Monetary Policy and Foreign Remittance Inflows in East African Countries: The Moderating Impact of Institutional Quality

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Abstract: - Remittance inflows represent a significant form of foreign financial flows to developing countries, and remittances are acknowledged as crucial for economic advancement. This study investigated the effect of monetary policy and its interaction with institutional quality on foreign remittance inflows (FRI) in East African countries in the period from 2003 to 2022. Using a fixed effect model of panel data analysis, the empirical results revealed a negative weak effect of monetary policy rate and exchange rate on FRI while reserve requirements, real GDP, and broad money supply negatively and significantly affected FRI. However, monetary policy variables interacted with institutional quality showed an enhanced impact on foreign remittance inflows. The study recommends that East African countries prioritize strengthening governance structures. East African countries' central banks should adopt policies that maintain predictable and stable interest rates and exchange rates to reduce the risks associated with currency fluctuations and transaction costs.

Key-Words: - Exchange rate, Foreign remittance inflows, Institutional quality, Monetary policy, Monetary policy rate, Reserve requirements.

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1 Introduction

The influx of international remittances has emerged as a crucial issue of financial advancement in numerous East African countries. These remittances, seen as the personal transfer of funds or commodities from expatriates to their countries of origin, substantially make contributions to the reduction of poverty, enhancement of family earnings, and investment in education and healthcare. For instance, the [1] posits that remittances accounted for approximately five % of the Gross Domestic Product in countries along with Kenya, Uganda, and Tanzania, highlighting their crucial position in monetary stability. Monetary coverage, which includes the measures carried out through a country's primary banking authority to alter the money supply and interest rates, has large repercussions for both the extent and efficacy of remittance inflows. According to [2], monetary impacts exchange rates, inflation, and stimulation of the economic factors that are necessary to attract remittance. Specifically, high inflation rates in remittance recipient country could lower the value of remitted funds, and hence discourage foreign capital flows. Monetary policy transmits through instruments such as Open Market Operations (OMO), reserve requirements, and Central Banks benchmark interest rates. For example, central bank of Kenya (CBK) frequently vary interest rates in order to stabilize the Kenyan currency and tame inflation, [3]. These occurrences, however, could discourage migrants from sending money home. Most countries in East Africa rely on remittance inflows as economic stabilizer, but exchange rate fluctuations remained problematic.

Interestingly, studies in [4] indicate that contractionary monetary policy via interest rate increase has the potential to enhance the value of domestic currency, thereby reducing the value of domestic currency exchange rate.

The adoption of digital economy in Kenya for example has caused complex interrelationship between monetary policy and remittance inflows. Digitalization of banking system has lowered transaction cost. According to [5], the problem arising from the adoption of digital currencies with some monetary policy framework remained unresolved. Therefore, East African Central Banks must leverage the benefits of financial inclusion to mitigate digital fraud risks that could threaten the financial system stability. Monetary policies in East African countries affect remittance inflow in various ways due to political and regulatory environments in various countries. For example, Ethiopia's restrictive foreign exchange management policy has resulted in reduced remittance inflow when compared to Kenya's relaxed foreign exchange management policy, [6].

In view of the potential of remittance inflows for lifting families out of poverty and stimulating economic growth, studies on how monetary policy could reduce poverty and stimulate output growth become imperative. Additionally, the extent to which monetary policy affects remittance inflow in East African Countries is sobering. There is no doubt that studies on how monetary policy affects remittances will help East African countries' regulatory authorities to formulate policies that attract remittance while minimizing the negative effect of inflation and exchange rate volatility.

2 Statement of the Problem

Inward remittances to East African Countries (EAC) could be a veritable source of household income for poverty reduction and sustainable economic growth, [7]. However, empirical evidences suggest that remittance inflows could be affected by macroeconomic variables such as exchange rates, interest rates, and inflation. Meanwhile, countries' institutional quality, such as legal framework, governance systems, and public sector performance, could moderate the effect of monetary policy on remittance inflow, [8]. Given that EAC members, like Kenya, Uganda, and Tanzania, have varied institutional frameworks, these various institutional qualities could affect the magnitude and direction of monetary policy on remittance inflows in each country.

Robust institutional frameworks could engender confidence in migrants to send more money home, [9]. On the contrary, weak institutional frameworks could also deter migrants from sending funds to their home country due to low return in investment, [10]. The study therefore examines whether or not interest rates, exchange rates, and reserve requirements affect inward remittance.

The effectiveness of monetary policy highly depends on the quality of institutions, as it ensures the right implementation and enforcement of policies and regulations. Alternatively, in countries with weaker institutional frameworks, even the best-designed economic regulations may also fail to have the favored impact on remittance flows. For example, exchange rates management aimed toward stabilizing the currency can be undermined weak institutions that fail to implement these policies efficiently, or excessive interest rates can be ineffective in encouraging remittance flows if the economic sector is poorly regulated, [11]. Therefore, the quality of institutions could affect how remittance flows and channeled into the economy. In countries with better institutions, remittances are more likely to be invested in productive activities, such as businesses or education, thus contributing to long-term economic growth. However, in countries with weak institutions, remittances are probably spent on consumables rather than funding, limiting their ability to spur broader economic development, [10], [12].

Given these issues, this study examined how institutional quality moderates the effect of monetary policy on remittance inflows to East African countries. Specifically, it examines how monetary instruments of interest rate, exchange rate, and reserve requirements impact the inflow of remittances in these countries. The research also offers insight into how enhancing institutional qualities can affect the effectiveness of monetary policy in attracting and stabilizing remittances, and make contributions to the economic development of the East African countries.

2.1 Objective of the Study

i. to assess how monetary policy (monetary policy rate, exchange rate, and reserve requirements)

affected foreign remittance inflows in East African countries
ii. to evaluate the moderating effect of institutional quality and monetary policy on foreign remittance inflows in East African countries.

2.2 Research Hypotheses

Ho1: Monetary policy has no significant effect on foreign remittance inflows in East African countries.
Ho2: There is no significant moderating effect of monetary policy and institutional quality on foreign remittance inflows in East African countries.

3 Literature Review

3.1 Theoretical Literature Review

3.1.1 Capital Flow Volatility Theory

The Capital Flow Volatility Theory of remittance explores how the fluctuation of remittance flows affects the monetary stability of recipient countries and the function of monetary policy in handling those fluctuations. Remittance is considered a more stable source of foreign capital inflow when compared to other foreign capital flows such as FDI and FPI, but are more perceived to be volatile in response to global economic conditions, home country economic policies or monetary policy adjustments. In line with [13] model, a country's internal factors such financial conditions influence the capital instability of all types of capitals, with the exception of foreign direct investment. According to capital flow theory, home country monetary policy has several macroeconomic consequences, and Central banks must constantly formulate and implement policies to ameliorate the potential negative effects of foreign capital volatility like boosting foreign reserves in order to withstand adverse effect of reduced capital inflow such as remittance. Monetary authorities may also adopt contractionary monetary policy to tame inflationary pressure during periods of reduced foreign capital flows. Central banks must constantly adjust policy instruments to stabilize inflation and deflation

3.1.2 Countercyclical Theory of Remittance and Monetary Policy

The Countercyclical Theory of Remittance and Monetary Policy posits that remittance is countercyclical in nature, rising during the time of economic hardship and reducing during the time of economic prosperity in remittance recipient countries. This position presupposes that remittances help households tide over economic hardship. In times of recessions, households leverage remittances to cope with unfavorable economic conditions. In view of the above, central banks take advantage of remittance stabilizing potential to adopt robust expansionary policy such as reduced interest rates or increasing money supply. Enhanced remittance inflows during economic downturns can result in exchange rate appreciation, thereby making monetary policy ineffective. In this instance, central banks must formulate and implement policies to stimulate exports to tame inflation. There are recorded instances where increased remittance causes demand -pull inflation if swift corrective actions are not taken.

Central banks may intervene in the foreign exchange market to maintain stability. In addition, coordination between monetary and fiscal policies is critical. For example, fiscal policies could focus on infrastructure development to absorb remittance-driven demand. Monetary policies might prioritize financial market stability to channel remittance inflows into productive investments.

This study adopts capital flow volatility theory to examine monetary policy effect on foreign remittance inflows in East African countries.

3.2 Empirical Literature Review

[14] analyzed the impact of inward remittances on the banking sector's growth. The study examined and makes use of annual time series data from the 2015 version of the World Bank's World Development Indicators (WDI) masking the length from 1977 to 2014. Both descriptive data and the Generalized Method of Moments (GMM-IV) estimator had been used to discover the relationship between remittances and banking sector development in Nigeria. The findings indicate that inward remittances have a wonderful but statistically insignificant impact on the improvement of the banking zone (β = 0.0727; t = zero.5165). Based on these outcomes, it become advocated that Nigerian banks create remittance-related economic products for both the diaspora and remittance-receiving families, in place of treating remittances as a one-time transaction.

Similarly, [15] investigated the connection between remittances, finance, and financial increase the use of a unique financial improvement index based totally on monetary machine size, institutional

intensity, and efficiency. The study of [16] investigated the consequences of numerous capital inflows overseas direct funding, remittances, overseas aid, and outside debt on Ghana's financial boom from 1984 to 2018 with the use of the autoregressive distributed lag model. The findings showed that remittances undoubtedly affect long term monetary increase, at the same time as external debt and overseas direct investment negatively impact boom. Foreign aid became null to have an impact in each the short and long term. However, external debt and remittances undoubtedly impact financial increase when interacted with institutional fine ultimately. The research looked at and emphasized the vital function of institutional pleasant in driving Ghana's economic growth. Equally, [17] made use of Panel Ordinary Least Square (OLS) regression model to investigate the impact of diaspora remittances on poverty level in Sub Saharan African Countries.

[18] examined the impact of remittances in 114 developing countries. Using advanced econometric techniques, he analysed the data collected from the World Bank for the period from 1970 to 2013. The study found that remittance inflows cause nominal exchange rate appreciation and increase money supply under fixed exchange rate regimes. Additionally, remittances and a country's openness significantly complement monetary and exchange rate policies, supporting economic development.

On the other hand, [19] explored whether the growth impact of remittances is conditional on the institutional and development factors in SSA countries and Rwanda in particular. A cross-sectional analysis of 45 SSA countries, followed by a more in-depth analysis of Rwanda as a case study for the period between 1980 and 2014. The cross-sectional findings suggested that remittances had no statistically significant effect on the region's economic growth. However, the degree of education, financial development, and national development all positively and statistically significantly influence the impact of remittance growth, whereas the quality of institutional variables have a negative effect on the impact of remittance growth in the region.

[20] examined the determinants of remittance inflows in 12 middle-income Asia-Pacific countries from 2002 to 2015 using panel data analysis with fixed and random effects. The study found that per capita GDP growth in origin countries and wage growth in destination countries are positively correlated with remittance inflows. Additionally, real effective exchange rate, education levels, and trade openness were also positively associated with remittance inflows in these countries. Similar study, [21], analyzed the macroeconomic factors influencing remittances in 22 remittance-dependent developing countries from 1990 to 2014 using World Bank data and found that inflation, financial development, and institutional quality significantly influenced remittances.

By endeavoring to find out if altruism is a primary motivation of remittances, [22] conducted a study by employing unbalanced panel data of 25 years for 161 countries and fixed effects model. The result collected from the United and World Bank were analyzed and the findings showed that an upward thrust in home country GNI bring about fewer remittances at the same time as a rise in host nations's GNI according to capita motivates migrants to remit extra. Furthermore, the findings confirmed that exchange rates and interest rates seem to have no influence on payment and outcomes, also indicated that the number one incentive of remittances is altruism. Also, a study was conducted in 38 countries of SSA, [23], on macroeconomic factors influencing variations in migrant remittance inflows. The study found that remittance inflows are primarily driven by altruism, indicating limited attraction of self-interest remittances in the region.

[24] evaluated the impactful role of institutions in attracting remittance inflows to ECOWAS region for the period 1996–2013. Applying GMM for the analysis, the results reveal an appreciable impact of institutional infrastructures on the migrants' remittances in the region. On the contrary, using the same method [25] aimed to test the effects of institutional characteristics via the composite risk index on remittances inflows in the Middle East and North Africa region and a sample of countries was selected over the period 1984-2011. The findings indicated a negative relationship between remittances and the composite risk index implying an increase of remittances when risk increases for the specific case of MENA countries.

The review of previous study showed that there is less international scholarly study on how monetary policy and the quality of institutions interact to affect foreign remittances inflows especially into East African economies. In addition, results from prior studies revealed that the actual effect of monetary policy on foreign remittance inflows, especially the

moderating effect of institutional quality, remained inconclusive.

4 Methodology

This study used an ex-post facto research design and a quantitative approach, analyzing secondary data collected over a 20-year period from 2003 to 2022. The chosen timeframe allowed for the inclusion of two major global crises the 2008-2009 financial crisis and the COVID-19 pandemic that had significant impacts on the global economy. The study focused on countries in the East Africa region, selecting seven major recipients of foreign financial inflows with available data. These countries included Comoros, Kenya, Mauritius, Rwanda, Seychelles, Tanzania, and Uganda.

The study utilized secondary data on monetary policy and foreign remittance inflows from reliable sources such as the World Bank's World Development Indicators (WDI) and World Governance Indicators (WGI). Data spanning 20 years (2003-2022) was specifically gathered for the study variables. The variables included the monetary policy rate (real interest rate), exchange rate (official exchange rate per US$), reserve requirements (bank liquid reserves to bank assets ratio), foreign remittance inflows (as a percentage of GDP), and control variables of real GDP (in current US$) and broad money supply (as a percentage of GDP), all sourced from WDI. Principal Component Analysis (PCA) was performed to determine the indices for the six components of institutional quality for each selected country of East Africa for the period under consideration. The definitions and measurements of study variables are presented in Table 1 (Appendix).

The Fixed Effects Model of panel data analysis is employed to analyze the impact of variables that vary over time, while controlling for time-invariant characteristics that may differ across individuals (or entities) but do not change over time. In this model, each individual (e.g., country, company, etc.) is assumed to have its own individual-specific effect (fixed effect) that captures any unobserved, time-invariant factors. These effects are treated as constants for each individual but can vary across individuals. The model essentially "removes" the influence of these fixed characteristics to focus on the relationship between the explanatory variables and the dependent variable. Mathematically, the model can be expressed as:

$$Yit=\alpha i+Xit\beta+\epsilon it \quad (1)$$

where:
Yit is the dependent variable for each individual i at time t,
Xit is a vector of explanatory variables,
αi is the individual-specific effect (the fixed effect),
β represents the coefficients of the explanatory variables,
ϵit is the error term.

This study adopts the Fixed Effects Model (FEM) of panel data regression since we are primarily interested in analyzing the impact of variables that change over time, as it controls for the individual heterogeneity (differences) that could confound the results. It assumes that the individual effects are correlated with the regressors.

Models Specification

Model 2 is formulated to assess how monetary policy (monetary policy rate, exchange rate, and reserve requirements) affected foreign remittances inflows in East African countries

$$FRI_{it} = \lambda_0 + \lambda_1 MPR_{it} + \lambda_2 ER_{it} + \lambda_3 RR_{it} + \lambda_4 \log RGDP_{it} + \lambda_5 BMS_{it} + \mu_{it} \quad (2)$$

FRI depicts foreign remittance inflows, MPR depicts monetary policy rate, denoted exchange rate, RR denotes reserve requirements, RGDP represents real gross domestic product and BMS denotes broad money supply and log describes logarithm. λ_0 denotes vector of model intercept as the value of FRI at zero values of explanatory variables and control variables λ_1, λ_2, λ_3, λ_4 and λ_5 are vector coefficients of the explanatory and control variables estimated. i represents the cross-section identifier, while t denotes the regular point in time at which the values of the variables were considered. μ represents the error term, which accommodates the influences of other factors that influenced foreign remittances inflow but which were not directly included in the model.

Model 3 below is formulated to evaluate the moderating effect of institutional quality and monetary policy on foreign remittance inflows in East African countries.

$$FRI_{it} = \psi_0 + \psi_1 MPR_{it} + \psi_2 ER_{it} + \psi_3 RR_{it} + \psi_4 \log RGDP_{it} + \psi_5 BMS_{it} + \psi_6 IQ_{it} + \psi_7 MPR * IQ_{it} + \psi_8 ER * IQ_{it} + \psi_9 RR * IQ_{it} + \mu_{it} \quad (3)$$

where, FRI: foreign remittance inflows, MPR: monetary policy rate, ER: Exchange rate, RR: reserve requirements, RGDP: real gross domestic product, BMS: broad money supply, IQ: institutions quality, MPR*IQ: moderating term of MPR and IQ, ER*IQ: moderating term of ER and IQ, RR*IQ: moderating term of RR and IQ. $\psi_1, \psi_2, \psi_3, \ldots, \psi_9$ are vector coefficients of the explanatory and control variables.

5 Results Presentation and Discussion

Table 2. Correlation Matrix Results

	MPR	ER	RR	LOG RGDP	BMS	IQ
MPR	1					
ER	0.23014	1				
RR	0.05264	0.08253	1			
LOGRGDP	0.00630	-0.09372	-0.58793	1		
BMS	-0.09251	-0.51655	-0.37336	0.35605	1	
IQ	0.08985	-0.10906	0.03926	0.06975	0.0992	1

Source: Researchers' computations (2025)

The results from correlation matrix as presented in Table 2 depicts that MPR has positive correlation with all variables expect BMS, which has a negative correlation. ER has a negative correlation with LogRGDP, BMS and IQ while ER has a positive correlation with RR. The results also showed that RR has negative correlation with Log RGDP and BMS while a positive correlation is depicted between RR and IQ. BMS and IQ all have a positive correlation with LogRGDP, and finally, a positive correlation was shown between BMS and IQ. Table 2 provided insight into potential multicollinearity problems between pairs of the independent variables in this study. As shown by Table 2, the correlation coefficients are below the 0.80 threshold for potential multicollinearity, [26].

Table 3 shows the unit root test results on different variables under the study. The results indicated that monetary policy rate (MPR), reserve requirements (RR) and institutional quality were integrated at level [I(0)], while FRI, ER, RGDP, and BMS became stationary at first difference, I(1). The outcomes of the unit root test thus provide the reliability of the use of the variables for estimations as no variable is integrated of order greater than one.

Table 3. Unit Root Test Results

Augmented Dickey Fuller (ADF) unit root test					
	At level		**At first difference**		
Variable	**t-Statistic**	**P-value****	**t-Statistic**	**p-value****	**Status**
FRI	11.9507	0.6103	57.3792	0.0000	I(1)
MPR	23.9282	0.0467**	-	-	I(0)
ER	16.4299	0.2878	36.0116	0.0010	I(1)
RR	26.2110	0.024**3	-	-	I(0)
LOGRGDP	19.6387	0.1419	38.5371	0.0004	I(1)
BMS	13.2610	0.5061	52.9483	0.0000	I(1)
IQ	24.0879	0.0447	-	-	I(0)

*** denotes the rejection of the null hypothesis of unit root @ 5%*
Source: Researchers' computation (2025)

Table 4. FEM Regression Results of the Effect of Monetary Policy and FRI in East African countries

Explanatory Variable	Coefficient	t-Statistic	Prob.
C	-21.4525	-2.2209	0.0281
MPR	-0.0091	-0.3624	0.7177
ER	-0.0004	-0.7833	0.4349
RR	-0.0356	-1.9838**	0.0494
LOGRGDP	2.3992	2.3965**	0.0180
BMS	0.0433	2.8685**	0.0048
R-squared	0.8021		
Adjusted R-squared	0.7851		
F-statistic	47.1632		
Prob(F-statistic)	0.0000***		

Note: (i) The endogenous variable is FRI, (ii) *** denotes significant at 1 % level; ** denotes significant at 5 % level; * denotes significant at 10% level
Source: Researchers' computation (2025)

5.1 Effect of Monetary Policy and Foreign Remittances Inflows in Selected East African Countries

Table 4 above shows the regression results of the effect of monetary policy on foreign remittance inflows without the moderating effect of institutional quality (Model 2). The coefficient of -0.0091 indicates a negative relationship between the Monetary Policy Rate (MPR) and Foreign Remittance Inflows (FRI) in East African countries. This means that as MPR increases, FRI tends to decrease slightly. However, the t-statistic of -0.3624 indicates that this relationship is statistically insignificant. This implies that an increase in MPR raises the cost of borrowing, which can slow economic growth, [2]. In times of economic difficulty, migrants may not be encouraged to invest in their home country. Besides, higher interest rates may also attract short-term investments. This often leads to an appreciation of the local currency, [27]. A stronger local currency decreases the purchasing power of remittances sent in foreign currency, discouraging remittance inflows. Empirical evidence showed that MPR adjustments are typically aimed at controlling inflation. If high interest rates do not significantly reduce inflation, the real value of remittances diminishes, reducing their utility for recipients and potentially discouraging future inflows, [28]. Meanwhile, increased MPR often creates better investment opportunities for diaspora members in their host countries or global markets. This shifts their focus away from sending money back to East African countries.

The coefficient of -0.0004 indicates a negative relationship between the Exchange Rate (ER) and Foreign Remittance Inflow (FRI) in East African countries. This implies that as the exchange rate depreciates (local currency weakens against foreign currencies), FRI decreases slightly. However, the t-statistic of -0.7833 suggests that this relationship is not statistically significant. When the local currency depreciates, the relative value of remittances received in foreign currency increases. On the contrary, a weak domestic currency can cause a financial crisis and reduce the value of remittances. The implication is that migrants will hesitate to remit funds back home, [2]. Exchange rate fluctuations in home country cause uncertain economic situation that prevents migrants from sending money home as it affects remittance-linked investments, [28]. In fact, weak currency adversely affects domestic economic conditions such as high inflation or fiscal imbalances. Migrants may additionally decide to send money or direct finances to other foreign nations perceived with a promising economic situation, [8]. Therefore, diaspora members may additionally seek to maximise the price of their income by redirecting remittances closer to investments in areas with more potent or greater solid currencies, leading to a decline in FRI in East African countries.

The coefficient of -0.0356 indicates a negative effect of RR on FRI in East African nations. The results imply that reserve requirements increase, FRI decreases. The t-statistic of -1.9838 is near the critical value of 2 (at a 95% confidence level), indicating that this inverse relationship can be statistically significant but marginally so. Increasing reserve requirements reduces the quantity of cash that banks can lend. This commonly ends in increased charges due to the fact that there's less money available for borrowing, affecting the migrants who wish to raise their investments within their country of origin. Conversely, if the central bank lowers reserve requirements, it can lead to lower interest rates, which might lessen remittances due to the remitters searching elsewhere to invest their money, [8].

The coefficient of 2.3992 indicates a strong positive relationship between Real Gross Domestic Product (RGDP, in logarithmic terms) and Foreign Remittance Inflows (FRI) in East African countries. This means that as the RGDP of these countries increases, FRI rises significantly. The t-statistic of 2.3964 exceeds the critical value of 2 (for a 95% confidence level), suggesting that this relationship is statistically significant. Higher RGDP reflects economic growth and stability, which builds confidence among migrants. They are more likely to send money back home when they perceive that their contributions will be effectively utilized in a growing economy, [28]. This fosters an upward trend in remittance inflows as migrants recognize the potential for improved living standards for their families. Economic growth creates more opportunities for investment in sectors like real estate, agriculture, and entrepreneurship. Driven by a positive monetary outlook, migrants frequently send money home not only for consumption but also for investment opportunities, [2].

A developing economy is frequently related to higher economic systems, together with well performing financial sector, mobile payments systems, and lower charges on remittances transfers.

This infrastructure encourages migrants to send cash through formal channels, thereby raising reported FRI, [29]. Economic growth commonly raises household consumption levels. Hence, as the costs are more affordable, diaspora can send more remittances to their home countries to assist East African families in healthcare, education and lifestyle services.

The positive coefficient of 0.0432 shows a positive effect of BMS on FRI in East African countries. These findings indicated that an increase in the money supply within the economy is associated with an increase in remittance inflows. The t-statistic of 2.8684 exceeds the critical value of 2 (for a 95% level of confidence), indicating that this relationship is statistically significant. Increased money supply results in enhanced money in circulation that help smoothen household consumption and reduced transaction cost. During times of economic prosperity, remittance inflows are easily better used, [2]. Remittance inflows increases in value as more profitable business opportunities emerge. As such, monetary authorities constantly adjust money supply to affect interest rates, inflation and overall macroeconomic situations. This self-assurance can cause better remittance inflows as migrants consider the country economically strong to manage inflows, [29]. The financial system of a country can effectively manage remittances transactions in case of increased money supply. This ends in a discount in transaction prices for sending and receiving remittances, encouraging extra use of formal financial channels and consequently improving the level of FRI, [28].

The R-squared value of 0.8021 indicates that about 80.21% of the changes in FRI are explained by the changes in explanatory variables of MPR, ER, RR, RGDP, and BMS. This is a robust explanatory strength, suggesting that these macroeconomic variables collectively account for a good-sized part of the modification in remittance inflows in East Africa. The Adjusted R-squared of 0.7851 adjusts for the number of predictors within the equation. This value of Adjusted R-squared implies that the model's explanatory power is not artificially inflated by accounting for the number of predictors in the model. This indicates that, even after accounting for the range of impartial variables, the model nonetheless offers a robust explanation of changes in remittance inflows, reinforcing the relevance of MPR, ER, RR, RGDP, and BMS in explaining FRI trends in East Africa. Further, the findings imply that independent variables statistically and significantly impacted FRI as shown by F-statistic of 47.1632. This supports the speculation that the macroeconomic elements covered inside the model are applicable in explaining changes in remittance inflows. The probability of the F-statistic is 0.0000, lower than the usually used significance level of 0.05. This indicates that the model is statistically significant and that the probability of the outcomes occurring by chance is extremely low. In other words, there's a very high degree of confidence that the relationship between the explanatory variables and FRI is genuine and not because of random fluctuations.

5.2 The Moderating Effect of Institutional Quality and Monetary Policy on Foreign Remittances Inflows in Selected East African Countries

Table 5. FEM Regression Results of the Moderating Effect of Institutional Quality and Monetary Policy on FRI in East African countries

Explanatory Variable	Coefficient	t-Statistic	Prob.
C	-16.3953	-1.6419	0.1031
MPR	-0.0024	-0.1222	0.9029
ER	0.0004	0.6160	0.5390
RR	-0.0018	-0.1286	0.8979
LOGRGDP	1.8293	1.8197*	0.0712
BMS	0.0279	2.0363**	0.0439
IQ	0.3718	1.7298	0.0862
MPR*IQ	0.0029	0.2062	0.8370
ER*IQ	0.0003	2.5755**	0.0112
RR*IQ	-0.0410	-7.7019***	0.0000
R-squared	0.8864		
Adjusted R-squared	0.8726		
F-statistic	64.4934		
Prob(F-statistic)	0.0000***		

*Note: (i) The endogenous variable is FRI, (ii)*** denotes significant at 1 % level; ** denotes significant at 5 % level; * denotes significant at 10% level*
Source: Researchers' computation (2025)

Table 5 presents the results of the regression analysis of the moderating effect of institutional quality and monetary policy on FRI in East African countries. The R-squared value of 0.8864 implies that approximately 88.64% of the variation in FRI can be explained by the independent variables: MPR, ER, RR, RGDP, BMS, and IQ. This is a very high

explanatory power, indicating that these macroeconomic and institutional factors collectively play a significant role in determining remittance flows in East African countries. The Adjusted R-squared of 0.8726 accounts for the number of explanatory variables and ensures that the inclusion of more variables does not artificially inflate the model's explanatory power. This high value reaffirms the importance of these variables in explaining variations in FRI. The F-statistic of 64.4934 indicates that the overall model is highly significant. This value is far above the critical threshold, confirming that at least one of the independent variables has a statistically significant relationship with Foreign Remittance Inflows (FRI) in the region. The probability of the F-statistic is 0.0000, which is lower than the 0.05 significance level, indicating that the likelihood of the results occurring by chance is almost nonexistent. This provides high confidence that the relationships observed in the model are statistically meaningful.

The observed improvement in the moderating effect of monetary policy variables, specifically monetary policy rate, exchange rate and reserve requirements on foreign remittance inflows to East African countries, can be attributed to the interplay between institutional quality and these variables. High institutional quality creates an enabling environment where policies such as exchange rate adjustments and reserve requirements are more effectively transmitted. The results revealed that the moderating term MPR*IQ positively affected FRI, though the effect was insignificant. When compared with the effect without interaction, the moderating effect of institutional quality and MPR improved from a negative effect (MPR= -0.0091, t-statistics= -0.3624; Table 4) to a positive effect (MPR=0.0029, t=0.2062), implying that MPR and IQ are likely to complement and attract remittance inflows. When institutional quality interacts with the exchange rate, the positive shift from ER: λ_2 =-0.0004 t-statistic=-0.7833 (Table 4) to ER: ψ_8 =0.0003 t-statistic=2.5755 indicates enhanced stability and predictability in currency valuation, which is crucial for remittance receivers and senders. Stable exchange rates reduce the risks associated with remittance transactions, [30]. Similarly, the shift in the moderating effect of reserve requirements from RR: λ_3 = -0.0356 t-statistic= -1.9838 (Table 4) to RR: ψ_9 = -0.0410 t-statistic=-7.7019 suggests that stringent reserve requirements, when combined with better institutional frameworks, may indirectly boost remittances. This happens as improved regulations increase trust in financial systems and attract more remittances into formal channels, [31]. The transition from a negative to a positive moderating effect of the exchange rate reflects improvements in exchange rate policies. A well-managed exchange rate policy, supported by institutional quality, minimizes distortions caused by inflation or currency devaluation. For instance, a predictable exchange rate encourages diaspora communities to remit more funds, as the value of their remittances is less likely to erode, [32]. Although the effect of reserve requirements (ψ_9 = -0.0410 t-statistic=-7.7019) remains negative, the increased magnitude highlights an intensified effort to regulate liquidity in the banking system. This stricter control might initially discourage remittances into informal channels, compelling more flows into regulated systems, provided institutional quality ensures transparency and accountability, [33]. The notable improvement in the moderating effects of MPR, ER, and RR underscores the pivotal importance of institutional quality in the relationship between monetary policy and foreign remittances. Therefore, the positive impacts of monetary policy on foreign remittances are amplified by improved institutional frameworks in East African countries.

6 Conclusion and Recommendations

The observed improvement in the interactive effect of institutional quality and monetary variables, especially the MPR and ER, notes the essential role of the quality of institutions in improving the policy efficacy. Institutional quality factors of governance effectiveness, political stability, regulatory quality, and rule of law; create a permitting environment for the implementation of monetary policy. The shift from MPR= -0.0091 to MPR= 0.0029, and ER= −0.0004 to ER = 0.0003 reflects enhanced monetary policy rate and exchange rate stability and predictability, which is essential for diaspora communities and remittance recipients. Stable macroeconomic variables reduce transaction risks, encouraging greater inflows of remittances into East African countries. The significant negative effect of reserve requirements from RR=-0.0356 to RR=-

0.0410 indicates efforts to regulate liquidity, indirectly boosting trust in formal financial systems. Improved institutional structures ensure transparency and accountability, directing more remittances through formal systems and reducing reliance on unofficial means. The positive moderating effect of MPR and ER demonstrates the importance of aligning monetary policy with institutional quality for sustainable economic outcomes.

Based on the study's findings, the following recommendations were given:

i. East African governments should prioritize strengthening governance structures, including political stability and regulatory frameworks, to maximize the efficiency of monetary policies on remittance inflows.
ii. Central banks should adopt policies that maintain predictable and stable interest rates and exchange rates to encourage higher remittances and reduce the risks associated with currency fluctuations and transaction costs.
iii. Policymakers should balance stringent reserve requirements with incentives for formal financial channels, ensuring accessibility and trust for remittance users.

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APPENDIX

Table 1. Definition and Measurement of Variables

Variables	Definition	Measurement
Foreign remittance inflow (FRI)	FRI refers to the transfer of cash by individuals working overseas to their home countries.	The aggregate sum of money received from abroad within a specific period, often measured in US dollars or the local currency.
Monetary policy rate (MPR)	MPR is the benchmark interest rate set by a country's central bank to influence economic activity, control inflation, and manage liquidity in the economy.	The MPR is measured as a nominal percentage rate determined by the various central bank's monetary policy committee (MPC).
Exchange rate (ER)	The exchange rate is the price at which one currency can be exchanged for another. It reflects the relative value of two currencies in international trade and finance.	The rate at which the various country currencies are exchanged for one USD
Reserve requirements (RR)	Reserve requirements refer to the minimum amount of reserves (funds) that commercial banks and other financial institutions are mandated to hold, either as a percentage of their total deposits or in absolute terms.	The reserve requirement is measured as a percentage of a bank's total deposits RR=Reserve Ratio×Total Deposits
Natural logarithm of real gross domestic product (LogRGDP)	The logarithm of real GDP refers back to the logarithmic transformation of countries' actual GDP, wherein real GDP is the total value of all goods and services produced in an economic system, adjusted for inflation	Real GDP is obtained by adjusting nominal GDP for inflation using a base year
Broad Money Supply (BMS)	BMS refers to the total amount of money available in an economy, encompassing both highly liquid forms of money (such as currency and demand deposits) and less liquid instruments such as savings deposits, time deposits, and money market instruments.	BMS= a ratio of Currency in Circulation + Demand Deposits+Savings Deposits+ Time Deposits+Other Liquid Assets and GDP
Institutional Quality (IQ)	Institutional Quality (IQ) refers to the effectiveness, efficiency, and reliability of a country's institutions in fostering economic growth, maintaining social order, and upholding the rule of law	Institutional quality is measured in this study as composite index of control of corruption.

Source: Authors' compilation, (2025)

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