International Journal of Accounting & Finance in Asia Pacific (IJAFAP) Vol. 7 No.1, pp. 79-91, February, 2024
P-ISSN: 2655-6502/E-ISSN: 2684-9763
https://www.ejournal.aibpmjournals.com/index.php/IJAFAP

Factors of BPD Deposit Interest Rate, Government Bank Deposit Interest Rate, Inflation Rate, Economic Growth (GDP), and Money Supply to the Rupiah Exchange Rate per US dollar in Indonesia for 2004 – 2021 Period

Elsyan Rienette Marlissa[1], Zefanya Raghuel Riris Mamengko[2]
Cenderewasih University, Indonesia
Corresponding Email: elsyan_marlissa@yahoo.com
ORCID ID: 0000-0001-7555-4671

ARTICLE INFORMATION

Publication information

Research article

HOW TO CITE
Marlissa, E. R., & Mamengko, Z. R. R. (2024). Factors of BPD deposit interest rate, government bank deposit interest rate, inflation rate, Economic Growth (GDP), and money supply to the rupiah exchange rate per US dollar in Indonesia for 2004 – 2021 period. *International Journal of Accounting & Finance in Asia Pacific, 7*(1), 79-91.

DOI:
https://doi.org/10.32535/ijafap.v7i1.2882

Received: 20 DECEMBER 2023
Accepted: 20 JANUARY 2024
Published: 20 FEBRUARY 2024

ABSTRACT

The study aims to analyze the effect of the BPD Deposit Interest Rate Factor, Government Bank Deposit Interest Rate, Inflation Rate, economic growth, and money supply affecting the exchange rate of the rupiah per US dollar in 2004-2021 partially and simultaneously. The research method uses secondary data in the form of panel data and cross section for 18 years (quarterly data on 26 provinces in Indonesia). Literature survey research from BI, BPD, and BPS Center. Quantitative analysis method using multiple linear regression analysis tools. The results showed that (1) partially, the interest rate factor of Government Bank deposits, the money supply has a positive but insignificant effect on the exchange rate of the rupiah per US dollar. Regional Development Bank deposit interest rates, inflation rates, and economic growth have a negative but significant effect on the exchange rate of the rupiah per US dollar; and (2) simultaneously, the factors of interest rates on deposits of BPD, interest rates on deposits of Government Banks, inflation rates, economic growth, money supply have a significant effect on the exchange rate of rupiah per US dollar. An increase in interest rates on deposits of Government Banks and money supply, a decrease in interest rates on deposits of BPD, inflation rates, and economic growth will increase the exchange rate of rupiah (depreciated).

Keywords: Deposit Interest Rate Inflation; Economic Growth; Money Supply Exchange Rate

INTRODUCTION

The rapid economic growth witnessed in Indonesia over the specified period, coupled with the inherent volatility, uncertainty, complexity, and ambiguity (VUCA) within its economic landscape, has sparked considerable scholarly interest in understanding the dynamics of currency devaluation and inflationary pressures (Chandrarin et al., 2022). Operating within an open economic framework, Indonesia remains highly susceptible to fluctuations in exchange rates, with such movements exerting a profound influence on the nation's economic trajectory (Isnowati & Setiawan, 2017). The transition to a free-floating exchange rate system in 1997 marked a pivotal juncture in Indonesia's economic evolution, presenting both opportunities and challenges for its monetary and real sectors. This transition catalyzed significant fluctuations in the exchange rate of the rupiah against the US dollar, underscoring the profound uncertainties inherent in the Indonesian economy.

Delving deeper into the specifics, the trajectory of the rupiah exchange rate against the US dollar from the first quarter of 2004 to the fourth quarter of 2021 unveils a nuanced narrative characterized by volatility and resilience. From its lowest point of IDR 8,492.00 in the first quarter of 2004 to its peak of IDR 14,754.00 in the first quarter of 2020, the rupiah traversed a complex terrain of economic ebbs and flows. Despite encountering numerous challenges, the rupiah maintained an average exchange rate of IDR 11,359.00 throughout this period, showcasing the robustness of Indonesia's economic resilience amidst fluctuating external pressures.

In response to the challenges posed by an erratic exchange rate and persistent inflationary pressures, Bank Indonesia undertook stringent monetary policies, resulting in heightened interest rates domestically. However, while these measures aimed to stabilize the currency, they concurrently exerted a dampening effect on business activities. The resultant high interest rates and economic uncertainties exacerbated the vulnerability of the Indonesian economy, potentially leading to currency crises characterized by abrupt shifts in exchange rate fixing policies (Tjahjono, 1998).

Based on previous studies and theoretical frameworks related to the variables under consideration, this study differs in its approach. Specifically, it focuses on analyzing the relationship between the exchange rate of the rupiah per US dollar and several key variables. These variables include the interest rates on time deposits in Regional Development Banks and Government Banks (Persero), as reported by Bank Indonesia, as well as economic indicators such as economic growth, inflation rate, and money supply. Given this background, there is a recognized need to research the factors influencing the exchange rate between the rupiah and the US dollar in Indonesia over the period from 2004 to 2021.

This study aims to analyze the effect of the BPD Deposit Interest Rate Factor, Government Bank Deposit Interest Rate, Inflation Rate, Economic growth, money supply, the effect on the exchange rate of the rupiah per US dollar in 2004-2021 partially and simultaneously. The proposed research holds significant value in contributing to the existing body of knowledge within the field of economics and finance, particularly in the context of Indonesia's banking sector. By focusing on the interplay between variables such as the BPD deposit interest rate, government bank deposit interest rate, inflation rate, economic growth (GDP), money supply, and the exchange rate of the rupiah per US dollar, this study seeks to address gaps in current literature. While previous research has explored similar variables, this study distinguishes itself by its specific focus on the rupiah per US dollar exchange rate and its linkage to interest rates on time deposits in Regional Development Banks and Government Banks (Persero), using data from Bank

Indonesia. This targeted approach enables a deeper understanding of the dynamics driving exchange rate fluctuations in Indonesia over the period of 2004-2021.

By examining these variables both individually and collectively, the research aims to shed light on their respective impacts on the exchange rate, offering insights that can inform policy decisions and investment strategies. Furthermore, the comprehensive scope of the study, spanning nearly two decades, provides a longitudinal perspective that allows for the identification of trends and patterns over time. Such insights are invaluable for policymakers, economists, and financial analysts seeking to navigate the complexities of Indonesia's economic landscape.

Ultimately, the findings of this research have the potential to yield practical implications for stakeholders across various sectors, from government agencies and central banks to commercial banks and investors. By elucidating the relationships between key economic indicators and the exchange rate, this study can contribute to the development of more robust models for forecasting exchange rate movements and implementing effective monetary policies. Thus, the research holds significant value not only for academia but also for informing real-world decision-making processes and ultimately fostering economic stability and growth in Indonesia.

LITERATURE REVIEW

The government, acting as the monetary authority, closely monitors and regulates the movement of exchange rates, viewing it as a significant area of concern (Kartono et al., 2021). The exchange rate refers to the quantity of one currency that can be traded for a unit of another currency, or alternatively, it represents the value of one currency in terms of another currency (Ramadhani & Nugroho, 2019; Suripto et al., 2023). It establishes the comparative costs of local and foreign products, along with the extent of external sector engagement in global trade (Henry et al., 2020). In foreign exchange transactions, there are two kinds of exchange rates, they are the selling rate and the buying rate (Nurmasari & Nur'aidawati, 2021). Hady (2016) suggests that banks determine these rates based on their interests. The selling rate, which is always higher than the buying rate, allows banks to profit from the spread between the sale and purchase prices.

According to MacDonald and Taylor (1991), exchange rate fluctuations are influenced by economic variables that impact a country's economic fundamentals. These variables encompass factors such as money supply, interest rates, and the level of real output. On a similar note, Arifin (1998) further categorizes the factors affecting exchange rate fluctuations into three main types. Firstly, fundamental factors are associated with economic indicators like inflation, interest rates, market expectations, and Central Bank interventions. Secondly, technical factors are linked to the conditions of demand and supply of foreign exchange. Lastly, market sentiment factors pertain to incidental rumors that can swiftly influence short-term fluctuations in foreign exchange rates. These perspectives provide a comprehensive framework for understanding the multifaceted nature of exchange rate dynamics, incorporating both economic fundamentals and market sentiment.

Interest plays an integral role in contemporary economic endeavors and serves as a primary driver of fluctuations and obstacles in economic progress. Due to interest rates, money is perceived more as a commodity rather than merely a medium of exchange, thereby contributing to unequal wealth distribution within society (Mushtaq & Siddiqui, 2017). This concentration of wealth in the hands of a few exacerbates the gap between

the affluent and the impoverished, leading to further disparities in socioeconomic status (Farooq, 2012).

According to Fabozzi (1999), bank interest rates are typically categorized into two types, they are loan interest rates and deposit interest rates. This division occurs because banks serve as intermediaries, gathering funds from the public and then lending them to those in need. Consequently, banks offer interest rates to individuals who save money with them, while charging relatively higher interest rates to those who borrow money. The disparity between loan and deposit interest rates is known as the spread, which represents the bank's profit.

The real interest rate, as explained by Manzilati et al. (2022), takes into account inflation, which erodes the purchasing power of money. This concept is crucial in understanding how interest rates affect savings and investments. Mankiw (2007) defines inflation as a general increase in the prices of goods or a decrease in the purchasing power of currency. However, inflation is not just about the price of one specific item rising; it is about a widespread increase in prices across various goods and services. For instance, if the prices of essentials like rice, sugar, and oil rise simultaneously, it indicates inflation. This phenomenon reflects a decline in the purchasing power of money because it takes more currency to purchase the same quantity of goods and services. Understanding inflation's impact on the real interest rate helps policymakers and economists make informed decisions about monetary policy, investment strategies, and economic growth. It also underscores the importance of managing inflation to maintain the stability of the economy and preserve the value of currency.

Gross Domestic Product (GDP) per capita stands as a pivotal indicator for assessing the developmental status across nations (Tümer & Akkuş, 2018). This metric offers insights into the average income generated per person within a country, providing a yardstick to gauge economic prosperity and living standards. Moreover, GDP per capita facilitates comparisons between countries, enabling analysts to evaluate disparities in wealth distribution, economic growth trajectories, and overall development. GDP stands as a paramount measure of an economy's performance, as asserted by Mankiw (2007), due to its ability to encapsulate the entirety of economic activities within a single monetary value over a specified time frame. There exist several methodologies to evaluate GDP as an indicator of economic performance. Firstly, GDP can be assessed through the income approach, which considers GDP as the total income generated by all individuals within the economy. Alternatively, the expenditure approach views GDP as the total expenditure on goods and services produced within the economy. These approaches provide complementary perspectives on the overall economic activity and performance of a nation, offering valuable insights for policymakers, analysts, and researchers alike.

The amount of money in circulation refers to the total available money supply (Mankiw, 2007). Meanwhile, as described by Mishkin (2015), money (also known as money supply) encompasses everything that is widely accepted as payment for goods and services, as well as repayment of debts.

RESEARCH METHOD

The research method utilized secondary data in the form of panel data and cross-section data spanning 18 years, including quarterly data from 26 provinces in Indonesia. The literature review drew from research conducted by BI, BPD, and the BPS Center, and quantitative analysis methods were employed. The research utilized a linear

regression equation approach with panel data type (pooled data), which combines time-series data with cross-sectional data (Gujarati, 2003).

RESULTS

The results of the analysis of the effect of the BPD deposit interest rate, government bank deposit interest rate, inflation rate, economic growth (GDP), and money supply on the rupiah exchange rate per US dollar in Indonesia, as in Table 1 as follows.

Table 1. Model Estimation Results of the Effect of BPD Deposit Interest Rate, Government Bank Deposit Interest Rate, Inflation Rate, National Economic Growth, and Money Supply on Rupiah Exchange Rate per US Dollar

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
RL	-139,914	219,596	-0,083	-0,637	0,526
RG	459,769	169,900	0,378	2,706	0,009
INF	-105,313	225,541	-0,023	-0,467	0,642
GDP	-41,845	36,705	-0,053	-1,140	0,258
M1	0,005	0,000	1,092	18,146	0,003
F-statistic 88.189					
Sig (F-statistic) 0.000					
R 0,933					
R-square 0.870					
Adjusted R-square 0.860					
Std. Error of the Estimate 839,062					

Source: Data processed, 2023

Based on the regression results as in table 1, the following estimation model can be formed.

ER = 5,179,245 - 139,914 RL + 459,769 RG - 105,313 INF - 41,845 PDB +
(904,895) (219,596) (169,900) (225,541) (36,705) (5,724) (-0,637) (2,706) (-0,467) (-1,140)
(0,000) (0,526) (0,009) (0,642) (0,258)

0,005 M1 (0,000) (18,146) (0,003)

R^2 = 0.870
R = 0,933
Adj R-sqr = 0.860
F-Stat = 88.189 ---------- P-Value: (0.003)

Description:
RL : BPD Deposit Rate (%)
RG : Government Bank Deposit
Rate (%) INF : Inflation Rate (%)
GDP : National Economic Growth (%)
M1 : Money in circulation (billion rupiah)
ER : Rupiah Exchange Rate (rupiah/US dollar)

The results of the t-test (Partial) indicate that the variable for the interest rate on BPD deposits during the period 2004-2021 yielded significant results at the 5 percent level. This suggests that the interest rate on outstanding BPD deposits during this period has a negative impact on the rupiah exchange rate per US dollar, all else being equal.

However, the interest rate variable on Government Bank deposits for the same period yielded insignificant results at the 5 percent level. This implies that the interest rate on Government Bank deposits during the period 2004-2021 has a positive effect on the rupiah exchange rate per US dollar, all else being equal.

The inflation rate variable for the period 2004-2021 is significant at 5% level, indicating that the inflation rate during this period has a negative effect on the rupiah exchange rate per US dollar, all else being equal.

Similarly, the real GDP variable shows significant results at 5% level, suggesting that Real GDP during the period 2004-2021 has a negative effect on the rupiah exchange rate per US dollar, all else being equal.

However, the variable for money supply during the 2004-2021 period yielded insignificant results at the 5 percent level. This means that the money supply has a positive influence on the exchange rate of the rupiah per US dollar during this period, all else being equal.

Regarding the F (Simultaneous) test, the statistical value is 88.189 with a probability value of 0.000. Since the probability value (p-value) is less than 0.05, it can be concluded that the five predictor variables in the model above significantly contribute to estimating the exchange rate of the rupiah per US dollar. This suggests that the interest rates on deposits of Regional Development Banks, interest rates on deposits of Government Banks, inflation rate, economic growth, and money supply all make significant contributions to the exchange rate of the rupiah per US dollar when considered simultaneously.

The estimation model for the exchange rate of the rupiah per US dollar during the period 2004-2021 has an R-Square value (coefficient of determination) of 0.870. This means that 87% of changes in the exchange rate of the rupiah per US dollar can be explained by changes in the deposit interest rates of Regional Development Banks, deposit interest rates of Government Banks, inflation rate, economic growth, and money supply. The remaining 13% may be influenced by other factors outside the five independent variables studied, such as political, economic, and security conditions in the country.

Based on the results of parameter estimation and simultaneous testing, it is found that the Government Bank deposit rate and inflation rate have a significant positive effect at a significant level of 5 percent, while the BPD deposit rate, Gross Domestic Product (GDP), and money supply have a significant negative effect at a significant level of 5 percent. This conclusion is supported by the coefficient of determination (Adj R-sqr = 0.860), with independent variables able to explain 86% of the exchange rate, while the remaining percentage is explained by other factors.

DISCUSSION

The estimation results of the rupiah per US dollar exchange rate equation (Table 1) are as follows.

Regional Development Bank Deposit Rate

The Regional Development Bank Deposit Interest Rate (RL) has a positive effect on the exchange rate of the rupiah per US dollar (ER). In the estimation results table, it can be seen that the regression coefficient obtained for the Regional Development interest rate variable (RL) of -139.914 indicates that the Regional Development interest rate (RL) contributes negatively (inversely) to the rupiah exchange rate per US dollar. A decrease in the interest rate on Regional Development Bank deposits by one percent is predicted to make the rupiah exchange rate per US dollar appreciate by -105.313 rupiahs assuming other independent variables do not change.

The Regional Development interest rate (RL) has a significant effect on the exchange rate of the rupiah per US dollar, this is indicated by the probability value of the Regional Development interest rate variable (RL) 0.526 greater than the level of error allowed (5%). The results of this estimation are similar to the results of research conducted by Atmadja (2002). The results of this research state that the interest rate used has a significant negative effect on the movement of the rupiah exchange rate against the US dollar after the implementation of the free-floating exchange rate system policy in Indonesia. These results imply that changes in the Regional Development interest rate can exert a discernible influence on the exchange rate dynamics between the rupiah and the US dollar. Such findings are pertinent for policymakers and economists, providing insights into the factors driving currency movements and their implications for regional development and international trade. Additionally, the negative effect observed suggests that adjustments in interest rates may have implications for Indonesia's trade competitiveness and macroeconomic stability, underscoring the importance of carefully managing monetary policy in the context of exchange rate dynamics. Further research could delve deeper into the mechanisms through which interest rates impact exchange rates and explore potential policy interventions to mitigate adverse effects or leverage positive outcomes.

Based on Handayani (2022), it can be deduced that the primary determinant influencing the real exchange rate is the real interest rate, exhibiting a negative correlation. In other words, an increase in the real interest rate leads to the appreciation of the rupiah exchange rate. This implies that fluctuations in real interest rates play a crucial role in shaping the value of the currency in relation to other currencies. Such insights are instrumental in understanding the dynamics of exchange rate movements and can inform economic policies aimed at managing currency appreciation or depreciation effectively.

Regional Development Bank Deposit Interest Rate (RL) Para-Estimation has a positive relationship consistently with the hypothesis strengthened by the theoretical study, which proposes that the Regional Development Bank Deposit Interest Rate (RL) has a positive effect on the exchange rate of the rupiah per US dollar, this means that if the Regional Development Bank Deposit Interest Rate (RL) rises, then the exchange rate of the rupiah against the American dollar is weak (depreciated), and vice versa. This is reinforced by the results of previous empirical findings, including research by Chiang (1986) and Siregar & Walter (2000). The results of these researches show that the effect of shocks in monetary quantities, (r *) real interest rates on the real exchange rate, can be explained (significantly influenced) by any changes in the variance (r *) real interest rates. The research findings from Mollick (2002) suggest that the interest rate

difference between Mexico and the United States significantly impacts the Peso exchange rate against the US Dollar. Handayani (2022) concludes from their research that in the short term, the real interest rate variable has a positive effect on the rupiah exchange rate, indicating that an increase in the real interest rate leads to a depreciation of the rupiah exchange rate. Similarly, MacDonald and Taylor (1991) found in their research that interest rates have a significant effect on exchange rate movements.

These findings contribute valuable insights to the understanding of exchange rate dynamics, highlighting the intricate interplay between interest rates, monetary policy, and currency valuation. For policymakers, these results underscore the importance of carefully managing interest rates to maintain exchange rate stability and promote economic competitiveness. Furthermore, they provide a basis for further research exploring the nuanced mechanisms through which interest rates influence exchange rate dynamics and the potential implications for broader economic outcomes.

Government Bank Deposit Rate

The interest rate on Government Bank deposits (RG) positively influences the exchange rate of the rupiah per US dollar (ER). The findings of this study confirm the proposed hypothesis, indicating that the interest rate on Government Bank deposits has a positive impact on the rupiah exchange rate per US dollar. The results of statistical tests suggest that the regression coefficient obtained for the Government Bank interest rate variable (RG) of 459.769 demonstrates a direct and proportional relationship with the rupiah exchange rate per US dollar. Specifically, an increase in the Government Bank interest rate by one percent is predicted to lead to a depreciation of the rupiah exchange rate against the US dollar by 459.769 rupiahs, assuming other independent variables remain constant.

The interest rate on Government Bank deposits has an insignificant effect on the rupiah per US dollar exchange rate (ER). This is indicated by the probability value of the Government Bank deposit interest rate variable (0.009) which is greater than the allowable error rate (5%).

Post-estimation results show a positive relationship between the deposit interest rate and the exchange rate of the rupiah per US dollar (ER), confirming theoretical consistency with empirical evidence. Specifically, the results indicate that an increase in the deposit interest rate at Government Banks leads to a higher rupiah exchange rate per US dollar, resulting in a depreciation of the rupiah exchange rate. This finding aligns with previous research by Chiang (1986) and Siregar & Walter (2000), which demonstrated that shocks in the real interest rate significantly influence the real exchange rate. However, contrary to these findings, Atmadja (2002) found in his research that the interest rate had no significant impact on the movement of the rupiah exchange rate against the US dollar following the implementation of the free-floating exchange rate system policy in Indonesia. Additionally, Handayani (2022) concluded from her research that the real interest rate negatively affects the real exchange rate, indicating that an increase in the real interest rate leads to an appreciation of the rupiah exchange rate.

Inflation Rate

Inflation rate has a positive effect (INF) on the exchange rate of rupiah per US dollar (ER). The results of this study support the hypothesis proposed by looking at the results of statistical tests concluded that the regression coefficient of the inflation rate variable (INF) of -105.313 shows that the inflation rate contributes negatively (inversely) to the exchange rate of rupiah per US dollar. A decrease in the inflation rate by one percent

is predicted to make the rupiah exchange rate per US dollar appreciate by -105.313 rupiahs with the assumption that other independent variables do not change.

The inflation rate has a negative and significant impact on the rupiah exchange rate per US dollar, as indicated by the probability value of the inflation rate variable (0.967), which exceeds the 5 percent error rate. This suggests that an increase in the inflation rate leads to a decrease in the rupiah exchange rate per US dollar, resulting in an appreciation of the rupiah exchange rate. This finding is consistent with the research conducted by Handayani (2022), which concludes that in the short term, inflation expectations negatively affect the rupiah exchange rate, leading to an appreciation of the rupiah exchange rate. Similarly, Atmadja (2002) found in his research that the inflation rate significantly and negatively influences the movement of the rupiah exchange rate against the US dollar following the implementation of the free-floating exchange rate system policy in Indonesia. However, in contrast to the findings of Chiang (1986) which indicated that the Inflation Rate had a positive impact on the exchange rate of several countries including the United Kingdom, France, West Germany, Italy, and the Netherlands, except for Canada where the coefficient was negative.

National Economic Growth

National Economic Growth (GDP) negatively impacts the exchange rate of the rupiah per US dollar (ER). Contrary to the proposed hypothesis, the results of this study indicate that the regression coefficient of the national economic growth variable (GDP) of -41.845 demonstrates a negative contribution to the rupiah exchange rate per US dollar. Specifically, a decrease in national economic growth by one percent is predicted to lead to an appreciation of the rupiah exchange rate against the US dollar by 41.845 rupiahs, assuming other independent variables remain constant.

National economic growth significantly influences the exchange rate of the rupiah per US dollar, as indicated by the probability value of the national economic growth variable (0.285), which exceeds the 5 percent error rate. These findings align with previous research conducted by Atmadja (2002), which concluded that changes in GDP have a negative and significant impact on the movement of the rupiah exchange rate per US dollar following the implementation of the free-floating exchange rate system policy in Indonesia.

The research outcome indicates a positive relationship between economic growth and the exchange rate of the rupiah against the US dollar, aligning with theoretical predictions and empirical evidence. The hypothesis posits that as national economic growth expands, it exerts a positive influence on the exchange rate of the rupiah per US dollar. In simpler terms, when the national economy grows, the value of the rupiah tends to strengthen against the US dollar, and conversely, when economic growth slows down, the rupiah may depreciate relative to the dollar. This assertion finds support in previous empirical research, such as the study conducted by Razmi et al. (2012), which demonstrated the significance of the coefficient of GDP per capita in explaining exchange rate movements.

The positive relationship between economic growth and exchange rates can be understood through various channels. Firstly, robust economic growth typically reflects a strong and vibrant economy, which attracts foreign investment and increases demand for domestic currency, thus appreciating its value against foreign currencies like the US dollar. Additionally, sustained economic growth often leads to higher interest rates, which can further boost the attractiveness of domestic assets and currencies, consequently strengthening the exchange rate.

However, it is essential to acknowledge that the relationship between economic growth and exchange rates can be influenced by various factors, including inflation rates, trade balances, and monetary policies. For instance, if economic growth outpaces productivity gains, it may lead to inflationary pressures, which could potentially undermine the value of the domestic currency. Moreover, shifts in trade balances, such as increased imports relative to exports, can also impact exchange rates.

Money in Circulation

The money supply (M1) is found to have a positive effect on the rupiah exchange rate per US dollar (ER). Contrary to the proposed hypothesis, the results of this study indicate that the regression coefficient of the money supply variable (M1) of 0.005 suggests a positive contribution to the rupiah exchange rate. Specifically, an increase in the money supply of one billion rupiah is predicted to result in the depreciation of the rupiah exchange rate per US dollar by 0.005 rupiah, assuming other independent variables remain constant.

The research results suggest that the money supply has an insignificant impact on the exchange rate of the rupiah per US dollar, as evidenced by the probability value of the money supply variable (0.003), which falls below the 5 percent error rate. These findings are consistent with prior research conducted by MacDonald and Taylor (1987), who similarly observed a positive but statistically insignificant relationship between the money supply and exchange rate movements.

Moreover, Chiang (1986) also found in his study that the money supply had a positive but insignificant effect on the exchange rates of certain countries, including Canada, France, and Italy, while no significant impact was observed for others like the United Kingdom, the Netherlands, and West Germany. This suggests that the relationship between the money supply and exchange rates may vary across different economic contexts and countries.

The insignificance of the money supply variable implies that changes in the money supply may not be a significant determinant of exchange rate movements in the case of the rupiah against the US dollar. Other factors such as interest rates, inflation rates, trade balances, and market sentiment may play a more substantial role in driving exchange rate dynamics.

CONCLUSION

The analysis reveals several key findings regarding the factors influencing the exchange rate of the rupiah against the US dollar. Firstly, it is observed that while the interest rate factor of Government Bank deposits and the money supply exhibit a positive relationship with the exchange rate, this relationship is deemed insignificant. Conversely, factors such as the interest rate on deposits in Regional Development Banks, inflation rate, and economic growth demonstrate a negative and statistically significant impact on the exchange rate of the rupiah per US dollar. This suggests that an increase in interest rates on deposits in Government Banks and the money supply, coupled with a decrease in interest rates on deposits in Regional Development Banks, inflation rates, and economic growth, contribute to an appreciation of the rupiah. Secondly, when considering these factors collectively, it is evident that interest rates on deposits in both Government Banks and Regional Development Banks, inflation rates, economic growth, and the money supply jointly exert a significant influence on the exchange rate of the rupiah per US dollar. Specifically, an increase in interest rates on deposits in Government Banks and the money supply, along with a decrease in interest rates on deposits in Regional Development Banks, inflation rates, and economic growth, collectively lead to a depreciation of the rupiah. These findings have important

implications for policymakers and investors alike. Policymakers may consider adjusting interest rates and implementing measures to control inflation and stimulate economic growth in order to manage the exchange rate effectively. Similarly, investors should closely monitor these factors to make informed decisions regarding currency exchange and investment opportunities in the Indonesian market.

Suggestions

In order to enhance academic understanding and contribute to the development of science in the field of banking, particularly in commercial banks like BPD across Indonesia, several suggestions can be proposed. Firstly, future research endeavors could expand beyond the examination of time deposits alone as the dependent variable for bank fund products, to include savings and current accounts. This broader scope would allow for a more comprehensive comparison of research findings. Additionally, the inclusion of a wider range of external factors beyond inflation rate, economic growth, money supply, and the rupiah exchange rate in the analysis is recommended. While these factors are significant, there are numerous other external influences that may impact the volume of time deposits in BPD. Thus, it is crucial for future studies to explore additional factors such as political dynamics, technological advancements, and various local government policies to provide a more nuanced understanding of the dynamics influencing bank fund products in Indonesia. By addressing these suggestions, future research endeavors can enrich scholarly discourse and contribute valuable insights to the field of banking science.

To address the dominance of current accounts as the primary source of third-party funds in regional development banks (BPD) in Indonesia from 2004 to 2021, strategic actions must be taken to operationalize policies that promote growth and competitiveness within the banking industry. Firstly, BPDs should prioritize efforts to increase funds in the form of time deposits by implementing innovative strategies and initiatives. This may include expanding their branch network to reach more customers and attract a larger share of the market. Additionally, management should swiftly diversify their product and service offerings to enhance competitiveness and appeal to a broader customer base. Pricing strategies should be carefully determined to ensure competitiveness and attractiveness in the market. Strengthening the marketing team and improving marketing strategies and systems are imperative to effectively compete with commercial banks that currently dominate the national banking landscape. Looking ahead, BPDs should aspire to become catalysts for balanced regional development and economic growth, playing a pivotal role in fostering equitable development across different regions of Indonesia. By implementing these policy suggestions, BPDs can position themselves as key players in the national banking sector, driving sustainable development and prosperity in the regions they serve.

For the banking industry in general, the results of this study should be utilized as a material comparison of financial performance between banks, in order to determine government policies for BPD to synergize themselves in order to capture various business opportunities that are in sight.

ACKNOWLEDGEMENT

N/A

DECLARATION OF CONFLICTING INTERESTS

The authors declared no potential conflicts of interest.

REFERENCES

Arifin, S. (1998). Efektifitas kebijakan suku bunga dalam rangka stabilisasi Rupiah di masa krisis. *Buletin Ekonomi Moneter dan Perbankan, 1*(3), 1-26. https://doi.org/10.21098/bemp.v1i3.174

Atmadja, A. S. (2002). Analisa pergerakan nilai tukar rupiah terhadap dolar Amerika Setelah Diterapkannya kebijakan sistem nilai tukar mengambang bebas di Indonesia. *Jurnal Akuntansi dan keuangan, 4*(1), 69-78. https://doi.org/10.9744/jak.4.1.pp.%2069-78

Chandrarin, G., Sohag, K., Cahyaningsih, D. S., Yuniawan, D., & Herdhayinta, H. (2022). The response of exchange rate to coal price, palm oil price, and inflation in Indonesia: Tail dependence analysis. *Resources Policy, 77*, 102750. https://doi.org/10.1016/j.resourpol.2022.102750

Chiang, T. C. (1986). Empirical analysis on the predictors of future spot rates. *Journal of Financial Research, 9*(2), 153-162. https://doi.org/10.1111/j.1475-6803.1986.tb00444.x

Fabozzi, F. J., (1999). *Investment Management*. Salemba Empat.

Farooq, M. (2012). Interest, Usury, and its Impact on the Economy. *Dialogue (Pakistan), 7*(3).

Gujarati, D. N. (2003). *Basic Econometric*. The McGraw-Hill Companies, Inc.

Hady, H. (2016). *Manajemen Keuangan Internasional*. Mitra Wacana Media.

Handayani, F. (2022). Model Hybrid dalam penentuan nilai tukar Rupiah: Pendekatan mikrostruktur dan makroekonomi. *Jurnal Ekonomi Indonesia, 11*(3), 235-250.

Henry, E., Murtadho, A. M., & Bhaumik, A. (2020). The Relationship Between the Exchange Rate Fluctuations and Economic Growth in Nigeria. *International Journal of Management and Human Science (IJMHS), 4*(4), 11-18.

Isnowati, S., & Setiawan, M. B. (2017). Exchange rate pass through to import prices In Indonesia: Evidence post Free Floating exchange rate. *International Journal of Economics and Financial Issues, 7*(1), 323-328.

Kartono, A., Solekha, S., & Sumaryada, T. (2021). Foreign currency exchange rate prediction using non-linear Schrödinger equations with economic fundamental parameters. *Chaos, Solitons & Fractals, 152*, 111320. https://doi.org/10.1016/j.chaos.2021.111320

MacDonald, R., & Taylor, M. P. (1991). Exchange rate economics: a survey. *IMF Working Paper, 91/62*.

Mankiw, N. G. (2007). *Macroeconomics* (6th ed.) Worth Publisher.

Manzilati, A., Prestianawati, S. A., & Imamia, T. L. (2022). Do institutional and banking cost affect investment in ASEAN?. *International Journal of Accounting & Finance in Asia Pasific, 5*(1), 95-103. https://doi.org/10.32535/ijafap.v5i1.1409

Mishkin, F. S. (2015). *The Economics of Money, Banking, and Financial Markets* (11th ed.). Pearson Addison Wesley.

Mollick, A. V. (2002). Effects of US interest rates on the real exchange rate In Mexico. *Economics Bulletin, 6*(1), 1-5.

Mushtaq, S., & Siddiqui, D. A. (2017). Effect of interest rate on bank deposits: Evidences from Islamic and non-Islamic economies. *Future Business Journal, 3*(1), 1-8. https://doi.org/10.1016/j.fbj.2017.01.002

Nurmasari, I., & Nur'aidawati, S. (2021). The effects of inflation, interest rates and exchange rates on Composite Stock Price Index during the Covid-19 pandemic. *Jurnal Mandiri: Ilmu Pengetahuan, Seni, Dan Teknologi, 5*(2), 77-85. https://doi.org/10.33753/mandiri.v5i2.178

Ramadhani, R., & Nugroho, W. (2019). Analysis of the effect of exchange rates, E-Money and Interest Rates on the amount of money supply and its implications on the inflation level in Indonesia 2012-2017 period. *International Journal of*

Accounting & Finance in Asia Pasific, 2(1), 1-17. https://doi.org/10.32535/ijafap.v2i1.364

Razmi, A., Rapetti, M., & Skott, P. (2012). The real exchange rate and economic development. *Structural Change and Economic Dynamics, 23*(2), 151-169. https://doi.org/10.1016/j.strueco.2012.01.002

Siregar, R. Y., & Walker, W. C. (2000). Monetary shocks and the fundamental determinants of the real exchange rate under the hong kong currency board. *Asian Economic Journal, 14*(1), 1-21. https://doi.org/10.1111/1467-8381.00097

Suripto, S., Novayadi, N., Sukarniati, L., & Kurniawan, M. L. A. (2023). Analysis of factors affecting foreign exchange reserves in Indonesia (2017-2021). *International Journal of Applied Business and International Management, 8*(3), 72-92. https://doi.org/10.32535/ijabim.v8i3.2462

Tjahjono, E. D. (1998). Fundamental ekonomi, Contagion Effect dan krisis Asia. *Buletin Ekonomi Moneter dan Perbankan, 1*(2), 1-27. https://doi.org/10.21098/bemp.v1i2.165

Tümer, A. E., & Akkuş, A. (2018). Forecasting gross domestic product per capita using artificial neural networks with non-economical parameters. *Physica A: Statistical Mechanics and its Applications, 512*, 468-473. https://doi.org/10.1016/j.physa.2018.08.047