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The Effect of Operational Efficiency and Capital Adequacy Ratio on Bank Rakyat Indonesia Stability Moderated by Inflation and Economic Policy Uncertainty

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ABSTRACT

This paper investigates the impact of operational efficiency, capital adequacy ratio, inflation, economic policy uncertainty on Bank Rakyat Indonesia Stability. Using a sample of BRI quarterly financial statements from 2006 to 2024 with a total of 74 observations. Data analysis in this research used Smart PLS 3.0. The results show that operational efficiency, capital adequacy ratio, and economic policy uncertainty have a significant negative impact on the stability of BRI Bank. Inflation has a significant positive impact on the stability of BRI Bank. Additional analysis shows that economic policy uncertainty can weaken the influence of the capital adequacy ratio on the stability of BRI bank. The findings of this study highlight EPU as an additional procyclical factor influencing bank behavior, strategies and policies.

Keywords: Bank Stability, Operational Efficiency, Capital Adequacy Ratio, Inflation, Economic Policy Uncertainty.

1. Introduction

Banking stability plays an important role in the development of the real economy and financial system (Wang, 2023). A resilient banking sector can increase investor confidence, promote sustainable growth, and mitigate the adverse effects of economic shocks. When banks are stable and well capitalized, they are better able to support lending activities, thereby stimulating investment and consumption in the economy. This will ultimately create conditions that support stable and sustainable economic growth.

Banks are an important element of the financial system and are more sensitive to macroeconomic policy fluctuations (Nguyen, 2021). Bank as an institution that plays a role in intermediation, have the task of channelling funds from those who have excess funds to those who lack funds. A stable bank can be more resilient to shocks or uncertainty in economic conditions (Yensu et al., 2021).

Bank stability is reflected in the condition of a healthy bank and can play a role as a financial intermediary smoothly, so that it can provide trust to customers (Jabra, 2020). Bank stability is influenced by internal and external factors. Internal factors are factors that can be controlled by management such as efficiency and capital adequacy ratio (Setiawati, 2020). While external factors or macroeconomic conditions such as inflation and economic policy uncertainty can also affect bank stability (Maudy et al., 2024; Shabir et al., 2021).

In this study, BRI Bank will be the subject of study because it has a strategic role as a financial intermediary institution. In this study, Bank BRI will be the subject of study because it has a strategic role as a financial intermediary institution. Based on the processed data, the capital adequacy ratio at Bank BRI tends to decline in the 2014-2020 period and is inversely proportional to its stability. From these data, it can be seen that the capital adequacy ratio which should have a positive effect actually has a negative effect. This study will answer whether there is a positive or negative effect of the capital adequacy ratio on the stability of BRI Bank and other factors that affect its stability.

2. Literature Review

2.1 Financial Intermediation Theory

(Gurley & Shaw, 1956), financial intermediation theory states that banks are intermediary institutions that function to provide funds from parties in surplus to those in deficit. The intermediation function arises due to high monitoring costs, liquidity costs, and price risk caused by information imbalances between fund owners (households/net savers) and fund users (corporations/net borrowers) (Siringoringo, 2012). Therefore, an intermediary is needed that can accommodate the needs of both parties (Saunders & Cornet, 2014).

2.2 Efficiency Theory

Efficiency can be defined as the ratio between output and input (Kost & Rosenzweig, 1979). From the perspective of economic theory, there are two types of efficiency, namely technical efficiency and economic efficiency. Economic efficiency has a macro scope with a wider reach compared to technical efficiency which has a micro scope. Technical efficiency measurement is limited to technical and operational relationships in the process of converting inputs into outputs. Therefore, efforts to improve technical efficiency are more directed towards micro policies that are internal in nature, namely by managing and allocating resources optimally.

2.3 Bank Stability

Bank stability includes financial soundness, ability to handle sudden changes, favourable risk situations such as economic downturns, market disruptions, or large losses (Amidu & Wolfe, 2013).

2.4 Operational Efficiency

Efficiency can be interpreted as the use of costs to obtain profits smaller than the benefits obtained (Nugroho & Nurul, 2018).

2.5 Capital Adequacy Ratio

Capital adequacy is an important factor that must be fulfilled by banks for business development and is useful as a risk bearer for losses that may be faced by banks (Fakhrudin & Fatoni, 2023).

2.6 Inflation

Inflation is a situation where prices in general experience a continuous and persistent increase in an economy (Fatoni & Sidiq, 2019).

2.7 Economic Policy Uncertainty

Economic Policy Uncertainty (EPU) relates to a situation where the future direction of economic policy is uncertain, difficult to predict and has a negative impact on economic activity (Coronado et al., 2020).

2.8 Hypothesis Development

2.8.1 The effect of operational efficiency on bank stability

Efficiency refers to the bank's ability to maximise its income by minimising its costs. Banks that are able to manage their operating costs well, will encourage increased profitability which is an indicator of bank health and stability. BOPO is used as a proxy for operational efficiency. Previous research conducted by Dwinanda & Sulistyowati (2021); Fakhrudin & Fatoni (2023); Yitayaw et al. (2023) concluded that BOPO has a negative impact on bank stability. The lower the level of this ratio, the more efficient the bank is in controlling its operating costs, so the possibility of the bank experiencing financial problems becomes smaller. By achieving efficiency, especially in managing costs, banks can offer competitive costs, increase distributed funds, obtain maximum profits, and improve the overall health of the bank. Based on the findings of previous researchers, this study will formulate a hypothesis:

H1: BOPO has a negative effect on the stability of BRI Bank

2.8.2 The effect of inflation on bank stability

Several studies have found that inflation has a negative effect on bank stability (Dewi & Saraswati, 2024; Jayakumar et al., 2018; Sri Setiawati, 2020). Inflation increases, people tend to divert their funds for consumption needs and reduce their savings in banks because it is considered less profitable, especially if interest rates in banks cannot keep up with the existing inflation rate. From the bank's side, the existence of high and unpredictable inflation has an impact on the disruption of its intermediary function because the funds raised become less so that it has an impact on bank liquidity. Bank liquidity can be disrupted due to cash flow problems caused by a decrease in the number of depositors, a decrease in credit demand, and increased short-term liquidity needs. Increased short-term liquidity needs can be caused by large-scale withdrawals made by customers. High inflation can also increase operating costs, increase funding costs as a result of Bank Indonesia's interest rate policy so that it can reduce the profit margin earned by banks. Based on the findings of previous researchers, this study will formulate a hypothesis:

H2: Inflation has a negative affects on the stability of Bank BRI

H3: Inflation weakens the relationship between operational efficiency and stability of Bank BRI

2.8.3 The effect of capital adequacy ratio on bank stability

Financial intermediation theory explains the role of banks as institutions that manage risk and ensure efficient allocation of funds. In this case, banks are required to have adequate capital to absorb the risk of losses associated with lending and borrowing activities. Banks that have good capital adequacy can be more resilient in the face of crises and economic shocks, so as to increase customer confidence.

Research conducted by Huu Vu & Thanh Ngo (2023); Ketaren & Haryanto (2020); Rustendi (2019) concluded that CAR has a positive impact on bank stability. It can be concluded that banks with high capital adequacy tend to have better stability because they have a higher capital buffer and can be used as a reserve in the event of a loss. Based on the findings of previous researchers, this study will formulate a hypothesis:

H4: Capital adequacy ratio has a positive affect on the stability of BRI Bank

2.8.4 The effect of economic policy uncertainty on bank stability

The results of research by Nguyen (2021) & Shabir et al (2021) that economic policy uncertainty has a negative impact on bank stability. This can occur because during periods of high economic uncertainty until the crisis results in a decrease in the availability of bank capital and liquidity used to absorb losses. This decline is caused by the increasing number of loan defaults from debtors

Uncertainty about economic policies can also affect cash flows and risk perceptions, causing banks to be more cautious in lending and investing. A decrease in cash inflows, an increase in cash outflows, and an inability to manage risk properly can cause banks to experience liquidity and solvency problems that negatively impact bank stability.

H5: Economic policy uncertainty has a negative effect on the stability of Bank BRI

H6: Economic policy uncertainty weakens the relationship between capital adequacy ratio and stability of BRI.

3. Research Methodology

This type of research is quantitative. The data to be used in this study are secondary data in the form of financial statements, inflation data and quarterly economic policy uncertainty index for the period 2006-2024 using decomentation technique and Smart PLS analysis tools.

4. Results

4.1 Research Data Description

This study uses secondary data in the form of financial statements, inflation data, and quarterly economic policy uncertainty index. The data were taken from BRI's official website www.ir-bri.com, www.bi.go.id for inflation data, and www.policyuncertainty.com for economic policy uncertainty data. The collected data are for the period 2006 - 2024 so that the total number of observations is 74 observations.

4.2 Descriptive statistics

Table 1 reports the summary statistics for all variables used in this analysis.

Table 1. Descriptive Statistics

	N	Mean	Median	Min	Max	Standar Deviation
Bank Stability (Y)	74	0,052	0,052	0,028	0,074	0,010
Operational Efficiency (X1)	74	0,695	0,701	0,599	0,812	0,051
Capital Adequacy Ratio (X2)	74	0,192	0,196	0,132	0,253	0,034
Inflation (Z1)	74	0,052	0,044	0,014	0,169	0,031
Economic Policy Uncertainty (Z2)	74	1,724	1,570	0,595	3,823	0,763

4.3 Hypothesis Results

Table 2 reports the result summary results of the hypothesis analysis.

Table 2. Hyphotesis Results

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Information
EFF -> STAB	- 0, 596	- 0, 595	0, 051	11, 729	0, 000	Negative Significant
INF -> STAB	0, 244	0, 235	0, 105	2, 318	0, 021	Positive Significant

EPU->STAB	- 0, 290	- 0, 288	0, 070	4, 137	0, 000	Negative Significant
CAR-> STAB	- 0, 255	- 0, 266	0, 082	3, 123	0, 002	Negative Significant

Based on the results of hypothesis testing in Table 2, the original sample value of operational efficiency is -0.596 (negative effect) indicating that when operational efficiency decreases by one unit, it will increase bank stability by 0.596. The p value of operational efficiency variable is (0.000 < 0.05). The conclusion is that H1 is accepted, which shows that operational efficiency has a negative and significant effect on bank stability.

The original sample value of inflation of 0.244 (positive effect) indicates that when inflation increases by one unit, it will increase bank stability by 0.244. The p value is (0.023 <0.05). It is concluded that H2 is rejected, inflation has a positive and significant effect on bank stability.

The original sample value of the capital adequacy ratio of -0.255 (negative effect) indicates that when the capital adequacy ratio decreases by one unit, it will increase bank stability by 0.255. The p value of the capital adequacy ratio variable (0.002 <0.05). The conclusion is H4 is rejected, the capital adequacy ratio has a significant negative effect on bank stability.

The original sample value of economic policy uncertainty of -0.290 (negative effect) indicates that when economic policy uncertainty decreases by one unit, it will increase bank stability by 0.290. The p value of the economic policy uncertainty variable (0.000 <0.05). The conclusion is that H5 is accepted, economic policy uncertainty has a significant negative effect on bank stability.

4.4 Moderation Results

Table 3 reports the result summary results of the moderation analysis

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Information
X1*Z1	0, 011	0, 018	0, 063	0, 178	0, 859	Positive not Significant
X2*Z2	- 0, 211	- 0, 200	0, 075	2, 801	0, 005	Negative Significant

Table 3. Moderation Analysis

From the moderation analysis results in table 5, it can be seen that the inflation variable as moderation has an original sample value of 0.011 with a p value (0.859 > 0.05), which indicates an insignificant effect. In other words, the inflation variable does not moderate the effect of operational efficiency on bank stability. Therefore, H3 is rejected, inflation does not moderate the relationship between operational efficiency and bank stability.

Economic policy uncertainty variable as a moderating variable has an original sample value of -0.211 (negative sign) and p value (0.008 <0.05) which means significant. This means that economic policy uncertainty has a significant effect in weakening the effect of capital adequacy

ratio on bank stability. Therefore, H6 is accepted, economic policy uncertainty weakens the relationship between the effect of capital adequacy ratio on bank stability.

4.5 Detemination Coefficient

Table 4. Determination Coefficient Test

	R Square	R Square Adjusted	Category
STAB	0,851	0,837	Strong

The Adjusted R Square value in table 4 is 0.837 (84%), indicating that the operational efficiency variable, capital adequacy ratio, inflation, and economic policy uncertainty are able to explain the bank stability variable by 84%. Meanwhile, the remaining 16% is explained by other factors not related to the study.

5. Discussion

5.1 The effect of operational efficiency on the stability of Bank BRI

The results of hypothesis testing in table 2 show that operational efficiency has a negative and significant effect on the stability of Bank BRI. This finding is consistent with the results of previous research conducted by (Dwinanda & Sulistyowati, 2021; Fakhrudin & Fatoni, 2023; Yitayaw et al., 2023). The higher the ratio of its efficiency level (BOPO), the lower the stability of Bank BRI, and vice versa. The high level of BOPO ratio reflects that the bank has higher costs compared to its income. This is in line with the concept of operational efficiency which focuses on the company's ability to produce maximum output and use optimal inputs.

5.2 The effect of inflation on the stability of BRI Bank

Hypothesis testing in table 2 shows that inflation has a positive effect on the stability of BRI Bank. This finding is in accordance with research conducted by (Pham et al., 2021; Phan et al., 2019; Yensu et al., 2021). However, these results are not in accordance with previous research by Dewi & Saraswati (2024); Jayakumar et al. (2018); Mabkhot & Al-Wesabi (2022) which state that inflation has a negative effect on bank stability.
In addition, according to Phan et al. (2019), low and moderate inflation tends to increase economic stability and encourage business investment, thereby increasing loan demand. This can contribute to an increase in profit from loans which has a positive impact on bank stability. In line with this statement, most of the inflation data in this study is low and moderate, ranging from 1 to 6 percent.

5.3 The effect of inflation on the relationship between operational efficiency and stability of Bank BRI

The moderation test results in table 3 show that inflation does not moderate the relationship between operational efficiency and stability of BRI. Operational efficiency focuses on the bank's ability to manage resources well, minimise costs, and improve productivity. Although inflation can affect operational costs and bank stability, the results state that inflation does not significantly affect the relationship between operational efficiency and bank stability.
This can happen because Bank BRI has an ideal level of efficiency, which ranges from 50-75% with a maximum BOPO only at 81% so that it can be said that Bank BRI has been optimal in managing its resources and risks, even in some high inflation conditions.

5.4 The effect of capital adequacy ratio on the stability of Bank BRI

Through hypothesis testing in table 2, the results show that the capital adequacy ratio has a negative and significant effect on the stability of BRI Bank. Igbinosa & Naimo (2020) suggest that the capital adequacy ratio has a negative effect on bank stability. This can occur because after the 2008 financial crisis, there are stricter requirements regarding the minimum capital adequacy of a bank. These rules give the impression that banks have more funds at their disposal, making banks feel safer and more likely to take riskier actions. However, such actions can be dangerous as banks may make bad decisions, such as choosing unprofitable investments or acting recklessly because they feel safe, which can ultimately reduce the stability of the bank.

5.5 The effect of economic policy uncertainty on the stability of Bank BRI

The results of testing the effect of economic policy uncertainty on the stability of Bank BRI in table 2 resulted in the conclusion that the uncertainty of economic policy has a negative and significant effect on the stability of Bank BRI. This finding is in line with several previous studies by (Nguyen, 2021; Shabir et al., 2021; Wang, 2023). The research shows that banks are intermediary institutions that are sensitive to macroeconomic policy fluctuations. Periods of high uncertainty and unfavourable economic conditions result in a decline in asset quality due to increased credit risk, increased liquidity risk, which in turn can reduce bank stability.

5.6 The effect of economic policy uncertainty on the relationship between capital adequacy ratio and stability of Bank BRI

Through the moderation test results in table 3, it is found that the uncertainty of economic policy weakens the effect of capital adequacy ratio on the stability of BRI Bank. In line with research conducted by Mendy et al. (2023), which found that economic policy uncertainty significantly negatively affects the capital adequacy ratio. A period of high economic uncertainty can result in a decrease in the amount of capital owned by the bank. The decrease in capital can be caused by an increase in credit risk and liquidity risk (Wang, 2023). This declining capital condition ultimately makes banks more careful in managing risks such as making investment decisions and lending policies.

6. Conclusion

The results show that operational efficiency, capital adequacy ratio, and economic policy uncertainty have a significant negative impact on the stability of BRI Bank. Inflation has a significant positive impact on the stability of BRI Bank. Additional analysis shows that economic policy uncertainty can weaken the influence of the capital adequacy ratio on the stability of BRI bank. The findings of this study highlight EPU as an additional procyclical factor influencing bank behavior, strategies and policies.

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