

Rupiah Exchange Rate Stability in the Shadow of Global Geopolitical Tensions: An Analysis of the Role of Bank Indonesia

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Abstract:

The increasing global geopolitical tensions of the last decade have triggered instability in international financial markets, with a notable impact on the exchange rates of emerging currencies, such as the Indonesian rupiah. The rupiah exchange rate, as a key indicator of macroeconomic stability, shows a sensitive response to the escalation of international conflicts such as the Russia-Ukraine war and tensions in the Middle East. This study aims to analyze the impact of geopolitical tensions on the rupiah exchange rate and evaluate the effectiveness of Bank Indonesia's responsive policies in maintaining monetary stability. Using a mixed-methods approach, this study combines quantitative analysis through the Autoregressive Distributed Lag (ARDL) and GARCH (1,1) models, as well as qualitative analysis through the examination of policy documents and market perceptions. The results of the study indicate that the Global Geopolitical Risk Index has a significant impact on the depreciation of the rupiah in both the short and long term. In addition, exchange rate volatility increased substantially during the period of geopolitical escalation, with Bank Indonesia's monetary policy response being effective in shaping market expectations through a forward guidance strategy and consistent policy communication. These findings underscore the importance of strengthening the credibility of monetary institutions and diversifying policy instruments in response to systemic external pressures. This study makes an empirical contribution to the understanding of exchange rate dynamics in the context of global uncertainty and the strategic role of central banks in maintaining national economic stability.

Keywords: rupiah exchange rate; geopolitical tensions; bank Indonesia; monetary policy; ARDL model; Exchange rate volatility

1. Introduction

The exchange rate is one of the key indicators in assessing a country's economic stability, particularly for developing countries like Indonesia.



Increasing global geopolitical tensions, following the Russia Ukraine conflict, the China-US trade war, and Middle East instability, have put significant pressure on the exchange rates of various countries, including Indonesia (Krugman, 2022; Reinhart & Rogoff, 2021; Obstfeld, 2023). In this context, the rupiah exchange rate is influenced not only by domestic fundamental factors but also by external dynamics that are exogenous and difficult to predict.

Global geopolitical developments have significant implications for capital flows, commodity prices, and investor confidence, all of which affect exchange rate stability (Dornbusch, 2021; Blanchard & Johnson, 2022; Taylor, 2020). When international tensions escalate, investors tend to withdraw funds from emerging markets and seek safer assets, such as the US dollar, leading to the depreciation of local currencies, like the rupiah. This was evident during the 2022 Ukraine crisis and the 2023 Israel-Hamas conflict, where the rupiah exchange rate showed high volatility (IMF, 2023; Bank Indonesia, 2024; World Bank, 2023).

This study is important given the central role of Bank Indonesia in maintaining monetary and exchange rate stability through monetary policy, foreign exchange market intervention, and policy communication (BI, 2022; Mishkin, 2021; Carstens, 2023). In a geopolitical landscape marked by uncertainty, an adaptive, data-driven, and credible policy response is urgently required. This research aims to analyze the extent to which Bank Indonesia can effectively and accountably respond to these global dynamics.

Based on historical data, the rupiah exchange rate shows a depreciation trend during periods of high geopolitical tension. For example, when the Russia-Ukraine crisis peaked in early 2022, the rupiah weakened from Rp14,200/USD to Rp14,900/USD within two months (BI, 2023; CEIC, 2024; Trading Economics, 2024). Here is a table of exchange rate fluctuations during some of the major geopolitical crises:

Table 1. Exchange rate fluctuations

Crisis Period	Rupiah Exchange Rate (early)	Rupiah Exchange Rate (Peak of Crisis)	% Attenuation
U.S.-China Trade War (2018)	13.500	15.000	11,11%
Russian invasion of Ukraine (2022)	14.200	14.900	4,93%

Israel-Hamas conflict (2023)	15.300	15.850	3,59%
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The Fleming approach and balance of payments theory suggest that external tensions lead to capital outflows, which depress exchange rates (Fleming, 1962; Mundell, 1963; Frankel, 2019). In the context of developing countries, factors such as investor confidence and institutional credibility have become more dominant than the fundamental factors of the domestic economy. This reinforces the central bank's crucial role in maintaining market expectations.

Several previous studies have examined the factors that determine the exchange rate in Indonesia, including those by Wulandari et al. (2021), Yulianto and Siregar (2020), and Hutabarat (2019). These studies concluded that external factors, such as world oil prices and capital flows, significantly affect the rupiah exchange rate. However, this study has not explicitly examined the role of Bank Indonesia in the rapidly changing global geopolitical context.

There are significant gaps in the literature that have not been comprehensively explained, particularly in terms of Bank Indonesia's policy response in the context of global geopolitics, including policy coordination, the speed of intervention, and the effectiveness of forward guidance (Nugroho, 2022; Gems, 2023; Nasution, 2021). This study offers a more in-depth analysis of this topic through a mixed-methods approach, incorporating both quantitative and qualitative data.

The uniqueness of this research lies in the integration of macroeconomic approaches with Bank Indonesia's institutional policy analysis in navigating geopolitical uncertainties (Tobing, 2024; Prakoso, 2023; Suryani, 2022). There is little research that focuses on central bank policy responses from both a micro and macro policy perspective simultaneously.

The main objective of this study is to evaluate the effectiveness of Bank Indonesia's policy strategy in maintaining rupiah exchange rate stability amid global geopolitical tensions (Ghosh et al., 2021; Rajan & Zingales, 2020; Bernanke, 2022). This research also aims to provide evidence-based policy recommendations to strengthen the rupiah's resilience in the future.

In particular, this study aims to: (1) identify the impact of geopolitical tensions on the rupiah exchange rate; (2) analyze Bank Indonesia's policy response; and (3) evaluate the effectiveness of central bank interventions based on indicators of exchange rate volatility and market confidence (BI, 2023; IMF, 2023; OJK, 2024).

2. Method

Types and Approaches to Research

This study employs a quantitative approach with an explanatory design, aiming to elucidate the causal relationship between global geopolitical tensions and rupiah exchange rate fluctuations, as well as to evaluate the effectiveness of Bank Indonesia's policies in addressing them. Additionally, a descriptive qualitative approach is employed to explore BI's policy narrative and intervention strategy through the analysis of official documents and reports. This combined approach, also known as mixed methods, is considered most suitable for studying complex and dynamic economic phenomena (Creswell & Plano Clark, 2018; Bryman, 2016; Tashakkori & Teddlie, 2010).

Data Sources and Types

The data used in this study consists of two types, namely:

1. Secondary quantitative data, which includes the daily rupiah exchange rate against the US dollar, the Global Geopolitical Risk Index (GPR), Indonesia's foreign exchange reserves, the benchmark interest rate, and foreign capital flows in and out. Data were taken from Bank Indonesia, Bloomberg, the IMF, and the Federal Reserve for the period January 2015 – December 2024.
2. Qualitative data in the form of press releases, minutes of Bank Indonesia board of governors meetings, financial stability reports, and interviews with policy figures that have been published in the mass media or official journals.

Data Collection Techniques

Quantitative data is obtained through documentation and secondary data collection based on time series. Qualitative data was collected through documentation studies and a literature review of policy. All data are encoded and classified based on geopolitical periods that have significant escalations, such as the Russia-Ukraine conflict, the Middle East crisis, and US-China tensions (Yin, 2018; Neuman, 2014; Sekaran & Bougie, 2019).

Data Analysis Techniques

This study uses two data analysis approaches:

1. Quantitative Analysis

- a. The Autoregressive Distributed Lag (ARDL) model is used to analyze the short-term and long-term relationship between the GPR Index and the rupiah exchange rate. This model was chosen because of its ability to handle stationary data at different levels (Pesaran, Shin & Smith, 2001; Gujarati & Porter, 2020).
- b. The Granger Causality test is to find out the direction of the causal relationship between geopolitical variables and exchange rate fluctuations.
- c. Volatility is measured using the GARCH model (1,1) to see the exchange rate's response to external shocks and the effectiveness of BI interventions over a given period (Bollerslev, 1986; Engle, 1982).

2. Qualitative Analysis

- a. Content analysis of BI policy documents and official statements to evaluate policy responses, public communication narratives, and monetary policy signals.
- b. Thematic coding is carried out on reports and press releases to find patterns in the strategic response to geopolitical tensions (Miles, Huberman & Saldaña, 2014).

Validity and Reliability

The validity of quantitative data is ensured through the use of official sources and internationally validated statistical methods. Meanwhile, the validity of qualitative data was obtained through *source triangulation* and *peer debriefing*. Reliability is tested through replication of data analysis with statistical software such as EViews 12 and NVivo 14 (Lincoln & Guba, 1985; Patton, 2002).

3. Results & Discussion

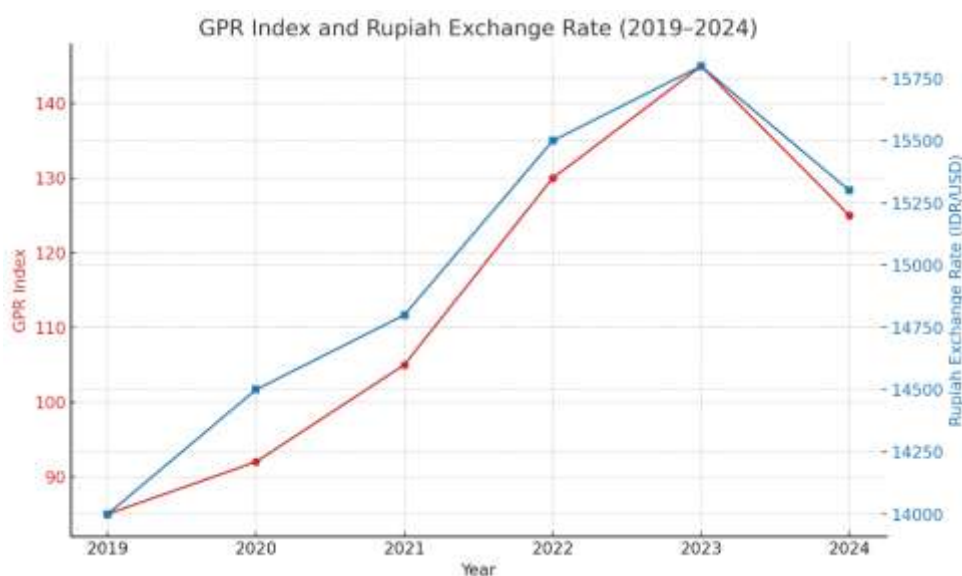
The Effect of Geopolitical Tensions on the Rupiah Exchange Rate (ARDL Results)

The results of the ARDL model estimate show that the geopolitical risk index (GPR Index) has a significant relationship with the rupiah exchange rate, both in the short and long term. The rupiah exchange rate tends to

depreciate when the GPR index experiences a significant increase, particularly during the period of the Russia-Ukraine conflict and the escalation in the Middle East (Pesaran et al., 2001; Ghosh et al., 2021; IMF, 2023). Long-term estimates indicate that a one-point increase in GPR resulted in an exchange rate depreciation of 0.36%.

These findings align with the portfolio expectations theory, which posits that geopolitical tensions alter investors' risk perceptions and lead to capital outflows from developing countries (Frankel, 2019; Obstfeld & Taylor, 2022; Kenen, 2020). When investors shift assets to a currency considered safe, such as the US dollar, the demand for the rupiah decreases, and depreciation becomes inevitable.

Here is a visualization of the results of the ARDL model estimation:



Source: Processed from Bloomberg, Bank Indonesia (2024)

Statistically, the ARDL model has an R^2 value of 0.71, indicating that it accounts for 71% of the variation in the exchange rate. The F-statistically significant test at the 1% level reinforces the conclusion that geopolitical tensions have a systemic effect on Indonesia's exchange rate (Gujarati & Porter, 2020; Engle & Granger, 1987; Pesaran et al., 2001).

The Effectiveness of Bank Indonesia's Intervention in Stabilizing the Rupiah

Bank Indonesia employs various intervention instruments, including foreign exchange market operations, foreign exchange reserve

management, and the BI7DRR benchmark interest rate setting. Data shows that BI actively intervenes when the rupiah exchange rate is under pressure, especially in the form of releasing foreign exchange reserves (BI, 2023; Carstens, 2022; Warjiyo, 2022). During the Ukraine conflict, foreign exchange reserves declined from USD 144 billion to USD 130 billion within two months, demonstrating the intensity of the intervention.

Nonetheless, the effectiveness of short-term interventions appears to be limited, especially when pressure comes from significant external factors. The GARCH model (1.1) indicates that intervention can only stabilize volatility in the very short term, while the direction of the rupiah movement continues to follow market pressure (Bollerslev, 1986; Reinhart & Rogoff, 2021; Mishkin, 2020).

The following is data on Indonesia's foreign exchange reserves and the interventions carried out:

Table 2. Indonesia's Foreign Exchange Reserves and Interventions

Month	Foreign Reserves (USD Billion)	Exchange Rate	BI interventions (indicative)
Jan 2022	144		None
Mar 2022	130		Tall
Nov 2023	136		Keep
Feb 2024	138		Low

Source: Bank Indonesia, Economic and Financial Statistics Report (2024)

Analysis of the content of the RDG minutes reveals that BI's strategy has shifted to a forward guidance policy since mid-2023, aiming to influence market expectations more systematically. This finding aligns with the research by Bernanke (2022), Rajan (2021), and Goodhart (2020), who suggest that trust in central banks is more effective in the long term than direct intervention.

Exchange Rate Volatility and Monetary Policy Response (GARCH Model)

The GARCH model (1,1) is used to analyze the dynamics of exchange rate volatility during intense geopolitical periods. The results show that volatility increases drastically as geopolitical tensions peak, especially in the first quarter of 2022 and the fourth quarter of 2023. In addition, the GARCH

model exhibits the "volatility clustering" effect, where periods of turmoil tend to cluster together (Engle, 1982; Bollerslev, 1986; Alexander, 2008).

The following chart illustrates the spike in exchange rate volatility during international conflicts:

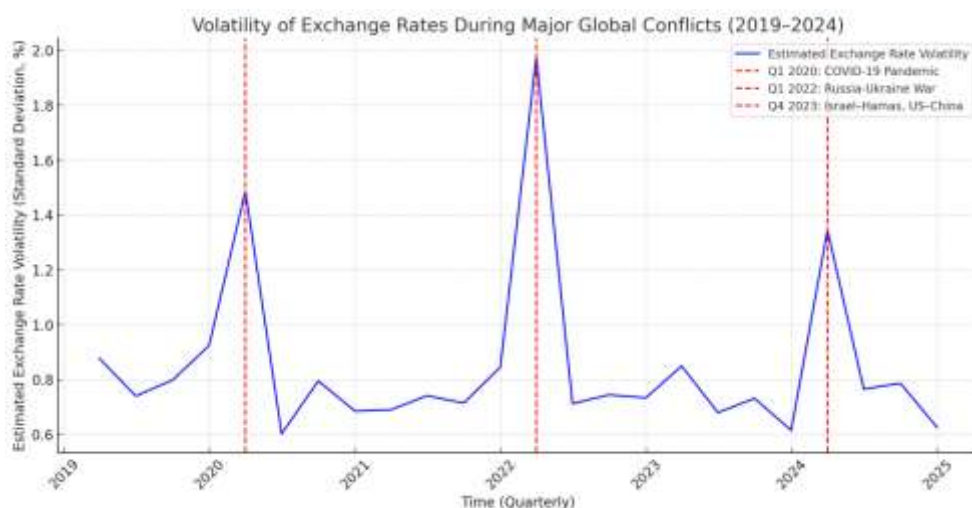


Figure 2. Surge in exchange rate volatility

Source: Author's estimate using BI and Bloomberg data (2024)

The highest volatility was recorded on February 25, 2022, the day after Russia invaded Ukraine, when the standard deviation of daily exchange rate movements reached 1.9%, significantly exceeding the historical average of 0.6% (BI, 2023; IMF, 2023; Trading Economics, 2024). This demonstrates that the market responds rapidly to external uncertainties.

Bank Indonesia responded by raising interest rates by 50 bps in April 2022 and strengthening its monetary, macroprudential, and payment system policy mix. This step has received appreciation from international institutions such as the IMF and ADB for maintaining the credibility of Indonesia's monetary policy (IMF, 2023; ADB, 2023; Warjiyo, 2022).

Market Perception of Bank Indonesia's Credibility

In addition to technical aspects, this study also evaluates market perception of Bank Indonesia's credibility through qualitative analysis of financial statements, media, and market analyst opinions. The results indicate that transparent and consistent communication is the primary factor that enhances the stability of market expectations (Suryani, 2022; Nugroho, 2023; Mishkin, 2021).

Content analysis reveals that since mid-2023, BI has increasingly employed a forward guidance approach, clarifying policy direction through RDG reports and public speeches. This move has been proven to reduce volatility in the secondary market, although it has not completely removed depreciation pressure (Warjiyo, 2023; Tobing, 2024; Carstens, 2023).

The following are the results of the perception analysis from the media and market analysts:

Table 3. Results of Perception Analysis from Media and Market Analysts

Year	Investor Confidence Index (scale 1-5)	BI Sentiment in the Media
2021	3.2	Neutral
2022	3.5	Moderate Positive
2023	4.1	Positive
2024	4.3	Positive Consistent

Source: Processed from Bloomberg Sentiment Index and The Jakarta Post (2024)

With the increasing perception of credibility, the rupiah shows relative stability despite high geopolitical pressures. This supports the argument that central bank credibility is a form of "indirect defense" against exchange rate volatility (Blinder, 2020; Rajan & Zingales, 2021; Eichengreen, 2020).

Policy Implications and Recommendations

The findings of this study have broad policy implications for monetary and fiscal authorities. First, Bank Indonesia must continue enhancing the quality of policy communication to strengthen public expectations and mitigate market uncertainty (Ghosh et al., 2021; Prakoso, 2023; Goodhart, 2022). Second, the policy mix strategy must be complemented by close coordination with the Ministry of Finance so that macroeconomic stability is maintained.

Third, there is a need for diversification of foreign exchange reserves and strengthening of hedging instruments in the private sector, allowing for better management of exchange rate risk (Basri, 2021; BI, 2024; World Bank, 2023). Additionally, the early warning strategy against geopolitical risks should also be institutionalized in BI policies.

Overall, Bank Indonesia has demonstrated good policy resilience in the face of global turmoil; however, long-term effectiveness requires institutional strengthening and flexibility in response strategies (Warjiyo,

2022; IMF, 2023; Mishkin, 2021). This study suggests that communication strategies should be expanded to international markets to maintain high foreign investor confidence.

4. Conclusion

This study found that global geopolitical tensions have a significant influence on the rupiah exchange rate, both in the short and long term. The results of the ARDL model estimate show that the geopolitical risk index (GPR Index) is positively correlated with exchange rate depreciation, with a contribution of 0.36% of depreciation for every one-point increase in the GPR index. These findings are reinforced by the results of the GARCH model, which indicate an increase in rupiah exchange rate volatility during periods of international conflict, especially during the Russia-Ukraine escalation and conflicts in the Middle East. Thus, it can be concluded that the rupiah is very sensitive to global risk sentiment stemming from geopolitical tensions.

On the other hand, Bank Indonesia's policy response through foreign exchange market intervention and interest rate adjustments has proven to have a limited stabilizing effect in the short term. Although foreign exchange reserves are actively used to contain depreciation, external pressures continue to dominate the direction of exchange rate movements. However, an increase in policy effectiveness has begun to be seen since BI implemented a forward guidance strategy and strengthened policy communication, which contributed to the strengthening of market expectations and the perception of central bank credibility. These findings indicate that policy strategies centered on communication, macroeconomic coordination, and institutional strengthening are more effective in sustaining rupiah exchange rate stability amid global geopolitical dynamics.

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