

EXCHANGE RATE DISRUPTIONS AND GROSS DOMESTIC INVESTMENT IN THIRD WORLD ECONOMIES: THE NIGERIAN CASE

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ABSTRACT: This paper focuses on exchange rate disruptions and Gross Domestic Investment in sub-Saharan African with particular reference to Nigeria. Ordinary Least Square (OLS) techniques was adopted using time series data on exchange rate uncertainty (volatility), gross domestic product, gross domestic investment, interest rate, Exchange rate and inflation. Volatility of exchange rate is simply measured by three years moving average of standard deviation of real exchange rate. The paper maintains that instability of exchange rate has soar implications as it effects investment negatively. Stable exchange rate and reduced interest rates should be maintained by government so as to derive the maximum benefits associated therewith. A negation of this, it is argued renders investment efforts of a country inimical.

1. INTRODUCTION

As the main engine of growth in the economy, investment provides significant sources of foreign exchange earnings required to supplement Domestic Savings and raise investment levels. Investment is significant to a country just lie blood is significant to the body system of man. Giwa (1977) reasons that to a depressed economy, investment is like blood transfusion to an anaemic patient. Income generation reduces in the absence of investment. As popularized by Anyanwu (1997), investment is associated with acquisition by institutions or individuals in a country of assets of firms. Foreign investment consists of external resources, including capital, technological, managerial and marketing expertise. Adequate public investment is a significant stimulus capable of triggering industrial growth which subsequently creates room for employment opportunities thereby tackling the problems of unemployment. Investment therefore is an economic variable that is capable of stabilizing and engineering economic growth and development. Developing countries desire private sector -investment especially in the current global environment. The investments are both local and foreign if they are to maintain their economic potentials to a level of meeting international competition. Prior to the introduction of Structural Adjustment Programme, when the achievement of stability, balance of payment, viability, reduction of unemployment and economic growth became more fashionable objective of policy most macroeconomic -policies and their implementation strategy were discouraging foreign investment. There was notable case of unstable macroeconomic environment when considering macroeconomic indicators like, inflation, exchange rate, unemployment and fiscal deficits. Eze (1996) opines that macroeconomic policies were characterized by fluctuations with reasonable confusion. Due to distortions, policy somersaults vis-à-vis changes in policies and regulations which were reasonably affecting investment, investors reasoned rationally and kept off from projects with long gestation periods. In this circumstance the most preferred option of business was trading and importation of consumer products.

The unfriendly macroeconomic environment was associated with economic instability in relation to huge fiscal deficits, high rate of inflation, volatility and depreciation of exchange rates. These are some of the paramount problems confronting most economics be they developed or developing. Other bottlenecks in this regard include but are not restricted to unstable exchange rate which makes business planning difficult, reliance on direct controls in all sectors. in the management of the economy as well as reliance of the external sector policies on exchange control regulations, These were supported by overvalued fixed exchange rate regimes end foreign exchange rationing. Thus as stressed by Odozi (1995), policies relating to trade and exchange rates were completely disfavoured to foreign and domestic investments since the economic environment was characterized by instability and distortions occasioned differently in different countries. This study aims at examining the impact of exchange rate instability (volatility) on gross domestic investment. This paper in its fives, sections has theoretical foundation and literature review in section two shortly after section one which is the introduction. Section, three presents the analytical methodology while section four offers data analysis and

discussion of result. Section five articulates policy recommendations and the paper ends with brief concluding remarks.

2. THEORETICAL FOUNDATION AND LITERATURE REVIEW

Numerous theories have been examined by various scholars in explaining investment and exchange rate instability. Central to these is the pioneering effort of Keynes (1936). Thus the discovery of investment function in the economy is credited to Keynes. This is contrary to the much spread assertion that savings is automatically invested in as much as the interest rate is right. In the tradition of Harrod Domar growth models, investment theories became real in the early 1950s and 1960s. What followed closely was the Neo-classical approach to investment. This, was significantly of these various assets. The monetary approach also emphasizes the role of money in determining the balance of payments under the pegged exchange rate and the freely flexible exchange rate in a fixed exchange rate system, and excess demand for money can be supplied either by the acquisition of international reserve assets through a balance of payments surplus or through domestic credit creation by the domestic control banks. The policy implication is that no policy for improving the balance of payments can be successful unless supported by appropriate restrictions oil domestic credit or by a policy that changes money demand so that people willingly held the additional money supply. An essential feature of the monetary approach is its recognition that adjustment of desired stock of international money may occur through either the trade or capital account or both. A current account deficit may reflect a country's desire to shift out of cash balances into stock of goods whereas a capital account deficit may reflect a decision to shift out domestic money into securities. Obaseki (1990) articulated that the relevance of this approach is limited to its inability to fully explain how devaluation can be used as adjustment measure in altering the structure of economy and wipe out existing deficit and prevent recurrence. It is obvious that a mix of policies and strategies have been applied to manage foreign exchange in Nigeria. From the theoretical perspective the elasticity approach emphasizes expenditure switching policy, the income- absorption approach prescribes both expenditure changing policies while the monetary approach favours reliance on expenditure changing policy. From the practical standpoint however, policies adopted to manage foreign exchange included those that focUsed on controlling demand within available supply of foreign exchange among which are trade and exchange controlling demand within available supply of foreign exchange among which are trade and exchange controls, administrative controls, foreign exchange budgeting etc. those used to enhance the supply of foreign exchange e.g export promotion and portfolio diversification and the macroeconomic tools for enhancing supply while at the same time curbing excessive use of foreign exchange for example monetary and fiscal policies and exchange rate policy. It is important to state that a mix of these policies are applied to manage foreign exchange in Nigeria.

3. METHODOLOGY

Sources of Data

This study covers a duration of 34 years (1970-2004). Data used are secondary data derivable from the Central Bank of Nigeria statistical bulletin and bullion, Federal Office of Statistics. Publications of international Monetary Fund (IMF), Central Bank of Nigeria (CBN) major economic, financial and baking indicators and various issues of World Bank Development Report.

ESTIMATION FRAMWORK

The basic objective of this study is to examine the impact of volatility of Exchange Rate (VEXCHR) on Gross Domestic Investment. The ordinary least Square Technique (OLS) is adopted to determine the equation. OLS is adopted in order to avoid bias as well as obtain the appropriate association of values measured. Exchange rate is measured by three years moving average of standard deviation of the real exchange rate. The equation is logged because the log linear form allows a direct estimation and interpretation of the coefficient of the model.

GROSS DOMESTIC INVESTMENT EQUATION

Estimation model for Gross Domestic Investment is as follows:

$$GDI = h(GDP, R, INFLA, VEXCHR, EXCHR) - - (I)$$

This can be econometrically modeled thus:

$$LGDI = a_0 + a_1 LGDP + a_2 LR + a_3 LVEXCHR + A_5 lexchr + E_T$$

Where:

e_t represents stochastic term

$a_0 - a_5$ are parameter estimate

LGDI = Log of gross domestic investment

LGDP = Log of gross domestic product

LR = Log of interest rate

LINFLA= Log of inflation
 VEXCHR = Volatility of exchange rate
 EXCHR = Exchange rate

As stated in this study investment has a functional relationship with Gross Domestic Product (GDP), Interest Rate (R), Inflation (INFLA), Volatility of Exchange rate (VERCHR) and exchange Rate (EXCHR). These impact on the macroeconomy and are here presented as explanatory variables. They are as previously defined in the study.

PRESENTATION OF EMPIRICAL RESULT AND DISCUSSION OF FINDINGS

The empirical data on which analysis of this study is anchored are presented in table 1 below. This table presents data for estimating the model for Gross Domestic Investment.

TABLE 1: GROSS DOMESTIC INVESTMENT EQUATION
 $GDI = f(GDP, R, INFLA, VEXCHR, EXCHR)$

YEA R	GDI	Y	GD P	R	INFL A	EXCH R	VEXCH R
1970	1003.2	541418.9	29.8	7	13.8	0.7143	-
1971	1322.8	65707.0	18.4	7	15.6	0.6955	-
1972	1571.1	69310.6	-7.4	7	2.3	0.6579	0.026587
1973	1763.7	73763.1	-2.7	7	5.4	0.579	0.0000
1974	1812.1	82424.8	13.1	7	13.4	0.6299	0.0000
1975	2287.5	79988.5	-3	6	33.9	0.6159	0.014614
1976	2339.0	88854.3	10.9	6	21.2	0.6265	0.014614
1977	2531.4	96098.5	8.1	6	15.6	0.6466	0.0092867
1978	2863.2	89020.9	-7.3	7	16.6	0.6060	0.0116577
1979	3153.1	91190.7	5.5	7.5	1.8	0.5957	0.02933
1980	3620.1	96186.6	5.3	7.5	9.9	0.5464	0.026010
1981	3757.9	80395.9	-8.4	7.75	20.9	0.6100	0.027435
1982	5382.8	70243.1	-0.3	10.25	7.7	0.6729	0.051645
1983	5949.5	6595.8	-5.4	10	23.2	0.7241	0.26959
1984	6418.3	62474.2	-5.1	12.5	39.6	0.7649	0.34706

1985	6804.0	68286.2	9.4	9.25	5.5	0.8938	0.387121
1986	9313.6	70806.4	3.1	10.5	5.4	2.0206	0.81657
1987	9993.6	71194.9	-0.5	17.5	10.2	4.0179	0.27793
1988	11339.2	77733.2	9.9	16.5	38.3	4.5367	0.80673
1989	10899.6	83179.0	7.4	26.8	40.9	7.3916	01.48335

YEA R	GDI	Y	GD P	R	INFL A	EXCH R	VEXCHR
1990	10436.1	92238.5	8.2	25.5	7.5	0.8378	1.52189
1991	12243.5	94235.3	4.7	20.0	13.0	9.9095	0.62026
1992	20512.7	797619.9	3.3	29.8	44.5	17.2984	4.17522
1993	66787.0	99604.2	2.3	36.9	54.2	22.0511	5.43526
1994	70714.6	100936.7	1.2	21.0	57.0	21.8861	2.20407
1995	119391.6	103078.6	2.2	20.1	72.8	84.545	0.080610
1996	122600.9	106600.6	3.4	19.7	19.74	29.3	79,6010
1997	128331.8	109972.5	3.8	13.5	8.5	74.625	0.0000
1998	152409.6	113509.0	3.9	13.2	10.0	84.3679	0.0000
1999	154188.6	116655.5	3.9	21.3	6.6	92.5284	0.0018378
2000	157535.4	121207.8	3.9	17.9	6.9	109.55	0.80565
2001	162343.4	126328.8	3.6	18.2	18.9	112.486	0.0009427
2002	1660031.6	131489.8	3.8	20.6	12.9	126.4	0.0094274
2003	174450.3	136472.0	3.9	19.5	14.0	135.406	0.0047143

Sources: Central Bank of Nigeria (CBN) Statistical Bulletin (various issues)
 CBN Major Economic Financial and Banking Indicators (Various Issues)
 World Development Report (various issues).

GDI = Gross Domestic Investment
 Y = National Income
 R = Interest Rate
 INFLA = Inflation Rate
 EXCHR = Exchange Rate
 GDP = Gross Domestic Product
 VEXCHR = Volatility of exchange Rate

TABLE 2: GROSS DOMESTIC INVESTMENT EQUATION – IMPACT OF VOLATILITY OF EXCHANGE RATE (VEXCHR) ON GROSS DOMESTIC INVESTMENT

Variable	Estimated Coefficient	Standard Error	t-statistic	P-value
C	14.5633	3.38629	4.30066	(.000)
Δ LGDP	-.582913	.283081	-2.05918	(.050)
Δ R	.045296	.048714	.929842	(.361)
Δ INFLA	.530383E-02	.859012E-02	.617434	(.542)
Δ VEXCHR	-.325830	.214327	-1.52025	(.141)
Δ LEXCHR	.861513	.184599	4.66695	(.000)
$R^2 = 0.810023$		F – Statistic 27.4355		DW = 1.09514

Dependent Variables: LGDI
 Current sample: 1970 to 2003
 Number of observations: 32

Deriving inspiration from above the following facts emerged. The Gross Domestic Investment equation stipulates the effect of volatility of exchange rate on Gross Domestic Investment. Hence, Gross Domestic Investment is regressed on Economic Growth (GDP), Interest Rate, Inflation, Volatility of Exchange Rate and Exchange Rate itself. The coefficient of the constant term is positive and is statistically significant 0.1 per cent. The coefficient of Economic Growth (GDP) assumes a negative sign indicating the level of inverse relationship between Gross Domestic Investment and economic growth. If economic growth improves then investment in the macroeconomy will not be enhanced.

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The t-value is statistically significant at 0.5 per cent. The coefficient of interest rate is positive and statistically insignificant, revealing the extent of the linkage between interest

Gross Domestic Investment. Reduced interest rate enhances investment in the economy. The coefficient of inflation is positive and statistically insignificant. This implies that inflation has influence on Gross Domestic Investment. The coefficient of volatility of exchange rate assumes a negative sign, indicating the inverse relationship between Gross Domestic Investment and the volatility of exchange rate. The exchange rate also carries a positive sign and is statistically significant at 0.1 per cent, implying that exchange rate has a positive linkage with domestic investment in the economy. As exchange rate increase investment also increases and is enhanced. The adjusted R is 0.810023. This implies a good fit for the model. Thus the explanatory variables are good explanations for the persistence of gross domestic investment in Nigeria. The F-statistic is 27.4355 and is a test of the overall performance of the model. In this equation, the value of DW is greater than the adjusted R, meaning that there is no spurious regression.

4. POLICY IMPLICATIONS AND CONCLUDING REMARKS

This study which examined exchange rate uncertainty and Gross Domestic Investment in Sub-Saharan African with particular reference to Nigeria has revealed the relationship existing, therewith vis-à-vis gross domestic product, interest rate, inflation; volatility of exchange rate and exchange rate itself. The econometric evidence obtained from the study indicated that exchange rate has positive linkage with, and enhances investment. Reduced interest rate enhances investment in the economy. The policy implication is that exchange rate stability and reduced interest rates aimed at encouraging gross direct investment leads to macroeconomic stability investment in view of its implications.

Volatility discourages gross domestic investment; instability of exchange rate impacts negatively on investment as well as the macroeconomic environment. In sum Nigeria should realize the essence of stable exchange rate regime so as to derive maximum benefits thereof. A deviation from this renders investment efforts of the country illusory.

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