability within the PLS specification. In 2021–2024, R^2 falls to 0.181 (Table 4). The decline suggests that the variables included in the model explain a smaller share of the cross-bank and time variation in ROA during the recovery period. It should not be interpreted as proof that any specific omitted factor became dominant; instead, it indicates that a larger proportion of profitability variation lies outside the specified TPF–NPF–GDP framework after 2020.

Table 3 reports the focal bootstrap p-values from the SmartPLS analysis. TPF is not significant in either phase ($p = 0.181$ in 2018–2020; $p = 0.611$ in 2021–2024). NPF is statistically significant in the first phase ($p = 0.015$) and the estimated path is negative, supporting H2 for that phase. In the recovery phase the NPF path is not significant (p

= 0.668). Neither interaction is significant: GDP $\times$ TPF produces $p = 0.178$ and $p = 0.818$, while GDP $\times$ NPF produces $p = 0.747$ and $p = 0.675$. Thus, the study finds no statistical support for GDP growth moderating either focal relationship in either period.

Table 3. Comparative PLS-SEM Results

Focal path	2018–2020 p-value	Decision	2021–2024 p- value	Decision
Ln_TPF $\rightarrow$ ROA	0.181	Not supported	0.611	Not supported
NPF $\rightarrow$ ROA	0.015	Supported (negative path)	0.668	Not supported
GDP $\times$ Ln_TPF $\rightarrow$ ROA	0.178	Not supported	0.818	Not supported
GDP $\times$ NPF $\rightarrow$ ROA	0.747	Not supported	0.675	Not supported

Note: Significance threshold $p < 0.05$. Source: Author's calculations from SmartPLS output.

Table 4. Model Explanatory Power

Dependent variable	R ² (2018–2020)	R ² (2021–2024)
ROA	0.368	0.181

Source: Author's calculations from SmartPLS output

4.3. Third-Party Funds and Profitability

The absence of a significant TPF–ROA relationship in both periods is one of the most consistent findings. The result indicates that differences in the amount of customer funding, after the logarithmic transformation, are not by themselves sufficient to explain profitability in the specified model. This finding is economically plausible because a liability-side expansion generates earnings only when management can deploy the additional resources into assets whose returns exceed their associated funding, operating, and risk costs. A strong deposit franchise is therefore a capacity, not an automatic profit outcome.

One plausible explanation is an asset-deployment constraint. Banks with rapid funding growth may temporarily hold excess liquidity when high-quality financing demand is insufficient, risk appetite is reduced, or permissible investment opportunities are limited. Ahmad et al., (2022) show that excessive liquidity can carry performance and stability costs, while Hosen et al., (2021) emphasize the role of productivity and liquidity in Indonesian Islamic bank profitability. The present result is consistent with that general mechanism, but the mechanism is not directly tested because the model does not include financing-to-deposit ratios, liquid-asset composition, funding cost, or operating efficiency. It is therefore more accurate to describe idle funds as a possible explanation rather than a demonstrated cause of the insignificant TPF coefficient.

The finding also suggests that bank size and funding scale should not be confused with profitability quality. Indonesian Islamic banks differ considerably in business model, target market, asset mix, and cost structure. Two institutions can hold very different TPF volumes but generate similar ROA if the larger bank also bears higher operating costs or allocates a greater share of funds to lower-yield assets.

Conversely, a smaller bank may earn a higher ROA through focused financing, fee-based activity, or efficient operations. This interpretation aligns with the broader literature showing that profitability emerges from the interaction of liquidity, asset allocation, and efficiency rather than from a single balance-sheet aggregate (Mubarok et al., 2024; Zarrouk et al., 2016).

For practice, the implication is not that TPF growth is unimportant. Deposits remain essential to intermediation and liquidity management. The result instead indicates that management should evaluate funding growth jointly with the marginal yield and risk of the assets financed by that growth. Deposit targets that are disconnected from financing capacity can produce a balance-sheet expansion without a corresponding increase in ROA.

4.4. Financing Risk and Profitability across Economic Phases

The most economically informative result is the negative and significant NPF-ROA relationship in 2018–2020, followed by a statistically insignificant relationship in 2021–2024. During the first phase, the p-value of 0.015 indicates that financing quality was materially associated with profitability in the PLS model. The negative direction is consistent with the expected earnings channel: problem financing reduces realized income and can increase impairment expenses and recovery costs. This result accords with research that identifies asset quality as a central vulnerability for banks during crisis periods (S. D. N. Ajizah & Widarjono, 2023; Rahmadany et al., 2024; Sunarsih et al., 2022).

The post-2020 result should be interpreted with care. A p-value of 0.668 means that the model does not detect a systematic contemporaneous NPF-ROA association in the 2021–2024 subsample. It does not establish that NPF ceased to matter economically or that credit-risk management became unnecessary. Several mechanisms could weaken the observed relationship. Restructuring can delay or redistribute the income effects of troubled financing; provisions may already have been recognized earlier; portfolio growth in new, better-performing financing can dilute the ratio; and other profit drivers may become more important as normal activity resumes. Indonesian policy responses during and after the pandemic included financing-restructuring measures intended to prevent temporary borrower distress from immediately becoming a more severe banking impairment. (Fatoni, 2022) and Rahmadany et al., (2024) provide context for why policy and risk management can alter the transmission of shocks to bank outcomes.

However, the present model does not identify the causal effect of restructuring policy. The difference in significance across the two periods is suggestive, not a policy evaluation. Establishing that regulation caused the weaker NPF-ROA association would require an explicit identification strategy, such as a policy discontinuity, difference-in-differences design, or bank-level variation in restructuring exposure. The contribution of the current evidence is narrower: financing risk is statistically visible as a profitability correlate during the 2018–2020 stress window but not during 2021–2024 under the retained PLS specification.

This distinction improves the practical message. In adverse conditions, management should expect asset quality to transmit more quickly into earnings pressure, which strengthens the case for conservative underwriting, early-warning systems, and timely restructuring of viable borrowers. During recovery, the absence

of a significant coefficient should not justify relaxed monitoring. Instead, it suggests that profitability becomes less tightly summarized by a single risk ratio, making a broader dashboard—operating efficiency, capital adequacy, financing mix, provisioning coverage, liquidity, and digital cost structure—more informative.

4.5. Why GDP Growth Does Not Show a Moderating Effect

Neither GDP interaction is significant in either phase. For TPF, $GDP \times Ln_TPF$ yields $p = 0.178$ in 2018–2020 and $p = 0.818$ in 2021–2024. For financing risk, $GDP \times NPF$ yields $p = 0.747$ and $p = 0.675$. The direct conclusion is therefore straightforward: within these data and this PLS specification, annual GDP growth is not shown to change the strength of the TPF–ROA or NPF–ROA relationships.

This finding should not be transformed into stronger behavioral claims that the model did not test. For example, an insignificant $GDP \times TPF$ coefficient cannot by itself demonstrate a religiously driven 'flight to religion' or prove that Islamic depositors are insensitive to macroeconomic conditions. Such an explanation would require depositor-level evidence on motives, switching behavior, or deposit elasticities. Similarly, an insignificant $GDP \times NPF$ coefficient cannot establish a borrower scarring effect. Scarring is a plausible post-crisis mechanism, but it would require borrower-level longitudinal data or a more direct measure of persistent balance-sheet damage. The current evidence supports only the more limited statement that GDP growth does not operate as a statistically detectable moderator in the tested relationships.

There are also methodological reasons why macro moderation may be difficult to detect here. GDP growth is national and annual, so every bank receives the same GDP value within a given year. Although the dataset has 84 bank-year rows, the moderator itself has only seven distinct time observations. The effective variation available to identify macro interaction effects is therefore much smaller than the nominal bank-year count suggests. In addition, bank-level NPF and TPF responses to the same GDP shock may depend on portfolio composition, regional exposure, customer segment, bank size, and management decisions. A single national growth rate can be too aggregate to capture those heterogeneous transmission channels.

The lack of moderation is nevertheless informative for model design. It suggests that future research should consider alternative macro moderators—such as inflation, policy rates, exchange-rate changes, sectoral GDP, unemployment, or regional growth—and perhaps higher-frequency quarterly data. It may also be useful to distinguish the direct macroeconomic effect from cross-level moderation using panel models that explicitly account for time and bank effects. Recent studies of Islamic banking emphasize that risk and profitability emerge from several macro-financial channels simultaneously rather than from GDP alone (Iqbal et al., 2024; Santosa et al., 2020).

4.6. Interpretation of the Declining R^2 and the Study's Contribution

The decline in R^2 from 0.368 to 0.181 reinforces the period-specific interpretation. The TPF–NPF–GDP model explains a meaningful but still limited share of profitability variation during 2018–2020 and substantially less during 2021–2024. A crisis can make a small set of balance-sheet vulnerabilities more salient because many banks face the same broad shock. As the economy normalizes, profitability may again reflect a wider mix of institution-specific factors. Studies of Indonesian Islamic banking point to

productivity, liquidity, digital payment development, internal risk management, and other bank characteristics as relevant dimensions of performance (Hosen et al., 2021; Kasri et al., 2022; Mubarak et al., 2024)

The study's novelty therefore does not rest on claiming that GDP is a successful moderator—it is not. Rather, the contribution lies in testing that proposition and finding that the evidence is concentrated elsewhere. The most stable result is the lack of a direct TPF–ROA association, while the most phase-sensitive result is the NPF–ROA relationship. This combination shifts attention from how much funding an Islamic bank collects to how effectively it deploys funds and manages financing quality, particularly under stress.

The findings also illustrate why statistically insignificant results are useful when interpreted correctly. The absence of GDP moderation narrows the set of mechanisms supported by this sample and discourages over-attribution of bank-level profitability to a single macro indicator. It further highlights the difference between macroeconomic recovery and bank-specific earnings recovery: aggregate GDP can rebound while individual institutions continue to face legacy portfolio issues, operating-cost pressures, or strategic transitions. Conversely, banks may improve profitability despite modest macro changes through internal efficiency and portfolio reallocation.

From a policy perspective, the results support a balanced approach. Regulators should continue to monitor financing quality and liquidity transformation jointly, especially during shocks, but they should not assume that aggregate deposit growth is equivalent to stronger profitability. The evidence is compatible with countercyclical risk management and restructuring tools as useful stabilizing instruments, yet this study cannot estimate their causal effectiveness. For bank management, the immediate recommendation is to connect funding targets with asset-side deployment metrics and to preserve rigorous financing-risk governance across both downturns and recoveries.

4.7. Managerial and Policy Implications

The first managerial implication concerns the quality of balance-sheet growth. Islamic banks commonly set annual targets for customer-fund mobilization because TPF is necessary to support intermediation, liquidity, and market share. The insignificant TPF paths indicate that a funding target should be accompanied by explicit deployment targets: financing utilization, yield on earning assets, cost of funds, liquidity placement returns, and risk-adjusted margin. Management can therefore evaluate a deposit campaign not only by the amount collected but also by the speed and quality with which the incremental funds are converted into earning assets. This is particularly relevant for banks experiencing rapid digital customer acquisition, where deposit balances may grow faster than relationship-based financing capacity.

The second implication is that financing-risk governance deserves additional attention when the macroeconomic environment deteriorates. The significant negative NPF path in 2018–2020 is consistent with a setting in which asset-quality weaknesses become more tightly linked to profitability under stress. Banks should strengthen early-warning indicators, sectoral concentration limits, cash-flow-based underwriting, and recovery capacity before a downturn is fully visible in reported NPF. Provisioning and restructuring decisions should also be evaluated with forward-

looking scenarios rather than based exclusively on contemporaneous GDP growth, because the moderation results show that a national growth rate does not by itself explain how bank-specific NPF translates into ROA.

For regulators, the results support supervision that connects liability growth, asset deployment, and asset quality. Fast deposit growth can be benign when it funds productive and diversified financing, but it can also create a low-yield liquidity burden when asset growth is constrained. Supervisory analysis can therefore combine deposit growth with financing-to-funding measures, liquid-asset shares, provisioning coverage, and profitability trends. During periods of systemic stress, temporary restructuring frameworks may help viable borrowers and banks manage short-term shocks, but the present study does not estimate the causal impact of such policies. Policy effectiveness should be evaluated separately using bank-level exposure to restructuring and an identification strategy suited to causal inference.

5. Conclusion

This study investigates the relationships among third-party funds, financing risk, GDP growth, and the profitability of 12 Indonesian Islamic commercial banks over 2018–2024. By treating ROA explicitly as profitability, the article provides a precise interpretation of the empirical model.

Three conclusions emerge. First, TPF is not significantly associated with ROA in either period. This indicates that the amount of customer funding alone does not explain profitability; the economic value of deposits depends on how efficiently they are transformed into productive earning assets. Second, NPF is negatively and significantly associated with ROA in 2018–2020 but not in 2021–2024. The result is consistent with financing quality becoming a more visible earnings pressure during stress, while the recovery period exhibits a weaker contemporaneous relationship. Third, GDP growth does not significantly moderate either the TPF–ROA or NPF–ROA relationship. The evidence therefore does not support strong claims about depositor religiosity, borrower scarring, or macroeconomic insulation; those mechanisms remain possible topics for separate empirical tests.

For Islamic bank management, the main recommendation is to move beyond deposit-volume targets and evaluate funding performance together with financing deployment, funding cost, liquidity productivity, and risk-adjusted returns. Asset-quality surveillance should remain stringent even when aggregate economic growth improves. For regulators, the results underline the value of monitoring how funding growth translates into asset expansion and how financing risk affects earnings during stress. Countercyclical and restructuring frameworks may be relevant, but their effectiveness should be assessed using designs specifically intended for policy evaluation.

The study has several limitations. ROA is an accounting profitability measure and should not be interpreted as a complete measure of bank stability. The PLS-SEM analysis treats bank-year observations as pooled data and does not explicitly model fixed bank heterogeneity or serial correlation. The two-phase comparison is based on separate significance patterns rather than a formal multigroup coefficient-difference test. In addition, national GDP growth has only seven distinct annual observations, which limits the variation available for interaction effects. Future research can re-estimate the model using fixed-effects or dynamic panel methods, quarterly data, formal multigroup testing, alternative profitability measures, and richer

macroeconomic moderators. For research specifically concerned with stability, Z-scores, earnings volatility, or other risk-sensitive measures should be preferred over ROA alone.

Overall, the evidence suggests that Islamic bank profitability during a major shock is more closely linked to financing quality than to the volume of customer funds, while GDP growth does not appear to condition these relationships in the tested model. The practical priority is therefore not simply to accumulate liquidity, but to convert funding into well-priced, prudently selected, and efficiently managed financing.

7. References

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