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Monetary Policy and Exchange Rate Dynamics in the Context of Remittance Volatility: Evidence from Bangladesh

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Abstract

The present study applies an ARDL model to examine the complex interplay among monetary policy, inflation, broad money supply, exchange rates and remittances in the context of Bangladesh. The investigation is grounded on yearly time series data covering the period from 1978 to 2022. The results of our unit root and cointegration analysis indicate that the variables under consideration demonstrate a mixture of integrated of order I(0) and integrated of order I(1) features. The study revealed that, in the short term, the effects of interest rates (IR) and inflation rates (IN) on remittances (REM) were shown to have a considerable influence on the flow of remittances. Conversely, exchange rates (EX) and broad money (BM) were deemed to be statistically insignificant. The Error Correction Mechanism (ECM) coefficient indicates a significant annual correction rate of around 26.45% for short-term aberrations from the long-run equilibrium in remittances. Surprisingly, the long-term association did not show any statistical significance in respect to exchange rates (EX). The findings highlight the crucial economic role of interest rates and inflation in influencing remittance flows, underscoring the need for balanced monetary policy and inflation control to harness remittances as a stabilizing force for Bangladesh's economy. The aforementioned findings provide significant insights for policymakers, emphasizing the importance of implementing a well-rounded monetary policy, effectively managing inflation and promoting financial inclusivity in order to maximize the positive impact of remittances on Bangladesh's economic stability and progress.

Keywords: ARDL, Monetary policy, Exchange Rate, Remittance, ECM, Bangladesh

JEL Classification: E52, F31, F24, C22, E41, E31

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1. Introduction

For many developing nations, remittances are a significant source of foreign exchange earnings. According to World Bank data, Bangladesh received approximately $21.5 billion in remittances in 2022, which accounted for approximately 5.2% of the country's GDP (WDI 2023). This made Bangladesh one of the leading recipients of remittances in South Asia. By increasing household income, stimulating consumption and investment and reducing deprivation, remittances can have a positive effect on economic growth. However, the volatile nature of these inflows poses challenges, as global labor market dynamics, economic crises, and geopolitical events can sharply impact remittance volumes. Such fluctuations threaten exchange rate stability and inflation, posing significant risks to Bangladesh's economic planning and stability (IOM UN Migration, 2022). An unexpected decline in remittances can result in a drop in foreign exchange reserves (Siddique et al., 2012).

Monetary policy can help mitigate the negative effects of volatility in remittances. The central bank can use monetary policy instruments to smooth out fluctuations in the exchange rate and inflation (Sultana, 2023). As an illustration, the central bank can surge interest rates to draw foreign capital and stabilise the exchange rate (Mandelman, 2011).
In an open economy like Bangladesh, where a large share of goods and services are traded globally, the exchange rate plays a vital role in economic stability and competitiveness. Changes in the exchange rate can have a significant effect on the competitiveness of Bangladesh's exports and the cost of imports, influencing the country's overall balance of payments and external trade position (Hosen, 2023). Changes in the exchange rate can also impact inflation dynamics because they affect the prices of imported goods and inflation expectations.

In the context of remittance volatility, the relationships between remittances, exchange rates and inflation are complex and multifaceted. When remittance inflows surge, they can result in an appreciation of the local currency, potentially harming the export sector's competitiveness and contributing to "Dutch disease" (Ball et al., 2010). An unexpected decline in remittances, on the other hand, can exert downward pressure on the exchange rate, potentially fueling inflationary pressures, particularly in an import-dependent economy like Bangladesh.

Given these dynamics, understanding how monetary policy interacts with exchange rate fluctuations in the context of volatile remittances is of the utmost importance for Bangladeshi policymakers. Through its influence on interest rates and money supply, monetary policy can affect exchange rates and, in turn, inflation dynamics. Effective monetary policy can mitigate the negative effects of volatility in remittances on exchange rates and inflation.

This study seeks to cast light on the complex relationship between Bangladesh's monetary policy, exchange rate dynamics, and remittance fluctuations. By analysing historical data, conducting empirical analysis, and assembling insights from pertinent literature, this study aims to provide policymakers with evidence-based recommendations for navigating the challenges and opportunities presented by remittance volatility in the context of exchange rate management.

The main objectives of this study are –

- To investigate whether a long-run equilibrium relationship exists between remittances, exchange rates and inflation rates in the context of Bangladesh.
- To analyze the short-term impacts and dynamics of monetary policy, exchange rate changes, and inflation on remittance flows within the Bangladeshi economy.

The paper is structured as follows: Section 1 introduces the issues; Section 2 presents the theoretical conundrum and empirical research review. The research methodology and analytical framework are outlined in Section 3. Section 4 of the paper describes data-driven results, and section 5 offers policy proposals with concluding remarks.

2.0 Theoretical Framework and Literature Review

2.1 Theoretical Framework

This section provides an overview of the key theoretical concepts that inform the research.

The Mundell-Fleming model is a seminal framework for analysing the interplay of monetary policy, exchange rates and capital flows. A central bank's monetary policy decisions, according to this concept, can affect currency exchange rates in an open economy. In particular, currency depreciation is associated with expansionary monetary policy, which is characterised by lower interest rates, and can alter the balance of trade. (Mundell, 1963); (Fleming, 1962). For this study's objective of analyzing short-term impacts of monetary policy on remittance flows and exchange rates, the Mundell-Fleming model provides insight into how changes in interest rates may cause immediate shifts in exchange rates, which, in turn, affect remittance inflows. Understanding these short-term effects is essential, as remittance inflows to Bangladesh respond not only to economic conditions in host countries but also to shifts in domestic currency value.

The Interest Rate Parity (IRP) theory states that a country's currency exchange rate should reflect a country's interest rate differential. If interest rates in one country are higher than in another, the value of that country's currency should rise to make up the difference. On the other hand, a decline in value is expected as interest rates fall. Capital flows and exchange rate fluctuations may be influenced by interest parity deviations, which may be indicative of arbitrage opportunities. For this study's objective of examining long-term impacts, the

IRP model helps to assess how sustained interest rate policies could influence the flow of remittances over time through their effect on exchange rates.

The influence of resource windfalls, like remittances, on an economy is the subject of the Dutch Disease hypothesis (Corden & Neary, 1982). There is evidence to suggest that remittances can cause a country's currency to appreciate and so reduce the competitiveness of exports that are not resources. Furthermore, it can cause economic imbalances by encouraging resources to relocate from the export sector to the non-tradable sector (resource movement impact) (Oomes & Kalcheva, 2007).

Together, these models form a comprehensive theoretical framework for investigating the complex relationship among remittances, exchange rates, inflation, and monetary policy in Bangladesh. The Mundell-Fleming and IRP models clarify the mechanisms through which monetary policy can impact remittance flows and exchange rates in both the short and long term, addressing the study's primary objectives. The Dutch Disease hypothesis highlights potential economic distortions arising from remittance inflows, providing a basis for assessing the broader implications of remittance volatility on inflation and economic balance. By integrating these theoretical perspectives, the study is well-positioned to offer policy recommendations that enhance the stability and effectiveness of Bangladesh's monetary policy in the context of remittance dynamics.

2.2 Selected Review of Literature

Monetary policy plays a pivotal role in the exchange rate dynamics and remittance flows in countries like Bangladesh, where remittances significantly contribute to economic stability. Abdullah et al. (2012) highlight the effects of monetary policy on inflation in Bangladesh, underscoring that monetary interventions, including interest rate adjustments, influence inflation dynamics and can indirectly impact remittance inflows. Kim (2019) further supports this by finding that remittance volatility in Bangladesh can be mitigated through supportive monetary policies. The study shows that a 1% increase in interest rates results in a 0.2% decline in the value of the Bangladeshi taka, thereby highlighting the relationship between interest rates, remittance flows, and exchange rates.

Islam et al. (2021) also examine the potential stabilizing effect of monetary policy on inflation in Bangladesh, asserting that a 1% increase in interest rates leads to a 0.01% reduction in inflation, which could enhance the real value of remittances. This is crucial for understanding how monetary policies in Bangladesh affect remittance value and, in turn, exchange rate dynamics.

Several studies focus on the relationship between exchange rates and remittances, with varying findings. Jahjah et al. (2003) suggest that an appreciation in the exchange rate can increase the value of remittances in local currency terms. However, the effect varies across countries and depends on contextual factors such as the income of remittance recipients.

This is corroborated by Razzaque et al. (2017), who explore the broader effects of exchange rates on economic growth in Bangladesh, establishing that exchange rate fluctuations can have significant implications for remittance inflows and economic stability.

Adenutsi and Ahortor (2008) conduct an empirical study on the Ghanaian economy and show that monetary aggregates, exchange rates, and interest rates positively influence remittance inflows, whereas domestic price levels have a negative impact. Their findings suggest that well-crafted monetary and exchange rate policies can encourage remittance inflows into Ghana. Similarly, Vu et al. (2019) explore how remittances interact with real exchange rates and the Dutch disease effect in Asian countries, highlighting that exchange rate volatility can alter remittance behavior, with implications for long-term economic growth.

Mandelman (2011) investigates the role of monetary policy in small open economies like the Philippines, where remittance volatility is a significant concern. His study indicates that a nominal fixed exchange rate regime can protect households from remittance fluctuations, while an adaptable floating regime may be more suitable when unexpected shocks occur. This research is particularly relevant to Bangladesh, where exchange rate fluctuations significantly affect remittance inflows and economic stability.

Ball et al. (2012) delve into the dynamics of exchange rate regimes and their effects on remittances, output, and inflation in non-tradable goods sectors. Their analysis suggests that under a fixed exchange rate system, remittances can lead to higher inflation for non-tradables and an increase in output for non-tradable goods, further complicating the impact of remittance flows on the economy.

In the case of Nigeria, Mbutor (2010) uses the vector autoregressive model to examine the impact of monetary policy on remittances, concluding that remittance flows are closely linked to the health of the domestic economy and exchange rate fluctuations. His findings are crucial for understanding how monetary policy can stabilize remittance flows in the face of economic instability.

Existing literature on the relationship between monetary policy, exchange rate dynamics, and remittance volatility has concentrated primarily on global or cross-country analyses, with limited attention paid to Bangladesh's particular circumstances. Many studies have explored what drives remittances and how they affect exchange rates and inflation. However, there is a clear lack of research focusing specifically on how these factors jointly interact in Bangladesh's economy. This study aims to address this deficiency by providing a comprehensive examination of how the country's monetary policy interacts with remittance fluctuations and their subsequent impact on exchange rate dynamics and inflation, thereby providing policymakers in Bangladesh with the knowledge they need to

effectively manage these crucial economic variables in the face of remittance-induced volatility.

3.0 Methodology of this Study

3.1 Source and Description of Data

In this study, we analyzed the dynamics of monetary policy and exchange rates in relation to remittance volatility using yearly time series data obtained from the World Bank Development Indicator (WDI) for the period spanning from 1978 to 2022. We used Personal remittances, received (current US$) or REM, Official exchange rate or EX, Lending interest rate (%) or IR Inflation, GDP deflator (annual %) or IN and broad money or BM to found out the dynamics. By transforming all variables into logarithmic form, it becomes possible to determine elasticities, which provides a more convenient means of explaining the model. The statistical software tool used for econometric analysis is EViews 9.0.

3.2 Methods

According to Nelson and Ploser (1982), the utilisation of time series data may lead to misleading results if unit root issues are present, hence hindering the achievement of our research objectives. Consequently, prior to conducting the autoregressive distributed lag (ARDL) analysis, it is necessary to assess the presence of unit root in order to ascertain the validity of the model. The Augmented Dickey-Fuller (ADF) test is widely employed as a method for identifying the presence of a unit root(Gujarati & Porter, 2009). There are several methods available for examining variable cointegration, with the ARDL bounds test being a widely utilised approach due to its ability to accommodate both I(0) and I(1) series. Given that our series comprises a combination of I(0) and I(1) components, the ARDL limits test is deemed suitable for our analysis.

3.3 Justification of the ARDL model

This article employs the Autoregressive Distributed Lag (ARDL) model to analyze both the short-term and long-term impacts of remittance volatility on exchange rates and inflation, offering a comprehensive view of these relationships. The ARDL model is particularly suited for this context, as it allows for analysis of mixed-order integrations and dynamic relationships, providing insights that are directly applicable to Bangladesh's economic conditions.

4.0 Results and Discussions

The ADF unit root test will be employed to assess the stationarity of variables, and the outcomes will be displayed in Table 1. Table 1 illustrates that the variables exhibit stationarity at the first difference, while they do not display stationarity at the level, except

for the inflation rate which is stationary at level I(0). This suggests that the variables possess a mixed nature of integration, combining orders I(1) and I(0).

Table 1: Results of Unit root test

	At Level					
		BM	EX	IN	IR	REM
With Constant	t-Statistic	-1.7657	-3.4462	-4.5449	-1.0097	-1.3251
	Prob.	***0.3922***	***0.0145***	***0.0007***	***0.7415***	***0.6094***
		n0	**	***	n0	n0
With Constant & Trend	t-Statistic	-0.7988	-1.9762	-4.5054	-1.5174	-2.8425
	Prob.	***0.9580***	***0.5978***	***0.0042***	***0.8080***	***0.1908***
		n0	n0	***	n0	n0
Without Constant & Trend	t-Statistic	2.5690	5.1848	-1.3112	-0.6022	2.5636
	Prob.	***0.9970***	***1.0000***	***0.1725***	***0.4507***	***0.9969***
		n0	n0	n0	n0	n0
	At First Difference					
		d(BM)	d(EX)	d(IN)	d(IR)	d(REM)
With Constant	t-Statistic	-5.1109	-4.1261	-9.8510	-3.9867	-4.7454
	Prob.	***0.0001***	***0.0023***	***0.0000***	***0.0034***	***0.0004***
		***	***	***	***	***
With Constant & Trend	t-Statistic	-5.3354	-6.3766	-9.7481	-4.5685	-4.8092
	Prob.	***0.0004***	***0.0000***	***0.0000***	***0.0036***	***0.0019***
		***	***	***	***	***
Without Constant & Trend	t-Statistic	-4.5452	-2.7693	-9.9552	-3.9832	-3.6690
	Prob.	***0.0000***	***0.0067***	***0.0000***	***0.0002***	***0.0005***
		***	***	***	***	***

Source: Authors' compilation using Eviews.

The ARDL bound test approach is employed in order to ascertain the presence of cointegration among the variables REM, IR, IN, BM, and EX within the specific context of Bangladesh. The F-statistic is utilised to assess the long-term cointegration by comparing it to the upper and lower bounds. The F-statistic obtained from the limits test in the table is 8.8819, significantly exceeding the 1% critical value of the upper bound (4.37) as determined by Pesaran et al. (2001). This result leads to the conclusion that the variables

REM, IR, IN, BM, and EX are cointegrated. Based on the findings of this study, it can be inferred that the variables examined exhibit cointegration and demonstrate long-term convergence.

Table 2: Results of ARDL Model

Dependent Variable: REM Selected Model: ARDL (1, 3, 1, 1, 3)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
REM(-1)	0.735451	0.066597	11.04326	0.0000
IR	-0.012360	0.260220	-0.047498	0.9625
IR(-1)	0.504392	0.417919	1.206915	0.2376
IR(-2)	-0.185176	0.432935	-0.427721	0.6721
IR(-3)	-0.799169	0.308493	-2.590555	0.0150
IN	-0.027581	0.021420	-1.287576	0.2084
IN(-1)	-0.036186	0.021387	-1.691955	0.1018
EX	1.608245	0.445592	3.609232	0.0012
EX(-1)	-1.480500	0.409912	-3.611755	0.0012
BM	0.081496	0.221505	0.367921	0.7157
BM(-1)	0.043940	0.313180	0.140301	0.8894
BM(-2)	0.133112	0.303293	0.438889	0.6641
BM(-3)	0.432355	0.218649	1.977394	0.0579
C	1.834127	0.485833	3.775219	0.0008
R^2 = 0.997530 Adj. R^2= 9.484780 F-Stat= 869.97				

Source: Authors' compilation using Eviews.

Table 3: ARDL Bounds Test

Significance	F- stat=8.8819	
	I(0)	I(1)
10%	2.2	3.09
5%	2.56	3.49
1%	3.29	4.37

In the short term, the variable IN is statistically significant at the 8% level(considering a 10% significance threshold), while EX demonstrates a high level of significance at 1%. However, the variables IR and BM do not demonstrate statistical significance. The statistically significant model reveals that the ECM (-1) exhibits a negative value, indicating a short-term deviation from the long-run equilibrium. This deviation, amounting to approximately 26.45%, is annually adjusted to restore the equilibrium. The process of correcting this deviation takes approximately 3.78 years.

Table 4: Short Run Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(IR)	-0.012360	0.206147	-0.059957	0.9526
D(IR(-1))	0.984345	0.233693	4.212122	0.0002
D(IR(-2))	0.799169	0.258074	3.096664	0.0044
D(IN)	-0.027581	0.015441	-1.786222	0.0849
D(EX)	1.608245	0.224855	7.152354	0.0000
D(BM)	0.081496	0.168866	0.482608	0.6331
D(BM(-1))	-0.565467	0.191144	-2.958329	0.0062
D(BM(-2))	-0.432355	0.180268	-2.398397	0.0234
ECM(-1)	-0.264549	0.033381	-7.925136	0.0000

ECM = REM - (-1.8610*IR -0.2410*IN + 0.4829*EX + 2.6116*BM + 6.9330)

Given that REM, IR, IN, BM, and EX exhibit cointegration, it is possible to establish a long-term relationship between these variables. In this context, the variable REM is considered the dependent variable, while the variables IR, IN, BM, and EX are regarded as the explanatory variables. The long-term outcomes are presented in Table 5. The explanatory variable EX is shown to be statistically insignificant, but the variables IR and BM are highly significant at less than 1%, and IN is significant at 7%. The findings indicate that a 1% increase in the interest rate leads to a corresponding fall in remittance by 1.86%. In a similar vein, it can be shown that a 1% increase in the inflation rate leads to a corresponding fall in remittance by 0.24%. Furthermore, a 1% increase in broad money results in a subsequent increase in remittance by 2.61%.

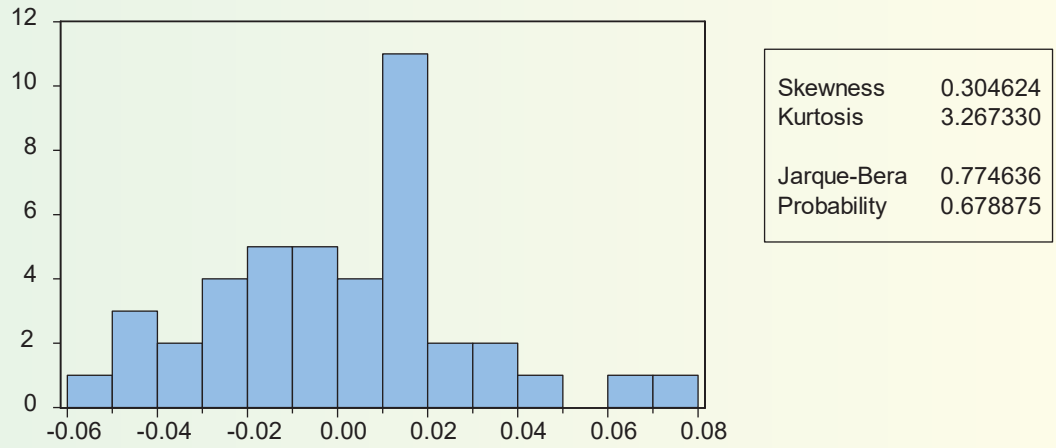
Table 5: Long Run elasticities

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IR	-1.860953	0.421037	-4.419930	0.0001
IN	-0.241040	0.128772	-1.871841	0.0717
EX	0.482877	0.653011	0.739462	0.4658
BM	2.611631	0.597280	4.372543	0.0002
C	6.933044	0.653424	10.610335	0.0000

Source: Authors' compilation using Eviews.

Diagnostic Test

Diagnostic checks under the ARDL model include conducting normality, serial correlation, and stability tests, among other assessments. In the context of the normality test, it is commonly thought that if the p-value exceeds 5%, as observed in this example with a value of 67%, the null hypothesis is rejected. This implies that the residuals can be considered to follow a normal distribution. The normality plot depicted in Figure 1 was generated using the software Eviews.



The following tables present the outcomes of various diagnostic tests, indicating that the residuals do not exhibit serial correlation. Specifically, the null hypothesis of "no serial correlation" is not rejected at a significance level of 5%, which corresponds to a critical value of 33%. Additionally, it can be observed that the model is appropriately specified, as the null hypothesis of accurate specification is not rejected at a significance level of 5%,

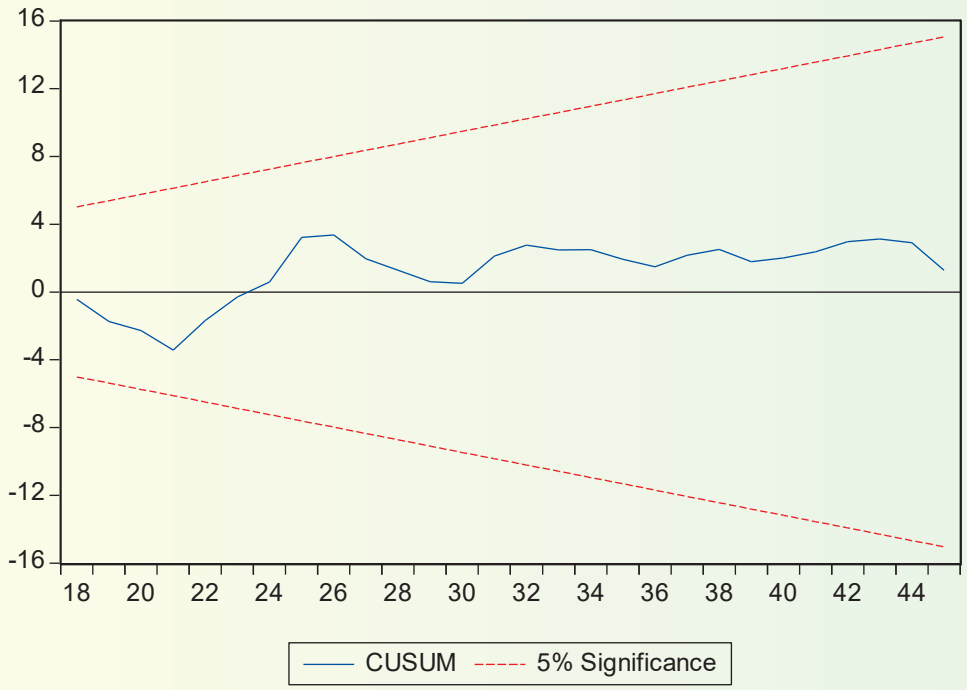
corresponding to a confidence level of 95%. However, the CUSUM square test demonstrates the presence of a structural break, as indicated by the concept of structural stability.

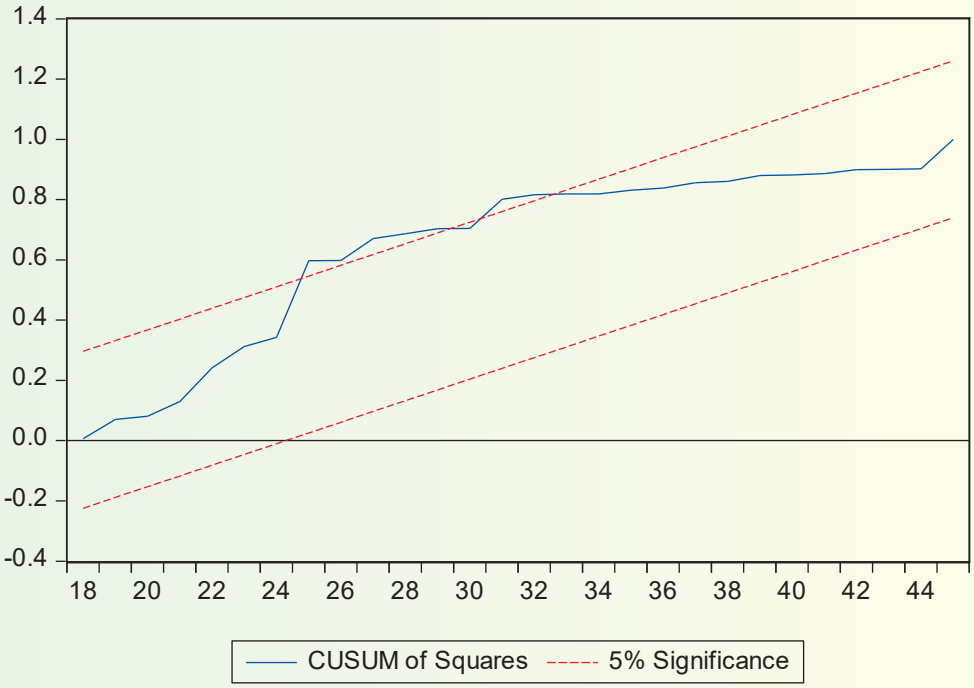
Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.149937	Prob. F(13,28)	0.3627
Obs*R-squared	14.61880	Prob. Chi-Square(13)	0.3318

Ramsey RESET Test

	Value	df	Probability
t-statistic	0.053817	27	0.9575
F-statistic	0.002896	(1, 27)	0.9575





The study's findings reveal several important economic factors influencing remittance flows in Bangladesh. First, there is a negative relationship between interest rates and remittances, suggesting that higher interest rates reduce remittance inflows. Economically, this may be because rising interest rates lead to an appreciation of the local currency, which lowers the value of remittances when converted into Bangladeshi Taka, thereby reducing purchasing power and potentially discouraging migrants from sending funds. Additionally, high inflation appears to negatively impact remittances, as it erodes the local currency's value, making remitted funds less effective in meeting household needs. Inflation may also signal economic instability, creating uncertainty among migrant workers about the financial viability of sending money home, prompting them to consider alternative investments elsewhere.

Another key finding is the positive association between an increased broad money supply and remittances, which may reflect greater financial inclusion and expanded access to banking services in Bangladesh. Improved banking access, especially in rural areas, encourages migrants to use formal channels for remittances, increasing overall inflows. Interestingly, while exchange rates are significant in the short term, they do not have a statistically significant impact on remittances in the long term. This suggests that remittances are driven more by social obligations than by economic fluctuations, with migrants prioritizing family support over minor changes in currency value. Additionally,

the Error Correction Mechanism (ECM) coefficient indicates that around 26.45% of short-term deviations from long-term equilibrium are corrected annually, reflecting the adaptive behavior of remittance flows and the resilience of Bangladesh's economy in adjusting to remittance-related shocks. This gradual correction also hints at effective monetary policies that help stabilize remittance inflows, ensuring their continued role in supporting the economy.

5.0 Conclusions and Policy Recommendations

In summary, our research has shed light on the complex interplay among monetary policy, inflation, broad money supply, exchange rates, and remittances in Bangladesh from 1978 to 2022, employing an ARDL model. The findings from the unit root and cointegration study indicate that the variables (REM, IR, IN, BM and EX) possess a combination of I(0) and I(1) features, suggesting that their integration orders are I(1) and I(0) respectively. Furthermore, the analysis of short-term dynamics reveals that variations in interest rates (IR) and inflation rates (IN) have a considerable impact on remittance flows, although exchange rates (EX) and broad money (BM) do not exert a substantial influence on remittances (REM). The ECM coefficient suggests that an estimated 26.45% of deviations from the long-term equilibrium in remittances are corrected annually, reflecting the stability and resilience of remittances in the face of economic fluctuations. Over the course of the study, it was seen that interest rates (IR), inflation rates (IN), and broad money (BM) have a significant influence on remittances (REM). The findings indicate that there is a negative relationship between rates of interest and remittances, with a 1% increase in interest rates leading to a 1.86% decrease in remittances. Similarly, inflation rates have a negative impact on remittances, as a 1% increase in inflation rates is associated with a 0.24% decrease in remittances. On the other hand, there is a positive correlation between broad money and remittances, where a 1% increase in broad money results in a 2.61% increase in remittances. Surprisingly, the long-term association did not show any statistical significance in respect to exchange rates (EX). A monetary strategy that is characterized by a relaxed approach, involving the reduction of interest rates, typically results in the devaluation of a country's currency. This devaluation, in turn, has significant consequences for the country's trade balance and its ability to compete in the international market. The aforementioned findings underscore the complex relationship between monetary issues and remittances within the context of Bangladesh, providing useful insights for both policymakers and researchers.

Policy Recommendations

Based on the study's empirical findings, several specific and actionable policy measures can be recommended to strengthen remittance inflows and ensure their sustained contribution to Bangladesh's economic stability and development:

1. **Adopt Remittance-Sensitive Interest Rate Policies:** Given the strong negative relationship between interest rates and remittance inflows, the Bangladesh Bank should consider adopting a remittance-sensitive monetary policy framework. While pursuing inflation targets and currency stability, interest rate adjustments should take into account their potential impact on remittances. Introducing targeted savings instruments for remittance recipients at favorable interest rates could also help channel remittance funds into productive investments.

2. **Strengthen Inflation Management Mechanisms:** Since high inflation discourages remittance inflows by reducing real income in the recipient country, the government should reinforce macroeconomic strategies aimed at controlling inflation. This includes prudent fiscal policies, targeted subsidies for essential commodities, and improved coordination between monetary and fiscal authorities to keep inflation expectations anchored, thereby preserving the value of remitted funds.

3. **Deepen Financial Inclusion through Technology and Infrastructure:** The positive effect of broad money on remittance inflows underscores the importance of financial access. Policymakers should prioritize the expansion of digital financial services, such as mobile money platforms and agent banking, especially in underserved rural areas. Public-private partnerships can be fostered to develop low-cost, user-friendly digital remittance platforms that connect migrant workers directly to formal banking channels.

4. **Ensure Exchange Rate Predictability and Manage Volatility:** Although the long-term effect of exchange rates was statistically insignificant, the short-term impact and general economic sentiment tied to exchange rate fluctuations must not be overlooked. The central bank should use a managed float system to prevent extreme volatility while ensuring competitiveness. Transparent communication of exchange rate policy and buffer-building through reserve accumulation can enhance migrant confidence.

5. **Facilitate and Incentivize Formal Remittance Transfers:** To reduce dependence on informal remittance channels (hundi), the government should implement incentives such as tax rebates, matching grants for remittance-linked savings, and reward schemes for frequent formal remitters. Simplifying documentation requirements, ensuring faster transaction processing, and reducing remittance charges in collaboration with service providers can further encourage the use of legal channels.

By aligning monetary, fiscal, and financial sector policies with the behavioral patterns of remittance flows, Bangladesh can not only safeguard this critical source of foreign exchange but also channel it more effectively into economic development and financial stability.

References:

Abdullah, M., Parvez, K., & Tooheen, R. (2012). Impacts of Monetary Policy on Inflation in Bangladesh. *Global Disclosure of Economics and Business, 1,* 103–119. https://doi.org/10.18034/gdeb.v1i2.198

Adenutsi, D., & Ahortor, C. R. K. (2008). Remittances, Exchange Rate, and Monetary Policy in Ghana. *MPRA Paper.*

Ball, C., Lopez, C., Reyes, J., & Cruz-Zuniga, M. (2010). Remittances, Inflation and Exchange Rate Regimes in Small Open Economies. *MPRA Paper,* Article 22648. https://ideas.repec.org//p/pra/mprapa/22648.html

Corden, W. M., & Neary, J. P. (1982). Booming Sector and De-Industrialisation in a Small Open Economy. *The Economic Journal,* 92(368), 825–848. https://doi.org/10.2307/2232670

Fleming, J. M. (1962). Domestic Financial Policies under Fixed and under Floating Exchange *Rates Staff Papers - International Monetary Fund, 9*(3), 369. https://doi.org/10.2307/3866091

Gujarati, D. N., & Porter, D. C. (2009). *Basic econometrics* (5th ed). McGraw-Hill Irwin.

Hosen, M. Z. (2023). Aggregated imports and expenditure components in Bangladesh: A cointegration and equilibrium correction analysis. *Heliyon, 9*(6), e17417. https://doi.org/10.1016/j.heliyon.2023.e17417

IOM UN Migration. (2022). *Remittance Inflows to Bangladesh during* COVID-19. https://bangladesh.iom.int/sites/g/files/tmzbdl1006/files/documents/Remittance%20Inflows%20to%20Bangladesh%20during%20COVID-19.pdf

Islam, Md. S., Hossain, Md. E., Chakrobortty, S., & Ema, N. S. (2021). Does the monetary policy have any short-run and long-run effect on economic growth? A developing and a developed country perspective. *Asian Journal of Economics and Banking, 6*(1), 26–49. https://doi.org/10.1108/AJEB-02-2021-0014

Jahjah, S., Chami, R., & Fullenkamp, C. (2003). Are Immigrant Remittance Flows a Source of Capital for Development? *International Monetary Fund.* https://www.imf.org/en/Publications/WP/Issues/2016/12/30/Are-Immigrant-Remittance-Flows-a-Source-of-Capital-for-Development-16801

Kim, J. (2019). The Impact of Remittances on Exchange Rate and Money Supply: Does "Openness" Matter in Developing Countries? *Emerging Markets Finance and Trade, 55,* 1–26. https://doi.org/10.1080/1540496X.2018.1547963

Mandelman, F. S. (2011). Monetary and Exchange Rate Policy under Remittance

Fluctuations. *Federal Reserve Bank of Atlanta.* https://www.atlantafed.org/research/publications/wp/2011/07

Mbutor, M. O. (2010). Can monetary policy enhance remittances for economic growth in Africa? The case of Nigeria. *Journal of Economics and International Finance, Vol. 2(8), pp. 156–163.*

Mundell, R. A. (1963). Capital Mobility and Stabilization Policy under Fixed and Flexible Exchange Rates. *The Canadian Journal of Economics and Political Science / Revue Canadienned'Economique et de Science Politique, 29*(4), 475–485. https://doi.org/10.2307/139336

Nelson, C. R., & Plosser, C. R. (1982). Trends and random walks in macroeconmic time series: Some evidence and implications. *Journal of Monetary Economics, 10*(2), 139–162. https://doi.org/10.1016/0304-3932(82)90012-5

Oomes, N., & Kalcheva, K. (2007). *Diagnosing Dutch Disease: Does Russia Have the Symptoms?* (SSRN Scholarly Paper 1001659). https://doi.org/10.2139/ssrn.1001659

Osigwe, A. C., & Madichie, C. V. (2015). Remittances, Exchange Rate and Monetary Policy in Nigeria. *Global Journal of Management and Business Research: B Economics and Commerce,* 15(6).

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds Testing Approaches to the Analysis of Level Relationships. *Journal of Applied Econometrics, 16*(3), 289–326.

Razzaque, M. A., Bidisha, S. H., & Khondker, B. H. (2017). Exchange Rate and Economic Growth: An Empirical Assessment for Bangladesh. *Journal of South Asian Development, 12*(1), 42–64. https://doi.org/10.1177/0973174117702712

Siddique, A., Selvanathan, E. A., &Selvanathan, S. (2012). Remittances and Economic Growth: Empirical Evidence from Bangladesh, India and Sri Lanka. *The Journal of Development Studies,* 48(8), 1045–1062. https://doi.org/10.1080/00220388.2012.663904

Sultana, F. (2023). *The Impact of Monetary Policy on Economic Growth in Bangladesh (1990-2018)* (SSRN Scholarly Paper 4329195). https://doi.org/10.2139/ssrn.4329195

Vu, M., Cao, V., Nguyen Phuc, H., & Lê, X. (2019). Remittances, Real Exchange Rate and the Dutch Disease in Asian Developing Countries. *The Quarterly Review of Economics and Finance, 77*. https://doi.org/10.1016/j.qref.2019.10.006

WDI. (2023). *World Development Indicators. World Bank.*