CURRENCY SUBSTITUTION AND EFFECTS ON PRIVATE INVESTMENT IN NIGERIA

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Abstract

This study examines the impact of currency substitution on private investment expenditure in Nigeria. Central Bank of Nigeria (CBN) yearly statistical bulletin formed the major source of data for the study. The study employed the ARDL estimation technique to estimate the long and short run parameters. Findings of the study show that domestic interest rate (DIR) coefficient has a negative relationship to the private investment with changes in currency substitution in Nigeria. Based on the above findings, the study therefore suggests that government should through its policy makers strengthen the domestic currencyforeffective interest rate policy to invoke greater confidence among domestic private investors to induce increased investment and growth.

Keywords: *Currency, substitution, investment, real exchange rate, foreign interest rate*

Introduction

Recently, challenges and effects of Currency Substitution on the Nigerian economy has been emphasized by the policy response of the Central Bank of Nigeria so as to keep the economy moving. Currency substitution refers to the replacement of domestic currency with foreign currency in order to facilitate economic transactions in an economy by various economic agents in consonance with the level of economic activities. It can also be rightly termed dollarization, which specifically highlights the fact that the foreign currency is used both as a store of value and a unit of account (Effiom and Ubi, 2010). Looking at the activities of CBN in recent times it is observe that, curtailing the flow of Dollaristhemain policy attention of the apex bank. The House of Representatives in Nigeria had, for instance, in 2013, directed the Central Bank of Nigeria to put a mechanism in place to reduce the increasing challenge mounted by the demand for foreign currencies in Nigeria. Domestic agents observe loss of purchasing power from holding the domestic currency as one of the main problems of currency substitution. This is as a result of inflation risk, as well as exchange rate depreciation. Looking at studies, such as Okorie, (2012), it can rightly be observed that, several remote and immediate causes of the problem exist in Nigeria. This is to say that the remote cause is that Nigeria is trapped within the net of an opened economy. This is naturally influenced by the fancies of the international economic system. Operating an open economy means, that Nigerian economy is tangled profoundly to economic transactions with the rest of the world. This is to say, the Nigerian economy is so dependent on external market to the amount that in 2014 oil export alone contributed about 92.6 percent of Nigeria's total export (CBN, 2020). Foreign exchange derived from the sales of oil is fully made up of foreign currency and not local currency. Nigeria's import bill, which has been rising, is also denominated in foreign currency, especially the United States dollar. Furthermore, the bulk of Nigeria's external reserves are

denominated in major hard currencies of the world, primarily the US dollar.

Another antecedent to the Currency Substitution problem is that most economic agent's in Nigeria; especially those in the major industrial cities perform most of their economic transactions with the dollar as against the naira. People move freely around with dollars, rents are fixed and paid in dollars in the high-brow areas of Lagos, Abuja, Port Harcourt and other cities. Some educational institutions charge tuition fees in dollars just as contracts are also being awarded to foreign contractors and companies in dollars. But why do agents prefer foreign to the local currency? These bring us to the immediate antecedents or causes of the problem of Currency Substitution. It is equally seen that between 1980s and 1990s, most African countries, for instance, were characterized by massive depreciation of their currencies as they sought to reduce the influence of parallel market for foreign exchange that had existed over the years (Adamu, 2016). In Nigeria, average private investment expenditure stood at 18.7, 11.5, 11.5, and 10.4 as percentages of GDP, in the 80's, 90's and 2000's, and 2020's respectively.

The combined effects of rising inflation, local currency depreciation, high current account balance and unstable interest rate regimes manifest in a high currency substitution index for Nigeria especially, following the devaluation of the naira in the 80's. Currency substitution trends in Nigeria exhibit a steadily fluctuating profile of the problem right from the days of the Structural Adjustment Programme (SAP). This, according to Effiong and Ekpenyong (2017), culminates to the falling standard of living by Nigerian citizens. From a currency substitution index (CSI) of 26.99 percent in 1986, the index drops to 2.77 percent respectively in 1994. By 1999, the CSI witness a sharp increase to 5.01 percent. However, since 2002 till date, the CSI has depicted an upward trajectory. With an acute rise to 21.18 percent in 2014, it rose to 21.6 percent 2017. It is instructive to note that the demand for dollars by politicians and the business class, especially during the buildup to the Nigerian general elections in 2015 exacerbated the problem of Currency Substitution and this trend has also been the same throughout the 2023 general election in Nigeria.

Comparing this trend with our macroeconomic variables of interest, and by using data obtained from CBN, it is observed that generally consumption expenditure has maintained an upward trend since 1980s. For instance, in 1986 consumption expenditure stood at N10, 447.22 million. This rose from N11, 678.94 in 1994, to N13, 540.58 million in 1999. Between 2002, 2014 and 2017 consumption expenditure in Nigeria posted a steep rise from N19, 152.78 million to N48, 621.23 and N47, 428.75 million in the years 2002, 2014 and 2017 respectively. This trend continues to increase between 2019, 2020, 2021, 2022 and 2023 as follows: 47,432; 43,465; 50,723; 51,325and 51,859 respectively.

Comparing consumption expenditure and investment expenditure, it is seen that there is a little difference in the movement trend over the long run as presented in this study below from 1986 to date. A closer look at the stylist facts shows that, during the years 1986 and 1994, private investment showed an upward movement from N2, 353.33 million to N2, and 75.71 million. However, it fell steeply to N2, 339.41 million in 1996. Again, it is equally observed that there is an increase to N2, 579.53 and N10, 570.47 million between 2002 and 2014. Domestic private investment in 2017 stood at N10, 020 million. This represented a growth rate of 13.4 percent in 2014. Data gotten from CBN bulletin also shows an average decrease movement between 2018 and 2023 as it falls toN10, 000 million and N9, 325 million respectively.

Base on the above trend, this study is laden with this question: what is the impact of currency substitution on domestic private investment in Nigeria? To answer the above question the study formulated the objective of this work broadly examine the impact of currency substitution on private investment in Nigeria and specifically to examine advantages and dis advantages of currency substitution and also to find out alternative means to currency substitution.

Literature Review and Theoretical Framework

This section begins with a conceptual clarification of the key variables used in the study. The study further reviews related empirical and theoretical literature on Currency Substitution. The aim is to situate the study within a family of similar studies as well as identify the gaps to be filled by the present effort.

Currency substitution

Currency Substitution does not have much focus in old economic literature but of recent authors have tried to express what Currency Substitution is. For instance ,Aarle and Bundna (1995) refer to a partial replacement of domestic by foreign money. Foreign money can replace partially the role of domestic money as a means of transactions and as a store of value. According to Mizen and Pentecost (1996) cited in Yinusa and Akinlo (2008), under conditions of high inflation, the ability of national currencies to function adequately as a store of value, a unit of account, and a means of exchange are greatly hindered. In these circumstances, the domestic currency tends first to be displaced as a store of value by a stable and convertible currency (usually in the form of interest-bearing foreign currency deposits).Effiom and Ubi (2010) and Asel (2009) define it, as a situation in which the use of foreign currency (FC) by domestic agents replaces domestic currency (DC) in their day-to-day transactions. This definition incorporates both the unit of account, store of value as well as the medium of exchange functions of money. Dollarization which is another name for currency substitution is defined by Calvo and Vegh (1992), as the use of foreign currency to fulfill the store of value and unit of account functions of money in an economy. Dollarization therefore is the extensive use of foreign currency in place of domestic currency in an economy (Adam, 2013).

Thus, for CS to be prevalent in an economy there must be dollarization. In other words, dollarization is the mother of CS. This study uses the term dollarization and CS interchangeably and defines it as the situation in which foreign currency replaces the domestic currency in at least one of the three functions of money; namely, as a medium of exchange, store of value, and unit of account.

Advantages of Currency Substitution

The merits of the Currency Substitution is that, allowing foreign currency deposit in the domestic financial system, may enhance the opportunity for rentier mediation and promote financial deepening in economies that have experienced long periods of high and volatile inflation as well as unfavorable macroeconomic conditions. This situation can aid our domestic banks to expand their operations rapidly by competing for foreign currency deposit. Also, it could enable the integration of the domestic market into the rest of the world and lower the cost of international financial transactions. Another advantage is the efficiency gain from portfolio diversifications, reduced tendencies for inflationary finance and capital flight. This situation, according to Okorie, Ekanem, and Okoro, (2020), paves way for a sustainable economic development of Nigeria.

Disadvantages of Currency Substitution

The disadvantages are however numerous and they include: increase in the size of foreign currency deposit may lead to a decline in the amount of domestic credit thereby forcing domestic private firms to borrow in foreign currencies. Also, the volatility of a floating exchange rate will tend to be greater. Currency substitution may have inflationary impacts on an economy through two main channels: monetary growth-induced inflation and speculative bubble induced inflation. Thus, whether the inflation is growth-induced or speculation-induced, there is a positive net impact on consumption. Rising inflation means lower interest rates resulting in greater investment. In effect, we expect both consumption and investment to rise in the presence of currency substitution. It will increase the tendency of the domestic macroeconomic environment to macroeconomic imbalances and shocks, leading to a squeeze in domestic money demand, increase in foreign money demand, loss of seigniorage (the profits accruing to a monetary authority from its right to issue legal tender) and

a possible reduction in consumption expenditure as well as a contraction in the inflation tax base. It may lead to the ineffectiveness of monetary policy through its monetary transmission mechanism. Since the goal of monetary policy is to influence macroeconomic aggregates, it stands to reason that as monetary policy is compromised in the presence of CS these aggregates might drift away from their targets as envisioned by the central bank. In particular, consumption, for instance might spiral out of control as lower income groups who may have limited alternatives in the face of rising inflation struggle to deplete their cash balance in order to mitigate potential losses. On the other hand, those with the leverage to substitute the foreign for the local currency might, especially regarding the store of value function, restrain aggregate consumption expenditure. The argument thus is that on theoretical grounds, mixed outcomes might ensue on and investment as Currency Substitution takes its toll on the economy.

Literature Review

Kalyoncu, Isik, and Jelilov (2022) employed cointegration and Augmented Dickey-Fuller (ADF) test to investigate whether currency depreciation in Nigeria has resulted in currency substitution away from the Nigerian Naira over the period 1980 to 2021. Empirically, the result suggested that depreciation of the Naira leads to a decline in holding of M1 indicating the presence of currency substitution in Nigeria. Bawa, Omotosho, and Doguwa (2021) relied on cointegration and Autoregressive Distributed Lag Model (ARDLM) using monthly data for the periods 1990 - 2020 to examine the persistence of currency substitution in Nigeria. The empirical results showed that exchange rate risks, expected exchange rate depreciation, exchange rate spread, inflation expectations as well as the ratchet variables are significant determinants of currency substitution in Nigeria. This indicated that currency substitution is persistent in Nigeria.

Adeniji (2021) adopted Autoregressive Distributed Lag (ARDL) techniques over the period of 1970 to 2020 to examine the relationship that existed between currency substitution and some macroeconomic variables such as exchange rate, inflation and interest rate in Nigeria. However, incorporating the CUSUM and CUSUMSQ test, the result confirmed that there is a stable and long-run relationship between currency substitution and the macroeconomic variables under consideration. Finally, the study suggested that effective and efficient policy control measure should be developed and implemented to normalize exchange rate, inflation and interest rate.

Kumamoto and Kumamoto (2017) employed the Threshold ARCH model to investigated how currency substitution transmits foreign monetary policy shocks to domestic countries and evaluated how the central bank responds to real exchange rate movements in three inflation-targeting Latin American countries under currency substitution, namely Chile, Mexico, and Peru, between 2000 and 2011.Their investigation showed that the degree of currency substitution is higher in Mexico, while it is insignificance in Chile and Peru. They also found that domestic monetary policy influences the domestic economy through the real interest rate channel. On the contrary, the foreign monetary policy has a significant effect in Mexico, while it is insignificant in Chile and Peru. Ugwu and Philip (2017) investigated whether depreciation of the domestic currency in Nigeria has resulted in currency substitution away from the Nigeria Naira. Using cointegration approach, they discovered that a long-run relationship existed between M2, real income, nominal interest rate, and nominal effective exchange rate over the period 1986 to 2010. The result also reveals that depreciation of the Naira has resulted in a decline in holding of M2 indicating the presence of currency substitution in Nigeria.

Wang (2017) employed quarterly data after China adopted the new exchange rate system (from 2006Q1 to 2016Q1) to examine the relationship between currency substitution and demand for money that includes exchange rate in addition to income and inflation in China. By incorporating the CUSUM and CUSUMSQ tests for stability in conjunction with cointegration analysis, the finding showed that M2 is a better

measurement of monetary aggregate because it is cointegrated with its determinants and it is also stable. It also showed strong evidence of currency substitution for M2. Tweneboah (2016) examine the impact of dollarization/currency substitution on macroeconomic fundamentals, and the challenges it poses for effective formulation and transmission of monetary policy in Ghana. The results reveal that dollarization is caused by exchange rate depreciation and financial development. According to the author depreciation of the domestic currency increases demand for foreign currencies, while a more developed financial sector tends to curtail dollarization: it also indicated that, although foreign interest rates and expected exchange rates (either separately or jointly) are relevant elements in the money demand function, their evidence is more in support of capital mobility and not currency substitution. The study further showed that the effect of financial dollarization on nominal exchange rate volatility in Ghana is positive, thus, as demand for U.S. dollars becomes more extensive, the cedi/dollar exchange rate becomes more volatile and unstable. The study posits that, although there is no significant impact of dollarization on inflation volatility, inflation targeting affects the inflation-inflation uncertainty relationship in Ghana.

Aigheyisi (2015) investigated the inter relationships between currency substitution, inflation and economic growth in Nigeria. He employed the two stages least squares (2SLS) estimation technique and used the currency substitution index as a measure of Currency Substitution. Using annual time series data for the period 1994 to 2013, result showed that, though inflation and real GDP growth rate have effect on currency substitution but not statistically significant; depreciation of the domestic currency increases the rate of currency substitution; investment helps reduce currency substitution; inflation was positively associated with the growth of real GDP within the period under review; currency substitution contributes to the growth of real GDP; real GDP growth is adversely affected by increase in government expenditure; and, currency substitution and investment help reduce inflation. According to Udoh and Madueke, (2018), even in the face of adoption of treasury single accounting system, inflation rates in Nigeria persists.

Effiom and Ubi (2010) examined the vulnerability of the Nigerian economy to currency substitution using annual time series data from 1970 to 2008 from CBN statistical bulletin. Employing vector error correction model (VECM) for empirical analysis with exchange rate and US treasury bills rate variables as proxies for Currency Substitution, the study revealed that with persistent inflation and depreciation of the naira occasioned by exchange rate instability and monetary policy inconsistency, the Nigerian economy is vulnerable to Currency Substitution.

Theoretical literature

The Portfolio Balance Theory

The Portfolio Balance Theory was developed by Tobin (1958) in a seminar paper for assets demand in a closed economy and transaction cost model. Considered a significant development in mathematical modeling, the theory attempts to maximize portfolio expected return for a given amount of portfolio risk, or equally maximize risk for a given level of expected return by choosing carefully the proportions of various assets. The Portfolio Balance Theory is based on the assumptions of rationality of investors and households and efficient markets. Other assumptions are that return on domestic and foreign assets are jointly and normally distributed among peoples, correlations that exist between assets are static, and that investors seek to make best use of their utility by making the maximum returns on their domestic and foreign investments.

The theory also assumes that agents have an accurate conception of the possible returns on their domestic and foreign investments, which are considered tax free (i.e. zero transaction costs), and that investors are price takers operating in a perfectly competitive financial market. The main objective of the Portfolio Balance Theory is to minimize the return for a given amount of domestic and foreign investment at a risk-free

rate. The Portfolio Balance Theory would regulate substitution between currencies on the grown of their expected yield and risk from the investment. Therefore, two currencies would be perfect substitutes if they had identical returns. On the contrary, they would be poor substitutes if, with identical risk, the return on one dominated that of the other.

Also, the theory opined that, speculative demand for money arises because of the uncertainty of the yields on alternative assets. The portfolio approach is an extension of monetary model. Portfolio balance approach towards determining exchange rate widens the monetary approach by including financial assets such as bonds in it. It also states that financial assets also influence the exchange rate. Financial assets include local and foreign bonds. This approach is based upon two financial assets, local and foreign money and bonds and relative supply and demand of local and foreign money and bonds determine the equilibrium exchange rate between two countries.

Money in-the-utility function

The theory *"money in utility function"* was put forward by a Sidrauski (1967). The theory opined that *"people have a tendency to hold a certain amount of cash because they derive utility from holding it".* Accordingly, the theory assumes that money yields utility at every function. This means the model is so simple, but not very attractive. However, it can be rationalized by transaction demand for money. The theory further argued that, the convenient fiction that movements in per capita consumption, as well as real asset holdings, can be attributed to the optimizing behaviour of a rational representative consumer who can compare gains made between domestic and foreign currency. Thus, having constant preferences, and derives utility by consuming and by holding assets in form of domestic or foreign currency.

The representative household seeks to maximize lifetime utility thus:

$$U = E_t \sum_{t=0}^{\infty} \beta^t U(c_t, m_t)$$

where: β is the discount factor, c is consumption of goods and m denotes liquidity holdings.

Residents choose to diversify their monetary balances by holding money denominated in domestic and foreign currency. The theory also argued that, households' income can be spent on consumption, invested as capital, saved as bonds or kept as money or used in buying foreign currencies. It opined that, a representative agent derive utility from the consumption of a single good and from the liquidity services provided by holdings of domestic and foreign money authorities.

Research Methodology

Research Design

The study adopts the quasi experimental design approach (empirical analysis) to analyze the relationship between currency substitution and private investment expenditure in Nigeria. The adopted design is such that enables the study describe the phenomenon in context and established a functional relationship between the dependent and explanatory variables. The quantitative nature of the research requires an empirical analysis aimed at testing the hypotheses stated in order to determine the causes and effects among the variable adopted.

Model Specification

The theoretical basis of the study is the portfolio balance model (PBM) of currency substitution. The theory posits that domestic agents have the capability to hold four different types of assets as well as switch among them simultaneously and unrestrictedly which include domestic money (DM), foreign money (FM), domestic bond (DM), and foreign bond (FB). It posits that exchange rate establishes equilibrium in the investor portfolio (DM, DB, FM and FB) such that if there is a change in any one of these four assets, investor reestablishes the desired balance in his/her portfolio (Nyong, 2015). According to the theory, the domestic agent assets demand is modelled thus:

$M^d = M(i, i^*+ x1, x, y)$, $M1 < 0, M2 < 0, M3 < 0, M4 > 0$ (3.1)

$B^d = M(i, i^*+ x1, x, y)$, $B1 > 0, B2 < 0, B3 < 0, B4 < 0$ (3.2)

$F^d = M(i, i^*+ x1, x, y)$, $F1 < 0, F2 > 0, F3 < 0, F4 > 0$ (3.3)

$N^d = M(i, i^*+ x1, x, y)$, $N1 < 0, N2 < 0, N3 > 0, N4 > 0$ (3.4)

Where M^d is the demand for domestic money, B^d is the demand for domestic bonds, F^d is the demand for foreign bonds, N^d is the demand for foreign money, i is the domestic interest rate on bonds, i^* is the interest rate on foreign bonds, x is the expected rate of depreciation of domestic currency, and Y is real income. Hence, $i^*+ x$ is the expected return, including expected exchange rate changes, on foreign bonds held by domestic investors. The terms i, $i^*+ x$, and x, therefore represent the expected nominal returns on domestic bonds, foreign bonds and foreign money, respectively from the domestic investors" point of view.

Since the study is on the effect of currency substitution on private investment expenditure, the equation is specified thus:

PRINV = f(CSI, CPI, DIR,EXR, FIR, RGDP) (3.5)

Where:

PRINV = Private Investment

CSI = Currency substitution index proxied by (FCD/M2)

EXR = Real Exchange Rate

CPI = Consumer price index

DIR = Domestic Interest Rate (proxied by real interest rate)

FIR = Foreign Interest rate proxied by US Treasury Bills Rate

RGDP = Real income proxied by real gross domestic product

The econometric specification of equations assumes the form:

$$PRINV = \beta_0 + \beta_1 CSI + \beta_2 EXR + \beta_3 CPI + \beta_4 FIR + \beta_5 DIR + \beta_6 RGDP + \mu_3 \quad (3.6)$$

where:

μ = Stochastic error term

β_0 to β_6 are the parameters to be estimated using e-views 9.

Model justification:

On a priori $\beta_0, \beta_1, \beta_2, \beta_4, \beta_5, \beta_6 > 0$;

while $\beta_3 < 0$

Model estimation procedure

Since the study is using time series data for the analysis, preliminary tests on the variables the unit root test stationarity properties of all the data is firstly use to ensure that the estimated result are not spurious. Further, the study then tests for any long run relationship among the variables using the Autoregressive Distributed Lag (ARDL) Bound testing approach. To estimate the long and short run parameters, the ARDL estimation technique is use.

The Augmented Dickey-Fuller (ADF) test credited to Dickey and Fuller (1979, 1981) is consequently presented in the general form as:

$$\Delta Y_t = \alpha + \beta T + \gamma y_{t-1} + \partial_1 \Delta Y_{t-1} \ldots \partial p\text{-}1^{\Delta} Y_{t-p} + 1^{-1} \mu_t \quad (3.7)$$

Where: α represents a constant, β is the coefficient on time trend and P stands for the lag order of the autoregressive process. Imposing the restrictions $\alpha = 0$ and $\beta = 0$ is suitable in formulating random walk movement and using such restrictions. $\beta = 0$ is best in representing random walk with a drift.

Autoregressive Distributed Lag (ARDL) Model

The ARDL estimation technique is employed to examine the short run and long run effects of the currency substitution index, and the various private investment expenditure variables in Nigeria. The ARDL is preferred because of its numerous advantages; first, it can be applied to time series data irrespective of whether the series are stationary at first difference I(1) or at the

levels I(0), or a mixture of both. A general ARDL model may be expressed as;

Yt = β0 + β1Yt-1 + ...+ βkYt-p + α0Xt + α1Xt-1 + α2Xt-2 + ... + αqXt-q + εt , (3.8)

From the general model in equation (3.8), the ARDL models for the study can be modified to suit our analysis as thus;

$$\Delta PRINV_t = \beta 0 + \delta_1 PRINV_{t-1} + \beta_2 lnCSI_{t-1} + \beta_3 EXR_{t-1} + \beta_4 CPI_{t-1} + \beta_5 FIR_{t-1} + \beta_6 DIR_{t-1} + \beta_7 RGDP_{t-1} + \sum_{i=0}^{k} \lambda_1 \Delta PRINV_{t-1} + \sum_{i=0}^{k} \lambda_2 \Delta lnCSI_{t-1} + \sum_{i=0}^{k} \lambda_3 \Delta EXR_{t-1} + \sum_{i=0}^{k} \lambda_4 \Delta CPI_{t-1} + \sum_{i=0}^{k} \lambda_5 \Delta FIR_{t-1} + \sum_{i=0}^{k} \lambda_6 \Delta DIR_{t-1} + \sum_{i=0}^{k} \lambda_7 \Delta RGDP_{t-1} + \mu \quad (3.9)$$

From equation (3.9) the ARDL bounds test can be employed to establish the existence of the long run relationship among the variables.

Table 4.1: ADF Test Result

Variables	ADF		
	Levels	First difference	Remark
CPI	3.30	-3.55	I(1)
CSI	-3.03	-5.48	I(1)
DIR	-6.47	-7.27	I(1)
EXR	-1.22	-3.82	I(1)
FIR	-4.56	-3.66	I(0)
RGDP (Y)	-1.79	-3.91	I(1)
PRINV	-3.96	-3.77	I(0)

Source: Author's computation, 2024

Table 4.2: Private investment Equation Bounds Test

Test Statistic	Value	K
F-statistic	8.380123	6
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.12	3.23
5%	2.45	3.61
2.5%	2.75	3.99
1%	3.15	4.43

Source: Author`s computation, 2024

The result of the private investment equation Bounds co-integration test as presented in table 4.2, shows that the computed F-statistic of 8.38 is greater than the critical upper bounds values of 2.23, 3.61, 3.99 and 4.43 at 10%, 5%, 2.5% and 1% level of significance respectively. This confirms that a stable and long relationship exist among the variables. Based on this, the study rejects the null hypothesis of no co-integration and concludes that the variables in the private investment are co-integrated.

Autoregressive distributed lag (ARDL) model results

The results of the ARDL model with respect to the private investment (PRINV) equation is presented in table 4.8 respectively. The result shows that all the variables (regressors) have both negative and positive impact on the dependent variable depending on one year or two years lag.

Table 4.3: ARDL short run results of private investment equation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLOG(PRINV(-1))	0.296654	0.065553	4.525437*	0.0001
DLOG(PRINV(-2))	-0.50428	0.271945	-1.85436	0.1131
DLOG(CPI)	-0.11935	0.046877	-2.54601*	0.0169
DLOG(CPI(-1))	0.388248	0.89684	0.432907	0.6802
DLOG(CPI(-2))	-0.15138	0.054055	-2.80054*	0.0093
DLOG(CSI)	-1.48693	0.530943	-2.80054*	0.0093
DLOG(CSI(-1))	0.086101	0.045917	1.875144	0.0716
DLOG(CSI(-2))	-0.51742	0.26462	-1.95534	0.0983
DLOG(DIR)	-0.02727	0.089834	-0.30355	0.7717
DLOG(DIR(-1))	-0.01447	0.141265	-0.10245	0.9217
DLOG(DIR(-2))	-0.49423	0.255295	-1.93592	0.0634
DLOG(EXR)	-0.48398	0.068415	-7.07412*	0
DLOG(EXR(-1))	0.235563	0.506588	0.464999	0.6583
DLOG(EXR(-2))	-0.20865	0.303987	-0.68637	0.5181
DLOG(FIR)	-0.38413	0.145947	-2.63195*	0.0139
DLOG(FIR(-1))	9.94748	1.062326	9.36387*	0
DLOG(FIR(-2))	-0.06986	0.248537	-0.28107	0.7881
DLOG(RGDP)	-0.24662	0.127392	-1.93592	0.0634
DLOG(RGDP(-1))	1.453996	0.321294	4.525437*	0.0001
DLOG(RGDP(-2))	0.173387	0.20688	0.838107	0.4341
CointEq(-1)	-0.40695	0.091264	-4.459*	0.0001
R^2	0.989206	D-W	2.135502	
Adjusted R^2	0.940631	F-Stat.	20.36449	

Note: * Implies significance at 5 per cent level of significance.
Source: Author`s computation, 2024

The result of the investment co-integrating equation is presented in table 4.3. From the result, it can be seen that the one-year lag of investment (PRINV (-1)) has a positive and significant impact on investment (PRINV) in the current period. On the other hand, the two-year lag of PRINV has a negative and non-significant impact on PRINV in the current period. In other words, previous episodes of investment boosted investment in the current period. Foreign interest rate (FIR), currency substitution (CSI) and exchange rate (EXR) have negative and statistically significant impact on PRINV. The one-year lag of FIR has positive and significant impact on PRINV. On the other hand, the one-year lags of CSI and EXR have a positive and non-significant impact on PRINV, while the two-year lags of FIR, CSI and EXR have a negative and non-significant impact on PRINV. The result also shows that the one-year lag of real income (RGDP) has positive and significant impact on PRINV. On the other hand, the RGDP in the current period has a negative and non-significant impact on PRINV, while the two-year lag of RGDP has a positive and non-significant impact on PRINV.

Furthermore, it can be seen from the result in table 4.3 that inflation (CPI) and domestic interest rate (DIR) do not have a significant impact on PRINV. While the impact of CPI on PRINV is positive, the impact of the lags of CPI and, DIR and its lags is negative. Finally, the error correction coefficient (CointEq (-1)) is negative and statically significant. This satisfies the a-priori criteria and implies that the model has a fairly slow speed of adjustment because 40.69 per cent of the disequilibrium in the short-run is corrected in the long-run.

The R-squared adjusted of 0.94 indicates that about 94 percent of variation in the PRINV is explained by the regressors while only 6 percent was unexplained which may be accounted for by other factors not included in the model. The F-statistic of about 20.36 shows that all the variables in the model are together as a group statistically significant which means that the model has a good fit. Durbin-Watson (D-W) statistic of 2.13 indicates no autocorrelation in the model. Therefore, the results can be used for economic forecast and economic policy.

Table 4.4: ARDL long run results of private investment equation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(CPI)	-0.06977	0.028562	-2.44289*	0.0214
LOG(CSI)	-0.10881	0.037453	-2.90518*	0.0072
LOG(DIR)	-0.12359	0.859824	-0.14374	0.8904
LOG(EXR)	-0.29665	0.065553	-4.52544*	0.0001
LOG(FIR)	-0.66775	0.368179	-1.81365	0.0809
LOG(RGDP)	0.024684	0.009774	2.525527*	0.0177
C	3.882528	20.45852	0.189776	0.8557

Note: * Implies significance at 5 per cent level of significance.
Source: Authors computation, 2024

The long-run result of the private investment equation is presented in table 4.4. The result shows that CPI, CSI, EXR and FIR exhibited a negative relationship in the long-run on PRINV. On the other hand, RGDP depicted a positive relationship and insignificant long-run impact on PRINV. This further shows that a 1% in the coefficient of the variables will result to (decrease)/increase in private investment in Nigeria by (7%), (10.9%), (29.7%), (66.8%) and 2.5% respectively.

Discussion of findings

This study was carried out to examine the impact of currency substitution on private investment expenditure in Nigeria. The study showed that the long run coefficient of currency substitution was found to be negatively related to private investment expenditure in Nigeria though. This means that, as currency substitution increase, domestic agents will tend to lose confidence in the domestic currency and private investment will be boasted. Also, exchange rate was found to be negatively related to investment expenditure thus indicating that, a higher exchange rate worsens the balances of payment position and investment expenditures. This then means investors in foreign securities or other assets take into consideration the likely movement in exchange rate with the currency of the target country and weigh the country risk together with the other risk of investing.

The coefficient of CPI was found to be negatively related to investment and also the coefficient of FIR is negatively related to private investment. This implies that foreign rate of interest does not conform to a-priori expectation. This is however expected as the long run behaviour of economic agents which may differ considerably in the short run. The positive sign of foreign rate of interest suggest that economic agents tend to demand for domestic currency in order to increase their foreign currency assets denomination. This is particularly true in the case of Nigeria, where asset holders prefer to hold or store their assets in currency that has a relatively stable value. The result also shows that the domestic interest rate (DIR) coefficient has a negative relationship to the private investment. The ARDL coefficients meet the three criteria for its acceptability given that it is negative, fractional and statistically significant. Consequently, the estimated result confirms the presence of long run relationship among the variables in the three models.

It also shows that the speed of adjustments is high in all the estimated models. The value of the adjusted R-squared implies that the models have good fit as the independent variables have high explanatory power. The Durbin-Watson statistic connotes absence of autocorrelation in the estimated equations. The study, therefore, accepts the null hypotheses of no serial correlation in the models. This further implies that the error terms of different periods are not serially correlated.

Summary

This study examines the effects of currency substitution on private investment expenditure in Nigeria. Consequently, in formulated the broad objective as examining the effects of currency substitution on private investment expenditure in Nigeria and specifically investigating the advantages and disadvantages of currency substitution, some empirical and theoretical literature on the impact of currency substitution on private investment expenditure in Nigeria were reviewed. Given that the variables were co-integrated of order zero and one, the equations were estimated using the autoregressive distributive lag (ARDL) co-integration technique. The bound test result shows that a long run relationship exists among the variables in the estimated equations. Therefore, the null hypotheses of absence of co-integration were rejected while the alternative hypothesis was retained. The statistical significance of the

investment expenditure variables implies that its role in the promotion of sustainable investment expenditure in both the short run and long run is relevant.

Looking closely on investment equation, the result shows that foreign interest rate, currency substitution and exchange rate have negative and statistically significant impact on investment in Nigeria. The result also shows that the one-year lag of real income has positive and significant impact on investment. Furthermore, it can be seen from the results that inflation and domestic interest rate do not have a significant impact on investment. Consequently, the estimated result confirms the presence of long run relationship among the variables in the models. It also shows that the speed of adjustments is high in all the estimated models. The values of the adjusted R-squared imply that the models have good fit as the independent variables have high explanatory power. The Durbin-Watson Statistic connotes absence of autocorrelation in the estimated equations. The study, therefore, accepts the null hypotheses of no serial correlation in the models. This further implies that the error terms of different periods are not serially correlated.

Conclusion

The study explored the relationship between currency substitution and private investment in Nigeria from 1981-2024 adopting the autoregressive distributive lag model. The study observed that changes in currency substitution affect investment expenditure in Nigeria. In addition, the study revealed a positive/negative relationship between currency substitution, domestic interest rate, exchange rate, foreign interest rate and macroeconomic variable such as (investment expenditure). It means that the continuous substitution of the naira for foreign currencies such as dollar, pound sterling and euro with worsening inability to make our currency strong in international transaction is a big challenge. This scenario is compounded by low patronage for domestically produced goods and services, weak macroeconomic management and unfavorable terms of trade.

Based on these results, the study concludes that in an economy with prevailing and persistent macroeconomic instability like Nigeria, residents will resort to protect the real value of their wealth by increasing their holdings of foreign currency and hence will cause economic imbalances.

Recommendations

Based on the empirical findings and the conclusion drawn, the study recommends that:

i. Government through its policy makers should more efforts to strengthen the domestic currency. This can be done through a combination of fiscal and monetary policies; fiscal policies to boost productivity reduce frivolous imports, and monetary policies to regulate and stabilize the monetary sector.

ii. Monetary authority should ensure that effective and efficient policy control on exchange rate is put in place to reduce the rate of currency substitution in Nigeria.

iii. The study shows a negative relationship between currency substitution and investment, this implies that, a fall in currency substitution will leads to increase in private investment. Therefore, we recommend that monetary authority should effectively monitor interest rate policy to invoke greater confidence among domestic private investors, thereby inducing increased investment and growth.

iv. There is need to check mate the disparity between the foreign exchange market and the parallel foreign exchange market by the monetary authority in other to achieve the objective of having a realistic exchange rate.

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