

Macroeconomic Determinants of Global Islamic Bank Profitability: The Moderating Role of Non-Performing Financing

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Article History

Received: 16-06-2026

Revised: 20-06-2026

Published: 30-06-2026

Keywords: ROA, Inflation, Interest Rate, Exchange Rate, GDP Growth, Unemployment Rate, NPF

ABSTRACT

This study explores how macroeconomic factors, namely inflation, interest rates, exchange rates, GDP growth, and unemployment rates, influence the profitability of global Islamic banks, with Return on Assets (ROA) serving as the profitability indicator. In addition, the study evaluates whether Non-Performing Financing (NPF) plays a moderating role in the relationship between these macroeconomic variables and bank profitability. The analysis is based on secondary data collected from the World Bank, the International Monetary Fund (IMF), and the annual reports of 58 Islamic banks operating across different countries during 2020-2025. Using panel data regression and Moderated Regression Analysis (MRA), the Random Effect Model (REM) was identified as the most appropriate estimation approach. The findings show that inflation, exchange rates, and GDP growth contribute positively to ROA, whereas interest rates have a significant negative effect. On the other hand, unemployment rates and NPF do not demonstrate a significant influence on profitability. The moderation results further reveal that NPF only affects the relationship between exchange rates and ROA, while its moderating role is not evident for inflation, interest rates, GDP growth, or unemployment rates. Collectively, the variables examined in this study are found to significantly explain the profitability of global Islamic banks.

INTRODUCTION

Over the past several decades, Islamic banking has evolved into an increasingly significant component of the global financial system. The expansion of Islamic banking is no longer concentrated solely in countries with predominantly Muslim populations; instead, it has increasingly gained acceptance in several non-Muslim regions that regard Sharia-compliant finance as a credible alternative to conventional financial practices (Ahyani & Slamet, 2021). This upward trend is evidenced by the continuous growth in banking assets, financing portfolios, and the number of Islamic financial institutions operating across

different parts of the world. Alongside this expansion, sustaining a healthy level of profitability has emerged as a crucial issue for Islamic banks seeking to maintain competitiveness and long-term sustainability.

Profitability serves as a fundamental indicator of banking performance, providing insight into an institution's capability to transform its resources and business activities into sustainable financial returns (Rohmandika et al., 2023). Among the various indicators available, Return on Assets (ROA) remains one of the most widely adopted measures due to its ability to capture how effectively a bank optimizes the use of its assets to produce income. In general, an increase in ROA signifies that management has been more effective in maximizing the productive use of assets, thereby enhancing the bank's overall financial performance (Gazi et al., 2024).

The financial performance of Islamic banks is not solely determined by factors originating within the institution itself, but is also closely associated with fluctuations in the wider economic environment (Ayub et al., 2024). Several macroeconomic determinants, namely inflation, interest rates, exchange rates, economic growth, and unemployment rates are frequently considered important determinants, as changes in these indicators may directly or indirectly influence banking operations and profitability. Changes in these indicators can influence economic activities, financing demand, public purchasing power, and investment decisions, which ultimately affect the profitability of financial institutions.

Despite extensive research, the empirical evidence concerning the role of macroeconomic variables in shaping Islamic bank profitability. For instance, Ayub et al. (2024) reported that inflation significantly affects banking profitability, whereas Nurjanah & Amrizal (2024) found no significant relationship. Comparable disparities are also evident in studies investigating the roles of interest rates, exchange rates, and economic growth. Such disparities in the empirical evidence highlight that Islamic bank profitability emerges from the interaction a multifaceted relationship between macroeconomic dynamics and institution-specific characteristics, making the interaction between external and internal factors difficult to generalize across different contexts.

One internal factor that may influence profitability is Non-Performing Financing (NPF). NPF is commonly used to assess the soundness of financing portfolios while serving as an indicator of how successfully Islamic banks address and minimize risks associated with financing operations in handling potential financing defaults (Yuniarto & 'aini, 2025). A high NPF ratio may reduce profitability due to increased financing defaults and higher risk exposure (Hardiansyah et al., 2025). Therefore, NPF may not only influence profitability directly but may also alter the linkage between macroeconomic indicators and banking profitability.

In contrast to earlier research that predominantly concentrates on a specific country or region, this study examines 58 Islamic banks operating across different countries during the period 2020-2025. Furthermore, the inclusion of Non-Performing Financing (NPF) as a

moderating variable allows for a deeper examination of how financing quality shapes the connection between macroeconomic fluctuations and bank profitability. Through this approach, the study aims to broaden empirical evidence in the field of Islamic banking and generate valuable insights that may assist regulators and industry practitioners in enhancing financial performance and risk management practices.

RESEARCH METHOD

A quantitative research design was applied in this study using secondary data sourced from the World Bank, the International Monetary Fund (IMF), and the published annual reports of Islamic banks. The dataset consists of 58 Islamic banking institutions from various countries observed period 2020-2025, selected according to purposive sampling criteria.

The study measures profitability through Return on Assets (ROA) as the dependent variable. Inflation, interest rates, exchange rates, GDP growth, and unemployment rates are included as independent variables, whereas Non-Performing Financing (NPF) is introduced as a moderating variable to assess its role in shaping the relationship between macroeconomic factors and bank profitability.

Empirical analysis is performed using panel data regression combined with the Moderated Regression Analysis (MRA) approach. To identify the most appropriate estimation technique, model selection procedures involving the Chow Test, Hausman Test, and Lagrange Multiplier Test were conducted. The results consistently indicate that the Random Effect Model (REM) provides the best fit for the data and is therefore employed as the final estimation model.

The empirical model is specified as follows:

$$ROA_{it} = \alpha + \beta_1 INF_{it} + \beta_2 SB_{it} + \beta_3 KURS_{it} + \beta_4 GDP_{it} + \beta_5 UNEMP_{it} + \beta_6 NPF_{it} \\ + \beta_7 (INF_{it} \times NPF_{it}) + \beta_8 (SB_{it} \times NPF_{it}) \\ + \beta_9 (KURS_{it} \times NPF_{it}) + \beta_{10} (GDP_{it} \times NPF_{it}) \\ + \beta_{11} (UNEMP_{it} \times NPF_{it}) + \varepsilon_{it}$$

Where:

- ROA = Return on Assets
- INF = Inflation
- IR = Interest Rate
- EXR = Exchange Rate
- GDP = GDP Growth
- UNE = Unemployment Rate
- NPF = Non-Performing Financing
- ε = Error Term

RESULT AND DISCUSSION

To determine the optimal panel regression model, several model selection procedures were carried out, including the Chow Test, Hausman Test, and Lagrange Multiplier Test.

Initially, the Chow Test favored the Fixed Effect Model over the Common Effect Model. However, the Hausman Test yielded a probability value of 0.5768, implying that the Random Effect Model was statistically more appropriate. Consistent with this result, the Lagrange Multiplier Test reported a probability value of 0.0000, providing strong evidence that the Random Effect Model (REM) was the most appropriate framework for estimating the relationships examined in this research.

The Effect of Inflation on ROA

The analysis demonstrates that inflation plays a favorable role in enhancing the profitability of global Islamic banking institutions. This finding suggests that moderate inflation may coincide with increased economic activity, which subsequently stimulates financing demand and enhances bank earnings. As economic transactions expand, Islamic banks gain greater opportunities to distribute financing and generate returns from productive sectors.

The positive effect identified aligns with the empirical findings of Ayub et al. (2024), who demonstrated that inflation significantly influences banking profitability. Nevertheless, this result contradicts the conclusions of Nisa' et al. (2023) and Gazi et al. (2024), which indicated that inflation adversely affects profitability. The inconsistency among these findings highlights the way inflation affects the performance of Islamic banks is not uniform and may depend on the prevailing economic environment as well as the adaptability of banking institutions to macroeconomic fluctuations.

The Effect of Interest Rates on ROA

The empirical results suggest that increases in interest rates are associated with a significant decline in the profitability of Islamic banks operating globally. While Islamic banking activities are fundamentally free from interest-based mechanisms, variations in interest rates remain capable of shaping customer behavior, investment choices, and financial market conditions, which may ultimately affect banking performance

An increase in interest rates may reduce financing demand and alter customers' preferences regarding savings and investment allocation. Consequently, the intermediary function of Islamic banks may be affected, leading to lower profitability. This finding supports the studies of Gazi et al. (2024) and Sarkar & Rakshit (2023), which further provided evidence that rising interest rates tend to reduce banking profitability. Nevertheless, the result contradicts Alamsyah (2023), who observed no significant relationship between interest rates and the profitability of Islamic banking institutions.

The Effect of Exchange Rates on ROA

The empirical analysis reveals that movements in exchange rates contribute positively and significantly to the profitability of Islamic banks operating on a global scale. This finding suggests that exchange rate movements may create economic opportunities that support

financing activities, international trade, and investment transactions, thereby contributing to higher profitability.

The result is in line with Sarkar & Rakshit (2023), who reported a positive association between exchange rate movements and banking performance. However, it differs from the findings of Prastiwi (2022) and Hasyim et al. (2023), which pointed to a negative connection between exchange rates and profitability. Such differences indicate that the impact of exchange rate volatility may vary depending on economic structures, trade intensity, and banking characteristics across countries.

The Effect of GDP Growth on ROA

The empirical results reveal a positive and statistically significant effect of GDP growth on the profitability of global Islamic banks. Economic expansion is often accompanied by higher levels of production, investment, and consumption activities, creating greater opportunities for banks to expand their financial services and financing activities.

This finding supports the studies of Nurjanah & Amrizal (2024), Prastiwi (2022), and Gazi et al. (2024), which concluded that economic growth enhances banking profitability. The result further confirms that Islamic banking performance is closely linked to developments in the real sector, given the nature of Sharia-compliant financing that emphasizes productive economic activities.

The Effect of Unemployment Rate on ROA

The findings reveal that unemployment rates do not significantly affect the profitability of global Islamic banks. This suggests that changes in labor market conditions do not directly influence banks' ability to generate profits.

The relationship between unemployment and profitability may be indirect, operating through changes in household income, consumption patterns, and financing quality. Therefore, the impact of unemployment may require a longer period to be reflected in banking performance. The present finding corroborates the results reported by Sarkar & Rakshit (2023), who similarly found that unemployment rates were not a significant determinant of banking profitability.

The Effect of Non-Performing Financing (NPF) on ROA

The empirical results suggest that NPF is not a significant determinant of profitability among global Islamic banks. This may indicate that fluctuations in financing quality during the observation period were insufficient to directly translate into changes in ROA. The finding, however, differs from that of Amin & Jaya (2024), who documented a significant relationship between NPF and the profitability of Islamic commercial banks. The insignificant effect found in this study may indicate that Islamic banks have implemented effective risk management and financing monitoring systems, thereby minimizing the adverse impact of problematic financing. Consequently, profitability tends to be influenced more by macroeconomic conditions and managerial efficiency than by changes in NPF alone.

The Moderating Role of NPF

The results of the moderation analysis show that NPF is unable to significantly strengthen or weaken the relationship between inflation, interest rates, GDP growth, unemployment rates, and the profitability of global Islamic banks. This finding implies that the quality of financing portfolios is not strong enough to strengthen or weaken the influence of most macroeconomic variables on ROA. Consequently, profitability appears to be driven primarily by broader economic conditions rather than by changes in financing quality. Such evidence supports the view of Amin & Jaya (2024), who emphasized that profitability is the result of a combination of internal banking factors and external economic forces, rather than the effect of a single variable.

However, NPF acts as a significant moderator in the relationship between exchange rates and profitability. This result indicates that financing quality plays an important role in determining how exchange rate fluctuations affect Islamic bank performance. Banks with lower financing risk are more likely to benefit from favorable exchange rate movements, whereas higher levels of problematic financing may weaken such benefits. This finding supports the view that financing quality remains an important aspect of risk management in Islamic banking (Sihotang et al., 2022).

Furthermore, Salim et al. (2024) found that macroeconomic conditions, particularly inflation and exchange rates, are closely associated with changes in NPF. Therefore, the significant interaction between exchange rates and NPF observed in this study may reflect the indirect transmission of external economic shocks through financing quality. Taken as a whole, the results indicate that broader economic conditions continue to play a central role in determining the profitability performance of Islamic banks across different countries, while NPF functions as a conditional factor that influences banks' ability to respond to specific economic changes.

CONCLUSION

This research investigates how changes in the macroeconomic environment shape the profitability of Islamic banks operating globally and further assesses whether Non-Performing Financing (NPF) influences the strength of these relationship. The findings reveal that inflation, exchange rates, and GDP growth positively influence Return on Assets, while interest rates exert a significant negative effect. Meanwhile, unemployment rates and NPF do not significantly affect profitability.

The moderating analysis demonstrates that NPF only moderates the relationship between exchange rates and profitability, whereas no moderating effect is identified for inflation, interest rates, GDP growth, and unemployment rates. The findings imply that the quality of a bank's financing portfolio helps explain how effectively Islamic banks respond to exchange rate fluctuations.

Overall, the study highlights the crucial role of macroeconomic stability and financing quality in maintaining the profitability of Islamic banks. Future studies are encouraged to

extend the observation period, include additional internal and external variables, and employ alternative analytical approaches to enrich the existing understanding of Islamic banking of Islamic banking performance in different economic environments.

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