

The Influence Of Interest Rates, Inflation And Exchange Rates On Banking Profitability In Indonesia

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Abstract

This research aims to determine the influence of monetary and macroeconomic variables on the profitability of banking in Indonesia. The independent variables used are the Interest Rate (BI-Rate), Inflation, Exchange Rate, and for the dependent variable, the Return On Assets (ROA) of banks in Indonesia for the period 2009-2023. The method that will be used in this research is Panel Data with analysis using the Eviews 12 application. The research results show that interest rates do not affect the profitability of state-owned banks or private banks. The inflation variable has different effects on the profitability of each bank, namely it affects state-owned banks (BUMN) but does not affect private banks. Similarly, the Exchange Rate has different effects on each bank's profitability, namely, it does not affect State-Owned Enterprises (BUMN) banks and does affect Private banks

Keywords: Profitability, ROA, Interest Rates, Inflation, Exchange Rates

INTRODUCTION

Financial institutions are pillars of the economy and play an important role in consumers daily lives (Chawla et al., 2023). The health of the economy depends, in large part, on the strength of its financial sector. The stronger it is, the healthier the economy. A weak financial sector typically means the economy is weakening (Kenton, 2024). The banking sector occupies a pivotal role within the financial sector, serving as a crucial intermediary in the process of allocating resources to various investment opportunities (Doğan & Yildiz, 2023).

According to Republic of Indonesia Law No. 10 of 1998 concerning banking, a bank is defined as a business entity that collects funds from the public in the form of savings and distributes them to the public in the form of credit and/or other forms with the objective of improving the standard of living of many people (Kasmir, 2017). The overall strength and stability of an economy are significantly influenced by the performance of banks. Banks are key players in providing credit to individuals and businesses, promoting investment, creating job opportunities, and supporting financial stability in an economy (Sharmin, 2023).

According to the available data, a significant proportion of Indonesia's financial sector assets are under the control of banking institutions, thereby underscoring the critical interdependence between financial system stability and banking stability. It is evident that the level of risk encountered by banking institutions is directly proportional to the magnitude of potential disruption to the financial stability of Indonesia (Silalahi & Falianty, 2022).

The banking industry plays a pivotal role in ensuring a country's financial stability by serving as a trustworthy financial intermediary (Suryanto et al., 2024). A lack of trust may limit access to financial services. This lack of trust might lead consumers to avoid or underutilize financial services, which can limit financial inclusion. Financial inclusion promotes consumers to have and use savings accounts, loans, and other services that are important to reaching financial goals (Chawla et al., 2023).

Today, one of the most used ratios in determining bank profitability is return on assets (ROA). ROA is a percentage-based ratio that measures how effectively a bank uses its assets to generate profits. It reflects the bank’s operational efficiency, performance, and overall profitability (Obeid, 2023). ROA is principally an indicator of managerial effectiveness. This ratio is indicative of the efficacy with which the bank's management team is able to transform its assets into net income. The return on assets (ROA), which is defined as the profit a bank generates from its total assets, can be regarded as an indicator of operating efficiency. When examining ROA, it is important to consider its relationship to the bank's profit margin and operating income (Karadayi, 2023).

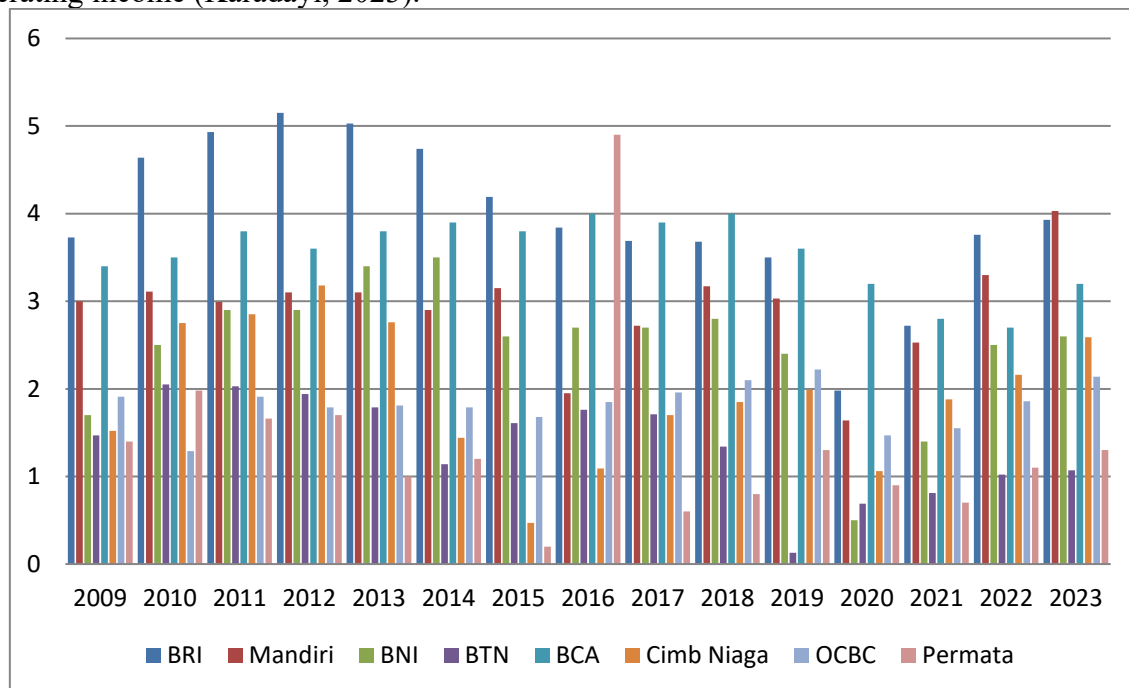


Figure 1 ROA of Banks In Indonesia

Source: Annual Reports of State-Owned and Private Banks, 2025

Based on Figure 1 above, it can be seen that the Banks Return on Assets in Indonesia continue to fluctuate every year. The return on assets provides information on how efficiently a bank is being run because it indicates how much profit is generated, on average, by each dollar of assets (Mishkin, 2019). According to (Karadayi, 2023) The larger the ROA coefficient obtained, the more successfully the company's assets are considered to be used to generate profits.

Profitability can be influenced by two factors: internal and external. Stable, profitable banking performance enables banks to withstand negative economic pressures and contributes to financial system stability (Zhang & Dong, 2011). Internal factors are elements that originate from within the bank, such as capital adequacy, employees, company management, products offered, services, interest rate policies, and so on. External factors include monetary policy, exchange rate changes, inflation, interest rate volatility, globalization, technological advancements, and rivalry between banks or non-bank financial institutions, which on the other hand are factors that cannot be controlled (Doğan & Yildiz, 2023).

Although external factors are not directly related to bank management, these factors still have a significant impact on the economy and regulations, which ultimately affect the performance of financial institutions (Fitriany & Nawawi, 2021).

External factors suspected of influencing profitability in this study are the Bank Indonesia Interest Rate, Inflation, and the Exchange Rate. The Bank Indonesia Interest Rate constitutes the interest rate established by Bank Indonesia to serve as a reference point for banking institutions in determining the interest rates for loans (credit) and deposits (debit) offered to customers. Interest rate stability is a prerequisite for the efficient flow of funds to individuals who can make productive investments. This, in turn, contributes to the stabilization of economic activity (Irwandi et al., 2023). Bank Indonesia's primary objective is to maintain the stability of the rupiah exchange rate. The BI-Rate serves as the policy interest rate that reflects the direction of Bank Indonesia's monetary policy and is communicated openly to the public. The BI-Rate also serves as an indicator of the short-term interest rate expected by Bank Indonesia in order to achieve its inflation target (Bank Indonesia, 2020).

The objective of this study is to examine the impact of Bank Indonesia's interest rate, inflation rate, and exchange rate on banking profitability in Indonesia during the period from 2009 to 2023. Profitability is measured using the Return on Assets (ROA) indicator, with the research objects covering state-owned enterprise (BUMN) banks and national private banks

RESEARCH METHODS

The objective of this study is to quantitatively analyze the influence of interest rates, inflation rates, and exchange rates on banking profitability in Indonesia from 2009 to 2023. Profitability is measured using Return on Assets (ROA), which includes state-owned banks (BUMN) and private banks. The independent variables in this study encompass monetary policy and macroeconomic indicators, including interest rates, inflation, and exchange rates. The data were obtained from a variety of official sources, including Bank Indonesia, the International Monetary Fund (IMF), the Central Bureau of Statistics (BPS), and bank annual reports. The analysis was conducted using a panel data method with the aid of EViews 12 software to ensure the attainment of statistically accurate results.

Model Specification

This study uses panel data to examine the effect of interest rates, inflation, and exchange rates on banking profitability in Indonesia. The following is the specification of the equation used:

$$ROA_{it} = \alpha + \beta_1 IR_{it} + \beta_2 INF_{it} + \beta_3 EXC_{it} + \epsilon_{it}$$

Description:

ROA = Return On Assets

i = Number of Banks

t = Time Period

IR = Interest Rate

INF = Inflation

EXC = Exchange Rate

ϵ = Error

RESULTS AND DISCUSSION

Table 1 Model Selection Test Results (State-Owned Banks)

Test Name	Hypothesis	Value	Results
Chow Test	H0: If the prob value . > 0.05 (Common Effect)	0.0000	FEM
	H1: If the prob value. < 0.05 (Fixed Effect)		
Hausman Test	H0: If the prob value. > 0.05 (Random Effect)	1.0000	REM
	H1: If the prob value. < 0.05 (Fixed Effect)		
Lagrange Multiplier	H0: If the prob value. > 0.05 (Common Effect)	0.0000	REM
	H1: If the prob value. < 0.05 (Random Effect)		

Source: Eviews 12 Data Processing Results, 2025

Table 2 Model Selection Test Results (Private Banks)

Test Name	Hypothesis	Value	Results
Chow Test	H0: If the prob value . > 0.05 (Common Effect)	0.0000	FEM
	H1: If the prob value. < 0.05 (Fixed Effect)		
Hausman Test	H0: If the prob value. > 0.05 (Random Effect)	1.0000	REM
	H1: If the prob value. < 0.05 (Fixed Effect)		
Lagrange Multiplier	H0: If the prob value. > 0.05 (Common Effect)	0.0000	REM
	H1: If the prob value. < 0.05 (Random Effect)		

Source: Eviews 12 Data Processing Results, 2025

Based on the test results in tables 1 and 2, it can be concluded that the most appropriate model to use is the Random Effect Model. Therefore, the subsequent model testing and discussion are based on the Random Effect Model.

Table 3 Estimated Generalized Least Square Result (State-Owned Banks)

Independent Variable	ES	VIF	t_{table}	Coefficient	Std. Error	$t_{statistic}$	Prob.
Interest Rate	+	5.896205	2.001	0.010629	0.221506	0.047987	0.9619
Inflation	+	6.878686	2.001	0.364113	0.174379	2.088061	0.0414
Exchange Rate	-	1.523215	2.001	-0.003272	0.003021	-1.082894	0.2935
Constant							1.194202
F-Statistic							13.81228
Adjusted R²							0.394480
Prob. F_{statistic}							0.000001
F_{Table}							2.76
Obs							60

Source: Eviews 12 Data Processing Results, 2025

Table 4 Estimated Generalized Least Square Result (Private Banks)

Independent Variable	ES	VIF	t_{table}	Coefficient	Std. Error	$t_{statistic}$	Prob.
Interest Rate	+	5.896205	2.001	0.016799	0.358467	0.268993	0.7889
Inflation	+	6.878686	2.001	-0.041540	0.062452	-0.706756	0.4826
Exchange Rate	-	1.523215	2.001	-0.039442	0.018249	-2.161314	0.0350
Constant							1.998655
F-Statistic							1.583078

Adjusted R^2	0.028794
Prob. $F_{statistic}$	0.203655
F_{Table}	2.76
Obs	60

Source: Eviews 12 Data Processing Results, 2025

In this study, the independent variables consist of three variables: interest rates, inflation, and exchange rates. The dependent variable is Return on Assets (ROA) in Indonesian banking. This test will assess probability compared to the alpha significance level (0.05).

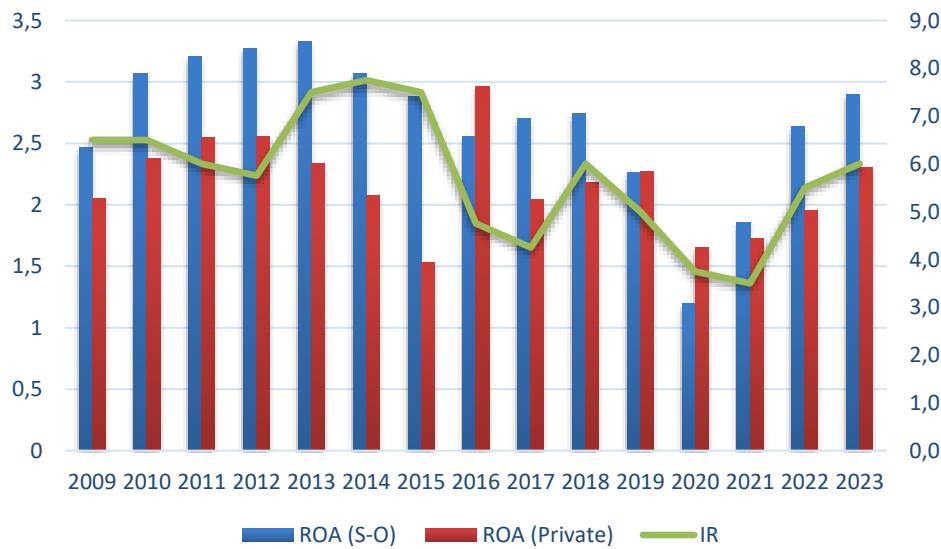


Figure 2 Trend of Interest Rate and Banks ROA

Source: International Monetary Fund, 2025

This study found that interest rate has no significant effect on state-owned and private banks. The results of this study are in line with (Dwijayanthi & Naomi, 2009) The interest rate issued by the central bank is a policy created by changes in inflation. As inflation fluctuates, it becomes unstable, necessitating the creation of interest rate policies. Therefore, interest rates have no direct impact on bank profitability. Banks cannot raise or lower interest rates abruptly because this risks creating interest rate risk, namely the potential for losses due to changes in interest rates that can erode net assets and limit the bank's ability to distribute credit (Hoffman et al., 2018). Furthermore, unexpected interest rate increases can depress the net interest margin (NIM) through a decrease in interest-bearing assets and the potential withdrawal of funds by depositors seeking higher returns, thereby pressuring the bank's profitability (English et al., 2012).

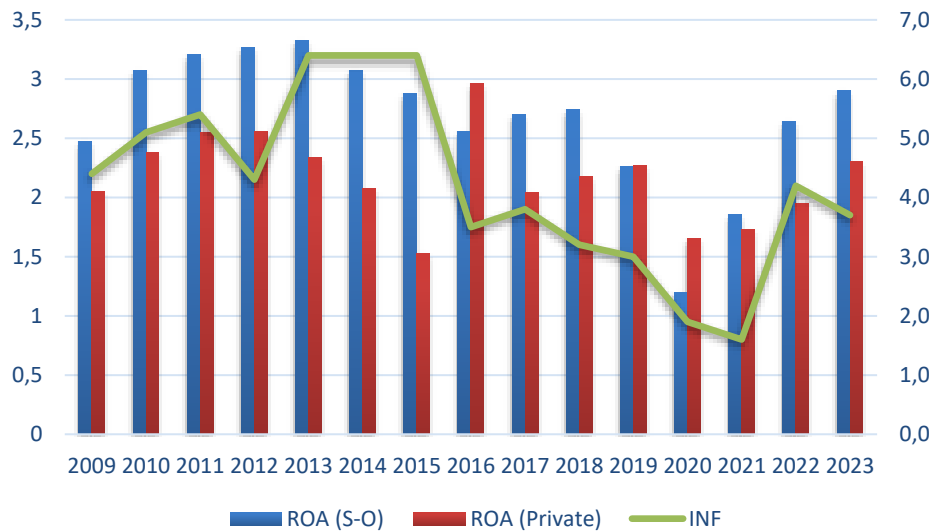


Figure 3 Trend of Inflation and Banks ROA

Source: Central Bureau of Statistics, 2025

This study also shows that inflation has a significant positive effect on state-owned banks. This result is in line with research (Tan & Floros, 2012) and (Teapon, 2024) When inflation occurs, it indicates that the economy is experiencing growth because there is more money in circulation than before. On the other hand, the increase in the amount of money in circulation. Under these conditions, banks face a dual challenge: managing rising costs while adapting to changing consumer behavior. As inflation rises, banks must balance these pressures while maintaining profitability (Karkowska et al., 2025). Moderate inflationary expansion and faster nominal GDP growth typically drive stronger credit growth and bank earnings (Wexler, 2021). In this position, banking as an intermediary institution can increase credit distribution and increase the ROA ratio by adjusting the credit interest margin (Bekhet et al., 2020). Different results in private banks, these results indicate that inflation does not have a significant effect on the profitability of private banks. These results are similar to (R et al., 2019) and (Nugrahaeni & Nugraeni, 2024) Inflation does not affect banking profitability, it is suspected that the banks studied in this research have good ability to adapt to macroeconomic dynamics through risk management, product diversification, flexibility in adjusting prices and costs, and effective internal policies so that they can mitigate the impact of inflation (Yuliani & Syarif, 2025). However, as explained by (Awdeh et al., 2024), excessively high inflation actually weakens bank stability by increasing credit risk and suppressing public purchasing power. This means that the effect of inflation on profitability is contextual: positive under moderate conditions, but can turn negative if inflation leads to economic downturn.

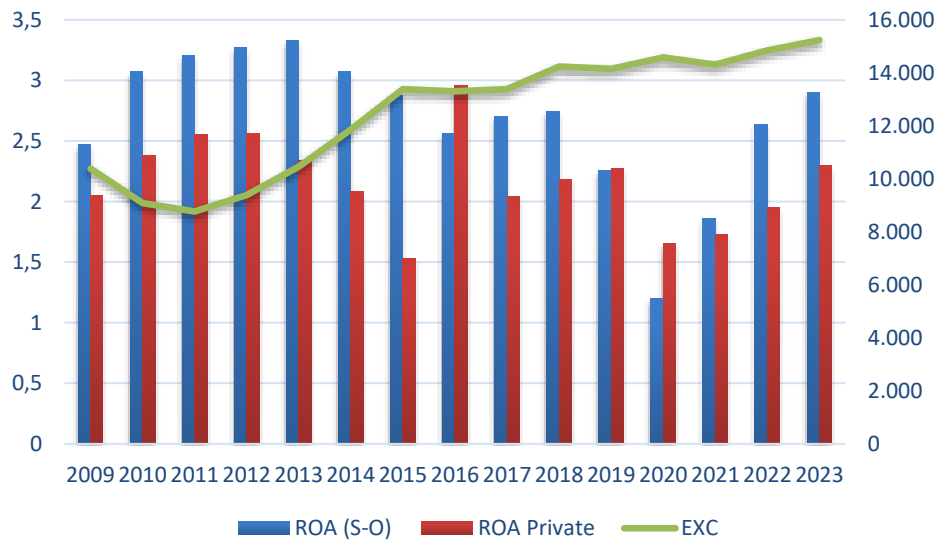


Figure 4 Trend of Exchange Rate and Banks ROA

Source: Bank Indonesia, 2025

On the other hand, it was found that exchange rate at state-owned banks has no significant effect. These results are similar to (Sunarya, 2018) The study found that exchange rates do not significantly impact bank profitability, and the low effect of exchange rates on ROA is due to the majority of banks in the sample operating domestically, thus limiting exposure to foreign currency risk. Therefore, exchange rate fluctuations do not directly impact bank financial performance, particularly in terms of profitability (Yuliani & Syarif, 2025). Different result in private banks. These results indicate that the exchange rate negatively affects the profitability of private banks. The results of this study are in line with (Lilian et al., 2022) and (Karismayani & Suarmanayasa, 2023), which show that banks engaged in foreign exchange services are more vulnerable to currency movements. A depreciation of the rupiah reduces the value of income and capital gains, increases the cost of foreign exchange, and raises the burden of foreign currency denominated obligations, thereby lowering profitability. This condition particularly harms banks with import-oriented clients, while exporters may benefit from a weaker rupiah.

The results of this study can also be linked to global dynamics, where trade tensions between countries often trigger exchange rate volatility. As noted by (Avril et al., 2025), trade policy uncertainty and rising global tensions can drive shifts in international capital flows, exacerbating exchange rate fluctuations. Exchange rate fluctuations resulting from trade tensions can increase foreign exchange costs, lower the value of real assets, and reduce public interest in banking services, ultimately depressing profitability.

CONCLUSION

This study concludes that macroeconomic variables affect banking profitability in Indonesia differently, depending on the type of bank ownership. Specifically:

1. Interest rates have no significant impact on the profitability of either state-owned or private banks.

2. Inflation has a significant positive impact on the profitability of state-owned banks, but not significantly on private banks.
3. The exchange rate has no significant impact on state-owned banks but has a significant negative impact on private banks.
4. Interest rates, inflation, and the exchange rate simultaneously affect the profitability of state-owned banks, but not simultaneously affect the profitability of private banks.

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