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FOREIGN CAPITAL INFLOWS AND THE REAL EXCHANGE RATE IN KENYA

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ABSTRACT: *Despite Kenya's efforts to attract foreign capital inflows, the country has faced challenges sustaining the inflow of foreign investments and continued surge in real exchange rate. The purpose of this empirical paper is to highlight the impact of foreign capital inflows (foreign direct investment, foreign portfolio investment and foreign remittances) on the exchange rate in Kenya from 1992 to 2022 as a sample, with a particular focus on disaggregated foreign capital inflows. The study time series methodology improves on previous research on this topic by engaging Autoregressive distributed lag (ARDL) approach that can be used to examine the short-run and long-run dynamic interactions of the variables simultaneously and is more robust for small sample size of data. The research results reveal a robust and negative association between foreign capital inflows and exchange rate in Kenya. The results show that in general, foreign capital inflows does strengthen real exchange rate. At the disaggregated level, the results show that foreign direct investment, portfolio investment and remittances are associated with exchange rate appreciation in Kenya. Therefore, government and policymakers should enhance policies geared at attracting foreign capital inflows to preserve the value of the domestic currency.*

KEYWORDS: Real exchange rate; Foreign capital inflows; Appreciation; ARDL.

JEL Classification: F21; F31; F32

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INTRODUCTION

Economic shocks result in significant effects on various financial parameters like the balance of payments. However, there is no consensus among empirical studies on how the exchange rate interplays with various economic parameters, mainly foreign capital inflows (Kedong et al., 2018). Kenya is a developing country with a rapidly growing economy. Kenya has continued to experience increased foreign capital inflows, particularly in foreign direct investment (FDI), foreign portfolio investment and diaspora remittances from abroad. Growth of foreign inflows has been driven by the country's favorable business environment, improved political stability, low poverty rate, increase in income and increasing investment in critical sectors such as tourism, agriculture, and technology (Muchiri, 2017). However, the increase in foreign inflows has also had a significant impact on Kenya's foreign exchange market. The inflow of foreign currency has increased demand for the Kenyan shilling, causing its value to appreciate. On the other hand, a sudden decrease in foreign inflows can reduce demand for the Kenyan shilling, causing its value to depreciate (Mugambi & Murunga, 2017).

Kenya has undergone several exchange rate regimes since independence and have had different outcomes. The crawling peg regime lasted eight years to 1990, when Kenya adopted a dual exchange rate up to 1993, when the exchange rate was fully liberalized. In the 1990s, inflation and monetary expansion rose rapidly, indebtedness increased, and so did the speed of nominal exchange rate depreciations (WDI, 2021). Figure 1 shows the trend of foreign capital inflows and exchange rate in Kenya, 1970-2020.

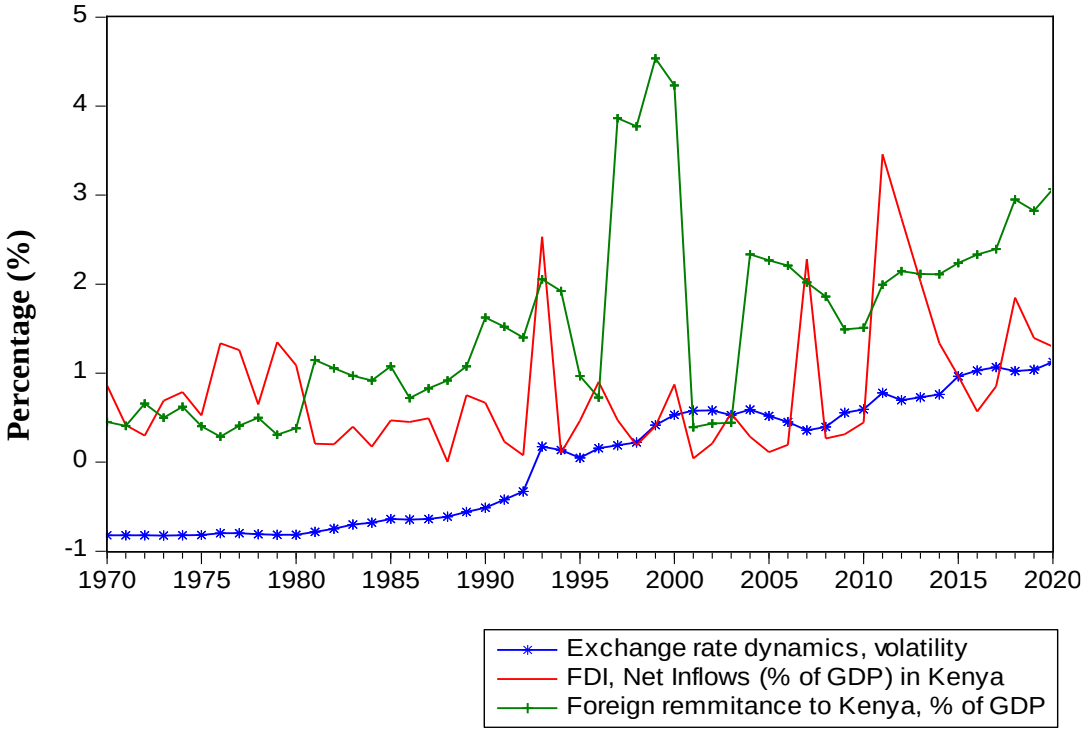

Figure 1: The exchange rate and capital inflow in Kenya.

Source: WDI (2021); IMF (2024).

Figure 1 shows a lower level of exchange rate volatility from 1970 to 1992 implying a relatively stronger Kenya Shilling. However, after, 1992, the Kenyan currency against the US dollar

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began depreciating faster than before resulting in a constant rise in the exchange rate (WDI, 2021; IMF, 2024). Continued fluctuation of the rate of exchange negatively impacts investor confidence and may negatively impact foreign capital inflows. Generally, foreign capital inflow has been fluctuating and diminishing. This has affected the country's macroeconomic fundamentals and economic sustainability. Despite Kenya's efforts to attract foreign inflows, the country has faced challenges sustaining the inflow of foreign capital due to volatility of exchange rate.

Some empirical studies argue for a positive link involving foreign capital inflows and the level of exchange rate (Latief & Lefen, 2018), while others suggest a negative connection between capital inflows from abroad and exchange rate (Melku, 2015; Tan et al., 2021) with other authors indicating an insignificant relationship (Ugwu & Udeh, 2018). The conflicting results regarding their relationship lead to a further inquiry into the nature of their connection and whether there exists a short-run or long-run association. Therefore, this study explores the relationship between foreign capital inflow variables and the real exchange rate in Kenya.

THEORETICAL ISSUES LITERATURE REVIEW

Purchasing power parity (PPP) theory argues that the rates of foreign exchange are not constant, rather they adjust to maintain purchasing power parity (Shapiro, 1992). The upward or downward basis point movement in the value of a foreign denomination should equalize the two countries' adjusted price indices (Madura & Fox, 2011). However, PPP theory fails to completely explain exchange rate dynamics as it assumes all goods are identical and fails to account for supply chain costs and disruptions. In a perfect scenario, the exchange rate does not affect foreign direct investment because the advantage earned from an economy with currency of lower value will not exist. Costs would be similar, eliminating the need to invest outside of one's home country (Mishkin, 2009).

The capital flow theory explores how cross-border capital movements affect exchange rates in a particular country. It suggests that the inflow of foreign capital can exert a significant influence on an economy's exchange rate. When a country experiences a substantial influx of foreign capital, it can cause an appreciation of home currency (Amusa et al., 2016). This appreciation occurs due to increased demand for the domestic currency as foreign investors purchase local assets or invest in the local economy.

Several empirical studies have investigated the role of foreign inflows and the rate of foreign exchange nexus. Some empirical studies argue for a positive link involving foreign capital inflows and the level of exchange rate (Latief & Lefen, 2018), while others suggest a negative connection between capital inflows from abroad and exchange rate (Melku, 2015; Tan et al., 2021; Mabwa, 2023) with other authors indicating an insignificant relationship (Ugwu & Udeh, 2018; Nketiah et al., 2019). Nketiah et al. (2019) determined the remittances effect on the real exchange rate in Ghana from 1970 to 2016 and established an insignificant relationship between the two. However, OLS might not work well with time-series data, which could lead to inaccurate parameter estimates presenting methodological gaps. The conflicting results regarding their relationship lead to a further inquiry into the nature of their connection and whether there exists a short-run or long-run association. Furthermore, most studies were conducted in other countries and not in Kenya to draw policy recommendations.

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METHODOLOGICAL FRAMEWORK

Data Issues

The study uses annual time series data for Kenya from 1992 to 2022 and applied Autoregressive distributed lag (ARDL) technique to investigate the impact of foreign capital inflows on exchange rate. The study was conducted in Kenya, the main reason is that Kenya's economy is increasingly imbalanced: the country is importing too much and exporting too little. This makes it vulnerable to foreign exchange shocks. The gap between imports and exports needs to be financed by foreign inflows other than export earnings (Muchiri, 2017). The purpose of this study was to determine the influence of foreign capital inflows on dynamics of foreign exchange rate fluctuation of Kenya since 1990s, when exchange rate regime was fully liberalized. However, trade liberalization will encourage import consumption and thus weaken the Kenyan shilling (Talamo, 2011).

The study makes exchange rate as the dependent variable while foreign direct investments, portfolio investment and diaspora remittance are independent variables. The study included control variables such as trade openness, inflation and economic growth to enhance internal validity of the regression findings. The secondary data were obtained from the World Bank, Kenya National Bureau of Statistics (KNBS), Federal Reserve Bank of St. Louis (IMF, 2024) and Bloomberg database from 1992 to 2022. Table 1 presents variable definition and data sources.

Table 1: Variable Description

Variables	Measurement	Source	Expected sign
Real Exchange rate (RER)	Real effective exchange rate as based on consumer price index (Kshs/USD)	Federal Reserve Bank of St. Louis/IMF	Dependent variable (not defined)
Foreign Direct Investment (FDI)	FDI inflows (% of GDP)	World Bank	Appreciation (Aderemi et al., 2019)
Diaspora Remittances (REM)	Personal remittance (% of GDP)	World Bank	Appreciation (Khurshid et al., 2017)
Foreign Portfolio Investment (FPI)	Portfolio equity inflows (BOP)	World Bank	Appreciation (Altunöz, 2020)
Trade Openness (TRD)	Trade (% of GDP)	World Bank	Appreciation (Ugwu & Udeh, 2018)
Economic growth (GDP)	Gross Domestic Product (% growth)	KNBS	Appreciation (Misati et al., 2019)
Inflation rate (CPI)	Consumer price index (%)	KNBS	Depreciation (Aderemi et al., 2019)

Source: *Own Computation (2024).*

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Model Specification

The study's theoretical framework is based on the Purchasing Power Parity (PPP) theory. The theory argues that economies' relative purchasing powers determine exchange rates between two countries. The exchange rates are equal to the purchasing powers of the countries. Therefore, Kenya's exchange rate can be expressed as the function of foreign capital inflows and inflation rate Equation 1 below represents the function;

$$\mathrm{RER} = \mathrm{f}(\mathrm{FK}, \mathrm{CPI}) \quad (1)$$

Where RER is the exchange rate, FK is foreign capital inflows and CPI is inflation rate. However, foreign capital inflows are disaggregated further into foreign direct investment (FDI), diaspora remittances (REM) and foreign portfolio investment (FPI).

$$\mathrm{FK} = \mathrm{f}(\mathrm{FDI}, \mathrm{REM}, \mathrm{FPI}) \quad (2)$$

Therefore, Equations 1 and 2 can be transformed to generate Equation 3

$$\mathrm{RER} = \mathrm{f}(\mathrm{CPI}, \mathrm{FDI}, \mathrm{REM}, \mathrm{FPI}) \quad (3)$$

There are, however, other macroeconomic variables influencing the rate of exchange changes, as empirical literature shows (Nketiah et al., 2019; Adenutsi & Ahortor, 2021). Therefore, the theoretical model can be expanded to include other variables that affect the rate of exchange to form the empirical model of the study.

$$\mathrm{RER} = \mathrm{f}(\mathrm{FDI}, \mathrm{REM}, \mathrm{FPI}, \mathrm{CPI}, \mathrm{GDP}, \mathrm{TRD}) \quad (4)$$

Where, GDP is economic growth and TRD is trade openness. The linear form of the equation is as follows;

$$\mathrm{RER}_t = \beta_0 + \beta_1 \mathrm{FDI}_t + \beta_2 \mathrm{REM}_t + \beta_3 \mathrm{FPI}_t + \beta_4 \mathrm{CPI}_t + \beta_5 \mathrm{GDP}_t + \beta_6 \mathrm{TRD}_t + \varepsilon_t \quad (5)$$

The variable denotations remain the same, while β_0 is the model's intercept and the other β's represent the parameters. Ɛ is the error term and subscript t is time dimension. Equation 5 was transformed into logs to be able to interpret the results as elasticities as explained by Gisore (2021), transformed model is shown below.

$$\mathrm{RER}_t = \beta_0 + \beta_1 \ln\mathrm{FDI}_t + \beta_2 \ln\mathrm{REM}_t + \beta_3 \ln\mathrm{FPI}_t + \beta_4 \ln\mathrm{CPI}_t + \beta_5 \ln\mathrm{GDP}_t + \beta_6 \ln\mathrm{TRD}_t + \varepsilon_t \quad (6)$$

Time Series Analysis

Time series analysis comprises methods for analyzing time series data in order to extract meaningful statistics and other characteristics of the data. The study time series econometrics methodology improves on previous research on this topic by engaging Autoregressive distributed lag (ARDL) approach that can be used to examine the short-run and long-run dynamic interactions of the variables simultaneously and is more robust for small sample size of data. Before the estimation, model pre-diagnostic tests are conducted. The augmented Dickey-Fuller (ADF) unit root test is used to check for the stationarity of variables. The aim is to prevent spurious regression. If all the variables will not be integrated of order 2 or more then the ARDL model is estimated. ADF unit root function is shown in equation 7.

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$$\Delta_{qt} = \alpha + \beta_{qt-1} + \sum_{i=1}^{m} \gamma_i \Delta_{qt-i} + e_t \quad (7)$$

Where γ & β are coefficients, is constant, m is the sum of lags, and e is the error term. If the critical value or the p-value is larger than the test statistic or 0.05, respectively, the null hypothesis will hold that is, there will be a unit root. However, if the variables are integrated of order I(0) and I(1) or both, the Autoregressive Distributed Lag (ARDL) estimation model will be used because of its many strengths. For instance, ARDL gives consistent results when applied in small samples like the study's, is applicable in the presence of endogeneity, and is usable in I(0) and I(1) data or both (Pesaran et al., 2001; Nayaran, 2004; Jalil et al., 2014).

The ARDL estimation equation for the study is modelled in equation 8;

$$\Sigma pi = 1 \text{€} i \Delta \ln(RER)_{t-i} + \Sigma qi = 1 \Pi i \Delta \ln(FDI)_{t-i} + \Sigma qi = 1 \text{¥} i \Delta \ln(REM)_{t-i} + \Sigma qi = 1 \text{ћ} i \Delta \ln(FPI)_{t-i} + \Sigma qi = 1 \partial i \Delta \ln(CPI)_{t-i} + \Sigma qi = 1 \partial \text{¥} i \Delta \ln GDP_{t-i} + \alpha_1 (RER)_{t-i} + \alpha_2 (FDI)_{t-i} + \alpha_3 (REM)_{t-i} + \alpha_4 (FPI)_{t-i} + \alpha_5 (TRD)_{t-i} + \alpha_6 (CPI)_{t-i} + \alpha_7 (GDP)_{t-i} + U_t \quad (8)$$

Where Δ and β_0 represents the first differential and the intercept, respectively. Superscripts q and p are the optimal lags for the independent and dependent variables. The dynamics of the error correction term are represented by the first part of the equation with the superscripts (Jalil et al., 2014).

The bounds cointegration test is part of the ARDL estimation process and will be conducted to confirm the long-run relationship. Cointegration results will inform whether there is a long-run relationship in the model (Pesaran et al. 2001). If there is a long-run relationship between the exchange rate and the explanatory variables, the long-run form of ARDL will be estimated. The decision will be based on the following Table 2.

Table 2: Decision for Bounds Test

F-Statistics	Conclusion
i. Higher than the upper bound	There's Cointegration
ii. Lower than the lower bound	There's no Cointegration
iii. Between (i) and ii)	Inconclusive

Source: *Narayan (2004).*

The Vector error correction (VEC) model which is a long-run form of ARDL will be estimated if the option "ii." in Table 2 stands. The model is specified in Equation 8.

$$\Delta(RER)_t = \beta_0 + \sum_{i=1}^{k-1} \delta_i \Delta(RER)_{t-i} + \sum_{j=1}^{k-1} \delta_j \Delta(FDI)_{t-j} + \sum_{m=1}^{k-1} \delta_m \Delta(REM)_{t-m} + \sum_{z=1}^{k-1} \delta_z \Delta(TRD)_{t-z} + \sum_{j=q}^{k-1} \delta_q \Delta(FPI)_{t-q} + \sum_{j=P}^{k-1} \delta_p \Delta(CPI)_{t-p} + \sum_{j=n}^{k-1} \delta_n \Delta(GDP)_{t-n} + \text{ћ} ECT_{t-1} + U_t \quad (8)$$

Where the variable symbols remain the same, k-1 represents lags, ECT represents error correction term and if it is negative from the results, it will be an indication of long-run

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convergence or relationship, Δ which is a difference symbol. The Akaike information criterion (AIC) and Schwarz Bayesian Criterion (SBC) were utilized for selecting optimal lags. Optimal lag length selection is important to shun serial correlation problems and misleading inferences (Pesaran et al., 2001).

To make sure research findings are reliable post-estimation diagnostic tests were conducted. The tests included heteroscedasticity (Breusch-Pagan test) and serial correlation (Breusch-Godfrey test) and normality test (Jarque-Berra test). The three diagnostic tests were performed to support the robustness of this study findings.

RESULTS

Unit Root and Co-integration Tests

Unit root test was applied to test for stationarity. The Augmented Dickey-Fuller (ADF) test was conducted and reported in Table 3.

Table 3: Unit root test using Augmented Dickey-Fuller test

Augmented Dickey-Fuller (ADF) Test				
Variables	**Level**	**Variable**	**1st Difference**	**Remarks**
RER	-2.768	ΔEXR	-17.310***	I(1)
REM	-2.991**			I(0)
FPI	-3.225**			I(0)
FDI	-5.130***			I(0)
GDP	-0.163	ΔGDP	-6.161***	I(1)
CPI	-4.495***			I(0)
TRD	-1.490	ΔNX	-8.639***	I(1)
*Note: *** and ** indicates statistical significance at 1% and 5% levels of significance, respectively*				

Source: *Field Data (2024).*

Table 3 presents stationarity test results for sample data. From the unit root result, exchange rate, trade openness and economic growth are non-stationary. After first differencing the variables become stationary. Remittances, portfolio investment, inflation rate and foreign direct investment were stationary at level. Since some variables were non-stationary, the study continued to test for bounds co-integration or long run relationship.

The optimal lag length was determined before conducting the F-bound cointegration test. Optimal lag length selection is important to shun serial correlation problems and misleading results. The study used vector autoregressive (VAR) directly to obtain selection-order criteria with constraints on lags of the endogenous variables. Table 4 presents lag selection criteria results based on VAR equation.

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Table 4: Lag length test results

VAR Test						
Lag	**LogL**	**LR**	**FPE**	**AIC**	**SBIC**	**HQIC**
0	-1.548	NA	4.25e-09	0.589	0.919	0.692
1	122.809	180.103	2.61e-11	-4.607	-1.967	-3.780
2	208.481	82.717	4.07e-12*	-7.136*	-2.186*	-5.586*
Note: **Indicates lag order selected by the criterion; LR: sequential modified LR test statistic (each test at 5% level); Final Predictor Error (FPE), Hannan-Quinn Information Criterion (HQIC), Schwarz Bayesian Information Criterion (SBIC) and Akaike information criterion (AIC).*						

Source: *Field Data (2024).*

Table 4 findings, Akaike information criterion (AIC) is selected, with minimum value, as the optimal model to be used with ARDL analysis. AIC performs better with small sample size data or few observations. AIC is analysed and the study established that lag length of two, as chosen by the AIC, produces economically meaningful results. It was necessary to test for cointegration to investigate the long-run relationship for individual time-series variables (Narayan, 2004). F-bound co-integration test is applied irrespective of the stationarity of the sample data variables. This test is necessary to check for a long-run equilibrium relationship. F-Bounds co-integration test was performed and the result presented in Table 5 below.

Table 5: Summary of Co integration Estimates

F-Bounds co-integration test					
Test Statistics	**Value**	**Lag**	**Significance Level**	**Bounds Critical values**	
F-Statistics	5.89**	2		I(0)	I(1)
			1%	3.15	4.43
K	6		5%	2.45	3.61
			10%	2.12	3.23
***Notes**: Null hypothesis: No level relationship, indicates, ** 5% significance level*					

Source: *Field Data (2024).*

The result in Table 5 indicates that the computed F-statistic of the ARDL regression is 5.89 which is higher than the upper critical value (3.61) at a five percent level of significance signifying a long-run relationship between variables in the sample data

Long- and Short-Term Coefficient Estimation

The study obtained both the long-run ARDL and short-run ARDL estimates (2, 2, 0, 1, 0, 0, 1) based on the ARDL-AIC approach. Table 6 presents the ARDL long-run and short-run estimation results.

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Table 6: Results of long- and short-run coefficients of ARDL-ECM

Variable	Coefficient	t- Statistics	P-value
Long-run Regression Estimates			
REM	-0.0976	-2.8513**	0.0115
FPI	-0.0049	-2.3232**	0.0337
FDI	-0.0673	-3.1772***	0.0059
GDP	0.4231	5.5780***	0.0000
CPI	-0.1275	-3.2983***	0.0045
TRD	0.4587	2.7159**	0.0153
$CONS$	-1.4299	-2.3182**	0.0340
Short-run ECM Regression			
ΔREM	-0.0424	-2.5424**	0.0346
ΔFPI	-0.0031	-2.6268**	0.0303
ΔFDI	- 0.0489	-5.7154***	0.0004
ΔGDP	-0.4956	-7.1460****	0.0000
ΔCPI	0.0440	4.6308***	0.0003
ΔTRD	-0.0415	-1.0329	0.3170
ΔRER	-0.4513	-10.0458***	0.0000
ECT	-0.4615	-7.5308***	0.0000
$CONS$	-1.4299	-7.3306***	0.0000

Diagnostic Tests		
Breusch-GodfreyLM Test	F(2,14) = 1.2515	Prob> F = 0.3162
Breusch - Pagan Test	F(12,16) = 0.7056	Prob> F = 0.7262
Ramsey-Reset Test	F(1,15) = 2.2190	P-value = 0.1570
Jarque Bera Test	1.8990	P-value = g0.5401
Durbin Watson stat	1.8400	
Goodness of Fit Test	F statistics = 52.7569	P-value(F) = 0.0000
	R^2 = 0.9350	Adjusted R^2 = 0.9172

Source: *Field Data (2024).*

The ARDL long-run and short-run findings revealed a negative and statistically significant impact of foreign direct investment (FDI) on the real exchange rate. Investment flows come into the country in foreign currency while the corresponding expenditures for payroll and other inputs are in local currency. This leads to increased demand and therefore appreciation of the value of the local currency, the Shilling. FDI equally leads to an appreciation of the Kenya Shilling because they are channeled towards investment instruments in local currency resulting in increased demand for the Shilling. Excess FDI inflow can increase export competitiveness and thus reallocate resources to productive or tradable sectors and thus strengthen the local currency in long and short run (Nketiah et al., 2019). The study findings are similar to empirical studies of Murshed and Rashid (2020) in Bangladesh, India, Sri Lanka and Pakistan, and Ugwu and Udeh (2018) in South Africa that reported a negative effect of FDI on exchange rate.

From the long-run and short-run estimation findings in Table 6, diaspora remittances negatively affect the exchange rate at a 5 per cent level of significance, as supported by high t-values.

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Increased inflow of remittances will cause the Kenyan shilling to appreciate. Remittances cause the exchange rate to strengthen as these inflows translate into increased demand for the local currency (Amusa et al., 2016). This is possible since the increase in remittances will lead to increased demand and thus grow the production sector, wage rate and price of land in the domestic economy, this will strengthen the Kenyan shilling in both short-term and long term (Amusa et al., 2016; Nketiah et al., 2019).

The portfolio investment coefficient in the long run and short run is negative and significant at 5 per cent. This indicates high inflow of foreign portfolio equity will cause the exchange rate to appreciate and thus strengthen the Kenyan shilling. This is possible since portfolio investments are channeled towards investment instruments in local currency resulting in increased demand for the Shilling. Further, this is possible if portfolio inflows will impact those sectors related to trade and thus increase export advantage competitiveness. The result is similar to the findings of Altunöz (2020) study in New Zealand, India and Brazil but contradicts a similar study in Turkey and Hungary by Altunöz (2020). However, a rapid rise in foreign currency flow can harm exports by reducing their competitiveness (Makoni, 2020).

Table 6 reports a negative and statistically significant relationship between inflation and to exchange rate in long run. According to the findings, high inflation will strengthen the exchange rate in Kenya. This implies when the Kenyan shilling is weakened by inflation it will increase export earnings and thus cause Kenyan shilling to appreciate. Instances of high inflation are accompanied by an increase in foreign portfolio investments thereby increasing demand for the domestic currency. In addition, the study result supports similar empirical findings by Aderemi et al. (2019) in Nigeria. In the short run inflation rate was positively significant to the exchange rate. As the inflation rate increases the value of Kenyan shilling weakens or depreciates. A high inflation rate will devalue local currency by reducing the domestic currency purchasing power (Ali et al., 2015). The findings agree with purchasing power parity (PPP) theory where high inflation in a domestic country should experience depreciation of its exchange rate to return to PPP equilibrium (Mungule, 2004).

From Table 6 findings, economic growth in Kenya positively affects the rate of exchange in long run. GDP growth leads to higher disposable household incomes leading to induced consumption of imported goods and thus putting pressure on the local currency. An economy with a high GDP will experience an increase in demand for more imports and thus weaken or depreciate Kenyan shilling (Misati et al., 2019). Thus, with an increase in economic activities, the Kenyan shilling depreciates. This implies, that with economic development the currency will depreciate with an improvement in import consumption. However, GDP in the short run has a negative and significant effect. An increase in GDP or income will increase the demand for local products and thus increase the value of the local currency (Misati et al., 2019). Furthermore, Otieno et al. (2024) observed increase in foreign aid inflow can influence income equalities through exerting upward pressure on the real exchange rate.

From the estimation result, increased trade openness results in a weaker domestic currency. Trade openness was positive and statically significant at 5 per cent about the exchange rate and thus caused depreciation. This holds that efforts towards liberalizing the economy have led to increasing import volumes relative to exports and thereby increased demand for foreign currency to import (Bhaskar, 2005). An increase in trade openness or liberalization will translate to an increase in the volume of Kenyan shillings being traded in international markets in the long run. However, trade liberalization will encourage import consumption and thus

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weaken the Kenyan shilling. Furthermore, an appreciating currency can make the country's exports less competitive, leading to a potential trade imbalance (Talamo, 2011). In the short run trade openness has insignificant relationship.

Table 6 presents long-run causality results from the ARDL-ECM framework. Following the result, long-run causality running from foreign capital inflow to the exchange rate is confirmed by the error correction term (ECT) in ARDL framework, indicating that as foreign capital inflows increase, there is a corresponding augmentation in exchange rate. Foreign inflow can cause exchange rate fluctuation since the increase in foreign money will increase demand for local products and as such appreciate the domestic currency (Khurshid et al., 2017). From the result the estimated coefficient of the ECT has the correct negative sign (-0.46) and was significant at a 1 per cent level, implying that a deviation from the long-run equilibrium following a short-run shock is corrected by about 0.46% in the current year.

The coefficient of determination (adjusted R^2) test was obtained, the result show that adjusted R^2 is 0.91, which means that 91 per cent of the variation in the exchange rate is explained by changes in explanatory variables of sample data. Thus, the model is a good fit. This result was further supported by high F-statistics significant joint effect result. In addition, several post-diagnostic tests were carried and the model passed all diagnostic tests namely the serial correlation (Breusch-Godfrey LM) test, Heteroskedasticity (Breusch-Pagan-Godfrey) test, test for normality (Jarque-Berra) and model specification test (Ramsey RESET test) which shows that there is no problem in the regression model as shown in Table 6. The estimated models can therefore be used to make reliable recommendations.

CONCLUSION AND RECOMMENDATIONS

The research has established that an increase in foreign capital inflows variables will cause an appreciation of the Shilling against the US Dollar in long term and short term. The results show that in general, foreign capital inflows does strengthen real exchange rate. Diaspora remittances, foreign direct investment and foreign portfolio investment cause the real exchange rate to appreciate as these flows translate into increased demand for the local currency. In addition, increase in inflation stimulate increase in foreign portfolio and thus shilling appreciation. In contrast, trade openness and economic growth led to shilling deprecation in Kenya. The error correction term has confirmed a one-way causality running from foreign inflow to exchange rate fluctuation, implying foreign inflow granger cause change in exchange rate. In general, the study has established that foreign capital inflow variables can serve as potent tool for influencing the rate of exchange levels in Kenya, hence the need for policies prescription. There is a need for the creation of an investor-friendly macroeconomic environment to attract foreign investments in the country. The government should focus on solving market liquidity, foreign exchange volatility, country credit risk and misaligned interest rates and inflation rates which negatively impact investor returns. This will in turn increase investor confidence and result in increased foreign capital inflows. Further, there is need for government to create opportunities for human capital exports and domestic investment opportunities for the diaspora community to grow remittance flows. The study was carried out in Kenya, however, given the small sample size, there is a need to increase the sample size to other sub-Saharan countries to grow the robustness of the regression findings.

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