

LIQUIDITY, GROWTH, GOVERNANCE AND BANK STABILITY : THE MODERATING ROLE OF BANK SIZE

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ABSTRACT

Banking stability is a key element of financial system resilience. This role is not limited to large commercial banks but also involves rural banks (BPR), which are closely linked to local economic activity. This study examines how liquidity, growth, and governance affect BPR stability, with bank size as a moderating variable. Stability is measured using the Z-Score, based on data from conventional BPRs in Batam during 2021–2024. The analysis applies multiple linear regression and moderated regression. The results show that liquidity (LDR) has no significant effect on stability. In contrast, revenue growth and governance have a significant positive impact. Together, the three variables explain 27.3% of the variation in stability. Bank size does not moderate these relationships, indicating that asset scale alone does not guarantee resilience. The findings highlight that sustainable growth and sound governance matter more for BPR stability than asset expansion.

Keywords : Liquidity, Growth, Governance, Banking Stability, Bank Size

BACKGROUND

Indonesia's economic history records a major crisis in 1997–1998, which began with the monetary crisis. At that time, economic activity was nearly paralyzed as many companies went bankrupt, resulting in a sharp spike in unemployment. This situation was further exacerbated by various national disasters, such as crop failures due to prolonged drought and riots in several regions. The government then implemented various mitigation measures through monetary and fiscal policies, which required significant budget allocations. The impact of the crisis was not only economic but also psychological, with a decline in public confidence in the financial system. The lengthy recovery process confirmed that banking stability is not merely a technical issue but is also closely linked to social and psychological aspects of society.

In this context, banking is one of the main pillars supporting economic growth and maintaining financial system stability. Law No. 10 of 1998 states that banking functions to support economic growth and maintain stability. Bank Indonesia, as the monetary authority, also has a dual role: maintaining monetary stability and financial stability to encourage sustainable economic growth (OJK, 2014). Banking stability is reflected when a bank is able to avoid financial distress, which is often an early sign of bankruptcy (Rohmadini et al., 2018) ; (Andiyanti, 2018).

Recent phenomena demonstrate different dynamics in the banking sector, particularly Rural Banks (BPR). Statistics Indonesia (BPS) data shows that throughout 2020–2022, the number of Conventional BPRs continued to decline, while the number of Sharia BPRs actually increased (Table 1). This decline was largely driven by bankruptcies and consolidations related to weak governance and financial resilience (Kontan.co.id). This situation raises an academic question: what factors determine the sustainability of BPRs in maintaining stability? Financial literature indicates that liquidity, growth, and governance are important factors that deserve attention (Claessens & Yurtoglu, 2013); (Gulati et al., 2023).

Table 1. Banking Growth in Indonesia 2020-2022

Kelompok Bank dan Kantor	Jumlah Bank dan Kantor Bank (Unit)					
	Bank			Kantor Bank		
	2020	2021	2022	2020	2021	2022
Bank Umum Konvensional - Bank Persero	4	4	4	17.307	18.166	13.023
Bank Umum Konvensional - Bank Pembangunan Daerah	25	25	24	4.228	5.122	3.680
Bank Umum Konvensional - Bank Swasta Nasional	58	58	58	7.144	7.193	6.857
Bank Umum Konvensional - Kantor Cabang Bank Asing	8	8	7	38	27	23
Bank Umum Syariah - Bank Pembangunan Daerah	2	2	3	195	190	358
Bank Umum Syariah - Bank Swasta Nasional	12	10	10	1.825	1.833	1.636
Jumlah Bank Umum	109	107	106	30.733	32.531	25.377
Bank Perkreditan/Pembiayaan Rakyat - BPR Konvensional	1.506	1.468	1.441	5.913	5.871	4.603
Bank Perkreditan/Pembiayaan Rakyat - BPR Syariah	163	164	167	627	659	501
Jumlah Bank Perkreditan/Pembiayaan Rakyat	1.669	1.632	1.608	6.540	6.530	5.104

Source : <https://www.bps.go.id>

A company's financial condition can be analyzed using financial analysis tools to determine its financial condition (Armereo et al., 2020). Liquidity reflects a bank's ability to meet its short-term obligations, which is commonly measured by the Loan to Deposit Ratio (LDR).

Banking growth is not merely a number on a financial report, but rather evidence of a bank's ability to sustainably carry out its intermediary function. A healthy bank is able to expand credit, strengthen its public funding base, and maintain asset quality. Growth indicators are usually reflected in asset growth, credit expansion, fundraising, and improved profitability.

As managers of public funds, banks are also required to consistently implement good corporate governance (GCG) principles. Good governance is the foundation for maintaining the integrity, transparency, and accountability of the financial system. For rural banks (BPR), this obligation is regulated in OJK Circular Letter No. 24/SEOJK.03/2020, which emphasizes the importance of good governance for healthy and sustainable bank growth (going concern).

A bank's size alone does not always guarantee stability. The concept of "too big to fail" suggests that large banks have the potential to overexpand or take high risks, assuming government support if they encounter difficulties. This can create moral hazard (Laeven et al., 2016). Conversely, smaller banks are often more flexible and able to adapt to local markets, despite limited capital and diversification. Thus, bank size acts as a moderating variable: it can strengthen the influence of liquidity, growth, and governance on stability if managed well, but also has the potential to create systemic vulnerabilities if regulation and risk management are inadequate.

Previous research on banking stability has shown inconsistent findings. (Setiawati, 2020) found that NPL and LDR significantly influence stability, while CAR did not. Conversely, (Angraini et al., 2024) found that CAR, LDR, and BOPO are significant, while NPL is not. On the other hand, global studies highlight the risks of excessively rapid growth (Laeven & Valencia, 2013) ; (Gulati et al., 2023), but specific research on rural banks (BPR) is still rare. Similarly, research on governance generally focuses on large commercial banks, with little attention paid to the context of rural banks (BPRs), which have distinct characteristics (Shaddady & Moore, 2019). In fact, the role of bank size as a moderating variable in the relationship between liquidity, growth, and governance and stability has not been extensively examined in Indonesia.

Based on empirical evidence, differences in previous research findings, and the limited scope of studies on BPRs, this study aims to provide an empirical contribution by examining "Liquidity, Growth, Governance, and Banking Stability: The Moderating Role of Bank Size."

LITERATURE REVIEW AND HYPOTHESIS

Banking Stability

Banking stability reflects the financial system's ability to perform its intermediary function, allocate resources, and manage risks from external shocks (Swamy, 2014). A commonly used indicator is the Z-Score, which measures the probability of bank failure. A high Z-Score indicates a low risk of bankruptcy (Srairi, 2019). In the context of Rural Banks (BPR), stability is a critical issue because limited capital and business diversification make them more vulnerable to internal and external risks. Research in developing countries also shows that small banks are more dependent on public trust and good governance to maintain sustainability (Gulati et al., 2023).

$$Z - Score = \frac{ROA+CAR}{\partial ROA} \text{ (Sakarombe, 2018)}$$

Liquidity

Liquidity reflects a bank's ability to meet its short-term obligations. A commonly used indicator is the Loan to Deposit Ratio (LDR), which measures the effectiveness of the use of third-party funds in lending.

$$LDR = \frac{\text{Kredit yang diberikan}}{\text{Dana yang diterima}} \times 100\% \text{ (BI Regulation SE BI 13/30/DPNP, 2011).}$$

In theory, healthy liquidity supports stability by ensuring the availability of funds, but both excess and deficit liquidity can pose risks (Setiawati, 2020) ; (Gulati et al., 2023). Empirical findings in Indonesia show mixed results: some find LDR to have a significant effect on stability (Anggraini et al., 2024), while others do not (Setiawati, 2020). This indicates that the institutional context, including the size and business model of the bank, also influences the role of liquidity.

H1: Liquidity influences banking stability

Bank Growth

Bank growth is an indicator of the sustainability of the intermediation function. Banks with healthy growth are able to expand assets, strengthen the public funding base, and maintain asset quality. However, excessive growth without risk mitigation can increase non-performing loans (Laeven & Valencia, 2013). Company growth can be measured by revenue growth. In rural banks (BPR), controlled growth can strengthen customer trust and maintain sustainability (Anggraini et al., 2024). However, due to limited capital and market access, BPR growth is more sensitive to external risks than large commercial banks.

H2: Growth affects banking stability.

Governance

The implementation of good corporate governance (GCG) is believed to strengthen bank integrity, transparency, and accountability (Claessens & Yurtoglu, 2013) ; (Shaddady & Moore, 2019). In the context of BPR, governance is regulated by JK Circular Letter No. 24/SEOJK.03/2020, which requires the disclosure of governance indicators. In this study, governance uses a composite value in the governance report.

H3: Governance affects banking stability

The three internal factors (liquidity, growth, and governance) complement each other in influencing stability. Liquidity provides flexibility, growth strengthens competitiveness, and governance ensures sustainability. Therefore, the simultaneous influence of all three is expected to be significant on banking stability.

H4: Liquidity, growth, and governance simultaneously influence banking stability.

Bank Size

Bank size is often viewed as a proxy for financial strength and managerial capacity. Larger banks tend to be more stable due to their broad business diversification, but they are also vulnerable to moral hazard through the concept of "too big to fail" (Laeven et al., 2016). Bank size can be calculated using the natural logarithm (Ln) of total assets. Research in emerging markets shows that the effect of size on stability is not always linear (Dang et al., 2019). In the context of rural banks (BPR), bank size is expected to act as a moderating variable, although the direction of the effect can vary.

H5: Bank size moderates the effect of liquidity on banking stability.

H6: Bank size moderates the effect of growth on banking stability.

H7: Bank size moderates the effect of governance on banking stability.

Research Methodology

This study uses a quantitative approach because the analyzed data are numerical and can be processed statistically (Sugiyono, 2019). The data source used is secondary data obtained from the financial reports of conventional rural banks (BPR) in Batam for the 2021–2024 period. The study population included all 25 conventional BPRs in Batam, and 15 BPRs were selected as samples using a purposive sampling technique. Data analysis began with descriptive statistics to describe the research variables through mean, maximum, minimum, and standard deviation values (Hafni et al., 2020).

Prior to model testing, classical assumption tests were conducted as a prerequisite for multiple linear regression, including tests for normality, multicollinearity, heteroscedasticity, and autocorrelation. The regression model used is as follows:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + e$$

To test the role of moderating variables (Moderated Regression Analysis/MRA), the model was developed as follows:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4ZX_1 + b_5ZX_2 + b_6ZX_3 + e$$

where:

Y = dependent variable (Z-Score)

a = constant

$b_{1,2,3,4,5,6}$ = regression coefficient

$X_{1,2,3,4,5,6}$ = independent variables (Liquidity, Growth, and Governance)

Z = moderating variable (Bank Size)

Hypothesis testing includes the coefficient of determination, t-test, and F-test.

RESULT AND DISCUSSION

Result

Table 2. Statistic Deskriptive

Variabel	N	Minimum	Maksimum	Mean	Std. Deviasi
Z-Score	45	48,9825	260,2668	117,738082	55,2480432
LDR	45	66,07	112,65	89,3380	11,99742
Growth	45	-13,0113	34,1960	8,684149	10,8289547
GCG	45	1,05	2,72	1,7644	0,36560
Ln Aktiva	45	18,4572	28,5974	25,135842	2,6529414

Source: Processed data, 2025

Descriptive statistics (Table 1) show that banking stability, as measured by the Z-Score, ranges from 48.98 to 260.27, with an average of 117.74 and a standard deviation of 55.25. This value indicates that most rural banks (BPRs) in Batam have a relatively high level of stability, although there is variation between banks. Liquidity, as measured by the LDR, has a minimum value of 66.07 and a maximum of 112.65, with an average of 89.34. This figure indicates that the ability of BPRs to disburse credit is relatively balanced with the funds collected, although some banks have an LDR approaching the high limit. The income growth variable recorded a minimum value of -13.01 and a maximum of 34.19, with an average of 8.68. This illustrates the disparity: some BPRs experienced contraction, while others were able to grow rapidly. The corporate governance (GCG) scores ranged from 1.05 to 2.72, with an average of 1.76, indicating that governance implementation is generally considered quite good. Meanwhile, bank size, as measured by the natural logarithm of total assets, averaged 25.14, with wide variation (18.46–28.59).

Tabel 3. Classical Assumption Test Result

Variabel	VIF	sig.
LDR	1,294	
Growth	1,335	
GCG	1,210	
Kosmogorov-Smirnov		0,200
Durbin Watson		1,218

Source: Processed data, 2025

Before conducting the regression analysis, this study tested the classical assumptions (Table 3). The results showed that all requirements were met: the data were normally distributed (sig. Kolmogorov-Smirnov = 0.200 > 0.05), there were no multicollinearity problems (VIF < 5), there were no symptoms of heteroscedasticity (scatterplot was randomly distributed), and there was no autocorrelation (Durbin-Watson = 1.218 ranging from -2 to +2).

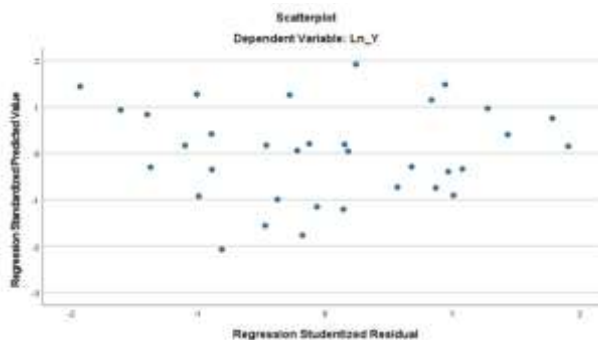


Figure 1. Heteroskedastisitas Test

Table 4. Multiple Linear Regression

Variabel	Unstandardized Coefficient		Standardized Coefficient	t	Sig.
	B	Std.error	Beta		
(Constant)	9,570	2,825		3,387	0,002
LDR	-1,243	0,645	-0,341	-1,926	0,064
Growth	0,106	0,050	0,382	2,122	0,042
GCG	0,964	0,308	0,537	3,136	0,004

Source: Processed data, 2025

The results of multiple linear regression (Table 4) show that:

- 1) Liquidity (LDR) has no significant effect on banking stability (sig. = 0.064 > 0.05). This means the first hypothesis is rejected.
- 2) Revenue growth has a significant positive effect (sig. = 0.042 < 0.05). This means the second hypothesis is accepted.
- 3) Good corporate governance (GCG) has a significant positive effect (sig. = 0.004 < 0.05). This means the third hypothesis is accepted.

Table 5. Coefficient Determinant

Model	R	R Square
	0,522	0,273

Source: Processed data, 2025

Table 6. F Test

Model	Sum of Squares	Df	Mean Square	F	sig.
Regression	1,751	3	0,584	3,753	0,021
Residual	4,667	30	0,156		
Total	6,418	33			

Source: Processed data, 2025

The simultaneous test (F-test) yielded a significance value of 0.021 (<0.05), indicating that liquidity, growth, and governance simultaneously significantly influence stability (Table 5). This indicates that the fourth hypothesis is accepted. The coefficient of determination (R^2) of 27.3% indicates that one-third of the variation in stability can be explained by these three factors, while the remainder is influenced by variables outside the model (Table 6).

Table 7. MRA

Variabel	Unstandardized Coefficient		Standardized Coefficient	T	Sig.
	B	Std.error	Beta		
(Constant)	9,959	2,941		3,386	0,002
LnAktiva*LDR	0,010	0,024	0,294	0,398	0,694
LnAktiva*Growth	0,009	0,020	0,794	0,441	0,663
LnAktiba*GCG	-0,152	0,166	-2,124	-0,914	0,369

Source: Processed data, 2025

Table 8. Coefficient Determinant (MRA)

Model	R	R Square
	0,581	0,337

Source: Processed data, 2025

Moderation analysis (MRA) showed different results. Bank size, proxied by total assets, did not moderate the relationship between liquidity, growth, or governance on stability. All interactions had significance values above 0.05 (Table 7). Thus, the fifth through seventh hypotheses were rejected. However, interestingly, the R square increased from 27.3% to 33.7% after the inclusion of the moderating variables, although this increase was not accompanied by a significant effect (Table 8). This means that bank size provides additional explanatory power to the model, but it does not strengthen the influence of internal variables on stability.

Discussion

The Effect of Liquidity on Banking Stability

The results of this study indicate that liquidity, as proxied by the LDR, does not significantly impact banking stability. This finding aligns with those of Susanto & Kholis, 2016; Setiawati, 2020, who found that LDR is not always a primary predictor of stability, although other studies have shown liquidity to be significant (Ketaren & Haryanto, 2020) and (Anggraini et al., 2024). This difference can be explained by the relatively small size of rural banks (BPRs), their focus on local financing, and their close social ties to the community. These conditions make liquidity pressures easier to manage, for example, through the mobilization of local savings or the support of community networks. In other words, BPR liquidity does not necessarily reflect systemic risk as it does for large commercial banks. Consequently, maintaining BPR stability is not sufficient to rely solely on liquidity indicators; it must be combined with sound governance and growth strategies.

The Effect of Growth on Banking Stability

Growth, as measured by changes in income, has been shown to significantly impact stability. These results reinforce the argument (Laeven & Valencia, 2013) that healthy growth can expand the intermediation function, strengthen the funding base, and increase bank resilience to external shocks. In rural banks (BPR), controlled growth maintains public trust, as reflected in a relatively stable Z-Score. Conversely, overly aggressive growth without risk management has the potential to increase non-performing loans. This provides an important message for BPR managers: expansion must always be accompanied by careful risk management to prevent growth from undermining stability.

The Influence of Governance on Banking Stability

Governance variables significantly influence stability, confirming that governance practices are a crucial foundation for BPR resilience. This finding aligns with research (Claessens & Yurtoglu, 2013) and (Shaddady & Moore, 2019), which emphasizes that governance strengthens transparency, accountability, and public trust. Practically, governance implementation helps BPRs prevent fraud, reduce conflicts of interest, and improve operational efficiency. For example, the implementation of regulations in SEOJK 24/SEOJK.03/2020 encourages rural banks (BPRs) to strengthen the function of commissioners, internal audits, and transparent reporting. Thus, good governance is not only a regulatory obligation but also a business strategy that determines the sustainability of BPRs.

The Influence of Liquidity, Growth, and Governance on Banking Stability

Simultaneously, liquidity, growth, and governance were shown to have a significant influence on stability, contributing 27.3%. This figure is not yet dominant, but it is sufficient to demonstrate that the combination of the three is an important determinant of BPR stability. These results indicate that

stability cannot be maintained by focusing solely on a single factor but rather requires a comprehensive approach that integrates financial aspects (liquidity), business strategy (growth), and institutional management (governance).

The Moderating Role of Bank Size

An interesting finding emerged when examining the role of bank size as a moderating variable. The results showed that bank size did not strengthen the relationship between liquidity, growth, or governance and stability. These results contradict the literature that emphasizes the concept of "too big to fail" (Laeven et al., 2016), which emphasizes that large banks tend to be more stable due to their broader diversification. In the context of rural banks (BPR), limited business scale and specific market segmentation mean that bank size is not a dominant factor. Instead, other factors such as the quality of risk management, social proximity to customers, and regulatory compliance are more important determinants of BPR sustainability.

CONCLUSION AND SUGGESTION

This study shows that internal factors in rural banks (BPRs) contribute differently to stability. Business growth and the implementation of good governance have been shown to play a significant role in strengthening stability, as both promote the intermediation function, expand the customer trust base, and mitigate potential internal risks. Conversely, liquidity, as proxied by the LDR, has no significant effect. This indicates that at the BPR scale, liquidity pressures are relatively more easily managed through social closeness to the community and support from local customers. Simultaneously, all three variables significantly influence stability, although their contributions only explain a small portion of the variation. Therefore, other factors, both external and structural, also influence BPR resilience. Another interesting finding is that bank size does not moderate the relationship between the variables, meaning that asset size cannot be used as a guarantee of stability if it is not balanced with adequate risk management and governance.

Based on these results, several practical implications can be drawn. First, BPR management needs to emphasize a measured growth strategy oriented toward asset quality, rather than solely focusing on quantitative expansion. Second, the implementation of good corporate governance principles should be a strategic priority, as it has been shown to play a significant role in maintaining business stability and sustainability. Third, although liquidity was not found to have a significant impact in this study, rural banks (BPRs) must still maintain a balanced LDR ratio to avoid potential future risks. Fourth, regulators such as the Financial Services Authority (OJK) are expected to strengthen their oversight and mentoring systems, particularly for BPRs with limited assets, so they can grow healthily without sacrificing stability.

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