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Navigating Naira devaluation on the performance of small and medium-scale enterprise in Nigeria

Abang Samuel Oweh*, Okey Otemdam Jombo, Abuh-Amasi Scholastica Ashibebonye

ABSTRACT

Using annual time series data gathered from the Central Bank of Nigeria Statistical Bulletin (CBN), National Bureau of Statistics (NBS), World Bank data, and Nigeria Meteorological Agency (NIMET) for the years January 1980 to October 2024, this study investigated the impact of Naira devaluation on the performance of small and medium-sized enterprises in Nigeria. The Auto Regressive Distributed Lag (ARDL) method, descriptive statistics, and the Augmented Dickey-Fuller and Phillips-Peron pre-test were all used in the study. The study used the following independent variables: inflation, real interest, gross domestic product, commercial bank total credit, exchange rate, and small and medium-sized enterprises as dependent variables. The result shows that the study's conclusions showed that the exchange rate had a detrimental impact on the SMSE, although this effect was not statistically significant.

Keywords: Devaluation, small and medium-scale enterprise, inflation, commercial bank
JEL Classification: F31, L26, E31, G21

1. INTRODUCTION

Nigeria and other countries with an oil-based economy that have not previously diversified their economies are now experiencing economic crises as a result of the recent worldwide decline in oil prices. The government is ultimately under pressure to devalue the Naira as a result of this difficulty caused by currency rate swings. The current Nigerian government often uses the foreign exchange reserves produced by crude oil to control excessive exchange rate volatility, and crude oil prices have recently fallen sharply. This has a significant impact on foreign exchange profits. The ongoing decline in oil prices in the international oil market has raised concerns about the Central Bank of Nigeria's (CBN) ability to finance the foreign exchange market.

Free exchange rate movement is induced by a low amount of foreign exchange reserve. On the demand side, problems are also becoming more prevalent. The industrial sector's dependence on imported raw materials and other inputs, the heavy dependence on imported finished goods, investor capital flow reversals, and high speculative demand have all contributed to the high demand for foreign exchange over the past ten years, creating uncertainty in the foreign exchange market. During this time, Nigeria's devaluation was very high. A macroeconomic monetary policy known as currency devaluation aims to reduce the value and profit of local currency. In a country where the currency has been devalued, the price of products and services is lower than in a country where it has not.

Reduction in the price of products and services will encourage regional trade, this will ultimately lead to an increase in economic growth and development. Additionally, Nigeria's economy depends mainly on imports. Her heavy dependence on goods and services from other countries may have more negative than positive effects due to the devaluation of the naira. Although the Monetary Policy Committee (MPC) of the Central Bank of Nigeria received praise from some financial and economic analysts for devaluing the naira in late 2014, it is still unclear if the government has gone far enough in creating an environment that encourages enterprises to produce locally and generate more foreign exchange. Devaluation is unquestionably a valuable fiscal policy instrument for achieving balance of payments, discouraging imports, and enabling and promoting enterprises.

However, Nigeria is still lagging behind since the majority of SMBs still rely on goods and services from other countries to remain afloat. The devaluation of the naira has the effect of raising the price of imports. Nigeria's economy, which depends heavily on imports, cannot afford to weaken its currency since it does not produce any commodities that will attract foreign customers, and the government has not sufficiently equipped SMEs to do so. Most SMEs still rely on imports because it is less expensive to import goods and services from China, the United Kingdom, the United States, and other countries than to produce them locally. It is risky for SMEs to rely too much on imported items because a decline in the value of the Naira will raise sales prices and other manufacturing and operating expenses.

SMEs will need to make larger financial investments to buy goods and services from other countries. Inflation, a decline in the market for goods and services, and the demise of small and medium-sized enterprises are the results of this. Almost everything in Nigeria's expanding economy is imported, making it an import-dependent economy. If appropriate policies are implemented before devaluing the naira, discussions of devaluing the currency for an import-dependent economy could be used to promote domestic manufacturing and decrease the importation of completed goods. However, has the government attempted to implement these policies in a way that will enable the devaluation of the naira to accelerate domestic production?

Small and medium-sized enterprises will have to pay more to import completed goods from other countries if the Naira were devalued without appropriate rules in place. Inflation will undoubtedly result from this, which will then negatively impact the support of these small enterprises that are essential to the economy. This study aims to answer the relevant concerns in light of all the uncertainties surrounding the results of the depreciation of the Naira and its impact on small and medium-sized enterprises. Does the devaluation of the Naira impact Nigerian small and medium-sized enterprises? In particular, the function of Naira devaluation in supporting and advancing small and medium-sized enterprises in the Nigerian economy will be investigated within forty years (1984-2023).

Literature review and theoretical framework

Conceptual literature

Devaluation

Devaluation is the intentional reduction in the value of a countries' currency. Countries with fixed or semi-fixed exchange rates use it as a monetary policy tool. The currency's issuing government has the authority to depreciate it. Devaluing a currency can assist close trade imbalances by lowering the price of exports from a country. A country can become more competitive in the global market by depreciating its currency, which reduces the price of its money and increases exports. On the other hand, as the price of imported goods rises, the demand for them declines. Devaluation is a tool used by governments to address trade imbalances and ensure that exports outpace imports.

Small and medium-scale enterprise (SME)

Globally, there has been no consensus on the exact definition of a small firm. This can be attributed to a variety of factors, including variations in global policy and environmental conditions, discrepancies in capital and human size, under-standard quality requirements for commercial firms, and differences in general industrial and economic development patterns. Nonetheless, small enterprises are described as "a production facility with less than 10 employees and with investments in machinery and equipment lower than N600,000,00" (six hundred thousand naira) in the Third Country Development Plan (1970–80). The Central Bank of Nigeria (CBN) defines small firms as those with an annual revenue of less than N500 000.00 in its credit guidelines (1983).

The Federal Ministry of Industry in 1973 described a small business as 'any production company with a total capital expense of up to N60, 000,00 and an employee paid up to N60, 000,00.' However, in 1983 it characterized "a small sector industry" as "the ones that have total investment between N100 000.00 (100,000 naira) and 2 billion naira, exclusive of land and working capital, because of changes in economy and, above all, because of its implementation by the Structural Adjustment Programme (SPA). Given the challenge of establishing a consensus definition of small-scale business and the US Committee for economic development's contribution, we must concur with who defined a small-scale business as one whose scale of operations is below the average. All enterprises that fall below this average are categorized as small-scale enterprises; all that is needed is to take an average value for a particular characteristic.

Theoretical framework

Theories of devaluation

The elasticity approach theory

The elasticity method accepts devaluation as a tool for enhancing a countries' trade balance. They make it very evident that the impact of devaluation depends only on how elastic imports and exports are. The Marshall-Lerner (ML) condition and the Bickerdike-Robinson-Metzler (BRM) model are two essential models that are included in the elasticity method. When devaluation is implemented in an economy, both models examine how responsive the demand is for imports and exports. The Bickerdike-Robinson-Metzler (BRM) model supports the response of imports and exports to price changes brought on by devaluation awareness. Two countries, two commodities, initial market equilibrium, and the existence of free commerce in the economy are assumed by the BRM model. Quoted in claims that the model can be stated as follows:

$dB/(dE) = (PxXs \mid (1+\varepsilon)\ \eta^*/(\varepsilon+\eta^*) \mid) - (Pm\ Md \mid (1+\eta)\ \varepsilon^* /(\varepsilon^* + \eta \mid);$

Where dB = Derivative of trade balance

dE = Derivative of nominal exchange rate

Px = Export price

Pm = Import price

Xs and Md = Domestic supply and demand for export and import.

ε and η = Absolute values of elasticity of domestic demand for export and import

ε^* and η^*= Foreign price elasticity of export and import demand.

The model demonstrated that changes in exchange rates had an impact on the trade balance based on the domestic supply and demand's price elasticity values. If $\mid \varepsilon \mid > \eta \mid$ Following the implementation of devaluation, trade and the balance of payments improve when the absolute value price elasticity of export supply exceeds that of import demand, and vice versa. The BRM condition, also called the Marshall-Lerner condition is the foundation of the theory that devaluation improves trade balance position. It states that for a country to reap the benefits of devaluation, the absolute values of the sum of demand elasticities for imports and exports must be greater than unity (greater than 1) (Ogundipe and Ogundipe, 2013).

The absorption approach

According to the absorption approach, trade balance can only be improved without elasticity if and when the GDP grows geometrically faster than domestic consumption. After devaluation, the elasticity strategy alone is not enough to promote a stable and advantageous economy. The absorption analysis of devaluation, was propounded by Johnson in 1967 and Miles in 1979, contends that devaluation improves the trade balance by shifting spending from foreign to domestic commodities and short-term deterioration of terms of trade (Teru and Mohammed, 2017).

According to Teru and Mohammed, (2017), Kemal and Qadir stated that devaluation unquestionably improves the trade balance position if the elasticity of demand for both import and export is higher than the elasticity of supply. Analyzes the absorption strategy under the fundamental premise that total spending equals total domestic production (Y), where total spending is the combination of four macroeconomic variables: Net export (X-M), government spending (G), investment (I), and consumption (C). The following is an expression for the four macroeconomic variables:

$Y = C + I + G + (X – M)$

The absorption approach embraces three economic aggregates

C, I and G. A = C + I + G B= net export (X –M).

The total domestic output is the sum of absorption and net exports (X - M) which is rewritten by substituting A and B into the former formula. Y = A +B

To get the balance of trade (net export) is deduced A from Y the formula for the trade balance can be written as follows: B = Y – A

When national output (Y) is greater than domestic absorption (A), in the above equation, there is positive trade balance with a trade surplus. In contrary, when trade balance is negative, it shows that the economy is spending beyond its ability to produce and trade deficit experienced.

Theories of small and medium enterprise

Institutional theory

According to Fauzi and Sheng, (2020), an institutional theory is a useful tool for examining the boundaries between companies and society that have influenced SMEs in different ways and contributed to their sustainable growth explaining that pursuing sustainable goals is not primarily a voluntary effort because enterprises face several obstacles in their performance, such as regulations from the government and pressure from the market. As a result, institutional theory emphasizes elements that are essential to the company and sustainable innovation, whether they are internal or external.

Opportunities with normative, coercive, and mimetic drivers to influence small and medium-sized enterprises to shape economic, social, or environmental decision-making and to legitimize the vision of sustainable business practices are derived from the institutional theory of sustainable growth for small and medium-sized enterprises (Shibin et al., 2020; Caldera et al., 2019). According to Srisathan et al., (2020), institutional theory uses innovative elements or capabilities with sustainable growth of small and medium-sized enterprises as a stimulus lens that encourages management practices to pursue sustainable business growth. These elements or capabilities can be market value, traditional or cultural values, the legal and social environment, cultural or traditional values, and economic incentive schemes.

Resource based view theory

The origins of resource-based vie theory may be traced to, who proposed that resources that were owned, used, and deployed efficiently will produce greater outcomes than alternative industrial structures. Wernerfelt, (1984) developed the "resource base view", which saw the company from the perspective of critical resources. The phrase "core competency" was emphasized, and the focus was on a variety of essential resources, which were referred to as the firm capability and competitive advantage (Barney, 1991). The notion of the firm's growth is expanded upon by the resource-based view theory (Barney, 1991). This idea explained the firm's resource performance and long-term competitive advantage (Wernerfelt, 1984). Opportunities for competitive advantages were found by the resource-based view theory based on the resource's uniqueness (Grewal et al., 2011).

Empirical Literature

In his empirical study on local government and rural development, Iyoha, (1999) examined the theoretical and empirical analysis of currency devaluation in Nigeria and other parts of the world. He discovered that the SAP terms and conditions that stipulate currency devaluation conflicted with the IMF and World Bank's call to end poverty through reduced access to infrastructure and services. According to a study conducted between 1970 and 2015, the devaluation of Nigeria's currency has resulted in significant inflationary pressures on the economy, which limits local authorities' ability to carry out their statutory duties. It also highlights how currency devaluations have hurt the purchasing power of local government, which has a negative impact on the general populace. The overall result of the findings is that Nigeria's currency depreciation exercises poverty.

Voir uses small business profitability and price of production to investigate how devaluation affected small enterprises in Burkina Faso between 1980 and 2014. Voir used the price of production and small-scale business profitability to investigate how devaluation affected small enterprises in Burkina Faso. The author discovered that while the price of imports rose, the turnover rate in company operations decreased by 22%. Dolotiers and construction firms made money, as can be shown, while small company owners like restaurant owners, provincial retailers, blacksmiths, mechanics, and craftspeople were struck by the devaluation. However, many small firms have been hurt by the urban market crisis and the decline in household spending power.

Mustafa and Rebecca, (2008) examined the connection between Mexican enterprises' capital behavior and exchange rate volatility using sector data from 1994 to 1999. The econometric model employed by the authors was a variation of the model. The main variables in this research are sales, manufacturing sector investment, actual exchange rates, exchange rate volatility, and annual interest rates. The ARCH model was used to quantify exchange rate volatility. A panel regression analysis with fixed effects was used to examine the model. Static regression in this study will not provide a precise result on the variation in the currency's effect across which the dynamical model may be applied.

The size effects of the spill in exchange volatility on business performance in the tourism industry in Taiwan were investigated by (Chang and Hsu, 2013). The estimate was based on the volatility specification of BEKK-GARCH and VARMA-AGARCH, two conditional multivariate models. For the 999 companies that cover the period of the global financial crisis, the study used daily data from 1 July 2008 to 29 June 2012. The result shows a negative effect on noncommercial profit ventures. Furthermore, Varela, (2007) observed that the output of small enterprises was negatively and significantly impacted by devaluation fluctuation. This effect is unaffected by the genuine efficient exchange rate's level influence on output.

The results indicate that the appreciation of the local currency has a significant detrimental impact on Taiwanese enterprises. The non-linear exposure is indicated by the empirical results. The OECD countries are significantly impacted indirectly by the effects of real devaluation volatility on export operations. This shows that export activity is adversely impacted by volatility. According to the Mustafa and Firat, (2011) study, access to Turkish debt markets or foreign or domestic stocks does not mitigate the detrimental effects of exchange rate devaluation on productivity. These results demonstrate that while export-oriented enterprises are less impacted by currency appreciation, they are more vulnerable to depreciation.

2. RESEARCH METHODOLOGY

Research design

The study employs an econometric methodology to investigate the impact of Naira devaluation on small and medium enterprises in Nigeria. The study adopts an ex post facto (after the fact) design. This is because the events had already taken place before the investigation is carried out. The choice of this design is made because the researcher has no control of the independent variables, and inferences about the relationship among the variables are made without the current interaction among the regress and regressors.

Model Specification

Given the objective of this study, the study shall use a linear regression model to determine the impact of Naira devaluation on small and medium enterprises in Nigeria. Though the study shall adopt the institutional and the resource based view theory in our theoretical framework, we do not restrict the study to only those variable identified in the theory to affect small and medium-scale enterprises as was used by (Fauzi and Sheng, 2020). Thus, the study shall consider the factors amongst the host identified in the literature, which are said to hold in the case of Nigeria and thereby hypothesized. Therefore, this study shall adopt Fauzi and Sheng, (2020) and Barney, (1991), Grant, (1991) with modifications and extensions based on the Nigerian socio-economic context. In this model, we therefore equate small and medium-scale enterprises to the various determinants stated in the hypothesis of the study.

$$SMSE = \alpha 0 + \beta 1EXR + \beta 2RGDP + \beta 3RINT + \beta 4CBTC + \beta 5INF + \mu i \quad (3.1)$$

Where;

SMSE = Small and medium-scale enterprise

EXR = Exchange rate measured in percentage

RGDP = Real Gross Domestic Product measured in billion Naira

RINT = Real Interest Rate measured in percentage

CBTC = Commercial Bank Total Credit in million Naira
INF = Inflation measured in percentage
μi is the stochastic disturbance (or error) term.
β0, β1, β2, β3, β4, β5, and β6 are parameters to be estimated
Given that we intend to standardize all the variables (regressand and regressors alike) and interpret the resulting partial slope coefficients as elasticities, equation above is rewritten in log form as follows:

$$lnSMSE = \alpha 0 + \beta 1EXRt + \beta 2\ lnRGDPt + \beta 3RINTt + \beta 4lnCBTCt + \beta 5INFt + \mu i \quad (3.2)$$

Where:
t = Time dimension
ln = Log
ε= Stochastic error term

3. DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

Data presentation

Descriptive statistics

Median is the middle value of the series when the values are arranged in an ascending or descending order. From table 1, the median for LRGDP is N33,365 billion approximately, while the median for SMSE is N32.165 billion. Other variables have the following median; 32.166, 12.35, for INF, RINT and CBTC respectively. The minimum and maximum value shows or shows the level of dissatisfaction or satisfaction. Thus, a value of 1-3 shows very dissatisfied, 4-6 shows dissatisfied, value 0f 7-8 shows satisfied while a value of 8-10 shows very satisfied. Maximum and Minimum is the highest and lowest values of the series for the period under study. The table 1 shows that the maximum values for LRGDP is 145515.4 billion naira approximately, while the maximum values for EXR, SMSE, INF, RINT and CBTC are, 638.70, 95.99, 72.81, 23.24 and 39.6 respectively.

On the other hand, the minimum values for LRGDP, EXR, SMSE, INF RINT and CBTC are 13779.26, 0.76, 10.87, 4.67, 5.69 and 6.0 respectively. The result of the minimum and maximum value thus shows that there is a high level of those who are very satisfied as seen from the data. Standard deviation is a measure of spread or dispersion in the series. It is a measure of spread or dispersion in the series. A SD less than 1 shows low variability, with data points closely clustered around mean. A SD with value between 1 and 5 is said to be medium and suggests moderate variability, with data points spread out around mean. While a SD greater than 5 shows large SD which shows high variability with data points widely dispersed around the mean.

From table 3 the standard deviation for LRGDP, EXR, SMSE, INF RINT and CBTC are 27367.51, 136.10, 28.92, 16.19, 3.67 and 5.66 respectively. The SD are all greater than 5. This shows that there is a high variability with data points widely dispersed around the mean. Skewness is a measure of the probability distribution of a real-valued random variable about it mean. A normal distribution is symmetrical at point 0. If the value is greater than zero it is positively skewed but if it is less than zero, it is negatively skewed. From table 1, it is observed that all the variables have positive skewness. Kurtosis measures the peakness or flatness of the distribution of the series. If the kurtosis is above 3, the distribution is peaked or leptokurtic relative to the normal if the kurtosis is less than three, the distribution is flat or platykurtic relative to normal.

From table 1, all the variables are above three, therefore they are leptokurtic relative to normal except for RGDP which is partly due to the conversion to natural logarithm. Jarque-bera is a test statistic to test for normal distribution of the series. From table 3 the Jarque-bera for GDP, INF, EXR, SMSE and CBTC are 28.08, 28.85, 4.44, 35.83, 8.96 and 107.17 respectively. The probability value of the Jarque bera statistic of all the variables were found to be less than 5 percent level of significance which implies the rejection of the null hypothesis which states that the residual of the variables is normally distributed with zero means and constant variance

Figure 1 shows the data of the variables used in the study been graphed. The figure thus shows that there is trend in the data of each of the variables and as such stationarity of the variables can be determine and the variables can also be used for analysis (Abang et al., 2024). Table 2 shows the stationarity (unit root) test result. The unit root test was conducted with the aim of establishing the stationarity conditions of the variables. The test was based on the Augmented Dickey-fuller (ADF) test and the Phillips-Perron test. The result/ outcome of the tests as reported in table 2 that variables such exchange rate (EXR) and Commercial bank total credit (CBTC) were all stationary at level.

Table 1 Descriptive statistics

	RGDP	EXR	SMSE	INF	RINT	CBTC
Mean	41988.12	143.1032	42.35425	18.60513	11.62522	15.23250
Median	33365.00	123.4017	32.16500	12.35000	10.41042	14.00000
Maximum	145515.4	638.7000	95.99000	72.81000	23.24167	39.60000
Minimum	13779.26	0.764900	10.87000	4.670000	5.692500	6.000000
Std. Dev.	27367.51	136.1021	28.91768	16.18858	3.673552	5.663769
Skewness	1.423587	1.538167	0.657108	1.896009	1.003784	2.029979
Kurtosis	5.956581	5.801602	2.032456	5.668234	4.159977	9.915297
Jarque-Bera	28.07963	28.85468	4.438842	35.83146	8.959792	107.1743
Probability	0.000001	0.000001	0.108672	0.000000	0.011335	0.000000
Sum	679525.	5724.129	1694.170	744.2050	465.0089	609.3000
Sum Sq. Dev.	29232.10	722428.0	32613.05	10220.73	526.3044	1251.053
Observations	40	40	40	40	40	40

Source: Authors' computation (2025)

Stationarity (Unit root) test

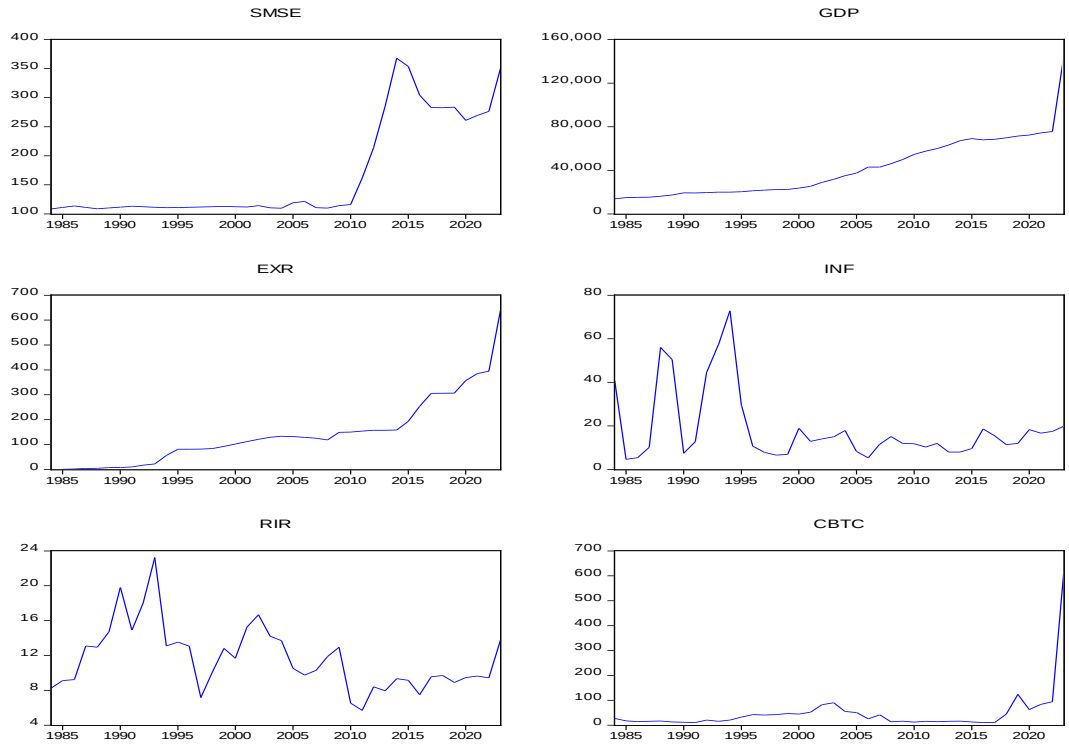

Figure 1 Trend of the variables used in the study

Source: Authors' computation using E-views 10 (2025)

This is because their ADF and PP test statistics values calculated were greater than their respective tabulated values at the five percent level of significance. The remaining variables such as real gross domestic product (GDP) and oil price volatility proxy by oil price were not stationary at level because their computed ADF and PP test statistics values were less than the critical ADF and PP statistics values at the five percent level of significance. The variables were however became stationary after the performance of first difference operation on them. This means that the variables were integrated of mixed integrating orders I (0) and I (1).

Table 2 Unit root test result using Augmented Dickey-Fuller (ADF) and Phillips-Perron tests

Variables	ADF			Phillips-Perron		
	Level	1st Difference	Order of Integration	Level	1st Difference	Order of Integration
GDP	-0.472395	-4.906162	I (1)	0.138048	-3.622024	I (1)
INF	-2.451275	-5.109831	I (1)	-2.700127	-	I (0)
EXR	-2.620637	-	I (0)	-2.785160	-3.377183	I (0)
INT	-1.984384	-3.865040	I (1)	-2.918675	-	I (0)
SMSE	-1.435586	-6.226077	I (1)	-1.448735	-6.332215	I (1)
CBTC	-3.251518	-	I (0)	-3.186045	-	I (0)
ADF test critical test values.				Phillip-Peron test critical values		
Level:		1st Difference:		Level:		1st Difference:
At 5% = -2.986225		5% = -3.724070		At 5% = -2.954021		5% = -2.954021
10% = -2.612604		10% = -2.632604		10% = -2.615817		10% = -2.615817

Source: Authors' computation using E-views 10. (2025)

Granger Causality

The result of the Granger causality obtained as presented in the table 3 shows that there is a uni-directional causality between exchange rate (EXR) and gross domestic product as seen in (Table 3). Thus, there is a causality moving from exchange rate (EXR) to real gross domestic product. Hence, the null hypothesis that exchange rate (EXR) does not Granger cause real gross domestic product, was rejected. This implies that exchange rate (EXR) thus Granger causes real gross domestic product to increase. There is also a uni-directional causality between small and medium-scale enterprise (SMSE) and real gross domestic product. This means there is causality moving from small and medium-scale enterprise (SMSE) to gross domestic product.

Therefore, the null hypothesis that small and medium-scale enterprise (SMSE) does not Granger cause real gross domestic product, was rejected. This implies that small and medium-scale enterprise (SMSE) thus Granger causes real gross domestic product to increase. Similarly, the result of the Granger causality also shows that there is a uni-directional causality between small and medium-scale enterprise (SMSE) and exchange rate (EXR). This means there is causality moving from exchange rate (EXR) to small and medium-scale enterprise (SMSE). The p-value of the F-statistic is statistically significant at 5 percent level of significance. Invariably, exchange rate and small and medium-scale enterprise (SMSE)have significant effect on Nigeria

Table 3 Granger causality Naira devaluation and small and medium-scale enterprise (SMSE) Equation

Lags: 2				
Null Hypothesis:	**Obs**	**F-Statistic**	**Prob.**	**Decision**
EXR does not Granger Cause RGDP	38	4.24045	0.0230	Reject
RGDP does not Granger Cause EXR	-	1.02419	0.3702	Accept
SMSE does not Granger Cause RGDP	38	4.60309	0.0292	Reject
RGDP does not Granger Cause SMSE	-	1.98097	0.1540	Accept
SMSE does not Granger Cause EXR	38	0.00190	0.9981	Accept
EXR does not Granger Cause SMSE	-	3.61976	0.0379	Reject

Source: Authors' computation (2025)

Correlation Matrix

The correlation matrix shows the correlation values, which measure the degree of linear relationship between each pair of variables. The correlation values can fall between -1 and +1. -1 shows a perfectly negative linear correlation between two variables. 0 shows no linear correlation between two variables. 1 shows a perfectly positive linear correlation between two variables. From the result as shown in table 4, the result shows that all the variables that enter the model are perfect positive and are correlated.

Table 4 Correlation matrix Naira devaluation and small and medium-scale enterprise (SMSE) Equation

	RGDP	EXR	SMSE	INF	RINT	CBTC
RGDP	1.000000	-	-	-	-	-
EXR	0.940965	1.000000	-	-	-	-
SMSE	0.721739	0.569653	1.000000	-	-	-
INF	-0.255961	-0.226066	-0.351449	1.000000	-	-
RINT	-0.367007	-0.306674	-0.511286	0.428314	1.000000	-
CBTC	-0.396059	-0.341244	-0.466453	0.370400	0.306588	1.000000

Source: Authors' computation using E-views 10 (2025)

Data analysis

Co-integration (Bounds) test

From the unit root results, the variables were of the order I (0) and I (1). Given the different order of integration, the study adopted the ARDL technique of estimation. The ARDL bound test was conducted to test if there is any existence of long-run relationship among the variables. The outcome of the co-integration test based on the ARDL bounds testing procedure is shown in (Table 5). The result of the bounds test as indicated in the table showed that the computed F-statistic of about 45.26 was greater than the upper bound critical values of 3.06 and 4.15 at the one percent, five percent and 10 percent levels of significance.

Since the computed F-statistic value has exceeded the upper critical bound values at the one percent, five percent and 10 percent levels of significance, the null hypothesis of no co-integration is rejected while the alternative hypothesis is accepted, hence there is existence of long-run equilibrium relationship among the captured variables in the estimated equation. This outcome means that the explanatory variables have some long-run relationship with the dependent variable.

Table 5 ARDL Co-integration (Bounds) Test

ARDL Bounds Test		
Test Statistic	**Value**	**K**
F-statistic	45.26037	5
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.08	3
5%	2.39	3.38
2.5%	2.7	3.73
1%	3.06	4.15

LOWER BOUND @ 5% = 2.39

UPPER BOUND @ 5% = 3.38

Source: Authors' computation using E-views 10 (2025)

Analysis of the Long-run result

The empirical result of the estimated long-run result regression is presented in table 6 shows that all the variables have turned out with their correct expected signs. The estimated regression line as presented above has a positive intercept represented by 18.47. This means that holding all explanatory variables constant, small and medium-scale enterprise output (SMSE) will still increase automatically by 18.47 percent. The result further shows that there is a negative relationship between exchange rate and performance small and medium-scale enterprise. Thus, a 1 percent increase in exchange rate will lead to a decrease in the performance of small and medium-scale enterprise by 0.01 percent.

The result shows that there is a positive relationship between the performance of small and medium-scale enterprises and RGDP in Nigeria. This is consistent with theoretical expectation, implying that 1 percent increase in GDP will cause an increase in the performance of small and medium-scale enterprises output by 1.22 percent, ceteris paribus. The result also shows that commercial bank

total credits have a positive relationship with SMSE. This is also consistent with theoretical expectation, implying that 1 percent increase in commercial bank total credits leads to 0.22 percent increase in GDP, ceteris paribus. Further investigation shows that real interest rate has a negative relationship with SMSE.

This is consistent with theoretical expectation, implying that 1 percent increase in interest rate leads to 0.04 decreases in SMSE, ceteris paribus. More examination shows that inflation rate has a negative relationship with SMSE. This is also consistent with theoretical expectation implying that 1 percent increase in inflation rate leads to 0.02 decreases in SMSE, ceteris paribus. Statistically, the result shows that all the variable are statistically significant in influencing the performance of SMSE in Nigeria. This is because their probability ratio are all less than the 5 percent level of significance. Similarly, their t-statistics values of 8.38, 6.50, 3.49, 11.05, and 6.44 calculated in absolute term for exchange rate, real gross domestic product, real interest rate, commercial bank total credits and inflation rate respectively are all greater than the critical value of 1.740 at 5 percent level of significance.

This means that these variables are statistically significant in affecting the performance of SMSE growth rate in Nigeria. The short run results of Naira devaluation and the performance of small and medium-scale enterprise equation is reported in (Table 7). The error correction mechanism (ECM) has the correct sign and size. The ECM coefficient of -0.65 shows that it takes about 65 percent for the short run disequilibrium to adjust to the long-run equilibrium within the year. The t-statistics of -25.17 showed that the error correction term is statistically significant at five percent level of significance. The R-squared value of 0.94 shows that the estimated regression line has a very high fit on the data.

In particular, the adjusted R-squared value of 0.93 shows that about 93 percent of the total variations in the dependent variables LSMSE is explained by exchange rate (EXR), real gross domestic product (RGDP), commercial bank total credit (CBTC), real interest rate (RINT) and inflation (INF) and only seven percent was unexplained which may be accounted for by other factors not included in the model. This means that the estimated regression equation has a very high explanatory power. Similarly, the f-statistics value of 66.46 shows that the overall model is statistically significant. This is because the F-statistics value of 66.46 calculated is greater than the critical value of 2.53 at 5 percent level of significance. This means that the independent variables have joint impact on the dependent variable.

The overall significance of the model also shows that there exists a high degree of linear relationship between the dependent variable and the independent variables. On the other hand, other variables such as gross domestic product, interest rate and exchange rate are not statistically significant as in influencing SMSE in Nigeria. This is because the t-statistics values of 0.015, 0.129 and 0.013 calculated in absolute term for small and medium-scale enterprises output, interest rate and exchange rate respectively are all less than the critical value of 1.714 at 5 percent level of significance. The Durbin Watson (D-W) statistics of 2.03 shows no autocorrelation in the model. Therefore, the results can be used for forecasting and economic simulation.

Table 6 ARDL Long-run (Parameterize) analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXR	-0.010943	0.001306	8.379959	0.0002
LRGDP	1.218117	0.187541	-6.495194	0.0006
RINT	-0.034975	0.010008	3.494571	0.0129
LCBTC	0.716414	0.064832	-11.05035	0.0000
INF	-0.018870	0.002930	-6.441111	0.0007
C	18.47021	1.926648	9.586709	0.0001

Source: Authors' computation using E-views 10 (2025)

Analysis of the short run result

Table 7 Short run (Parsimonious) Error Correction Model result

Dependent Variable: D(LSMSE)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(LSMSE(-1))	0.625295	0.043142	14.49373	0.0000
D(LSMSE(-2))	0.747891	0.062639	11.93964	0.0000

D(LSMSE(-3))	0.924006	0.061628	14.99323	0.0000
D(EXR)	-0.000435	0.000166	-2.610619	0.0401
D(EXR(-1))	-0.005629	0.000330	-17.03884	0.0000
D(EXR(-2))	-0.000797	0.000294	-2.713376	0.0349
D(EXR(-3))	-0.001315	0.000318	-4.130305	0.0061
D(LRGDP)	0.635690	0.059512	10.68169	0.0000
D(LRGDP(-1))	-0.006752	0.097214	-0.069452	0.9469
D(LRGDP(-2))	0.374565	0.091969	4.072727	0.0066
D(LRGDP(-3))	1.062561	0.090287	11.76873	0.0000
D(RINT)	-0.013143	0.001425	-9.221244	0.0001
D(RINT(-1))	-0.029887	0.001751	-17.07350	0.0000
D(RINT(-2))	-0.017989	0.001401	-12.84330	0.0000
D(RINT(-3))	-0.005317	0.001401	-3.794546	0.0090
D(LCBTC)	-0.023965	0.009126	-2.625969	0.0393
D(LCBTC(-1))	0.297907	0.016506	18.04804	0.0000
D(LCBTC(-2))	0.215033	0.009487	22.66652	0.0000
D(LCBTC(-3))	0.100181	0.009126	10.97696	0.0000
D(INF)	-0.003648	0.000409	-8.912869	0.0001
D(INF(-1))	0.007890	0.000370	21.30093	0.0000
D(INF(-2))	0.005541	0.000377	14.68906	0.0000
D(INF(-3))	0.002319	0.000317	7.324586	0.0003
CointEq(-1)*	-0.652540	0.025923	-25.17231	0.0000
R-squared	0.944779	Mean dependent var		0.031844
Adjusted R-squared	0.934773	S.D. dependent var		0.108618
Durbin-Watson stat	2.023348			

* p-value incompatible with t-bounds distribution.

Source: Authors' computation using E-views 10 (2025)

Heteroskedasticity Test, LM Test and Q Test

To ascertain the adequacy of the estimated equation, several diagnostic tests were conducted. The Ramsey RESET test was employed to check the condition of stability of the estimated model. Normality tests such as the Breusch-Godfrey serial correlation Lagrange Multiplier (LM) test and the autoregressive conditional heteroskedasticity (ARCH) test were employed to check the existence of the normality or adequacy of the estimated model. The results of the tests are summarized in (Table 8). The Ramsey RESET test statistic of 1.543982 with its high probability value of 0.1362 showed that the estimated equation is stable. The Breusch-Godfrey serial correlation LM test statistic of 4.23 with its high probability value of 0.1032 showed that there is no problem of autocorrelation in the model.

This shows that the residuals terms are independent hence there is no autocorrelation in the estimated equation. This is also confirmed by the fact that the Chi-square probability value of 0.0000 is lower than the 5 percent level of significance. Meanwhile, the Breusch-Pagan-Godfrey Heteroskedasticity test value of 6.77 with its probability of 0.0119 showed that there is no problem of heteroskedasticity and hence the disturbance terms are normally distributed. This is thus confirmed by the fact that the probability value of the observed Chi-squared is 0.2068 is greater than the 5 percent level of significance. In addition, the autoregressive conditional heteroskedasticity (ARCH) test value 10.92 with its low probability 0.0023 and the observed R-squared Chi-square probability value 0.0032 are lower than the 5 percent level of significance shows that there is no problem of autocorrelation and heteroskedasticity.

Similarly, the Q-statistics as shown in table 9 showed that the series is white noise, hence there is no auto-correlation among the residual terms in the model as the probability values are all lower than 5 percent significance level. This also means that the value of the residual in one particular period was independent or unrelated to the value of the residual terms in another period. That also implied

that the co-variation between the residuals was zero. The conclusion from the various test conducted showed that the estimated equation is adequate and well-behaved.

Table 8 Diagnostic test

Test Statistic		**Value (prob.)**	
Breusch-Godfrey Serial Correlation LM Test			
F-statistic	4.226058	Prob. F (2,4)	0.1032
Obs. R-squared	24.43570	Prob. Chi-Square (2)	0.0000
Breusch-Pagan-Godfrey Heteroskedasticity Test			
F-statistic	6.769366	Prob. F (29,6)	0.0119
Obs. R-squared	21.53812	Prob. Chi-Square (29)	0.2068
Autoregressive conditional heteroskedasticity (ARCH)			
F-statistic	10.91930	Prob. F (1,33)	0.0023
Obs. R-squared	1.970364	Prob. Chi-Square (1)	0.0032
Ramsey RESET Test			
F-statistic	1.994240	df. (5)	0.2170

Source: Authors' computation using E-views 10 (2025)

Table 9 Q-Statistic Test

Q-statistic probabilities adjusted for 4 dynamic regressors

	AC	**PAC**	**Q-Stat**	**Prob***
1	-0.589	-0.589	13.543	0.000
2	0.190	-0.239	14.996	0.001
3	-0.234	-0.384	17.274	0.001
4	0.141	-0.341	18.124	0.001
5	0.115	0.025	18.710	0.002
6	-0.123	0.010	19.404	0.004
7	0.084	0.135	19.739	0.006
8	-0.224	-0.100	22.196	0.005
9	0.177	-0.176	23.783	0.005
10	0.049	0.043	23.908	0.008
11	-0.028	0.075	23.952	0.013
12	-0.160	-0.186	25.404	0.013
13	0.124	-0.008	26.311	0.015
14	-0.128	-0.288	27.337	0.017
15	0.252	-0.093	31.486	0.008
16	-0.239	-0.155	35.397	0.004

*Probabilities may not be valid for this equation specification.

Source: Authors' computation using E-views 10 (2025)

Stability test

Following the estimation of the ECM models, the stability of the parameter was examined using the Cumulative Sum (CUMSUM) and Cumulative Sum of Squares (CUMSUM SQ) tests. The CUMSUM and CUMSUM SQ statistics are both within the crucial boundaries of the ± five percent threshold of significance, as shown in (Figures 2 and 3). These graphs show that there is a long-term relationship between Nigerian inflation and fiscal policy, and that the coefficients of the results being computed are stable over time. Thus, this suggests that the coefficients are undergoing a progressive change.

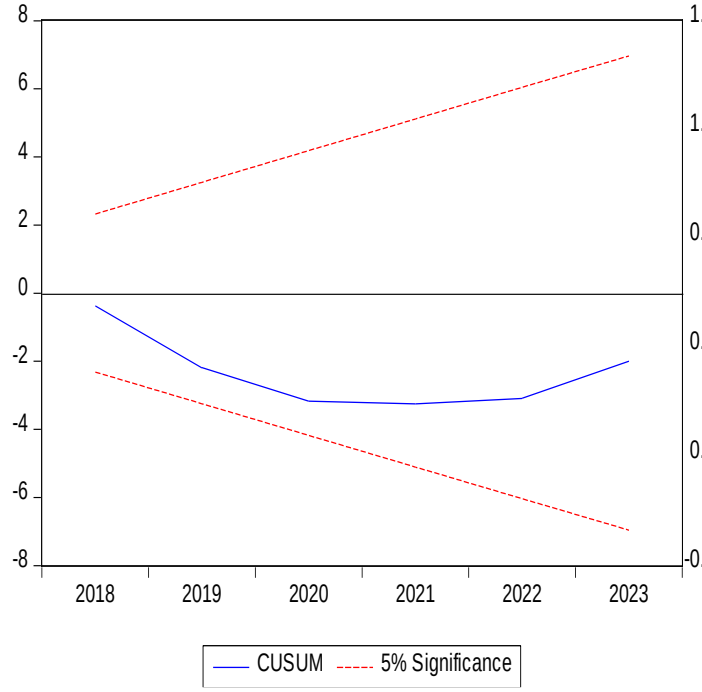

Figure 2 CUSUM Test

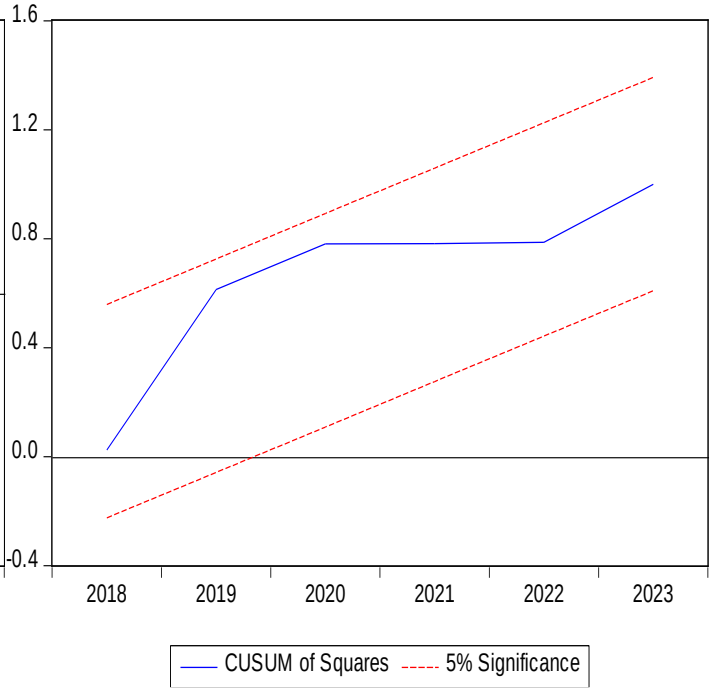

Figure 3 CUSUM of Squares Test

Source: Authors' computation using E-views 10 (2025)

Discussion of finding

According to the results, small and medium-sized enterprises in Nigeria have a positive but negligible relationship. This is consistent with research by, who used periodic data from 1993 to 2011 using the ordinary least square (OLS) regression and co-integration approaches to examine the effects of small and medium-sized enterprises in Nigeria. The findings suggested or demonstrated a favorable but negligible correlation between Nigerian small and medium-sized enterprises and economic growth. This weak correlation between the output of SMEs and the Nigerian economy can be explained by the obstacles to SMEs' expansion in Nigeria, which include inadequate infrastructure, a lack of management structure, difficulty obtaining reasonably priced credit, a lack of accounting records, unstable macroeconomic factors, and similar issues.

Similarly, the results indicated that SMSE and Commercial Bank Total Credit (CBTC) in Nigeria have a positive and substantial association. Since evaluated the particular funding choices accessible to SMEs in Nigeria and their contribution to economic growth performance, this is consistent with economic theory. The Rho value of 0.643, calculated using Spearman's Rho correlation at the 10% level of significance, showed a significant and positive association between Nigerian economic growth and the performance of SMEs. Additionally, the outcome demonstrated a weak but negative correlation between interest rates and SMSE. This can be regarded as legitimate since bank lending rates have stayed comfortably high, with the majority of banks offering loan rates of nearly 30%.

Because of this, small and medium-sized enterprises are unable to have any influence on the Nigerian economy. Additionally, the results demonstrated a negative and substantial relationship between SMSE and inflation rate. Given the distortions caused by inflation in the Nigerian economy, this is also consistent with theoretical expectations. Due to the fact that it drives up the price of locally produced items, inflation has been identified as a major hindrance to our economic growth. Based on their investigation, the researchers found that while some of the variables were non-stationary at level, they all became stationary after initial differencing. Because the exchange rate primarily affects the SMSE at the illicit market and not at the official rate, the researchers concluded from the regression result that the exchange rate has a negative impact on the SMSE and was mostly inconsequential in explaining SMSE.

It was found that there was no causal relationship between the factors. Following a test to correct the model's errors, the researchers found that the model is not spurious and that, in the short term, none of the variables could explain SMSE. However, the residual that was found to validate the model demonstrated that, in the long term, there is an equilibrium relationship between SMSE and exchange

rate, indicating that the variables have a long-term relationship rather than a short-term one. A serial correlation was then performed, and the results showed that the model was free from autocorrelation following first differencing.

Lastly, it has been discovered that there is a negligible negative correlation between SMSE and the exchange rate. This inverse relationship demonstrates how a rise or appreciation in the exchange rate causes capital flight, which reduces SMSE output because consumers will choose imported items over domestically made ones. In other words, because SMEs account for over 70% of the Nigerian economy, a high exchange rate restricts their capacity to import and grow their companies, which will ultimately cause the country's GDP to decline.

4. SUMMARY, CONCLUSION AND POLICY RECOMMENDATIONS

Conclusion

The purpose of this study was to investigate how the devaluation of the Naira has affected the growth of small and medium-sized enterprises in Nigeria. Theoretical research on how the devaluation of the Naira has affected small and medium-sized enterprises has concentrated on the difficulties that the industry has faced, which have impeded its advancement in terms of output and employment creation. In summary, history has demonstrated the value of devaluation in times of economic crisis, which tends to help uncover potential long-term solutions such as these. What transpires in the short term is an intriguing question that emerges. The suffering might happen really quickly, according to the devaluation argument. When a currency devalues significantly, it immediately affects consumer purchasing power, reduces earnings, and causes purchases of foreign items to decline as prices rise.

Nigeria's economy will therefore only grow shortly due to a greatly enhanced public and private sector, and it's possible that demands from foreign investors looking to invest in Nigeria could soon flood the nation. The findings have not demonstrated that the devaluation of the naira has a substantial impact on Nigerian small and medium-sized enterprises. The outcome also demonstrated that the Nigerian economy is not much impacted by the output of SMEs. Subsequent analysis revealed a negative correlation between interest rates and the Nigerian economy. Additionally, the results indicated that the devaluation of the naira has an impact on the development of small and medium-sized enterprises, whereas the exchange rate has a negative correlation with the Nigerian economy and has an impact on small and medium-sized enterprises.

Policy Recommendations

The following suggestions have been made in light of the findings:

The government should work to improve the quality of the local currency because of the weak and unfavorable correlation between the exchange rate and Nigeria's economy.

Nigeria must increase its ability to produce goods and services that are needed both domestically and internationally for export.

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Author Contributions

Abang, Samuel Oweh coined the topic after several editorial work. He also did the methodology, provided data used for analysis, analyzed and interpreted the result. Otemdam Jombo Okey wrote the introduction, and also part of the literature review. Abuh-Amasi Scholastica provided the literature review and wrote the conclusion. The three authors read through the manuscript and did the final editing of the article

Informed consent

Not applicable.

Conflicts of interests

The authors declare that there are no conflicts of interests.

Ethical approval

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Data and materials availability

All data associated with this study are present in the paper.

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