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**EFFECTS OF EXCHANGE RATE VOLATILITY ON
IMPORTS AND EXPORTS IN KENYA**

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ABSTRACT

Purpose: In some market economies, exchange rate may fluctuate significantly relative to major world currencies. This will have a big impact on a country's trade.

Method: This study evaluates the effect of exchange rate volatility on Kenya's imports and exports during the period 1980 – 2015 through estimation of two structural equations; an import function and an export function for the economy whose specification follows standard economic theory.

Findings: Results indicate that, real exchange rate volatility significantly affect imports and exports. At 5 percent level of significance, result of the cointegration analysis using Johansen test found the trace statistic for both models to be smaller than the critical, with a maximum rank of two (2). This implied that cointegration was present and that there existed at least two (2) co-integrated equations, in either bi-directional or uni-directional relationship. This meant that the dependent and independent variables move closely to achieve equilibrium in the long-run among the variables of imports and exports models. Results further show that increased exchange rate uncertainty has substantial adverse effects in the long-run on export function but not on import function. The results further show that, long-run parameter estimates of the models are consistent with economic theory.

Policy recommendation: The study recommends that imports and exports activities can be improved if macroeconomic policies aimed at keeping stable real exchange rate are implemented.

Keywords: *Exchange rate volatility, imports, exports, Kenya*

1.0 INTRODUCTION

Developing countries face economic challenges ranging from unfavourable balance of payments, increased foreign debt, high inflation levels, and declining growth rates, among others. This has resulted in declining standard of living and underutilization of economic resources found within their boundaries.

During the 1970s, Africa experienced slow growth relative to other parts of the world particularly Asia. Africa recorded lower growth rates than South East Asian countries due to both political and economic factors. This led to Africa lagging behind while South East Asia improved its economic performance.

Transition to sustained economic growth in South East Asia reveals that development has been associated with policies targeting macroeconomic stabilization; improving the rural areas by ensuring that there is ample food supply; liberalizing the economy and ensuring economic freedom for the people. In Africa, these policies were never associated with poverty reduction (Jan Kees et al, 2012)

However, according to the United Nations Conference on Trade and Development's *World Investment Report, 2013*, Africa continues to record impressive growth in Foreign Direct Investment (FDI) as reflected by increasing rate into the continent. Over time, the role of exchange rate in stimulating economic growth has been increasing. However different exchange rate regimes have had different impacts on trade. Wolf (2002:39) notes that a country's economic past, size, sophistication, easy of doing trade, its major trading allies, and political environment all assist in determining which of the available exchange rate regimes it adopts.

The objective of this research paper is to formulate a model that would explain how exchange rate volatility among other variables affects imports and exports. The model was estimated by separating the two variables – imports and exports - and estimating how exchange rate volatility affects them. Data on the variables is used for Kenya from 1980 to 2015. The estimates of the parameters provide a quantitative perspective of the roles of exchange rate among other variables on imports and exports in Kenya.

1.1 Overview of Kenya's economic performance

Kenya, like most developing countries of Africa, relies heavily on primary exports which are subject to external shocks, environmental and internal challenges that the economy has to adjust to.

After independence in 1963, the country made significant gain, however in 1980s the country recorded downward trend in performance of the economy, this worsened further in late 1990s due to poor governance, mismanagement of resources and poor implementation of economic policies. 1980s and 1990s reforms which were meant to stimulate economic growth and eliminate structural problems appeared to have had low impact in jump starting the economy due to minimal efforts targeting improvement in economic governance (ERS, 2003).

Despite recording an impressive growth rate averaging 5% annually in 1980s, in 1990s, Kenya's GDP experienced great inconsistency in growth rate due to liberalization and declining donor inflows.

The country recorded improved growth rates with the coming of National Rainbow Coalition (NARC) in 2002 peaking at 7% in 2007. However the global financial crisis, drought and the post-election violence of 2008 after the aftermath of 2007 disputed general election reversed the gains made. Kenya returned to higher economic growth in 2010 of 5% from 2.6% in 2009 after recovering from the multiple shocks experienced in 2008.

Kenya's real GDP growth rate has over the years continued on an upward trend from 0.5% in 2002 reaching 7.0% in 2007 and then a drop to 1.6% in 2008. However the economy recorded a recovery and an upward trend recording real GDP growth rate of 4.4% in 2011. According to the Economic Survey 2014, Kenya recorded in 2013 an expanded GDP growth rate of 4.7% compared to a 4.6% growth rate recorded in

2012. In 2014 and 2015, the country continued to record an expanded growth rate of 5.3% and 5.6% respectively with a projected growth rate of 6.8% in 2016 (KNBS, 2016)

Overall macroeconomic environment remained stable and inflation rate eased from an average of 9.4% in 2012 to 5.7% in 2013. However in 2014, the country recorded inflation rate of 7.3% and 6.3% in 2015 with a projected rate of 5.9% in 2016 (Economic Survey, 2016).

Over time, the Kenyan government has continued to embrace reforms in various sectors aimed at improving efficiency in provision of service delivery. Such reforms include: performance contracts, anti-corruption initiatives, Results Based Management (RBM) system, introduction of e-procurement and review of macroeconomic policies aimed at securing a declining inflation and improving fiscal intermediation (Central Bank of Kenya Annual Report, 2013).

Overly, Kenya's exchange rate over time has seen mixed performance. The underlying economic conditions affecting the exchange rate over the years include low domestic interest rates, drought impacts and market forces that affect the exchange rate determination.

1.2 Exchange Rate Policy in Kenya

Kenya's major policy objective has been to have an exchange rate that promotes competitiveness, low levels of inflation, positive real interest rates and strict momentary position in the economy. However this has been difficult to achieve in practice over time.

Kenya's exchange policy has recorded progress over time. According to the International Monetary Fund (IMF), the country shilling was pegged to the British pound, then to the US dollar and IMF Drawing Rights (SDR), crawling peg based between 1992 and 1997, and independent float and after 1998 managed float.

Until 1990s, Kenya maintained exchange controls; this was in response to crisis on the balance of payments in 1971 /72. These were meant to control pressure on BOP and conserve foreign exchange. However these controls created distortions in the economy. The floating exchange rate in 1993 led to increase in inflation and interest rates (Ndung'u 1999; Kinyua 2000).

2.0 LITERATURE REVIEW

Exchange rate plays a central role in global trade by providing an avenue where prices can be compared in different countries. There are two forms of exchange rate; the spot exchange rate and forward rate. For spot exchange rate, it is the immediate price within a short period say two days (Reuvid, 2001), while forward rate is futuristic. Flood and Garber (2000) notes that, global trade creates demand and supply that may result in volatility based on exchange rate regime adopted by a country. They further classify exchange rate volatility as unobservable, deterministic or stochastic. Lindert and Pugel (1996) also note that exchange rate uncertainty can represent both positive and negative risks for firms trading in the international market.

Exchange rate behavior varies depending on the period under study. Volatility is high in the short run due to such events such as political environment, change in expectation both current and future as well as monetary policies (Krugman and Obstfeld, 2003). While in the long-run, they are determined by the relative prices of goods in various countries (Samuelson & Nordhaus, 2001). Blackman on the other hand notes that, macroeconomic variables such as supply and demand of goods, investments, economic growth and inflation rates, rate of return, among others affect volatility of exchange rate.

Arize, Osang and Slottje (2000) explain that increased exchange rate volatility induces exporters to increase their exports thus increasing their revenues. They note that exports activities responds faster to activities in the foreign market than to relative prices. They further notes that exchange rate volatility has effect on trade depending on the period of time and may have greater effect on resource allocation in the market as traders try to minimize the effect of the risks associated with exchange rate.

Osoro (2013) found a positive correlation between exchange rate and trade balance in Kenya in the long-run. His study revealed that in the long-run, elasticities of exchange rate have positive sign indicating that devaluation leads to improvement in trade. Results further showed that Foreign Direct Investment (FDI) positively affect trade suggesting that FDI flows motivates investors to increase import substitutes in order to improve trade balances.

According to Baron (1976), increased volatility of exchange rate reduces international trade. Hooper and Kohlhagen (1978), argue that increased exchange risk, lowers revenue and incentives from the exports. They also argue that exchange rate poses greater risk for decision making individual. Economic agents experience greater uncertainty with international trade when they cannot predict the value of foreign transaction thus becoming difficult for firms to project their trade activities.

Backman (2006) also agrees that the results of the impact may be ambiguous depending on the assumptions used such as the time period of analysis since exchange rates are believed to be responsive to time, whether long term or short term. Other assumptions include economic growth rate, rate of inflation, demand and supply for goods and services.

Different schools of thought have tried to explain the effect of exchange rate volatility on trade. They include; the traditional school of thought, risk portfolio school of thought and the political economy theory. The traditional school of thought holds that volatility depresses trade and increases risks it reduces returns of contracts done using foreign currency and thus reduces trade to points that otherwise would not exist if they were not present. According to Hooper and Kohlhagen (1978), the volume of exports and trade in general are affected by exchange rate volatility through increased risks making traders to react differently depending on whether they are risk-averse, risk-neutral or risk-loving with exchange rate volatility. Cote (1994), on the other hand examines both the presence and degree of risk which he notes depends on other factors of production which are imported, ability of firms to edge and the contract currency. Baron (1976) also focuses on bilateral trade and the effect of currency on exporting firm decisions on prices production in a volatile market which is competitive. He concluded that exporting companies faces both price risk and

quantity demand risk when transactions are in foreign currency and when home currency is used respectively. With increased uncertainty, profit maximizing companies which are risk-averse increases their prices when goods are bought using foreign currency. Clark (1973) on the other hand examined the behavior of risk-averse companies in support of traditional school of thought. He notes that increase in variance of exchange rate increases profit uncertainty. However he highlighted a number of limitations. These include; firms produce only for exports, contracts done in foreign currencies, and perfect competitive markets.

In summary, traditional school of thought holds that international trade falls with increased uncertainty of profits due to higher exchange rate volatility leading to redirection of activities of risk-averse and risk-neutral to domestic markets with lower risks. The major setback to the school of thought is that it does not model on how risks are managed by the firms in order to increase profitability.

According to the risk-portfolio school of thought, higher risk presents an opportunity for profit and thus increases trade. De Grauwe (1988) notes that risk-neutral persons are attracted by higher profits and are not affected by the adverse exchange rates and reduced outputs. This school of thought analyzes exchange rate risk in view of diversification of portfolio in the modern world by holding that economic agents will maximize their returns through diversification of their investment and engaging risk environments that corresponds well with their returns. He further notes that, high risks due to higher rates of volatility discourages risk neutral traders from trade but presents opportunities for diversification and hence increase profits. For the high risk averse, increased exchange rate volatility would increase the utility of export revenue and encourage exports from exporters to avoid reduced revenues. For the low risk averse, exchange rate volatility presents greater risks by reducing exports and switching of resources within sectors.

The political-economy theory proposes that trade will be reduced with increased volatility due to protectionist legislation. Countries that have market determined exchange systems but experience misalignments in exchange rate are vulnerable to politicization and increase of protection on trade making trade flows to fall due to protectionist regulation on falling businesses (De Grauwe, 1988).

3.0 ANALYTICAL FRAMEWORK

The objective of the study is to formulate a model that could be used to explain changes in both imports and exports. The study also analyses which of the independent variables are significant to imports and exports by use of structural models. The justification was to answer the questions on what would be the behaviour of dependent variable to the independent variables, whether the relationship is significant, and which of the independent variables can actually affect the dependent variables. McKenzie (1999) notes that analysis of imports and exports using standard model requires adequate variables. This study followed Olimov and Sirajiddinov (2008) in explaining the model by specifying the following trade functions:

$$M = g(RERVOL, Y_{domestic}, P_m, TOT_m) \dots \dots \dots (1)$$

$$X = f(RERVOL, Y_{foreign}, P_x, TOT_x) \dots \dots \dots (2)$$

where M , X represents real aggregate imports and exports respectively; $RERVOL$ is real exchange rate volatility, $Y_{domestic}$ is domestic income, P_m is relative price of imports (proxied by the real exchange rate), $Y_{foreign}$ accounts for foreign income of Kenya's major trading partners (USA, UK, and China), P_x is relative price of exports (proxied by the real exchange rate), TOT_m and TOT_x are terms of trade for import and export function respectively.

Theoretical literature on imports suggests that, desired real imports are functionally related to real exchange rate volatility ($RERVOL$), income ($Y_{domestic}$) and import prices (P_m), proxied by real exchange rate (RER). Theory indicates that the derivative of demand for imports with respect to income ($Y_{domestic}$) is positive, the effect of real exchange rate on the demand for imports is negative implying that a depreciation of real exchange rate will raise the cost of imports, while an appreciation of real exchange rate will reflect in a lower cost of imports leading to an increase in volume demanded. Higher exchange rate volatility leads to increased cost of imports and overall reduction in trade.

On the other hand, economic theory on exports suggests that increase in foreign income affects domestic exports – an increase in real foreign income ($Y_{foreign}$) increases domestic exports. A reduction in relative export prices (P_x) will cause the domestic goods to be more attractive than foreign goods, thus increasing exports. However exchange rate volatility may result in increasing overall trade for risk-averse traders, while exports will be less attractive for risk-neutral traders thus declining trade.

3.1 Estimable model

In order to understand the determinants of Kenyan imports and exports, two structural models/equations are estimated; an import function and an export function for the economy. The specifications of these functions followed standard economic theory. The imports function is given by:

$$M_t = \beta_0 + \beta_1 M_{t-1} + \beta_2 RERVOL_t + \beta_3 Y_{domestic_t} + \beta_4 RER_t + \beta_5 TOT_t + \omega_t \dots \dots \dots (3)$$

where $RERVOL$ is real exchange rate volatility, $Y_{domestic}$ is domestic national income, RER represents the real exchange, TOT is terms of trade, and ω is a stochastic error term for the import function. Kenya's gross domestic product is used to indicate domestic national income. The export function is:

$$X_t = \alpha_0 + \alpha_1 X_{t-1} + \alpha_2 RERVOL_t + \alpha_3 Y_{foreign_t} + \alpha_4 RER_t + \alpha_5 TOT_t + \mu_t \dots \dots \dots (4)$$

where $Y_{foreign}$ represents foreign income and μ represents the stochastic error term for the export function. To study this relationship, the models will be transformed to log-linear equations:

$$\log M_t = \beta_0 + \beta_1 \log RERVOL_t + \beta_2 \log Y_{domestic_t} + \beta_3 \log RER_t + \beta_4 \log TOT_t + \omega_t \dots \dots \dots (5)$$

$$\log X_t = \alpha_0 + \alpha_1 \log RERVOL_t + \alpha_2 \log Y_{foreign_t} + \alpha_3 \log RER_t + \alpha_4 \log TOT_t + \mu_t \dots \dots \dots (6)$$

where $\log M_t$ is the logarithm of real imports, $\log M_{t-1}$ is logarithm of imports at time t-1, $\log RERVOL_t$ logarithm of real exchange rate volatility, $\log Y_{domestic}$, logarithm of real domestic income, $\log TOT_t$, logarithm of terms of trade, $\log X_t$ logarithm of real exports, $\log X_{t-1}$, logarithm of exports at time t-1, $\log Y_{foreign}$, logarithm of real foreign income, and ω_t, μ_t are error terms for import and export functions respectively.

Theoretical studies determine that total imports to a domestic economy increases with improvement of the domestic economy; this implies that $\beta_2 > 0$. Implying that, a rise of import prices or depreciation of real exchange rate will make foreign goods more expensive making imports to fall i.e. $\beta_4 < 0$. Better terms of trade will increase both imports and exports i.e. $\beta_5, \alpha_5 > 0$. Export volume increases with increase in income of foreign countries thus $\alpha_2 > 0$. Rise in the price of exports causes local products to be uncompetitive in the international market. Exports will be adversely affected while the volume of imports will increase. Thus β_3 and α_3 can be either positive or negative or non-significant.

3.2 Real exchange rate volatility

Exchange rate volatility is indirectly observable. Various methods have been used to determine it. In estimating volatility, the study followed Sauer and Bohara (2001) using the conditional variance of a first-order ARCH model with the exchange rate. The equation is of the form:

$$\log(RER_t) = \alpha_0 + \alpha_1 \log(RER_{t-1}) + u_t, \text{ whereas, } u_t \sim N(0, \delta_t) \dots\dots\dots(7)$$

$$\text{Volatility, } \delta_t = \beta_0 + \beta_1 u_{t-1}^2 \dots\dots\dots(8)$$

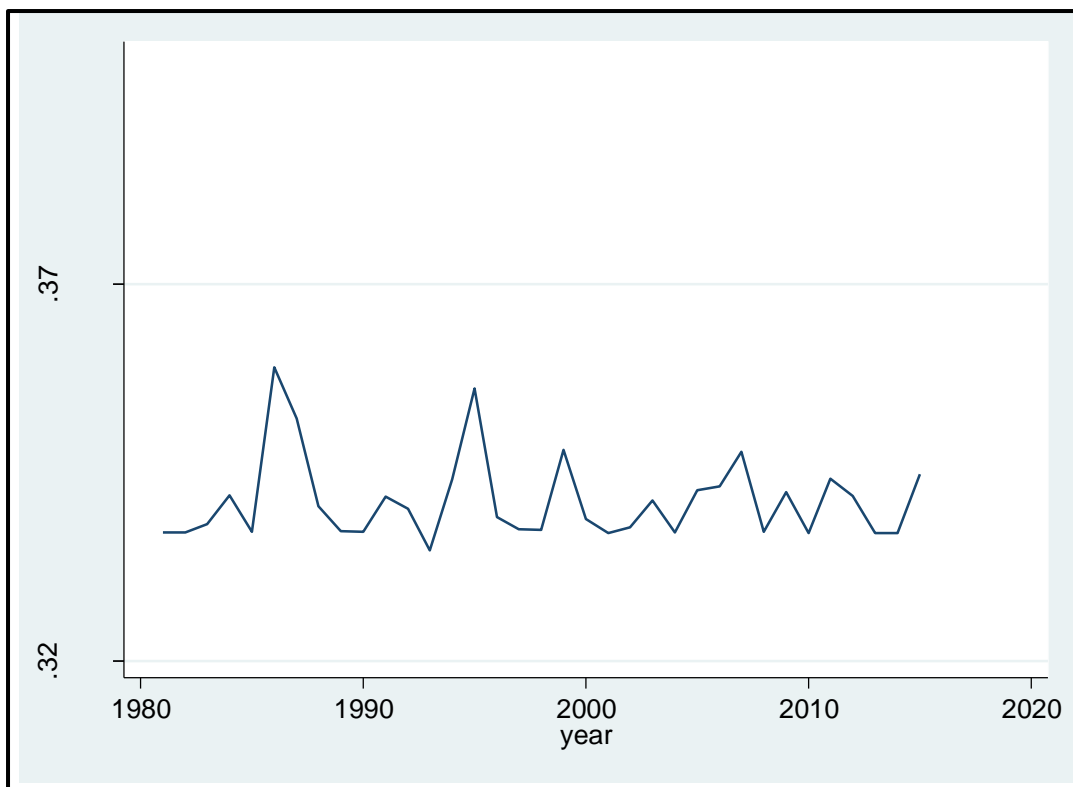
Estimating equation (8) gave the following results (standard errors are in parenthesis).

$$\text{Volatility, } \delta_t = \mathbf{0.3265939} + \mathbf{0.93191}u_{t-1}^2$$

(0.0913447) (0.240871)

The result is interpreted as current prediction of real exchange rate variance which is a measure of the weighted average of long term average and the ARCH term. The predicted values of δ_t provides a measure of volatility of the Kenya's exchange rate against the US dollar. Graphical representation is shown in figure 1.

Figure 1: Real Exchange Rate Volatility Measure, 1980-2015



The vertical axis represent real values for volatility while horizontal axis time in years for period under study. In this case, volatility is given by the graph of conditional variance of ARCH.

4.0 TIME SERIES PROPERTIES

4.1 Lag Length Determination

The two models lag length was determined using Schwartz-Bayesian Information Criterion (SBIC), as the Johansen Maximum Likelihood method for testing for cointegration is sensitive to the number of lags and the fact that data is annual. In the first model (imports model) four lags were selected for the model while in the second model (exports model) one lag was selected for the model. The lag length with the lowest SBIC was selected.

4.2 Unit Root Test Results

To avoid admission of spurious results, the data was tested to ensure there was no trend or seasonality. The test was done using Augmented Dickey Fuller (ADF) test. To determine the order of integration, the test was done at levels and differences. The results are presented in the table 1.

Table 1: Stationarity test results

Variable	Test Statistic	p-value	Remark
logM	1.323	0.9967	Not Stationary
D. logM	-4.311	0.0004	Stationary
logX	1.268	0.9964	Not Stationary
D.logX	-4.423	0.0003	Stationary
logRERVOL	-1.608	0.7612	Not Stationary
D.logRERVOL	-5.765	0.0000	Stationary
logY_domestic	1.262	0.9964	Not Stationary
D.logY_domestic	-4.065	0.0011	Stationary
logY_foreign	-1.441	0.5625	Not Stationary
D.logY_foreign	-4.656	0.0001	Stationary
logRER	-2.828	0.0544	Not Stationary
D.logRER	-4.556	0.0002	Stationary
logTOT	-1.181	0.0611	Not Stationary
D.logTOT	-6.633	0.0000	Stationary

All the variables, logM, logX, logY_domestic, logY_foreign, logRERVOL and logTOT and logRER were found to be integrated of first order, I(1). This means that all the variables were stationary at first difference.

4.3 Cointegration Test

Having established that all the variables in the study were I(1), it was important to establish the existence of long-run relationship between the dependent and independent variables. Using the Johansen test for cointegration, the trace statistic for both models was found to be smaller than the critical value at 5 percent level of significance, with a maximum rank of 2. This implied that cointegration was present and that there existed at least two (2) co-integrated equations, in either bi-directional or uni-directional relationship. This meant that the dependent and independent variables move closely to achieve a long-run equilibrium.

4.4 Correlation Analysis Results

Pair-wise correlation analysis was done for the independent variables. The correlation coefficient was used as a measure of the strength and the direction of a linear relationship between a pair of variables. The coefficient ranges from -1 to 1, and if close to one (1), the relationship between the pair is strong, and vice versa. The results indicated that logM and logY_domestic had a strong positive relationship, in model 1, while logX and logY_foreign, and logRER and logY_foreign had very strong positive relationships, in model 2. A correlation analysis using the Variance Inflation Factors (VIF) indicated that the VIF values were less than 10, hence no evidence of serial collinearity.

4.5 Regression Results

4.5.1 Import function (Model 1)

The following table contains the multiple regression results from a model with L.logM as the dependent variable, and logRERVOL, logY_domestic, logRER, and logTOT, as explanatory variables.

Table 2: Regression Results

Variable	Coefficient	p-value
L._ce1(ECM)	0.274	0.015
LD.logRERVOL	0.045	0.000
LD.logY_domestic	0.082	0.000
LD.logRER	-0.012	0.000
LD.logTOT	0.024	0.000

R-squared = 0.9983, Root Mean Squared Error = .03274; * $p < 0.05$, ** $p < 0.01$; F (4, 28) = 4099.98, $p = 0.000$

The F-statistic (4099.98) is statistically significant at 5 percent level of significance implying that all the dependent variables as a group explain 99.8 percent of the total variations in imports ($R^2 = 0.9983$). The model has a better fit since its Root Mean Squared Error is 0.03274. The closer the Root Mean Squared Error to zero, the better the model.

From the results (table 2), the coefficient for logRERVOL is significant at 5 percent level of significance ($p < 0.05$), meaning that logRERVOL is important. A unit increase in exchange rate volatility increases imports by 0.045 percent. The coefficient for logY_domestic is significant at 5 percent level of significance ($p < 0.05$), meaning that logY_domestic is important. A percent unit increase in domestic national income increases imports by 0.082 percent. The coefficient for logRER is significant at 5 percent level of significance ($p < 0.05$), meaning that logRER is important. A percentage unit increase in real exchange decreases imports by 0.012 percent. The coefficient for logTOT is significant at 5 percent level of significance ($p < 0.05$), meaning that logTOT is important. A percent unit increase Terms of Trade (TOT) increases imports by 0.024 percent.

The model as an Error Correction Mechanism (ECM) of 0.274 (*speed of adjustment*), which is significant meaning divergence from equilibrium will take place and the system will be unstable. Further, logRERVOL granger causes logRER and logTOT; logRER granger causes logY_domestic, while logM granger causes logRER and logTOT. All these relationships are uni-directional.

The estimated equation shows that the coefficient on the logY_domestic, logRERVOL and logTOT are positive, but the coefficient for the real exchange rate is negatively related to the import function. It is observed that increasing domestic

income positively affects import demand but depreciation of real exchange rate adversely affect the long-run dynamics of the import model.

4.5.2 Export Function (Model 2)

Table 3 contains the multiple regression results for the export function with logX as the dependent variable, and L.logX, logRERVOL, logY_foreign, logRER, and logTOT, as explanatory variables.

Table 3: Regression Results

Variable	Coefficient	p-value
L._ce1 (ECM)	-0.072	0.013
LD.logRERVOL	-0.046	0.000
LD. logY_foreign	0.019	0.000
LD.logRER	-0.083	0.000
LD.logTOT	0.007	0.145

R-squared = 0.9728, Root Mean Squared Error = .10538; * p < 0.05, ** p < 0.01; F (4, 28) = 250.81, p = 0.000

The F-statistic (250.81) is statistically significant at 5 percent level confidence meaning that all the independent variables as a group, explain 97.2 percent of the total variations in exports ($R^2 = 0.9728$). The model has a better fit since its Root Mean Squared Error is 0.10538. The closer the Root Mean Squared Error to zero, the better the model.

From the results (table 3), the coefficient for logRERVOL is significant at 5 percent level of significance ($p < 0.05$), meaning that logRERVOL is important. A percent unit increase in exchange rate volatility decreases exports by 0.046 percent. The coefficient for logY_foreign is significant at 5 percent level of significance ($p < 0.05$), implying that logY_foreign is important. A percent unit increase in foreign (UK, US and China) national income increases exports by 0.019 percent. The coefficient for logRER is significant at 5 percent level of significance ($p < 0.05$), meaning that logRER is important. A percent unit increase in real exchange rate, decreases imports by 0.083 percent. The coefficient for logTOT is not significant at 5 percent level of significance ($p < 0.05$), meaning that logTOT is not that important. A percent unit increase Terms of Trade (TOT) increases exports by 0.007 percent.

The model as an Error Correction Mechanism (ECM) of -0.072 (*speed of adjustment*), which is negative and significant meaning that there is long-run causality running from logX to logRERVOL, logY_foreign, logRER and logTOT. In the short term, logRERVOL granger causes logX, and this relationship is uni-directional. The estimated equation shows that the coefficients of Y_foreign and TOT are positive and the coefficients of real exchange rate volatility, real exchange rate are negative and are statistically significant. This implies that increase in real foreign income and improvement in terms of trade (TOT), positively affect export demand while real exchange rate volatility and real exchange rate have negative impact on exports.

5.0 CONCLUSIONS

The study estimated the impact of real exchange rate volatility on Kenyan imports and exports using annual data for periods from 1980 to 2015. Empirical evidence has shown that imports and exports are affected by several factors. In this study, it was postulated that imports are affected by exchange rate volatility, domestic income, real exchange rate and terms of trade. While exports are affected exchange rate volatility, foreign income (in this case, US, UK and China), real exchange rate and terms of trade. Results of cointegration analysis using Johansen test found the trace statistic for both models to be smaller than the critical value at 5 percent level of significance, with a maximum rank of two (2). Regression results for the import function shows that the model has significant Error Correction Mechanism (ECM) implying that divergence from equilibrium will take place and the system will be unstable. While the export function model shows that the model has a negative Error Correction Mechanism (ECM) implying that there is long run causality relationship.

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