UNIPORT JOURNAL OF BUSINESS, ACCOUNTING & FINANCE MANAGEMENT
DEPARTMENT OF ACCOUNTING
UNIVERSITY OF PORT HARCOURT, CHOBA
PORT HARCOURT, RIVERS STATE
NIGERIA
VOL. 12 NO. 1 MARCH 2021

IMPACT OF CURRENCY FLUCTUATIONS ON EXPORT REVENUE: CASE OF SOME SELECTED AFRICAN COUNTRIES

OLUITAN, ROSELINE OLUWATOYIN (PhD).
Department of Banking and Finance,
Faculty of Management Sciences,
Lagos State University,

ANIFOWOSE, ABOLAJI DANIEL (PhD).
Department of Banking and Finance,
Faculty of Management Sciences
Lagos State University,

And

AROKOYO, OLATUNBOSUN ISAAC
Department of Banking and Finance,
Faculty of Management Sciences
Lagos State University,

Abstract

The study examines the impact of currency fluctuations on export revenue of some selected African countries (Cameroon, Congo, Egypt, Ethiopia, Ghana, Kenya, Namibia, Nigeria, South Africa and Tunisia).The secondary data were sourced from World Bank Data Atlas for Export Revenue (ER), Inflation Rate (INFR), Exchange Rate (EXR) and money supply (MS) for the period, 1990 to 2019. Unit Root tests were conducted using Augmented Dickey Fuller (ADF).For the estimation of the variables, GMM is applied. The results show that, 56% of change in export revenue can be explained by exchange rate (EXR), money supply (MS) and inflation rate (INFR). The inflation rate (INFR) has positive but without statistical significant impact on export revenue of the selected countries. While, money supply (MS) and exchange rate (EXR) has strong, positive and statistical significant impact on export revenue of the selected African countries.

Keywords: export revenue, currency fluctuation, inflation rate, exchange rate, money supply.

Introduction

The place of currency positions in international trade perform important role in the exportation activities of any economy. A sustainable exchange rate encourages trade and increase economic growth. This is the precise movement in the feasible currency fluctuating economy.

The policy is intended to improve local output by improving terms of trade and raising revenue to redistributing income among broad classes of the economy (Cooper, 1971). According to Jordaan and Netshitenzhe (2015), an appreciation/depreciation is intended to enhance export competitiveness, encourage export diversification, protect domestic industries from imports and improve the trade balance. Moreover, the position of

such currency also attracts direct bilateral currency swapping/dealing without the usage of dollar. The continuous appreciation/depreciation of the African countries to the dollar has also boosted their economic situation in the international market thereby fostering increased exportation activities of the African countries commodities (Smal, 1998).

However, some of the African currencies positioning appreciating/depreciating scale have been expected to put the economy into an exporter of varying commodities. For example, the Nigerian economy have proved to be ineffective as an exporter of non-oil commodities, with its major exportation revenue remaining the sales of crude oil over the past 30years since its discovery at commercial scale (Gbadebo, Ogbonna & Igwe, 2018). The fluctuation of currencies, appreciation/depreciation, which improve their domestic production and exportation pose a strong threat to some of the African countries' currencies, including the Nigerian currency economy and trade market. This has a tendency to increase importation activities for the Nigerian economic sector (Gbadebo, Ogbonna & Igwe, 2018). The currency fluctuation activities of countries are initiatives supported by the International Monetary Fund (IMF) to provide means of economic growth, conditioning for financial aid and loans to member countries to develop their domestic firms, markets and enhance their competition in the international market.

These selected African countries have close economic relations and huge economic potentials in terms of agriculture, solid minerals and cheap labor. The position of trade of Cameroon, Congo, Egypt, Ethiopia, Ghana, Kenya, Namibia, Nigeria, South Africa and Tunisia in their appreciation/depreciation in the value of their currencies to the US "Dollar" reveal diverse trend of economic performance and different economic responses and drive in their international trading activities. Hence, the need to examine the impact of currency fluctuations on export revenue of these selected African countries' economies. The aim of this study is to examine the impact of currency fluctuations on export revenue of some selected African countries, while the specific objectives of the study are:

- To examine the impact of Exchange Rate on Export Revenue in some selected African countries.
- To examine the impact of Inflation Rate on Export Revenue in some selected African countries.
- To examine the impact of Money Supply on Export Revenue in some selected African countries.

The findings from the study revealed that, 56% of change in export revenue can be explained by exchange rate (EXR), money supply (MS) and inflation rate (INFR). The inflation rate (INFR) has positive but without statistical significant impact on export revenue of the selected countries. While, money supply (MS) and exchange rate (EXR) has strong, positive and statistical significant impact on export revenue of the selected African countries. Hence, these countries' currency fluctuations impact positively on export revenue activities.

This paper has contributed to the exchange rate theory and economic growth by shedding more light on the appreciativeness of the international market. Also, the practitioners and policymakers have deeper understanding on how currency fluctuations impact on export revenue activities especially on the selected African countries.

This paper is structured as follows: the second section review literature. Third section discusses the data and methodology. Fourth section presents the empirical results and fifth section provides conclusion.

Literature Review

Appreciation/depreciation of currency is a dynamic segment of exchange rate position that serves a frontier of improved exportation and increased revenue generation. Varying theories/approaches have been discussed to stress the importance of appreciation/depreciation on exportation performance, e.g. elasticity's approach holds that the extent to which export volumes respond/increase as a result of currency appreciation/depreciations depends on the elasticity of foreign demand for the country's exports and the elasticity of domestic supply of export goods. The elasticity of demand is defined as the quantity responsiveness of demanded goods or service to changes in price. If export goods are price elastic, then the quantity demanded will rise more than the decrease in relative prices, resulting in a rise in total export revenues (Alemu & Jin-sang, 2014 and Jordaan & Netshitenzhe, 2015). Thus, the effect of a depreciation of a currency depends on how the economic system behaves (Alexander, 1952). This theory is however viewed to be narrowed in its perception to only export supply function on the nominal prices rather than relative prices (Ogundipe, Ojeaga & Ogundipe, 2013).

Mundell- Fleming Model

The conventional answer to currency devaluation is analyzed within the Mundell-Fleming model and the result is a positive effect on the account. Thus, devaluation is expansionary in terms of gross domestic product (GDP), since exports increase more than imports.

The Mundell-Fleming model, which is commonly known as IS-LM-MOP model is an economic model set forth by Robert Mundell and Marcus Fleming as an extension of the IS-LM model. The tradition ISLM model deals with economy under autarky, while the modern Fundell-Fleming model describes a small open economy. The Mundell-Fleming model shows the short-run relationship between an economy's nominal exchange rate, interest rate and output in contrast to the closed-economy is LM model which focuses only on the relationship between the interest rate and output. The argument that an economy cannot simultaneously maintain a fixed exchange, free capital movement and an independent monetary policy has been solved by Mundell-Fleming model. This principle is frequently called the "impossible Trinity" "unholy trinity" "irreconcilable trinity" "inconsistent trinity" or the "mundell-fleming trilemma".

Marshall-Lerner Condition Model

Devaluation reduces balance of payment deficit but may not be true in all cases. Thus the effectiveness of devaluation depends on Marshall-Lerner condition which states that when the sum of price elasticity of the demands for imports of any two countries trading their goods between them is greater than unity, then devaluation increases exports and decreases imports (Dwivedi, 2001). He states further that devaluation reduces balance of payment (BOP) deficit when the sum price of elasticity of A's demand for imports and price elasticity of B's demand for A's exportable, in absolute terms is greater than unity. Also it increase BOP deficit when the sum of price elasticity of demand for imports of a country and the price elasticity of demand for its exportable in absolute terms is less than unity. Further, when the sum of price elasticity of demand for importable of a country and the price elasticity of demand for its exportable in absolute equals one, then devaluation leaves the trade balance unchanged and hence BOP remains unaffected.

The empirical evidence shows that in the short run, devaluation causes deterioration in the BOP, this is due to the tendency for import prices to rise faster in the domestic market immediately after devaluation than the export prices, without much changes in the quantities imported or exported. This is what produces a J- shaped curve which the

economists call J- curve effect of devaluation (Osundina & Osundina, 2016). Davidson (2006), assets that Marshall-Lerner's condition does not apply to a country like United States because despite a significant decline in the value of the dollar, the trade imbalance has almost doubled which may lead to depression if not properly handed.

The Purchasing Power Parity (PPP) Theory

According to Jhingan (2011), this theory states that equilibrium exchange rate between two inconvertible papers currencies is determined by the equality of the relative change in the price levels in the two counties. International competitiveness is measured by comparing the relative prices of the goods from different countries when these are measured in a common currency.

The purchasing power parity path for the nominal exchange rate is the path that would keep competitiveness constant overtime. According to this theory, countries with higher domestic inflation than their competitors would face a depreciating nominal exchange rate, while countries with lower domestic inflation than their competitors would face appreciating exchange rates.

The Balance of Payment Theory

As demonstrated by Jhingan (2011), under a free exchange rate regime, a country's exchange rate depends upon its balance of payments. A favourable balance of payments raises the exchange rates, while an unfavourable balance of payments reduces the exchange rate. By implication, exchange rate is determined by the demand and supply of foreign exchange. According to this theory, adjustments in the balance of payments can be made through devaluations and revaluations of some currencies in the case of deficits and surpluses respectively, in the balance of payments. Mckinnon and Schnabi (2003) have argued that for small open East Asian economies, fluctuations of the Japanese yen against the U.S dollar strongly affected the growth performance of the whole region. They identified trade with Japan as a crucial transmission channel. Before, 1965, the appreciation of the Japanese yen against the U.S dollar enhanced the competiveness of the smaller east Asian economies who kept the exchange rate in the region accelerated. The strong depreciation of the yen against the dollar from 1965 into 1967 slowed growth contributing to the 1997/98 Asian crises.

The Portfolio Balance Theory

This theory developed by Benson (1975) assumes that residents distribute their wealth among three forms of assets, monetary base, domestic bonds, and foreign bonds. Exchange rate is in equilibrium when the holding of these assets are in their desired proportion. In portfolio analysis, the current account balance becomes the reflection of the government budgetary imbalance when the private sector is satisfied with the holding of financial assets. The inability of government to sell bonds to foreigners without an excessive fall in their prices reflected in BOP deficit.

Momodu and Akani (2016) investigated the impact of currency devaluation on economic growth of Nigeria. The Johansen Co-integration method was used for this analysis because the study involves the use of multivariate estimations. The result from the multivariate co-integration test shows that there is at least one co-integrating vector in the relationship between economic growth and the independent variables. This implies that a long run relationship exists among these variables. The autoregressive distributed lags (ARDL) approach is used for the ECM. The error correction mechanism result indicates that

short term changes in economic growth may actually be sufficiently explained by currency devaluation and other factors selected in the model. They accepted the hypothesis of a significant short term relationship between economic growth and currency devaluation.

The study shows that in the short run currency devaluation leads to increase in output and improves the balance of payments but in the long run the monetary consequence of the devaluation ensures that the increase in output and improvement in the balance of payment is neutralized by the rise in prices.

Aiya (2014) assessed people's perception on the impact of devaluation of Nigerian currency on the performance of poverty alleviation programmes in Edo state, Nigeria using primary data and Chi square statistical analysis, he found that currency devaluation limits the performance of poverty alleviation programmes in Edo state. He recommends that there should be proper funding of poverty alleviation programs because the devaluation of currency as often recommended by the Bretton wood institutions such as IMF and the World Bank has resulted in hyper inflationary trend in the economy. Hence, devaluation is expansionary in terms of GDP since exports increases more than imports according to Mundell-Fleming model.

Saibene and Siccour (2012) concludes that devaluation is contractionary for countries with a large amount of debt dominated in a foreign currency whereas, they are not for the countries whose debt is denominated in their own currency all things being equal. They also assert that after sharp currency devaluations, the debt burden increases in real terms, leading to the following chain of events: Firms profits decrease, bank lending is constrained, and thus the amount of investment is sharply reduced, reducing also next period output.

Kogid, Asid, Lily, Mulok and Lognathan (2012), carried out a research on the effect of exchange rates on economic growth, using nominal and real exchange rate, they found out that both exchange rates (nominal and real) are considered to have similar effects on economic growth. The results of Autoregressive distributed lags (ADRL) bounds test carried out by them suggest that long-run co integration exist between both nominal and real exchange rates and economic growth with a significant positive coefficient recorded for real exchange rate. In addition, the results of ECM-based ARDL also reveal that both exchange rates have a similar casual effect towards economic growth.

Siddig (2012) examined exchange rate devaluation in Sudan using computable general equilibrium. The paper reports the impact of devaluation on several economic indicators considering domestic commodity markets, the factors market and institutions. Reponses of specific economic variables such as prices, household demand, welfare and the balance of payment are used to describe the resulting equilibrium of the economy as a result of devaluation in the three scenarios. The results reveal that devaluation of the Sudanese pound will considerably increase most domestic commodity prices. This is desirable for producers who target the world market because their returns in the local devalued currency will tend to be higher. Accordingly, export oriented sectors, which have a larger share of exports and in their total output, show the greatest increase in output and exports compared to other sectors. He concludes that, devaluation of Sudan's currency would increase domestic prices of tradable goods and encourage producers to export.

However, domestic consumers are unaccompanied by similar increase in household income. This could also lead domestic production to deteriorate at a certain point in time since the cost of intermediate inputs will also increase especially imported intermediate inputs. Therefore, devaluation would encourage producers of some sector to increase

output and exports, while it would hinder consumers to enjoy the previously cheaper imported and domestic commodities since domestic prices increased.

Farhi, Gopinth and Itskhoki (2012), considered the case of producer and local currency price setting with some price stickiness, as the real effects of nominal devaluations depends on whether prices are set in the producer's currency or in local currency. Their model features two countries, home and foreign, the foreign with a passive policy of a fixed money supply and also potentially use six different fiscal instruments to achieve the policy goal that mimics a nominal devaluation but maintains a fixed nominal exchange rate: import and export tariffs, a value-added tax (with border adjustment) a payroll tax paid by producers and consumption and income taxes paid by consumers.

The authors consider various degrees of capital account openness: Balanced trade, complete risk-sharing with Arrow-Debru securities (securities that are paid in only one time period) and an arbitrary net foreign asset position. They found out that the two fiscal devaluation policies that mimic nominal exchange rate devaluations are:

1. A uniform increase in import tariffs and export subsidies.
2. A uniform increase in value added taxes and a reduction in payroll taxes.

Eme and Johnson (2010), in their study of exchange rate movements in Nigeria for the sample period of 1986-2010, examined the possible direct and indirect relationships between exchange rate and GDP growth, using a simultaneous equation model within a fully specified (but small) macroeconomic model, coupled with a generalized method of moment (GMM) technique. The empirical results suggest that there is no evidence of strong direct relationship between changes in exchange rate and output growth. Hence, they concluded that Nigeria's economic growth had been directly affected by monetary variables and that improvements in exchange rate management were necessary but not sufficient to revive Nigerian economy.

Maga (2004) examined the effect of exchange rate fluctuations to real output growth and price inflation in a sample of 22 developing countries. By introducing a theoretical rational expectation model, he decomposed movements in exchange rate into anticipated and unanticipated components. The model demonstrated the effects of demand and supply channels on the output and price responses to changes in exchange rate in general, he concluded that exchange rate devaluation, and both anticipated and unanticipated decreases real output growth and increase price inflation. The result confirms concerns about the negative effects of currency devaluation on economic performance in developing counties.

Newton (2010), while reviewing sterling devaluation between 1968 and 1970 explained the travails of the British labour government and that it took a year to convince people on the need for devaluation which paid off at last. Using different measures of real exchange rate and different estimation techniques, Dani (2008), showed that devaluation (high exchange rate) stimulates economic growth, particularly in developing countries, while revaluation hurts economic growth. Employing the same methods, Gala (2007) arrived at similar conclusion with Dani (2008).

Odusola and Aikinlo (2001), used a six-variable VAR model consisting of official exchange rate, parallel exchange rate, prices, money supply, and interest rate for Nigeria and revealed the existence of mixed results regarding the impact of exchange rate depreciation on output. Their conclusion is that the contractionary impact of devaluation on

output can only be represented in the first quarter, after which devaluation generates expansionary impact on output.

Adekoya and Fagbohun (2016) examined the impact of currency devaluation on manufacturing output growth in Nigeria between 1980 and 2014. They employed Augmented Dickey Fuller for stationarity test, Engel-Granger co-integration for long run relationship, ordinary least square for long-run estimate and Granger causality test for causal relationships. The findings revealed that although all the variables are stationary at first difference, a long-run relationship exists between the variables. It further showed that all the variables except import exert positive effect on manufacturing output growth. The result suggests the need for currency appreciation rather than depreciation as the sector depends heavily on the importation of equipment's, machineries as well as most of its raw materials. The causality test showed that there is a unidirectional causality running from, exchange rate, import and Credit to Private Sector to manufacturing output.

Further, Edwards and Schoer (2002) find that while South Africa's REER depreciated during the 1990s, its export growth remained mediocre compared to other emerging market countries in the same period. Amiti, Itskhoki and Konings (2013) have attributed low exchange rate pass-through to the fact that large exporters are, at the same time, the largest importers in many countries. If this is true for South Africa, and given the fact that Rankin (2001) finds that large firms in South Africa are more likely to export not only to SADC countries but also to the global market, it could explain the disconnect between South African exports and the exchange rate.

In Africa, Ogundipe, Ojeaga, and Ogundipe (2013) investigated the impact of currency depreciations on Nigeria's trade balance using the Johansen co-integration and variance decomposition approaches spanning from 1970 to 2010. They find that, contrary to trade theory, a depreciation of Nigeria's exchange rate negatively affects its trade balance. They, however, note that the exchange rate is not the only variable that influences trade and, other variables (like domestic money supply volatility) have greater impact on the trade balance.

Akpan and Atan (2012) investigates the effect of exchange rate movements on real output growth in Nigeria from 1986 to 2010. A Generalised Method of Moments (GMM) technique was explored and the estimation results suggest that there is no evidence of a strong direct relationship between changes in exchange rate and output growth. Rather, Nigeria's economic growth has been directly affected by monetary variables.

In Sierra Leone, Tarawalie (2010) analyses the short-run and long-run dynamics of exchange rate changes using the Johansen cointegration technique, and an ECM estimation. He finds that, in the long run, a depreciation of the exchange rate increases net exports and thus economic growth through the multiplier effect. Using the simultaneous-equation model and the Seemingly Unrelated Regression method, Bouoiyour and Rey (2005) find that a misalignment (overvaluation) of the Moroccan exchange rate does not have a significant effect on exports but increased exchange rate uncertainty negatively affects exports.

Outside of Africa, Shirvani and Wilbratte (1997) use the Johansen-Juselius multivariate cointegration approach to analyse the bilateral trade between the US and other G-7 countries. They find that the exchange rate does affect the trade balance in the US in the long run. In the very short run, however, they find that the trade balance does not respond significantly to exchange rate shocks, needing up to two years to make an impact.

The study by Kim (2009) investigates the macroeconomic determinants of Korea's persistent bilateral trade deficit with Japan and the trade surplus it has with the US using the cointegration–VECM approach. The model includes bilateral trade balance, bilateral real

exchange rate, domestic and foreign income and relative money supply of Korea with the US and Japan. The results show that Korea's bilateral trade balance with the US improves following a depreciation of Korean won against US dollar, while Korea–Japan bilateral trade balance deteriorates for first two quarters and thereafter improves supporting the J-curve effect, but the degree of its real improvement is negligible.

Baharumshah (2001) also uses the Johansen-Juselius multivariate cointegration approach and estimates an unrestricted vector autoregressive (VAR) model and finds that a devaluation of the ringgit and baht causes an increase in the exports to the US and Japan from Malaysia and Thailand.

Abeysinghe and Yeok (1998) also use an ECM to assess the effects of exchange rate depreciations on different export categories in Singapore. They find that while currency depreciations do increase exports in all categories, the impact of the depreciation is dependent on their share of import content. Service exports, for example, are relatively less intensive in imported inputs and are thus most affected by a change in the exchange rate.

Using a different perspective to address the question of whether a depreciation affects export performance, Berman, Martin and Mayer (2009) analyse French export firms. They find that high performance French firms react to currency depreciations by increasing their export price rather than their export volume, while low productivity export firms do the opposite.

A number of studies have looked at a cross-section of countries to assess the relationship between exports and the exchange rate. Bahmani-Oskooee (1998) uses the Johansen and Julius co-integration technique to estimate the trade elasticity's in some less developed countries. It is found that the elasticity's are large enough to encourage a devaluation of the currencies to improve the trade balance. Genc and Artar (2014) and Ghosh, Thomas, Zalduendo, Catao, Joshi, Ramakrishnan, and Rahman (2008) look at the effect of exchange rates and trade in emerging market countries (EME) with the first looking at 22 countries while the latter included 46 countries in their sample.

The study by Genc and Artar (2014) conclude that there is a cointegrating relationship between the REER and the exports of the EME in the long run. The study by Ghosh et al. (2008) is important for this paper as it shows that the effects of exchange rate changes on the US dollar value of exports depend on the nature of the country's predominant export and the market structure of that country's exports. Ghosh et al. (2008) find that manufacturing and oil and non-oil commodities export volumes in EMEs have a very small short-run elasticity to nominal depreciation in exchange rates.

While exchange rate depreciation improves the performance of manufactured exports in sub-Saharan African countries, according to Sekkat and Varoudakis (2000), the magnitude of the elasticity's is below those found in other developing countries. A study by Sekkat and Varoudakis (2002) analyses the impact of trade and exchange rate policies in increasing manufactured exports in North Africa. The authors find that the exchange rate does not significantly affect manufactured exports. A reduction in the exchange rate misalignment, however, has a positive effect on the exports. Nabli and Véganzonès-Varoudakis (2004) find that an overvaluation of the exchange rates of MENA countries has cost the region in terms of exports.

Data and Methodology

This study employed yearly data of Total Export Revenue (TER), Exchange Rate (EXR), Inflation Rate (INFR) and Money Supply (MS), sourced from the World Data Atlas for all the

sampled countries for the period, 1990 to 2019. The study tests for unit root, using Augmented Dickey-Fuller (ADF), followed by Descriptive statistics. The estimation for analyzing the data series is based on Generalized Methods of Moments (GMM) estimation.

Model Specification

TER = $\log(EXR, INFR, MS)$ ----------(1)

Where:

TER denotes Total Export Revenue
EXR stands for Exchange Rate
INFR denotes Inflation Rate
MS implies Money Supply

TER = $bo + \quad b1\log(\mathrm{EXR}) + \mathrm{b2}\log(\mathrm{INFR}) + \mathrm{b3}\log(\mathrm{MS}) + Ui$ ----------(2)

Parameters for estimation.

bo, $b1$, b2 and b3 are parameters to be estimated, while Ui is the error term.

Instrumental variables

- Number of mobile cellular subscribers
- Population of people in largest city
- School enrolment (% of gross)

A Priori expectation

Increase/ decrease in EXR and INFR will result in currency fluctuations, and positively/negatively affect exports, thereby leads to improved/deteriorated export revenue. Also, increase/decrease in MS would have positive/negative relation with exports.

Empirical Results and Discussion

Table 1 presents the summary of descriptive statistics of the major items for all the countries in the sample. The findings indicate that most of the variables depart from normality. The skewness for all the variables is less than 5 for all the countries sampled (See Appendix A).

Table 2 reports the ADF test results, as all the data series in the system are statistically significant at 1% level and at I(1) process. This implies that the variables are stationary as I(1) process for all the countries sampled with the exception of Cameroon, Congo and Ethiopia inflation rates as they statistically significant at 1% level at I(0) process. That is, this variable is stationary at I(0) process (See Appendix B).

Table 3 GMM with instrumental variables.

Dependent Variable: LOGEXPORT
Method: Panel Generalized Method of Moments
Date: 11/20/20 Time: 09:16
Sample (adjusted): 1991 2019
Periods included: 29
Cross-sections included: 10
Total panel (balanced) observations: 290
2SLS instrument weighting matrix
White diagonal standard errors & covariance (no d.f. correction)
Instrument specification: C LOG(MOBILECELLULAR)
LOG(POPULATION) PERCENTAGE ENROLMENT
Constant added to instrument list

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INFRATE)	0.000125	0.000114	1.099170	0.2726
LOG(MONEYSS)	0.580928	0.027493	21.12975	0.0000
EXCHANGERATE	0.000472	0.000150	3.158247	0.0018
C	4.470684	0.260739	17.14617	0.0000
R-squared	0.556672	Mean dependent var		9.966286
Adjusted R-squared	0.552022	S.D. dependent var		0.521065
S.E. of regression	0.348755	Sum squared resid		34.78623
Durbin-Watson stat	1.702269	J-statistic		3.229407
Instrument rank	5	Prob(J-statistic)		0.072327

Table 3 reports the GMM result on the impact of currency fluctuations on export revenue in some selected African countries. Estimated result shows that 56% of change in export revenue can be explained by the independent variables of exchange rate, money supply and inflation rate.

The coefficient of lagged inflation rate is positively, but not statistically significant. It implies that, inflation rate has no effect/impact on export revenue of the selected countries. The coefficient of money supply and exchange rate are positively and statistically significant at 1%. This implies that, money supply and exchange rate has effect/impact on export revenue of the selected African countries.

To increase export revenue, the policy on exchange rate, money supply and inflation rate must be cautiously developed. For instance, market forces should be allowed to determine the exchange rate, and Monetary Authority should intervene only when it is necessary. As the Monetary Authority takes a deliberate depreciation/appreciation of exchange rate, this may bring about negative impact on export revenue. On money supply, increase in money supply will lead to increase in export revenue, all other things being equal. The Monetary Authority should adopt monetary policy tools that will positively impact on export revenue. Likewise, on inflation rate, the Monetary Authority is expected to re-evaluate and adjust the rate in line with the current economic situation, thereby facilitates an improved inflationary targeting policy for an increased export revenue.

In specific terms, it shows that money supply and exchange rate have strong and positive impact on export revenue of the selected African countries. Meanwhile, considering the inflation rate, though the coefficient is positive, but not statistically significant, that is, its impact on export revenue of the selected African countries is nil. Although, the findings on the impact of currency fluctuations on export revenue of some selected African countries negate a priori expectation on inflation rate.

Nevertheless, this finding is consistent with Imoughele and Ismaila (2015). The study investigates the impact of exchange rate on non-oil export, for the period 1986 to 2013. And the results show that, exchange rate, money supply and economic performance has significant impact on the growth of non-oil export. Likewise, Okoroafor and Adeniji (2017). The study examines currency fluctuation and macroeconomic variables in Nigeria for the period, 1986 to 2016. The results shown that, exchange rate has positive and significant impact on macroeconomic variables tested.

Conclusion

The study examines the impact of currency fluctuations on export revenue of some selected African countries (Cameroon, Congo, Egypt, Ethiopia, Ghana, Kenya, Namibia, Nigeria, South Africa and Tunisia).The findings from the study revealed that, 56% of change in export revenue can be explained by exchange rate (EXR), money supply (MS) and inflation rate (INFR). The inflation rate (INFR) has positive but without statistical significant impact on export revenue of the selected countries. While, money supply (MS) and exchange rate (EXR) has strong, positive and statistical significant impact on export revenue of the selected African countries. Hence, the study therefore concludes that these countries' currency fluctuation impact positively on export revenue activities.

Cautious appreciation/depreciation in the value of exchange rate without a considerate export activity may affect the economy. Thus, currency fluctuation must drive exports otherwise it should be disregarded. Based on these findings, the policy of appreciation/depreciation to increase export revenue in the economy may be one of the best policies for the sampled African countries to enable a new economic direction and export potential improvement for their economies. In addition, as the result of this study actually lend credence to the findings of previous studies on the impact of currency fluctuations on export revenue, especially African countries. The inflation rate not having impact on export revenue could be attributed to the level of decayed economic policies and leakages of some of these African countries. Therefore, for growth and development of the economy, it becomes imperative for the Monetary Authorities to always put in place robust economic policies that would have competitive advantage in the international market.

References

Ahmed, B., Wu, X., Rehman, Z. U. & Ahmed, I. (2015). The Impact of Exchange Rate Depreciation on Economic and Business Growth in Pakistan. *European Journal of Business and Management, 7*(32), 135-142.

Aiya, F. (2014). People's Perception of the Impact of Currency Devaluation on the Performance of Poverty Alleviation Programmes in Nigeria, Developing Country Studies, 4(10), 7-16

Akindiyo, O. & Olawole, A. (2015). Devaluation of Nigerian naira: Bane or Panacea? Review of Public Administration and Management, 4(8), 25-31. Retrieved from https://www.arabianjbmr.com/pdfs/RPAM_VOL_4_8/3.pdf

Akinlo, A. E. & Adejumo, V. A. (2014). Exchange Rate Volatility and Non-oil Exports in Nigeria: 1986-2008. *International Business and Management*, 9 (2), 70-79.

Akpan, E. O. & Atan, J. A. (2012). Effects of exchange rate movements on economic growth in Nigeria. CBN Journal of Applied Statistics, 2(2), 1-14.

Alemu & Jin-sang (2014) Jordaan, A. C. & Netshitenzhe, N. (2015). South Africa's exchange rate and sectoral export performance. *Department of Economics in the University of Pretoria.*

Aliyu, S. R. U. (2011). Impact of Oil Price Shock and Exchange Rate Volatility on Economic Growth in Nigeria: An Empirical Investigation, *Research Journal of International Studies*, 11(3), 103 –120.

Appleyard, Field & Cobb (2010) in Jordaan, A. C. & Netshitenzhe, N. (2015). South Africa's exchange rate and sectoral export performance. *Department of Economics in the University of Pretoria.*

Attah-Obeng, P., Enu P., Osei-Gyimah, T. & Opoku, C. D. (2013). An Econometrics Analysis of the Relationship between GDP Growth Rate and exchange Rate in Ghana. *Journal of economics and Sustainable Development*, 4(9), 1-8.

Cooper, R. N. (1977). *Currency devaluation in developing countries*: Essays in International Finance. New Jersey: Princeton University Press.

Currency Devaluation and its Effects, retrieved from (www.ukessays.com/essay) Devaluation-Tax Free Gold, retrieved from (www.taxfreegpld.co.uk/devaluation.html)

Evans, G. R. (2014). Exchange Rates. Retrieved from http://pages.hmc.edu/evans/ExchangeRates.pdf

Global International trade (2018). Devaluation of currency. https://www.globalnegotiator.com/international-trade/dictionary/devaluation/

IMF data (2018). World Bank Data Atlas. www.https://knoema.com/atlas

Imoughele, L. E. & Ismaila, M. (2015). The Impact of Exchange Rate on Nigeria Non-Oil Exports. International Journal of Academic Research in Accounting, Finance and Management Sciences, 5(1), 190–198

Ismaila A. M. (2016). Exchange Rate Depreciation and Nigerian Economic Performance after the Structural Adjustment Programme (SAP). *Nigerian Journal of Social Development,* 5(2).

Jordaan, A. C. & Netshitenzhe, N. (2015). South Africa's exchange rate and sectoral export performance. *Department of Economics in the University of Pretoria.*

Kawai, V. (2017). An Analysis of the Impact of Non-Oil Exports and Economic Growth in Nigeria from 1980 – 2016. *International Journal of Innovative Research in Social Sciences & Strategic Management Techniques*, 4(2), 83-94.

Loto, M. A. (2011). Does devaluation improve the trade balance of Nigeria? A test of the Marshall- Lerner condition. *Journal of Economics and International Finance, 3*(11), 624-633

Momodu, A. A. & Akani, F. N. (2016). Impact of Currency Devaluation on Economic Growth of Nigeria. *Indexed African Journals Online (AJOL),* 5(1), 16, 151-163.

Navaretti, K., Tybout, J. R. & De-Melo, L. R. (1997). Firm-Level Response to CFA Devaluation in Cameroun. *Journal of African Economics*, 6(1).

Ogundipe, Ojeaga & Ogundipe (2013) in Jordaan, A. C. & Netshitenzhe, N. (2015). South Africa's exchange rate and sectoral export performance. *Department of Economics in the University of Pretoria.*

Okoroafor O. K. D. &Adeniji S. O. (2017). Currency Devaluation and Macroeconomic Variables Responses in Nigeria: A Vector Error Correction Model Approach: 1986-2016. *Journal of Finance and Economics,* 5(6), 281-289.

Sibanda, K., Ncwadi, R. & Mlambo, C. (2013). Investigating the Impacts of Real Exchange Rates on Economic Growth: A Case study of South Africa. *Mediterranean Journal of Social Sciences, 4*(13), 261-274.

Smal, M. M. (1998). Exchange rate adjustments as an element of a development strategy for South Africa. https://www.resbank.co.za/Lists/News-and-Publications/Attachments/4759/05Exchange-rate-adjustments-as-an-element- of a development- strategy-for-South-Africa.pdf

Appendix A

Descriptive Statistics

Table 1 Summary of Descriptive Statistics

variables	Total export	Exchange Rate	Inflation Rate	Money Supply
CAMEROON				
Mean	4.71E+09	517.1826	3.339801	1.61E+09
Median	4.19E+09	524.8420	2.031943	9.04E+08
Maximum	8.71E+09	732.3977	35.09446	3.68E+09
Minimum	1.99E+09	264.6918	-3.206555	9555391.
Std. Dev.	2.39E+09	118.5734	6.383887	1.55E+09
Skewness	0.330517	-0.656182	4.276077	0.204841
Kurtosis	1.515682	3.342049	21.91468	1.226070
Jarque-Bera	3.300208	2.299123	538.6307	4.143332
Probability	0.192030	0.316776	0.000000	0.125976
Sum	1.41E+11	15515.48	100.1940	4.82E+10
Sum Sq. Dev.	1.66E+20	407729.6	1181.866	6.98E+19
Observations	30	30	30	30
CONGO				
Mean	5.64E+09	515.8685	1157.177	4.96E+08
Median	2.75E+09	436.7285	17.12324	1.73E+08
Maximum	1.59E+10	1647.760	23773.13	1.68E+09
Minimum	8.92E+08	2.39E-09	0.744199	54794300
Std. Dev.	4.90E+09	517.5193	4361.628	5.46E+08
Skewness	0.794347	0.676775	4.887394	1.040866
Kurtosis	2.224221	2.462266	25.79782	2.568870
Jarque-Bera	3.907230	2.651567	769.1090	5.649356
Probability	0.141761	0.265595	0.000000	0.059328
Sum	1.69E+11	15476.05	34715.30	1.49E+10
Sum Sq. Dev.	6.96E+20	7766961.	5.52E+08	8.66E+18
Observations	30	30	30	30
EGYPT				
Mean	2.86E+10	6.180508	10.33878	2.07E+10
Median	2.47E+10	5.583248	10.06757	1.68E+10
Maximum	5.38E+10	17.78253	29.50661	4.18E+10
Minimum	8.75E+09	1.550000	2.269757	3.62E+09
Std. Dev.	1.56E+10	4.193987	6.032144	1.02E+10
Skewness	0.200602	1.914020	1.005246	0.751538
Kurtosis	1.347587	5.773074	4.554959	2.582495
Jarque-Bera	3.614294	27.92979	8.074973	3.041936
Probability	0.164122	0.000001	0.017642	0.218500

Sum	8.58E+11	185.4152	310.1634	6.22E+11
Sum Sq. Dev.	7.06E+21	510.0962	1055.216	3.00E+21
Observations	30	30	30	30
ETHIOPIA				
Mean	6.03E+09	11.72569	7.220487	1.53E+09
Median	5.96E+09	8.651013	4.977752	9.61E+08
Maximum	7.17E+09	29.06975	44.35669	3.99E+09
Minimum	5.33E+09	2.070000	-27.78737	55191078
Std. Dev.	4.52E+08	7.442797	12.26875	1.24E+09
Skewness	0.454670	0.836796	0.502765	0.740435
Kurtosis	3.537799	2.656400	6.131052	2.159280
Jarque-Bera	1.395157	3.648710	13.51822	3.624735
Probability	0.497789	0.161322	0.001160	0.163267
Sum	1.81E+11	351.7708	216.6146	4.60E+10
Sum Sq. Dev.	5.93E+18	1606.462	4365.144	4.45E+19
Observations	30	30	30	30
GHANA				
Mean	7.85E+09	1.387606	19.33759	2.71E+09
Median	3.70E+09	0.902887	15.30390	1.82E+09
Maximum	2.46E+10	5.216183	59.46155	7.02E+09
Minimum	9.94E+08	0.032616	7.126350	3.09E+08
Std. Dev.	7.51E+09	1.517741	11.95330	2.41E+09
Skewness	0.895896	1.248403	1.746595	0.512376
Kurtosis	2.359528	3.338804	5.906738	1.535865
Jarque-Bera	4.525902	7.936031	25.81437	3.992262
Probability	0.104043	0.018911	0.000002	0.135860
Sum	2.35E+11	41.62819	580.1276	8.14E+10
Sum Sq. Dev.	1.64E+21	66.80259	4143.562	1.69E+20
Observations	30	30	30	30
KENYA				
Mean	6.04E+09	72.59213	11.76164	3.09E+09
Median	4.81E+09	76.05556	9.305947	1.66E+09
Maximum	1.16E+10	103.4104	45.97888	8.20E+09
Minimum	2.16E+09	22.91477	1.554328	79549253
Std. Dev.	3.57E+09	21.05820	9.588579	2.89E+09
Skewness	0.364369	-0.649767	1.910158	0.673919
Kurtosis	1.466582	3.076370	6.758068	1.875935
Jarque-Bera	3.603037	2.118275	35.89736	3.850236
Probability	0.165048	0.346755	0.000000	0.145859
Sum	1.81E+11	2177.764	352.8492	9.28E+10
Sum Sq. Dev.	3.70E+20	12859.98	2666.284	2.42E+20
Observations	30	30	30	30
NAMIBIA				
Mean	3.26E+09	7.609400	6.273868	8.97E+08
Median	2.78E+09	7.177208	7.136153	3.35E+08

Maximum	5.65E+09	14.70877	9.451727	2.43E+09
Minimum	1.22E+09	2.587321	2.281946	49717500
Std. Dev.	1.72E+09	3.566738	1.605758	8.14E+08
Skewness	0.191086	0.478041	-0.558937	0.604335
Kurtosis	1.293671	2.330888	3.136026	1.761580
Jarque-Bera	3.822017	1.702253	1.585183	3.743209
Probability	0.147931	0.426934	0.452670	0.153877
Sum	9.77E+10	228.2820	188.2160	2.69E+10
Sum Sq. Dev.	8.55E+19	368.9271	74.77526	1.92E+19
Observations	30	30	30	30
NIGERIA				
Mean	4.57E+10	121.6749	18.25826	2.35E+10
Median	3.26E+10	127.2299	12.38637	2.26E+10
Maximum	1.45E+11	306.9210	72.83550	5.36E+10
Minimum	4.58E+09	8.038285	5.388008	1.20E+09
Std. Dev.	3.86E+10	88.82774	16.89387	1.87E+10
Skewness	0.976075	0.587833	2.076106	0.180651
Kurtosis	3.061300	2.781039	6.157526	1.383429
Jarque-Bera	4.768309	1.787666	34.01354	3.429800
Probability	0.092167	0.409085	0.000000	0.179982
Sum	1.37E+12	3650.247	547.7478	7.05E+11
Sum Sq. Dev.	4.31E+22	228820.6	8276.684	1.01E+22
Observations	30	30	30	30
SOUTH AFRICA				
Mean	6.86E+10	7.599714	6.827969	2.42E+10
Median	6.32E+10	7.153249	5.956212	1.78E+10
Maximum	1.27E+11	14.70961	15.33478	5.16E+10
Minimum	2.61E+10	2.587321	-0.692030	2.34E+09
Std. Dev.	3.63E+10	3.559651	3.474776	2.01E+10
Skewness	0.220367	0.481437	0.681149	0.232771
Kurtosis	1.407116	2.340842	3.721852	1.278064
Jarque-Bera	3.414410	1.702017	2.971162	3.977241
Probability	0.181372	0.426984	0.226371	0.136884
Sum	2.06E+12	227.9914	204.8391	7.27E+11
Sum Sq. Dev.	3.83E+22	367.4623	350.1480	1.17E+22
Observations	30	30	30	30
TUNISIA				
Mean	1.39E+10	1.438126	4.249191	4.75E+09
Median	1.38E+10	1.314229	3.695024	4.29E+09
Maximum	2.50E+10	2.934433	8.193715	1.13E+10
Minimum	5.28E+09	0.878333	1.983333	8.66E+08
Std. Dev.	6.34E+09	0.515480	1.576513	3.19E+09
Skewness	0.114490	1.439195	0.790844	0.301306
Kurtosis	1.481390	4.483716	2.875080	1.709595
Jarque-Bera	2.948260	13.10817	3.146680	2.535359
Probability	0.228978	0.001424	0.207352	0.281484

Sum	4.18E+11	43.14378	127.4757	1.43E+11
Sum Sq. Dev.	1.17E+21	7.705869	72.07639	2.95E+20
Observations	30	30	30	30

Source: *Author's Computation*

Appendix B

Unit Root Tests

Table 2 Summary of Unit Root Analysis

Variables	At level		At 1st difference	
	t-Statistic	Prob.*	t-Statistic	Prob.*
CAMEROON				
Total export	-0.425971	0.8918	-4.816778	0.0006
Exchange Rate	-2.501413	0.1259	-5.154468	0.0014
Inflation Rate	-5.021987	0.0003	-5.825728	0.0003
Money Supply	-0.505699	0.8762	-5.697751	0.0004
CONGO				
Total export	1.573562	0.9991	-6.193410	0.0000
Exchange Rate	1.530271	0.9990	-7.148116	0.0000
Inflation Rate	-55.61929	0.0000	-5.994241	0.0004
Money Supply	-1.151297	0.6812	-4.113628	0.0036
EGYPT				
Total export	-0.851239	0.7890	-4.970644	0.0004
Exchange Rate	0.467935	0.9825	-4.044801	0.0042
Inflation Rate	-2.901677	0.0574	-7.450491	0.0000
Money Supply	-1.174520	0.6672	-5.275653	0.0003
ETHIOPIA				
Total export	1.719262	0.9994	-8.588485	0.0000
Exchange Rate	0.991758	0.9953	-5.194680	0.0003
Inflation Rate	-4.417674	0.0017	-8.500115	0.0000
Money Supply	-0.416800	0.8935	-5.925714	0.0000
GHANA				
Total export	2.089733	0.9998	-5.427229	0.0008
Exchange Rate	4.229968	1.0000	-6.596350	0.0000
Inflation Rate	-3.004473	0.0500	-8.246388	0.0000
Money Supply	-0.249327	0.9209	-3.743641	0.0088
KENYA				
Total export	0.061237	0.9569	-4.438628	0.0016
Exchange Rate	-2.141988	0.2307	-4.986242	0.0004
Inflation Rate	-2.816764	0.0683	-6.113442	0.0000
Money Supply	0.589280	0.9869	-5.462156	0.0001
NAMIBIA				
Total export	-0.843730	0.7907	-5.180458	0.0003
Exchange Rate	-0.270180	0.9178	-4.118096	0.0035
Inflation Rate	-3.464599	0.0169	-5.142482	0.0003
Money Supply	-0.041810	0.9468	-5.379082	0.0001

NIGERIA				
Total export	-1.546120	0.4965	-5.913111	0.0000
Exchange Rate	0.636834	0.9883	-3.826595	0.0072
Inflation Rate	-2.027583	0.2740	-4.358594	0.0019
Money Supply	-1.020006	0.7313	-4.543057	0.0013
SOUTH AFRICA				
Total export	-0.249953	0.9208	-4.400315	0.0018
Exchange Rate	-0.261983	0.9191	-4.124746	0.0035
Inflation Rate	-3.472493	0.0166	-4.993944	0.0005
Money Supply	-0.588427	0.8579	-8.059919	0.0000
TUNISIA				
Total export	-1.113526	0.6967	-5.427048	0.0001
Exchange Rate	4.109076	1.0000	-6.592548	0.0000
Inflation Rate	-2.182796	0.2164	-6.347571	0.0000
Money Supply	-1.054476	0.7197	-4.283459	0.0023

Source: *Author's Compilation*