World Journal of Advanced Research and Reviews
eISSN: 2581-9615 CODEN (USA): WJARAI
Cross Ref DOI: 10.30574/wjarr
Journal homepage: https://wjarr.com/

(RESEARCH ARTICLE)

A comparative analysis of currency exchange movements and economic predictors between Indonesia and the Philippines

Christian S de Leon *

Graduate School of Business, San Beda University, Manila, Philippines.

World Journal of Advanced Research and Reviews, 2025, 26(02), 3905–3915

Publication history: Received on 20 April 2025; revised on 25 May 2025; accepted on 27 May 2025

Article DOI: https://doi.org/10.30574/wjarr.2025.26.2.1456

Abstract

Currency exchange movements are shaped by macroeconomic variables, including inflation, remittance inflows, and foreign exchange reserves. This study analyzes economic profiles of Indonesia and the Philippines from 2006 to 2024, employing the Mann-Whitney U test and binary logistic regression to assess the factors affecting the exchange rates. The findings indicate that inflation drives Rupiah depreciation in Indonesia, whereas its impact on the Philippine Peso is minimal. Remittances significantly impact currency depreciation in both countries, with a stronger effect in the Philippines. Additionally, foreign exchange reserves have a notable influence on Peso weakening but are less relevant for the Rupiah in this study. These results underscore the need for targeted economic policies to stabilize currencies and sustain economic growth, offering valuable insights into exchange rate dynamics in emerging economies.

Keywords: Currency Exchange; Inflation Rate; Migrant Workers' Remittances; Foreign Exchange Reserves

1. Introduction

Exchange rates are pivotal in shaping the economic stability of nations, influencing trade balances, purchasing power, and monetary policies. As the global economy grows increasingly interconnected, understanding exchange rate dynamics becomes essential for developing strategies to foster sustainable development and mitigate currency volatility (Pratiwik & Prajanti, 2023; Ramadhani et al., 2025). This study focuses on Indonesia and the Philippines, two emerging economies in Southeast Asia that share structural similarities yet face distinct macroeconomic challenges. By examining the relationships between exchange rates and key economic factors such as inflation rates, migrant workers' remittances, and foreign exchange reserves, this study aims to enhance the understanding of currency movements and their potential implications for economic policies.

Currency exchange rate fluctuations have profound effects on international trade and economic growth, acting as a barometer for macroeconomic conditions. In Indonesia, a free-floating exchange rate system and persistent Rupiah depreciation have raised concerns over currency stability and its impact on inflation and investment (Santos et al., 2023). Similarly, the Philippine Peso has experienced alternating phases of appreciation and depreciation, shaped by factors including remittance inflows and inflation pressures (Bayangos et al., 2016). Despite these shared challenges, the mechanisms through which macroeconomic variables influence exchange rates remain underexplored, highlighting the need for empirical investigations tailored to these two economies (Naoto, 2022; Pablo et al., 2023).

The problem lies with the complex nature of exchange rate movements, which complicates effective monetary policy formulation. Although existing literature underscores the importance of factors such as inflation, remittances, and foreign exchange reserves, findings are often fragmented or inconsistent (Hakim et al., 2022; Sardon et al., 2016). For example, while some studies suggest that remittances strengthen domestic currencies, others point to their role in currency depreciation, reflecting the complexity of these relationships (Anissa & Jayadi, 2024; Bayangos & Lubangco,

* Corresponding author: Christian S de Leon

2024). Similarly, the interplay between inflation rates and currency movements varies significantly across nations, further emphasizing the need for context-specific analyses (Ramadhani et al., 2025).

The objectives of this study are twofold. First, to examine the differences between currency exchange movements, inflation rates, remittance inflows, and foreign exchange reserves of Indonesia and the Philippines; and second, to determine the predictive capacity of macroeconomic variables on currency movements. By addressing these, the study seeks to provide empirical evidence that informs effective monetary policies and enhances exchange rate stability in both economies. This research contributes to a deeper understanding of the structural challenges faced by Indonesia and the Philippines, paving the way for tailored economic solutions that promote long-term resilience and development.

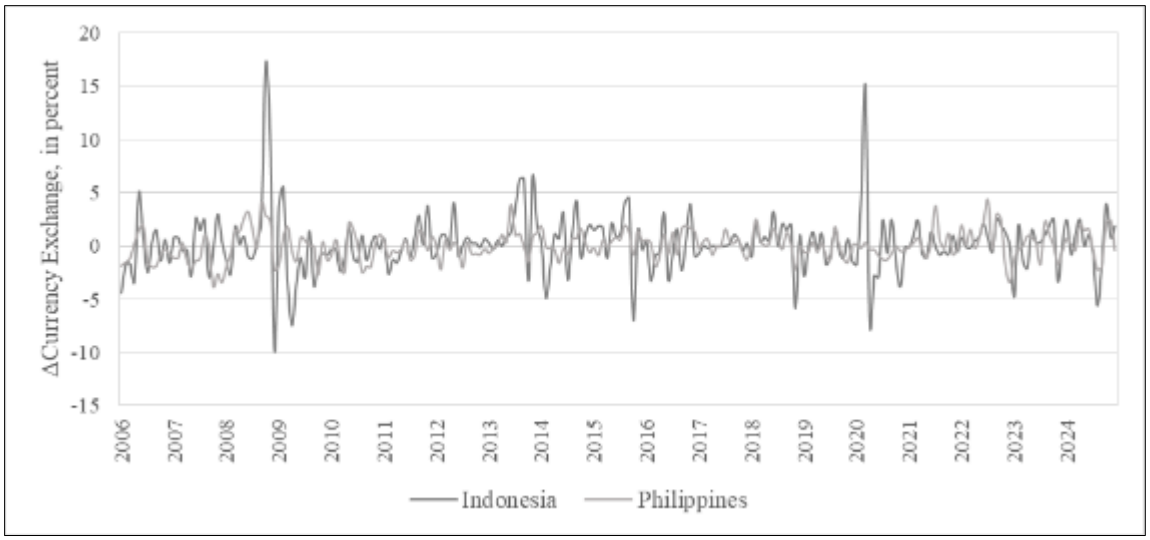
2. Literature Review and Hypotheses Development

2.1. Currency Exchange (CEX)

The currency exchange represents the relative value of one country's currency against another and serves as a crucial determinant in international trade transactions (Ramadhani et al., 2025). It reflects the agreed-upon price for currency exchanges in global markets and plays a significant role in economic equilibrium (Pratiwik & Prajanti, 2023). Being defined as the domestic price of foreign currency, the exchange rate also influences a nation's purchasing power, competitiveness, and financial stability (Hassan & Wolmes, 2012).

Currency exchange is fundamental to facilitating international trade, as domestic currencies must be converted for cross-border transactions. This process occurs in the foreign exchange market, where supply and demand dynamics dictate price movements. Exchange rates also serve as indicators of a country's monetary power, reflecting macroeconomic conditions and policy effectiveness (Pratiwik & Prajanti, 2023). Moreover, they affect various sectors, including inflation, investment, and employment (Jadmiko & Azizi, 2024).

Maintaining exchange rate stability is critical to sustaining economic growth and public welfare. A strong understanding of exchange rate dynamics enables governments to implement effective economic policies, optimize exchange rate management strategies, and promote sustainable development (Pablo et al., 2023). Exchange rate stability depends on sound monetary policy and the ability to withstand external shocks, reinforcing the importance of proactive financial governance.



Source: Bangko Sentral ng Pilipinas, Bank Indonesia

Figure 1 Monthly change in currency exchange of Indonesian Rupiah and Philippine Peso against US Dollar, 2006 to 2024 (in percent)

Figure 1 presents the monthly percentage changes in the exchange rates of the Indonesian Rupiah (IDR) and Philippine Peso (PHP) against the US Dollar (USD) from 2006 to 2024. The graph reveals significant fluctuations over time, with pronounced volatility in certain periods. Notable spikes and declines appear around 2009 and 2020, suggesting potential external influences such as global financial crises and the COVID-19 pandemic.

Indonesia's exchange rate has experienced pronounced volatility over the past two decades, with persistent fluctuations in the USD to IDR exchange rate from 2005 to 2023 (Ramadhani et al., 2025). Pratiwik and Prajanti (2023) observed a sustained depreciation of the Rupiah in the last ten years, raising concerns over currency stability. Santos et al. (2023) further found that Indonesia exhibited the highest exchange rate volatility among emerging economies between 2002 and 2022. Despite Indonesia's free-floating exchange rate system, Bank Indonesia implements policy measures to mitigate excessive currency fluctuations (Santos, 2018). These interventions include adjustments in interest rates, foreign exchange operations, and liquidity management aimed at reducing speculative pressures and stabilizing currency movements.

Meanwhile, the Philippine Peso's exchange rate has followed a distinct trajectory characterized by alternating periods of depreciation and appreciation. Following the 2007 global financial crisis, the Peso depreciated rapidly before transitioning into a more gradual appreciation phase (Naoto, 2022). Between 2013 and 2019, the currency experienced sustained depreciation, followed by a brief recovery, before a renewed depreciation trend began in April 2021. Bayangos et al. (2016) noted that since the easing of foreign exchange regulations in 2007, the Philippine Peso displayed relative stability, though volatility increased in 2022, partly due to geopolitical tensions such as the Ukraine-Russia conflict (Pablo et al., 2023). The Bangko Sentral ng Pilipinas likewise operates under a freely floating exchange rate system, allowing market forces to dictate currency valuations (Santos, 2018). However, the central bank occasionally intervenes to stabilize fluctuations and maintain orderly foreign exchange conditions (Santos et al., 2023). Notably, in March 2020, the de facto exchange rate arrangement was reclassified as a crawl-like peg due to the Peso's appreciation trend.

- **H1a:** The CEX between IDN and PHL differs significantly.

2.2. Inflation Rate (INF)

Several studies suggest that inflation plays a crucial role in currency depreciation, influencing exchange rate movements in both Indonesia and the Philippines. Pratiwik and Prajanti (2023) found that inflation significantly impacts exchange rates in both the short and long run. Their findings align with the quantity theory of money, which posits that high inflation erodes domestic purchasing power and increases demand for imports. This demand necessitates greater conversions of domestic currency into foreign currency, such as the US Dollar, ultimately leading to its depreciation.

Similarly, Jadmiko and Azizi (2024) supported this relationship, explaining that higher inflation weakens domestic currency as it reduces consumers' purchasing power, in line with the Purchasing Power Parity (PPP) theory. Sardon et al. (2016) further confirmed that rising commodity prices drive inflation, contributing to exchange rate weakening. Additionally, Hakim et al. (2022) noted that high inflation diminishes actual income for investors, potentially influencing investment decisions and, consequently, exchange rate movements. Ramadhani et al. (2025) highlighted that excessive growth in the broad money supply may accelerate inflation, weakening domestic currency against the foreign currency. However, contrasting findings exist. Carissa and Khoirudin (2020) observed that inflation has a minimal but statistically insignificant effect on exchange rates, while Devia and Fadli (2022) reported no measurable impact.

- **H1b:** The INF between IDN and PHL differs significantly.
- **H2a:** INF significantly influences the likelihood of IDR depreciation against USD
- **H2b:** INF significantly influences the likelihood of PHP depreciation against USD

2.3. Migrant Workers' Remittances (MWR)

Remittances serve as a vital source of currency exchange, particularly in economies heavily reliant on overseas workers' income. In Indonesia, Juniantari and Sudibia (2024) found that remittance inflows contribute to increasing foreign exchange reserves. Anissa & Jayadi (2024) further established that remittances significantly impact exchange rates; however, no short- or long-term relationship was detected, likely due to the relatively small volume of remittance inflows. Kuncoro (2020) suggests that an increase in remittances improves the balance of payments, which subsequently influences exchange rate movements, potentially causing long-term fluctuations in the domestic currency.

In contrast, research on the Philippines generally supports the assertion that remittances contribute to real exchange rate movements. Mandelman (2013), using a general equilibrium model, concluded that sustained increases in remittances lead to real exchange rate appreciation. Yang (2006), as cited in Dakila and Claveria (2007), found that overseas Filipino remittances tend to rise when the Peso depreciates relative to the currencies of destination countries. However, Leuth and Ruiz-Arranz (2006), as referenced by Dakila and Claveria (2007), determined that for developing economies—including the Philippines—currency depreciation can reduce remittance inflows, as the purchasing power of the home currency diminishes. Additionally, Dakila and Claveria (2007) identified exchange rate indices as significant

predictors of overseas Filipino remittances, suggesting that remittance decisions are profit-driven, influenced by the favorable exchange rate differential when the domestic currency depreciates. Anissa & Jayadi (2024) further noted that remittances can contribute to currency depreciation, while Bayangos and Lubangco (2024) found that remittance inflows in the Philippines are driven by the depreciation of the Peso against foreign currencies.

- **H1c:** The MWR between IDN and PHL differs significantly.
- **H3a:** MWR significantly influences the likelihood of IDR depreciation against USD
- **H3b:** MWR significantly influences the likelihood of PHP depreciation against USD

2.4. Foreign Exchange Reserves (FXR)

Foreign exchange reserves play a crucial role in determining exchange rate movements, yet their effects on currency stability vary across economies. Andriyani et al. (2020) observed fluctuations in reserve levels, underscoring the importance of maintaining balance to support monetary stability. Jadmiko and Azizi (2024) found that higher foreign exchange reserves strengthen the domestic currency, while Pratiwik and Prajanti (2023) reported a significant negative effect of reserves on exchange rates in both the short and long run, indicating that increased reserve holdings contribute to exchange rate appreciation. They suggest that substantial reserves enhance the central bank's ability to regulate currency movements effectively.

Contrastingly, Juniantari and Sudibia (2024) found that exchange rate fluctuations were influenced by reserve levels, suggesting that a depreciating domestic currency corresponds with reserve accumulation. Sardon et al. (2016) further noted that the accumulation of net foreign assets negatively impacts exchange rates, reinforcing the role of reserves in contributing to currency depreciation rather than stabilization. A similar trend is observed when Safitri (2021) examined the role of foreign exchange reserves in exchange rate movements. Sardon et al. (2016) reported a negative relationship between reserve accumulation and currency value, implying that increased reserves may correspond with depreciation rather than appreciation. Additionally, Bayangos and Lubangco (2024) found that foreign exchange reserves fluctuate alongside remittance inflows, which are primarily influenced by Peso depreciation against the US Dollar.

- **H1d:** The FXR between IDN and PHL differs significantly.
- **H4a:** FXR significantly influences the likelihood of IDR depreciation against USD
- **H4b:** FXR significantly influences the likelihood of PHP depreciation against USD

3. Research Methods

This study employed a quantitative research approach to determine the macroeconomic differences between Indonesia and the Philippines, and to examine the probability of currency exchange movements being influenced by inflation rates, remittances, and foreign exchange reserves. The data were collected from the official websites of Bank Indonesia and Bangko Sentral ng Pilipinas, the central banks of Indonesia and the Philippines, respectively. The two countries are selected for their shared reliance on foreign remittances and susceptibility to external economic shocks. While both operate freely floating exchange rate systems, they exhibit distinct macroeconomic challenges. The data collected, as shown in Table 1, includes 228 monthly indicators for each variable, spanning from 2006 to 2024. All data used in this study were publicly available from reputable sources, ensuring transparency and reliability. No personal or confidential data were accessed.

Table 1 Definitions and Sources of Variables

Variable	Definition	Source
Change in Currency Exchange (ΔCEX)	Monthly growth/decline rate of USD to PHP/IDR, measured in percentage. Assigned binary values are: 0 = Currency appreciation (or -ΔCEX) 1 = Currency depreciation (or +ΔCEX)	Author's calculations
Currency Exchange (CEX)	The exchange rate is the price of a unit of foreign currency in terms of the domestic currency. In this study, the foreign currency used is the American Dollar (USD), and the local currencies are the Indonesian Rupiah (IDR) and Philippine Peso (PHP), presented in absolute amounts.	Bangko Sentral ng Pilipinas; Bank Indonesia
Inflation Rate (INF)	The inflation rate refers to the annual rate of change of the consumer price index (CPI), measured in percentage. It measures how quickly the prices of goods and services are increasing over a year.	
Migrant Workers' Remittances (MWF)	The remittances are financial transfers made by migrant workers to their families or individuals in their home countries. In this study, the remittances are presented in billions of USD.	
Foreign Exchange Reserves (FXR)	The foreign exchange reserves are assets denominated in a foreign currency that are held by a country's central bank. In this study, reserves are presented in billions of USD.	

The Mann Whitney U test was utilized to compare the distributions of economic variables between Indonesia and the Philippines, identifying statistically significant differences. Then, to evaluate the predictive capacity of each country's macroeconomic variables in currency exchange movements, logistic regression was applied, assessing the likelihood of depreciation or appreciation with the following equation:

$$\text{Logit}(\Delta\text{CEX}) = \ln\left(\frac{+\Delta\text{CEX})}{-\Delta\text{CEX}}\right) = \beta_0 + \beta_1\text{INF} + \beta_2\text{MWR} + \beta_3\text{FXR}$$

Where ΔCEX is the probability of observing change in currency exchange, β_0 is the intercept of the model, β_1, β_2, and β_3 are regression coefficients for the independent variables inflation rate (INF), migrant workers' remittances (MWR), and foreign exchange reserves (FXR), respectively.

4. Analyses

4.1. Descriptive Statistics

Table 2 presents the descriptive statistics for the exchange rates of domestic currencies to USD, along with inflation, remittances, and foreign exchange reserves for Indonesia and the Philippines under the periods of currency appreciation and depreciation. The observed variations highlight the impact of macroeconomic factors on exchange rate movements.

Table 2 Descriptive Statistics

Variables	-ΔCEX		+ΔCEX		ΔCurrency	
	$\bar{x}$	*s*	$\bar{x}$	*s*	$\bar{x}$	*s*
Indonesia						
USD to IDR	11,962	2,472	12,386	2,499	12,196	2,490
INF	4.883	3.402	5.271	2.967	5.097	3.168
MWR	0.726	0.218	0.775	0.243	0.753	0.233
FXR	0.112	0.018	0.111	0.014	0.112	0.016
Philippines						
USD to PHP	46.693	4.163	50.184	4.377	48.484	4.609
INF	3.787	1.740	3.840	2.254	3.814	2.016
MWR	2.004	0.637	2.553	0.500	2.286	0.633
FXR	1.077	1.073	2.137	1.727	1.621	1.537

For Indonesia, the mean USD to IDR exchange rate was 11,962 during Rupiah appreciation and 12,386 during depreciation, with an overall mean of 12,196. The data indicates that during currency depreciation, inflation rates ($\bar{x}$ = 5.271, *s* = 2.967) and remittance inflows ($\bar{x}$ = 0.775, *s* = 0.243) tend to be higher, while FX reserves are negligibly lower ($\bar{x}$ = 0.111, *s* = 0.014). In contrast, when IDR appreciates, inflation rate ($\bar{x}$ = 4.883, *s* = 3.402), remittances ($\bar{x}$ = 0.726, *s* = 0.218), and FX reserves ($\bar{x}$ = 0.112, *s* = 0.018) move in the opposite direction.

For the Philippines, the mean USD to PHP exchange rate was 46.693 during Peso appreciation and 50.184 during depreciation, with an overall mean of 48.484. Similarly, when Peso is under depreciation, inflation rates ($\bar{x}$ = 3.840, *s* = 2.254), remittance inflows ($\bar{x}$ = 2.553, *s* = 0.500), and FX reserves ($\bar{x}$ = 2.137, *s* = 1.727) are observed to be high compared to when Peso appreciates (-ΔCurrency: $\bar{x}$ = 3.787, s = 1.740; MWR: $\bar{x}$ = 2.004, *s* = 0.637; FXR: $\bar{x}$ = 1.077, *s* = 1.073).

4.2. Mann-Whitney U Test

Table 3 presents the results of Mann-Whitney U test, comparing the distributions of key economic variables between the Philippines and Indonesia. The test assesses whether the two countries exhibit significantly different distributions for currency exchange movements, inflation rates, remittances, and FX reserves.

Table 3 Mann Whitney U Test

Variables		Philippines		Indonesia		*U*	*Z*	*r*	Difference
		$\bar{x}$	*s*	$\bar{x}$	*s*				
ΔCEX	H1a	0.423	6.610	0.258	2.843	25821	-0.122	0.006	Insignificant
INF	H1b	3.814	2.016	5.097	3.168	20052***	-4.201	0.200	Significant
MWR	H1c	2.286	0.633	0.753	0.233	51732***	18.294	0.860	Significant
FXR	H1d	1.925	1.595	0.112	0.160	32400***	16.408	0.860	Significant

*p<0.05, **p<0.01, ***p<0.001

The analysis indicates no significant difference in currency exchange movements, as the mean difference between the Philippines and Indonesia was not statistically significant (*U* = 25821, *Z* = -0.122, *r* = 0.006, *p* = 0.903). This suggests that currency exchange trends were similar across both countries during the covered period, rejecting H1a.

In contrast, inflation rates differed significantly (*U* = 20052, *Z* = -4.201, *r* = .200, *p* < 0.001), with Indonesia experiencing higher inflation, and reflecting small to moderate effect size. Remittance inflows showed a substantial difference, with

the Philippines receiving significantly higher remittances than Indonesia (U = 51732, Z = 18.294, r = 0.860, p < 0.001), underscoring the Philippines' greater reliance on remittances. Similarly, FX reserves exhibited a significant disparity, with the Philippines maintaining considerably higher reserves than Indonesia (U = 32400, Z = 16.408, r = 0.860, p < 0.001). The large effect size suggests a substantial difference in foreign reserve holdings, reinforcing the Philippines' stronger reserve position. Hence, hypotheses H1b, H1c, and H1d are supported.

4.3. Model Fit Measurement

The model fit measures in Table 4 demonstrated the testing of three models whereas the first model considers inflation rate as the only predictor, the second model is added with migrant workers' remittances, and the third model is added with FX reserves, completing the set of predictors. In determining the optimal model, deviance and Akaike information criterion (AIC) values were utilized with lower values indicating better model fit. Hence, this study selected the second model for Indonesia (D = 234, AIC = 240) and the third model for the Philippines (D = 263, AIC = 271).

Table 4 Model Fit Measures

Model	Deviance	AIC	R^2_{McF}	R^2_{CS}	R^2_N	R^2_T	χ^2	VIF[1]
Indonesia								
1	239	243	0.024	0.033	0.044	0.032	5.950*	1.750
2	234	240	0.044	0.058	0.078	0.059	10.820**	1.780
3	234	242	0.046	0.061	0.081	0.061	11.230*	2.550
Philippines								
1	316	320	0.000	0.000	0.000	0.000	0.039	1.060
2	268	274	0.153	0.191	0.254	0.200	48.268***	1.430
3	263	271	0.166	0.206	0.274	0.214	52.543***	1.390

*p<0.05, **p<0.01, ***p<0.001, [1]VIF values of the added variable per model

Moreover, pseudo-R^2 values, such as McFadden (R^2_{McF}), Cox and Snell (R^2_{CS}), Nagelkerke (R^2_N), and Tjur (R^2_T) were analyzed to identify which of the tested models is a better predictor. Although Model 3 displayed slightly stronger predictive power compared to Model 2 for Indonesia, the latter was selected given a more significant chi-square statistic (χ^2 = 10.820, p = 0.004). For the Philippines, Model 3 was selected as it demonstrated higher pseudo-R^2 values and significant chi-square statistic (χ^2 = 52.543, p < 0.001) among other models.

5. Results and Discussions

As shown in Table 5, the currency exchange movements in both Indonesia and the Philippines exhibit distinct patterns based on key economic variables. In both cases, the intercepts are negative and statistically significant (IDN: β = -2.263, Z = -2.540, OR = 0.104, p = 0.011, PHL: β = -3.748, Z = -5.030, OR = 0.024, p < 0.001), indicating baseline tendencies for currency fluctuations when other predictors are held constant. However, the influence of inflation rate differs between the two economies.

For Indonesia, inflation rate demonstrates a positive and statistically significant effect (β = 0.296, Z = 3.000, OR = 1.344, p = 0.003), supporting H2a and suggesting that rising inflation contributes to exchange rate movements, potentially leading to depreciation. This finding aligns with Jadmiko and Azizi (2024) and Monadjemi and Lodewijks (2021) who argue that higher inflation reduces the purchasing power of the domestic currency, thereby weakening the exchange rate, as explained by the Purchasing Power Parity theory. Further, Pratiwik and Prajanti (2023) suggest that inflation increases domestic goods' prices, making imported products cheaper. Consequently, more domestic currency needs to be exchanged for foreign currency, causing the exchange rate to depreciate. In contrast, inflation in the Philippines is not statistically significant (β = 0.107, Z = 1.420, OR = 1.113, p = 0.154), rejecting H2b and indicating a weaker relationship with exchange rate fluctuations in the model.

Table 5 Model Coefficients and Likelihood Test for Currency Exchange Movements

Variable		β	Lower	Upper	*SE*	*Z*	*OR*	Lower	Upper	Omnibus χ^2
Indonesia										
Intercept		-2.263*	-4.006	-0.519	0.890	-2.540	0.104	0.018	0.595	
INF	H2a	0.296**	0.103	0.489	0.099	3.000	1.344	1.108	1.630	9.83**
MWR	H3a	0.002*	0.000	0.003	0.001	2.160	1.002	1.000	1.003	4.87*
Philippines										
Intercept		-3.748***	-5.210	-0.287	0.746	-5.030	0.024	0.005	0.102	
INF	H2b	0.107	-0.040	0.254	0.075	1.420	1.113	0.961	1.290	2.04
MWR	H3b	1.318***	0.720	0.197	0.306	4.320	3.738	2.054	6.802	21.53***
FXR	H4b	0.249*	0.002	0.496	0.126	1.980	1.283	1.002	1.642	4.27*

95% Confidence Interval, *p<.05, **p<.01, ***p<.001

Moreover, remittances play a crucial role in exchange rate dynamics across both countries, albeit with varying degrees of significance. In Indonesia, remittances exhibit a positive and statistically significant coefficient (β = 0.002, Z = 2.160, OR = 1.002, p = 0.030), supporting H3a and suggesting an association between remittance inflows and currency depreciation. In the Philippines, remittances display a much stronger statistical significance (β = 1.318, Z = 4.320, OR = 3.738, p < 0.001), likewise supporting H3b and underscoring their substantial effect on negative currency fluctuations. This result aligns with Dakila and Claveria (2007), Anissa & Jayadi (2024), and Kuncoro (2020), who found that migrant workers' remittances tend to increase when the domestic currency depreciates. Bayangos & Lubangco (2024) also concluded that remittances are driven by the depreciation of the PHP against USD. As the value of remittances in the local currency increases, the level of remittances is likely to increase as well. This is because recipients of remittances will receive more units of their domestic currency when the USD is stronger, making it more attractive to send remittances.

Similarly, foreign exchange reserves significantly contribute to currency depreciation in the Philippines (β = 0.249, Z = 1.980, OR = 1.283, p = 0.048), supporting H4b. However, this factor was not included in the Indonesian model given the results presented in Table 3; thus, H4a was not tested. The result is consistent with Adriyani et al. (2020), who found a significant effect of currency depreciation on foreign exchange reserves.

The omnibus likelihood tests further validate these findings. For Indonesia, inflation (χ^2 = 9.83, p = 0.002) and remittances (χ^2 = 4.87, p = 0.027) significantly contribute to currency exchange movements. In the Philippines, remittances (χ^2 = 21.53, p < 0.001) play an even greater role, alongside FX reserves (χ^2 = 4.27, p = 0.039), emphasizing their influence on exchange rate dynamics.

Table 6 Predicted Measures

	Predicted				
	-ΔCurrency	**+ΔCurrency**	**% Correct**	**Accuracy**	**AUC**
Indonesia					
-ΔCurrency	27	49	36	64	64
+ΔCurrency	16	88	85		
Philippines					
-ΔCurrency	79	32	71	69	78
+ΔCurrency	38	79	68		

The cut-off value is set to 0.05. Accuracy = 0.639, AUC = 0.637

Table 6 outlines the model's predictive performance in classifying currency value changes for Indonesia and the Philippines relative to the US Dollar. In Indonesia, the model correctly identified 27 instances of Rupiah appreciation with a specificity rate of 36 percent, and 88 instances of depreciation with a sensitivity rate of 85 percent. The overall model accuracy was 64 percent, indicating moderate predictive performance, further supported by an Area Under the Curve (AUC) of 64 percent, which reflects its moderate discriminatory capability.

Similarly, for the Philippines, the model correctly identified both 79 instances of Peso strengthening and weakening with a specificity rate of 71 percent and a sensitivity rate of 68 percent, respectively. The model achieved a slightly higher accuracy rate of 69 percent, demonstrating fair predictive capacity. Additionally, the AUC value of 78 percent suggests strong discriminatory power, indicating the model's reliability in differentiating periods of Peso appreciation and depreciation.

5.1. Limitations

While this study offers valuable insights into the relationships between macroeconomic variables and currency exchange movements in Indonesia and the Philippines, certain limitations should be acknowledged to contextualize the findings. The analysis was restricted to three key macroeconomic variables—inflation rates, remittances, and foreign exchange reserves—excluding other factors such as interest rates, trade balances, or external shocks that could provide additional predictive power. This narrower scope may limit the models' accuracy and their ability to fully capture the complexity of exchange rate dynamics. The predictive models demonstrated moderate to fair accuracy, particularly for the Philippines, as evidenced by the AUC values. However, the overall predictive capacity remains limited, suggesting a need for more comprehensive predictors or methodological refinements to improve performance. Furthermore, the findings are specific to Indonesia and the Philippines, which may constrain their applicability to other emerging economies due to differences in macroeconomic structures, policies, and market conditions. Finally, the study's time frame, spanning from 2006 to 2024, captures long-term trends but may overlook short-term impacts from recent global economic developments or geopolitical events. Future research should consider additional variables and a broader scope to deepen the understanding of currency exchange dynamics.

6. Conclusion

This study explored the multifaceted relationships between macroeconomic variables and currency exchange movements in Indonesia and the Philippines, providing insights into key drivers such as inflation rates, migrant workers' remittances, and foreign exchange reserves. While both countries displayed distinct patterns, several overarching themes emerged, underscoring the complex interplay of economic factors influencing currency fluctuations. This study highlights critical differences in the factors driving currency exchange movements in Indonesia and the Philippines. Inflation rates emerged as a significant predictor in Indonesia, revealing a strong influence between rising inflation and Rupiah depreciation. Conversely, inflation was not statistically significant in the Philippine model, pointing to varying macroeconomic sensitivities and policy frameworks between the two countries. Also, remittance inflows proved to be a predictor for both economies, demonstrating a consistent influence on currency depreciation. The impact was more substantial in the Philippines, underscoring its dependency on a remittance-driven economic structure. Additionally, foreign exchange reserves were identified as a significant predictor of currency movements in the Philippines, further emphasizing their role in influencing exchange rate dynamics. Overall, this study contributes to the understanding of exchange rate dynamics in emerging economies, offering empirical evidence to inform effective monetary and fiscal policies. By identifying critical economic variables and their impact on currency movements, policymakers can develop proactive strategies to enhance currency stability, optimize reserve management, and mitigate external vulnerabilities.

Compliance with ethical standards

Disclosure of conflict of interest

The author declares no conflict of interest.

References

[1] Anissa, R., Jayadi, A. (2024). The effect of remittances on Indonesia's economic growth and exchange rate. DLSU Business and Economics Review, 33(2), 92-100. https://www.dlsu.edu.ph/wp-content/uploads/2024/03/BER_Jan2024_7jayadi-022324.pdf

[2] Andriyani, K., Marwa, T., Adnan, N., & Muizzuddin, M. (2020). The determinants of foreign exchange reserves: Evidence from Indonesia. The Journal of Asian Finance, Economics and Business, 7(11), 629–636. https://doi.org/10.13106/jafeb.2020.vol7.no11.629

[3] Bayangos, V. B., Elloso, L. V., Hallig, J. M. R. G., Yeung, J. N. R., & Salamatin, A. M. D. (2016). The Impact of Foreign Exchange Liberalization Reforms on the Philippine Economy: An Initial Assessment. Bangko Sentral ng Pilipinas. BSP Working Paper Series No. 2016-01, 1–33. https://www.bsp.gov.ph/Media_And_Research/WPS/WPS201601.pdf

[4] Bayangos, V. B., & Lubangco, C. K. (2024). Do Remittances Boost Household Spending? New Evidence from Migrants' Household Survey. Bangko Sentral ng Pilipinas. BSP Discussion Paper No. 2024-18, 1–35. https://www.bsp.gov.ph/Sites/researchsite/Publications/BSP-Discussion-Papers/DP202418.pdf

[5] Carissa, N., & Khoirudin, R. (2020). The factors affecting the rupiah exchange rate in Indonesia. Jurnal Ekonomi Pembangunan, 18(1), 37–46. https://doi.org/10.29259/jep.v18i1.9826

[6] Dakila, F. J. G., & Claveria, R. A. (2007). Identifying the Determinants of Overseas Filipinos' Remittances: Which Exchange Rate Measure is Most Relevant? Bangko Sentral ng Pilipinas. BSP Working Paper Series No. 2007-02, 1–26. https://www.bsp.gov.ph/Media_And_Research/WPS/WPS200702.pdf

[7] Devia V. S. S., & Fadli, F. (2022). The effect of inflation and exchange rate on macroeconomics in Indonesia. Integrated Journal of Business and Economics, 102–114. https://doi.org/10.33019/ijbe.v6i2.417

[8] Hakim, L., Ikra, M., & Nuraeni, N. (2022). The effect of inflation and IDR exchange rate on net assets value of stock mutual funds in Indonesia with the role of IDX composite as mediating variable. Journal of Economics, Management, Entrepreneurship, and Business, 2(2), 130–138. https://doi.org/10.52909/jemeb.v2i2.107

[9] Hassan, G., & Wolmes, M. (2012). Remittances and the real effective exchange rate. Munich Personal RePEc Archive, 1-18. http://mpra.ub.uni-muenchen.de/40084/

[10] Jadmiko, E. P., & Azizi, M. (2024). Analysis of factors affecting the rupiah exchange rate against the US dollar. Nomico, 1(11), 41–49. https://doi.org/10.62872/7ptkvp68

[11] Juniantari, N. L. P. E., & Sudibia, I. K. (2024). Analysis of the effect of remittance receipts, Rupiah exchange rate, and BI interest rate on the amount of foreign exchange reserves in Indonesia. International Research Journal of Economics and Management Studies, 3(12), 61-71. https://doi.org/10.56472/25835238/IRJEMS-V3I12P108

[12] Kuncoro, H. (2020). The role of exchange rate in remittance inflows evidence from Indonesia. Economic Bulletin, 40(2), 1508-1521. https://ideas.repec.org/a/ebl/ecbull/eb-19-00900.html

[13] Mandelman, F. S. (2013). Monetary and exchange rate policy under remittance fluctuations. Journal of Development Economics, 102, 128–47. https://doi.org/10.1016/j.jdeveco.2012.02.006

[14] Monadjemi, M., & Lodewijks, J. (2021). Inflation and Exchange Rates: An International Examination of Relative Purchasing Power Parity. Journal of Economics and Public Finance, 7(3), p1. https://doi.org/10.22158/jepf.v7n3p1

[15] Naoto, C. (2022). The Influencing Factors and Forecast of the Philippine Peso Exchange Rate. BCP Business & Management, 25, 387-393. https://doi.org/10.54691/bcpbm.v25i.1848

[16] Pablo, A. R., Vigonte, F., & Abante, M. V. (2023). Analyzing the influence of foreign exchange rates and economic factors on balance of payment fluctuations in the Philippines (2013-2022). SSRN Electronic Journal, 1-11. https://doi.org/10.2139/ssrn.4460802

[17] Pratiwik, E., & Prajanti, S. D. W. (2023). Rupiah exchange rate: The determinants and impact of shocks on the economy. Jurnal Ekonomi & Studi Pembangunan, 24(1), 100–126. https://doi.org/10.18196/jesp.v24i1.18016

[18] Ramadhani, F. S., Rahim, A., Astuty, S., Hastuti, D. R. D., & Irwandi. (2025). Analysis of factors affecting exchange rate fluctuations in Indonesia. International Journal of Economics and Management Sciences, 2(1), 423–432. https://doi.org/10.61132/ijems.v2i1.605

[19] Safitri, S. T., Mutiara, N., & Srihastuti, E. (2021). Exploration exogenous factor of exchange rate: Data from Indonesia. Jurnal Inovasi Ekonomi, 6(01), 21–24. https://doi.org/10.22219/jiko.v6i01.16610

[20] Santos, H. C. P. (2018). Foreign exchange interventions, capital outflows, and financial vulnerabilities in selected Asian emerging economies. Bangko Sentral ng Pilipinas. BSP Working Paper Series No. 2018-02, 1–30. https://www.bsp.gov.ph/Media_And_Research/WPS/WPS201802.pdf

[21] Santos, H. C. P., Bayangos, V. B., Hallig, J. M. R. G., Lomibao, N. F. G., & Imson, I. R. (2023). Does Exchange Rate Volatility Matter for Economic Growth? Evidence from Selected Asia-Pacific Economies. Bangko Sentral ng Pilipinas. BSP Discussion Paper No. 2023-06. 1–27. https://www.bsp.gov.ph/Pages/MediaAndResearch/PublicationsAndReports/Discussion%20Papers/DP202306.pdf

[22] Sardon, J. R. C., Mariano, C. N. Q., Paguta, R. B., & Sablan, V. F. (2016). Investigation of the factors affecting real exchange rate in the Philippines. Review of Integrative Business & Economics Research, 5(4), 171-202. https://sibresearch.org/uploads/3/4/0/9/34097180/riber_s16-073_171-202.pdf