The Causality Of Liquidity And Profitability In Indonesian Banking

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ABSTRACT

This research examines the causality between liquidity levels and profitability in Indonesia's banking sector. The study will examine bank profitability and external liquidity from 2012 to 2022, using Net Interest Margin (NIM) and Loan-to-Deposit Ratio (LDR). The econometric analysis of panel data will involve using VAR/VECM techniques. The study discovered that an increase in LDR positively impacts NIM, indicating the bank's ability to maintain liquidity flexibility in the short and long term. However, short-term LDR has a negative impact on NIM. The relationship between NIM and LDR is reciprocal, as the Variance Decomposition Model reveals that NIM has a greater impact on its fluctuations than LDR. On the other hand, LDR has a significantly greater impact compared to NIM. Monetary policymakers should consider NIM and LDR because they impact the bank's long-term strategic planning. Furthermore, there is a need for additional training on NIM and LDR analysis among workers.

INTRODUCTION

Banks have a crucial role in allocating cash to various sectors of the economy. They do this by providing loans and making investments. Adequate liquidity helps banks to maintain their lending operations and support economic stability, even during an economic crisis. This promotes growth and development (Acharya et al., 2011); (Lang et al., 2023) (Munteanu, 2012). Financial organizations consider liquidity as a vital aspect of risk management. Liquid funds or assets that can be easily converted to cash help individuals overcome unforeseen financial difficulties and manage market and credit risks. Additionally, it allows them to maintain their capital sufficiency during unfavorable market conditions (Vuong et al., 2023). The liquidity of financial institutions can be dramatically affected by financial crises and economic stress. If a prominent financial institution encounters a deficit in its liquidity, it can initiate cascading events that culminate in financial instability, thereby impacting other banks and the overall economy.

Accessing sufficient liquidity is crucial for a bank to increase profitability (Duan & Niu, 2020). Financial institutions must ensure they possess enough funds to fulfill their responsibilities, capitalize on investment prospects, and extend loans to borrowers. In the event of insufficient financial resources, individuals may potentially forego these possibilities, resulting in financial loss. Therefore, individuals must maintain a delicate equilibrium between economic sufficiency and achieving profitability. Sufficient financial resources are also crucial for ensuring stability and effectively mitigating risk. However, exercising excessive caution with financial resources could result in missed opportunities for financial gain. Hence, financial organizations endeavor to strike a delicate equilibrium between maintaining enough capital reserves, generating profits, and effectively mitigating risk.

The banking industry's profitability is significantly influenced by the Net Interest Margin (NIM), which represents the disparity between the interest accrued from loans and investments and the interest obligations associated with savings and loans (Almarzoqi & Naceur, 2015); (Tran et al., 2016). Banks can effectively handle these margins by maintaining sufficient liquidity, guaranteeing that the expenses associated with obtaining funds are lower than the returns generated on the assets retained. The impact of LDR on NIM is significantly determined by how the bank allocates its accessible funds. When the bank possesses sufficient liquidity, it can deploy funds more adaptable and exercise discretion in selecting investments or loans that can yield a more significant NIM (Yuksel & Zengin, 2017). In contrast, the Return on Assets (ROA) metric quantifies how much a financial institution profits from its whole portfolio of owned assets. While the influence of liquidity on return on assets (ROA) is not as evident as in the case of NIM, it nevertheless has a role. An abundance of liquidity can lead to a decrease in the productivity of assets, hence impacting the ROA. However, it is essential to note that this phenomenon is mainly influenced by the effectiveness of fund management rather than the ideal levels of liquidity. In the interim, the Return on Equity (ROE) metric evaluates the efficacy of using capital possessed by the shareholders of a financial institution. Effective liquidity management holds significant importance within the banking industry due to its direct impact on the returns generated from assets and equity. A bank's utilization of equity capital to mitigate liquidity difficulties may affect the ROE. Nevertheless, the correlation between liquidity and ROE is frequently intricate and not readily discernible in ROE measurements. Liquidity heavily influences the allocation of resources and management of funds in banks. Its impact is most noticeable in the NIM, the difference between interest income received and interest costs paid. Sufficient liquidity helps banks optimize this spread, constituting NIM's primary element.

Therefore, liquidity plays a significant role in managing and allocating banking funds and resources, with the most immediate and easily observable effect being on the NIM. With ample funds on hand, financial institutions are in a position to optimize their NIM, which is calculated as interest income less interest expenses.

Research regarding the causation between liquidity and profitability (Olarewaju, 2018) states a unidirectional cause-and-effect relationship running from liquidity to profitability for certain banks on bank deposits in Nigeria. This is also supported by the research of (Islam, 2020), which states that there is a one-way causal relationship between profitability and liquidity for public banks, while there is no clear causal relationship for private commercial banks in Bangladesh. The findings additionally corroborate that various categories of banks exhibit distinct behaviors within Bangladesh. Consequently, policymakers must take this into account when formulating policies. Both researchers investigated causal links but did not identify a directional relationship between the two variables. Instead, they only observed a unidirectional relationship between liquidity and profitability. Meanwhile, (Gill, 2022) demonstrates a negative correlation between liquidity and profitability within the framework of corporate financial management. This link implies that endeavors to enhance profitability may be achieved at the cost of liquidity, while excessive focus on liquidity may adversely affect profitability.

This study's objective is to analyze the potential causality between liquidity levels and profitability in the banking sector of Indonesia. The causal relationship between LDR and NIM is significant in overseeing overall financial stability. The government and regulators can utilize this data to comprehend the potential systemic risks that may arise due to changes in the banking sector's LDR and NIM. Hence, understanding the relationship between liquidity levels and profitability in Indonesia's banking context is crucial for aiding decision-makers, market observers, and banking practitioners in making data-driven decisions.

LITERATURE REVIEW

Numerous studies have examined the causal relationship between liquidity and profitability, consistently yielding findings that support a unidirectional influence from the liquidity variable to profitability. However, no evidence of a reciprocal relationship has been observed. According to (awad & jayyar, 2013), it has been argued that there is a unidirectional causal relationship between liquidity and profitability in the banking sector. This suggests that the level of liquidity in palestinian banks has a substantial impact on their profitability. The findings of the unidirectional causal relationship between liquidity and profitability in the banking sector suggest that the degree of liquidity in a bank has a notable impact on its profitability. (olarewaju, 2018) similarly discovered a unidirectional causal association between liquidity and profitability for specific nigerian banks, specifically concerning bank deposits. The observation above is substantiated by the scholarly investigation conducted by (islam, 2020), wherein it is demonstrated that a unidirectional causal association exists between profitability and liquidity in the context of public banks. Conversely, the causal relationship between these variables remains inconclusive for private commercial banks in bangladesh.

In the framework of corporate financial management, (gill, 2022) has concluded that a negative correlation exists between liquidity and profitability. In this context, endeavors to enhance profitability may be accompanied by reduced liquidity, while excessive focus on liquidity may adversely affect profitability. The findings of a study conducted by (hakimi & zaghdoudi, 2017) demonstrate that the adverse effects on profitability resulting from credit and liquidity risks are evident in both individual analyses of these risks and their combined impact on banking in the mena area. Simply put, a bank's profitability can suffer from credit or liquidity risk.

(fauzie, 2023) revealed that there is no discernible causal relationship, whether one-way or two-way, between liquidity creation and profitability within the banking sector of indonesia. In indonesia, there is a lack of empirical data indicating a meaningful relationship between fluctuations in bank liquidity creation and bank profitability. Similarly, the reverse relationship has not been substantiated.

Previous studies have produced numerous conclusions about the relationship between liquidity and profitability. According to (pak, 2020), adherence of banks in the eaeu region to the prescribed minimum level of net stable financing ratio (nsfr) established by financial regulatory bodies can mitigate financing liquidity issues and potentially impact the nim of these banks. When systemic banks are obligated to adhere to the more stringent net stable funding ratio (nsfr), it is possible that this could exert a more significant adverse influence on their nim. This is due to the potential necessity of augmenting their funding expenses and diminishing the profits derived from their loan offerings. According to (tran et al., 2016), banks that exhibit a propensity to generate increased liquidity while simultaneously carrying a heightened risk of illiquidity may encounter difficulties in attaining elevated levels of profitability. This can be attributed to the amplified risks they face throughout their operations. Hence, banks must strike an optimal equilibrium between the generation of liquidity and the effective management of illiquidity risks to attain favorable levels of profitability. (abbas et al., 2019) suggest that within the domain of prominent banks in the united states (usa), liquidity during the post-crisis era is associated with a detrimental effect on profitability—the auditory perception of sound stimuli. Conversely,

research indicates that in developing countries in asia, enough liquidity is having a favorable impact on the profitability of commercial banks. In the aftermath of a crisis, it is expected that banks in emerging asian economies will see enhanced liquidity levels, which is anticipated to have favorable outcomes regarding their profit generation capabilities.

METHODS

The research will utilize secondary data consisting of quarterly data spanning from 2012 to 2022. The dataset encompasses various metrics, including NIM as a measure of profitability and LDR as an indicator of external liquidity for banks. The chosen study methodology entails using econometric panel data analysis techniques, explicitly incorporating the ADF unit root test and Johansen cointegration test, and applying impulse response function (IRF) and forecast error variance decomposition (FEVD). Data processing was conducted in three distinct study stages, as indicated by the accompanying table.

For econometric analysis of monetary, financial, and banking phenomena, the VAR/VECM model is widely used. It is a highly effective method for studying the interconnectedness of economic variables and constructing systematic economic models. The study model was developed to examine the bank's external liquidity (LDR) effect on profitability (NIM) in light of the theoretical framework and the established link between variables.

RESULTS

The First Step In The Var/Vecm Technique Is To Check For Stationarity Of The Independent Variables. In Table 1, The Results Of Stationarity Tests Have Been Carried Out On All Variables Involved In The Analytical Model. According To The Results Of An Initial Stationarity Test, Neither The Nim Nor The Ldr Are Level-Stationary. However, When The Stationarity Test Was Carried Out Using Initial Differences, The Findings Showed That All Variables Became Stationary At A Lower Level.

Table 1 Panel Unit Root Test: Summary (Levin, Lin & Chu T*)

Level			
Variables	**T-Statistic**	**Prob.****	**Result**
NIM	-0.9067	0.1823	Non-statitioner
LDR	-1.3239	0.0928	Non-statitioner
First Difference			
Variables	**t-Statistic**	**Prob.****	**Result**
NIM	-8.6219	0.0000	Stationary
LDR	-14.269	0.0000	Stationary

Table 1 Shows Four Instances Of Cointegration In The Banking Data, All With Trace Statistical Values Smaller Than The 0.05 Threshold. Because Of The Identified Cointegration, The Recommended Estimating Strategy Is To Apply Vecm. There Is Only One Instance Of Cointegration In This Result, Where The Trace Statistic Value Is Greater Than The Significance Level Of 0.05. Since We Have Identified At Least One Example Of Cointegration, The Vector Error Correction Model (Vecm) Will Also Be Used In This Investigation.

Table 2 Johansen Cointegration Test

No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob
None*	0.04954	34.57978	15.49471	0.000000
At most 1*	0.02671	12.02055	3.841465	0.000500
At most 2*	0.353	308.196	15.495	0.0000

The Lr, Fpe, Aic, And Hq Values Are Calculated In This Study To Determine The Best Lag To Use. This Computation Shows That Several Factors Suggest That Lag Two Is The Best Choice. Thus, We Selected Lag Two As The Ideal Lag Value In The Model Utilized. This Indicates That The Events Of The First And Second Preceding Periods Affect The Current Period.

Table 3 Optimal Lag Length

Lag	LogL	LR	FPE	AIC	SC	HQ
0	1391.8	NA	7.72E-06	-6.09	-6.07	-6.08
1	2078.4	1364.3	3.87E-07	-9.08	-9.03	-9.06
2	2115.7	73.688*	3.34e-07*	-9.23*	-9.14*	-9.19*

Var Stability Testing Is Necessary To Guarantee Accurate Values And Outcomes. When The Modulus Of All Roots Is Less Than One, The Model Is Considered Stable. According To Table 4, All Model Roots Have A Modulus Smaller Than 1. Therefore, We May Conclude That The Var Model Utilized Is Stable At The Latency, Deemed The Optimal Lag.

Table 4 Var Stability Testing

Root	Modulus
0.957464	0.957464
0.866765	0.866765
-0.34384	0.343844
-0.1296	0.129604

Granger Causality Test

A Granger Causality Test Is Conducted To Assess The Presence Of A Bidirectional Relationship Between The Nim And The Ldr. Based On The Findings Obtained From The Data Analysis, It Was Determined That The P-Value (Prob) Was 0.0002, A Value Significantly Lower Than The Predetermined Significance Level (A) Of 5%. As A Result, The Null Hypothesis Is Rejected, Concluding That A Statistically Significant Relationship Exists Between The Nim And Ldr. Similar Findings Are Observed In The Impact Of Nim On Ldr, With A P-Value Of 0.0003, Indicating Statistical Significance At A Level Below The Predetermined Alpha Of 5%. Hence, It Can Be Inferred That The Nim Substantially Influences The Ldr.

Table 5 Granger Causality Test

	Chi-sq	Prob.	Description
D(LDR) ➔ D(NIM)	17.292	0.0002	Significant
D(NIM) ➔ D(LDR)	16.197	0.0003	Significant

Based On The Granger Relationship, There Appears To Be A Causal Link Between The Ldr And The Nim. This Research Demonstrates A Reciprocal Effect Between These Two Variables. However, The Specific Direction Or Pattern Of This Interaction Remains Uncertain. This Suggests That While Ldr Could Influence The Nim Or Vice Versa, It Is Unclear Which Variable Serves As The Cause Or Effect Of This Interaction. Therefore, It Is Recommended That Additional Research Or Comprehensive Observations Be Conducted To Gain A Broader Understanding Of The Intricate Dynamics Involved In The Relationship Between Credit Distribution Levels And The Net Interest Margin Imports Within The Framework Of Granger Analysis.

Vecm Analysis

After Completing A Cointegration Test, It Was Discovered That The Model Displays Cointegration. Consequently, We Employed The Vector Error Correction Model (Vecm) To Examine The Association Between Nim And Ldr. Vecm Facilitates The Identification Of The Relationship Between These Variables In Both The Short-Term And Long-Term.

Table 6 Coefficient Of Integration Estimate Between Nim And Ldr In Long-Term

Cointegrating Eq:	CointEq1	t-Test
NIM(-1)	1	dependent
LDR(-1)	0.533 ***	[4.725]
C	-0.539	

t-table = 2.333 at α=1%; 1.648 at α=5%; 1.283 at α=10%

The Findings Presented In Table 6 Demonstrate The Outcomes Of The Long-Term Vector Error Correction Model (Vecm) Analysis. Specifically, The Study Reveals A Positive Association Between The Ldr(-1) Variable, Representing Liquidity, And The Nim(-1) Variable, Representing Banking Profitability. Based On The Present Context, It Can Be Inferred That There Exists A Positive Correlation Between Ldr And Nim. This Implies That An Increase In Ldr, Signifying Enhanced Mobility Of Bank Funds, Is Associated With A Corresponding Rise In Nim, Suggesting Improved Profitability In The Banking Sector. The Ldr Variable Exhibits A Positive Coefficient Value Of 0.533, Indicating That A One Percent Increase In Ldr Can Yield A 53.3% Rise In Nim Over An Extended Period. When The Loan-To-Deposit Ratio (Ldr) Grows, Banks Often Observe A Corresponding Increase In The Number Of Loans Extended Relative To The Number Of Funds Held In Deposits. Financial Institutions Generate Interest Income Through The Provision Of Loans To Their Clientele. The Disparity Between Loan Interest Rates And Deposit Interest Rates Can Augment The Bank's Overall Interest Income.

When Banks Have A Higher Ratio Of Lending Operations, Resulting In Increased Interest Earnings, Compared To The Receipt Of Deposits And Payment Of Interest, It Creates Favorable Circumstances For Banks To Enhance Their Fund Management Efficiency. Financial Institutions Can Improve Their Interest Income By Effectively Optimizing The Utilization Of Their Available Money. This Finding That Liquidity Has A Positive And Significant Effect On Profitability Is Consistent With The Findings Of (Hariatih & Aziz, 2022); (Thinh & Vietnam, 2022) But Not With The Findings Of (Javid et al., 2023); (Pranowo et al., 2020).

Table 7 Coefficient Of Integration Estimate Between Nim And Ldr In Short-Term

Error Correction:	D(NIM)	D(LDR)
CointEq1	-0.0092***	-0.2916***
	[-2.211]	[-4.712]
D(NIM(-1))	-0.0398	2.064***
	[-0.794]	[2.762]
D(NIM(-2))	0.0317	-1.997***
	[0.631]	[-2.665]
D(LDR(-1))	-0.0147***	-0.449***
	[-4.107]	[-8.422]
D(LDR(-2))	-0.0045*	-0.0821*
	[-1.315]	[-1.602]
C	-6.62E-05	0.00288
	[-0.218]	[0.6351]
R-squared	0.094	0.290
Adj. R-squared	0.0835	0.282

t-table = 2.333 at α=1%; 1.648 at α=5%; 1.283 at α=10%

According To The Short-Term Vecm Analysis, The Coefficient Of Adjustment Is -0.0092 And Is Statistically Significant. This Means That The Imbalance Or Disequilibrium Will Be Corrected By 0.92 Percent In The Upcoming Quarter, Bringing About Equilibrium In The Long Run. Table 7 Shows A Negative Short-Term Causal Relationship Between Ldr And Nim. Additionally, There Is Evidence Of Negative Causality In D(Nim), Which Is Negatively Influenced By D(Ldr(-1)) And D(Ldr(-2)). In Contrast, D(Ldr) Is Negatively Affected By D(Nim(-1)) And D(Nim(-2)).

Based On The Brief Vecm Research, It Was Found That Ldr Had A Significant Negative Impact On Nim. A Central Bank's Ability To Influence Economic Dynamics Through Monetary Policy Transmission Heavily Depends On The Credit Transformation Process. When A Central Bank Reduces Its Benchmark Interest Rate, Commercial Banks Follow Suit And Reduce Interest Rates On Client Loans. However, There Is A Delay In This Operation. While Lower Interest Rates Should Eventually Lead To More Bank Interest Revenue Through Increased Loan Expansion, In The Current Environment, It Takes Time For This Effect To Materialize. This Is Because It Takes Time For Newly Allocated Credit To Be Converted Into Consumer Loans And To Generate Additional Interest Income.

It Is Important To Note That Banks May Face A Challenge In The Short Term As They Wait For The Expected Increase In Interest Income. Banks Carry The Interest Burden On Previously Spent Funds That May Lead To Slim Profit Margins Or Even A Drop In Income. This Lag In The Monetary Transmission Process Is Crucial To Appreciate As It Affects How Banks Respond To Interest Rate Policies Implemented By The Central Bank. Understanding This Temporal Lag Can Help Improve The Appraisal Of Monetary Policy's Immediate Effects, Even As It Has A Favorable Influence On Banks' Interest Income In The Long Run. These Findings Are Consistent With Those Found In Studies By (Alshatti, 2015); (Bordeleau & Graham, 2010) But At Odds With Those Found By (Lartey et al., 2013); (Najam et al., 2022).

Understanding The Connection Between Nim And Ldr Is Crucial In Banking Operations. The Nim Fluctuations From The Prior Period Greatly Impacted The Ldr Changes In The Next Quarter. A Stronger Nim Leads Banks To Pursue Loan Opportunities And Expand Credit Distribution Actively. At The Same Time, A Reduction In Profitability Or Nim Over The Previous Two Periods May Cause Banks To Be More Cautious In Taking Out Loans Or Raising Ldr. Banks Are More Likely To Rely On External Finance Sources To Boost Profitability After A Time In Which Profitability Has Increased. However, A Reduction In Profitability Or Nim In The Previous Two Periods May Cause Banks To Be More Cautious When Taking Out Loans Or Raising Ldr Due To The Large Negative Influence Of Nim Changes In The Preceding Two Periods On Ldr.

In Addition, Banks' Attitudes Toward Their Reliance On External Sources Of Capital Are Affected By Their Efforts To Minimize Risks That Develop When Profitability Drops. Therefore, Comparing Nim Shifts From The Prior Era To Ldr Is Essential To Gain Insight Into How Banks Allocate Financing And Distribute Credit In Response To Internal Circumstances. Internal And External Factors Affect The Dynamics Of Banking And The Financial System's Stability. The Comparison Of Nim Shifts From The Previous Period To Ldr Helps Clarify The Factors That Banks Consider When Responding To These Factors.

Impulse Response Function (Irf)
The Irf Is Used To Analyze How All Variables In A System React To A Disturbance (Shock) Of One Standard Deviation At Any Given Time. We Examine How Endogenous Variables In The Var Model Respond To Changes Or Disruptions In Exogenous Variables Using The Irf Study. One Variable's Standard Deviation Represents The Degree Of Change Caused By The Innovation. Our Study Focuses On How The Ldr, A Measure Of The Bank's External Liquidity, Affects The Nim, A Measure Of Its Profitability. We Anticipate The Results Of The Following 30 Quarterly Periods. The Irf Helps Understand How Nim Responds To Shocks And Variations In The Ldr Variable. The Attached Figure Displays The Outcomes Of Our Investigation.
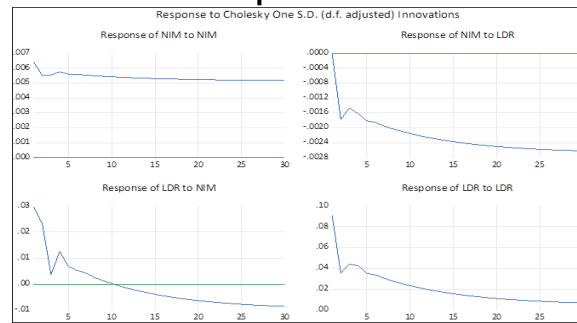
Figure 1 Nim And Ldr Response To Shock In Each Variable

Figure 1 Depicts The X Axis As Representing The Predicted Period Of The Utilized Data. The Numerical Values Provided Pertain To The Sequential Quarter Periods After The Most Recent Data, Specifically The 30th Quarter. In The Context Of The Graph, The Y Axis Represents The Response To The Variable That Is Altered When A Shock Is Applied To The Partner Variable. A Comprehensive Elucidation Of Figure 1 Is Provided Herein. The Sequence Of Panels 1 To 4 Adheres To A Clockwise Direction.

DISCUSSION

The Non-Interest Margin (Nim) Responds To A Shock Of Non-Interest Margin (Nim)

A Variance Of One Standard Deviation In Nim During The First Quarter Led To A Statistically Significant Rise In Nim Of 6.6%. The Response Above Subsequently Experienced A Decline During The Second Quarter, Reaching A Total Of 5.6%. Following This, There Were Minor Variations In The Reaction, Culminating In A Peak Of 5.8% During The Fourth Quarter, Followed By A Consistent Decrease Until It Reached A Steady Level Of Approximately 5.2% By The Twenty-Second Quarter.

The Non-Interest Income Margin (Nim) Response To A Loan-Deposit Ratio (Ldr) Shock.

No Statistically Significant Relationship Was Observed Between A One Standard Deviation Change In The Ldr During The First Quarter And The Corresponding Nim Response. However, Over The Initial Two Periods, There Was A Noticeable Shift Towards A Negative Response, Ultimately Reaching A Value Of -0.18%. Moreover, The Observed Reaction Slightly Decreased During The Third Quarter, Reaching A Value Of -0.15%. The Negative Response Exhibited A Consistent Decline, Ultimately Stabilizing At Approximately -0.026% By The 25th Quarter.

The Response Of Loan To Deposit Ratio (Ldr) To Shock Of Net Interest Margin (Nim)

The First-Quarter Period Was Significantly Increased By One Standard Deviation In The Nim, Which Resulted In A Corresponding Positive Response Of 3% In The Ldr Variable. The Reaction After That Exhibited A Slow Decline Until It Reached A Value Of 0.33% During The Third Quarter. However, It Subsequently Saw An Increase, Rising To 1.2% In The Fourth Quarter. Later, The Reaction Significantly Decreased, Reaching A Complete Absence In The 10th Quarter. Following This, It Exhibited A Negative Trajectory, Remaining Consistently At A Rate Of -1% From The 27th Quarter Onwards.

The Response Of Loan To Deposit Ratio (Ldr) To Shock Of Loan To Deposit Ratio (Ldr)

A Variation Of One Standard Deviation In The Ldr During The First Quarter Resulted In A 9% Increase In The Ldr. However, There Was A Significant Decrease In The Ldr During The Second Quarter, Reaching 3.5%. Subsequently, There Was A Modest Rise, Culminating At 4.3%, During The Third Quarter. This Was Succeeded By A Subsequent Decline That Persisted Until It Reached A State Of Stability In The 25th Quarter, With An Approximate Response Rate Of 1%.

Analyzing The Nim And Ldr Responses To Changes In The Two Variables Reveals A Noteworthy Response Pattern. The First Reaction Of Nim To Changes In Nim Exhibits A Notable Upward Trend, Succeeded By A Subsequent Decline And Variability Before Attaining Equilibrium. Nevertheless, The Alterations In Ldr Did Not Show A Noteworthy Reaction To The Harmful Impact Of Nim. At The Same Time, A Detrimental Response Gradually Emerged Over Time. However, It Should Be Noted That The Initial Positive Reaction Of The Ldr To Variations In The Ldr Itself Diminishes Over Time, Exhibiting Fluctuations Before Attaining A State Of Stability. The Various Reaction Patterns These Variables Show Illustrate Their Capacity To Adapt And Readjust Following An Initial Phase Of Strong Response. The Present Analysis Offers Valuable Insights For Decision-Makers Within The Banking Sector, Aiding In Effectively Managing Risks And Formulating Strategies To Address Fluctuations In The Financial Landscape. The Observed Response Highlights The Significance Of Comprehending How Crucial Variables In The Banking Sector React To Alterations. This Understanding Is The Foundation For Making Adaptive And Efficient Decisions To Sustain Long-Term Stability And Well-Being In The Banking Industry.

Variance Decomposition/Vardec

Variance Decomposition (Fevd) Analysis Is A Method That Can Be Employed To Investigate The Influence Of Other Factors On Changes In Error Variance, Which In Turn Reflect Changes In A Given Variable. The Analysis Of Variance Decomposition (Fevd) Elucidates The Proportional Contribution Of Individual Shocks To The Factors That Affect Nim And Ldr In The Major Banks Operating Within The Indonesian Context. The Temporal Scope Employed In This Fixed Effects Vector Decomposition (Fevd) Analysis Encompasses 30 Quarters.

Figure 2 Variance   Decomposition/ Vardec Analysis
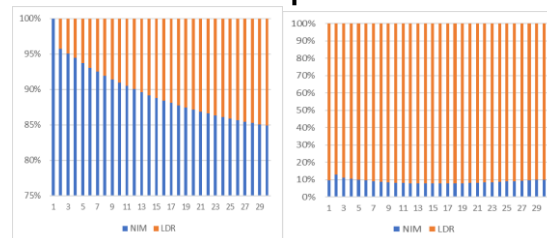
Based On The Findings Of The Variance Decomposition Model I Analysis, Depicted In The Accompanying Graphic, It Is Possible To Get An Estimation Of The Degree To Which The Ldr Research Variable Affects The Nim Variable. At The Onset Of The Period, It Was Seen That The Nim Variable Had A Substantial Self-Influence Of 100%. During The Specified Time Frame, The Ldr Variable Contributed To The Nim Variable, Accounting For 4.24% Of Its Overall Value. Over The Studied 30 Quarters, The Average Impact Of The Variables Affecting Nim Was Found To Be 89.48% For Nim Itself And 10.52% For Loan-To-Deposit Ratio (Ldr). The Effect Of The Nim Variable Experienced A Decline From 100% In The 1st Quarter To 84.89% In The 30th Quarter. Conversely, The Influence Of The Ldr Variable Exhibited An Upward Trend, Starting At 0.00% In The 1st Quarter And Steadily Increasing To 4.24% In The 2nd Quarter, Eventually Reaching 4.95% By The 30th Quarter. Hence, The Findings Derived From The Fevd Analysis Suggest That The Nim Variable Holds The Highest Degree Of Influence On Nim In Large Conventional Banks, With The Ldr Variable Following Closely.The Extent To Which The Nim Research Variable Affects The Ldr Variable Can Be Detected Based On The Findings Of The Variance Decomposition Model 2 Analysis (Refer To The Graphic On The Right). At The Onset Of The Time Frame, The Ldr Variable Notably Impacted Its Value, Amounting To 90.40%. Subsequently, The Nim Variable Commenced Exerting A 12.86% Influence On The Ldr Variable During The Initial Period. Throughout The Examined 30-Quarter Period, The Average Impact Of The Variables Affecting The Loan-Deposit Ratio (Ldr) Was Found To Be 89.99% For The Ldr Itself And 10.00% For The Net Interest Margin

(Nim). The Impact Of The Ldr Variable Decreased From 90.40% (1st-Quarter) To 89.99% (30th-Quarter). However, The Influence Of The Nim Variable Demonstrated An Initial Increase From 9.60% (1st-Quarter) To 12.86% (2nd-Quarter), Followed By A Subsequent Fall To Attain 10.00% (30th-Quarter). The Findings Of The Fevd Study Indicate That The Ldr Variable Holds The Highest Level Of Influence On The Ldr In Central Conventional Banks, Followed By The Nim Variable.In General, The Findings From Both Models Indicate The Presence Of A Mutual Relationship Between Nim And Ldr In Major Traditional Banks. The Variable With The Most Significant Impact Is Nim, Followed By The Influence Of Ldr. Conversely, It Can Be Observed That Ldr Exerts A Substantial Effect On Its Own, Albeit With A Lesser Magnitude Than The Influence Of Nim. This Observation Highlights The Intricate Interplay Between Nim And Ldr, Wherein Both Factors Reciprocally Impact One Another And Influence Banking Performance And Decision-Making.

CONCLUSION

Long-term and short-term data demonstrate that increased LDR (suggesting more liquidity flexibility of bank funds) benefits NIM. However, an increase in LDR over a short time frame has been shown to have a deleterious impact on NIM. In addition, the Variance Decomposition Model shows that NIM and LDR have mutual effects; nevertheless, NIM is more influential on itself than LDR is. On the other hand, LDR is substantially more significant than NIM combined. These findings illuminate the correlation between NIM and LDR in the banking sector. To ensure the health and growth of the financial system throughout time, it is essential to have a firm grasp of the sector's intricacies. The results have important ramifications for risk management, banking strategy development, and monetary policy assessment.Adaptive and efficient decision-making in the banking sector involves knowledge of changes in crucial banking variables. The association between banks' NIM and their LDR has various policy and banking sector strategy recommendations. Banks can hedge against potential changes in NIM and LDR by increasing their risk assessments and diversifying their asset holdings. Because of their importance to banks' long-term strategic planning, NIM and LDR should be taken into account by monetary policymakers. More time and effort should be spent teaching workers about NIM and LDR analysis. Money must be managed well to be best used between saving and loaning, especially when the LDR fluctuates. It is essential to work with financial authorities to assess the impact of external policies and provide help in the face of structural changes. For financial institutions to adapt to shifts in NIM and LDR, they need internal policies that consider these factors, such as simulation approaches and scenario planning. Maintaining open lines of communication between financial institutions regarding policies, risk awareness, and strategic decisions is crucial to the banking industry's growth. If the bank incorporates these suggestions into its strategic planning, the financial system will be less vulnerable to fluctuations in NIM and LDR.

SUGGESTION

1. Focus on the Indonesian Banking Industry: This study solely focuses on the Indonesian banking industry. Therefore, generalizing findings to the banking contexts of other countries may not be entirely relevant.
2. Measurement Methods for Liquidity and Profitability: The use of specific methods to measure liquidity and profitability can influence research outcomes. This study is constrained by the methods available and chosen by the researchers.
3. Macroeconomic Context and Regulation: Macroeconomic factors and regulatory changes affecting the banking industry may not be fully addressed in this research. This limitation could restrict understanding of external factors that may impact the relationship between liquidity and profitability

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