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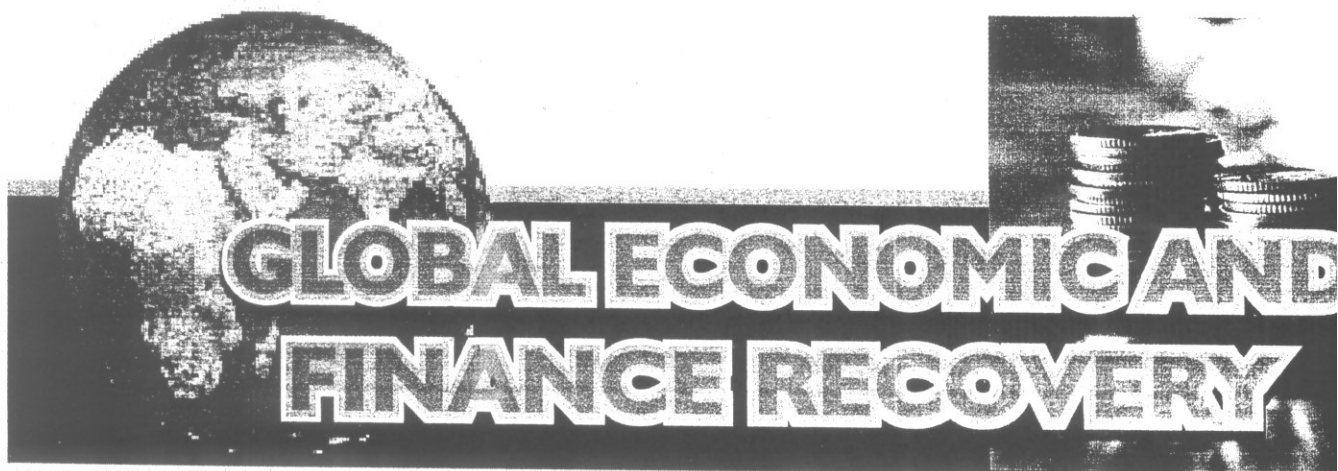
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IMPACT OF EXCHANGE RATE ON ECONOMIC GROWTH IN NIGERIA

BY

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ABSTRACT

The paper examines the impact of exchange rate on economic growth in Nigeria, using time series data from 1971 to 2009 and applying two stage least square (2SLS) estimation technique. Finding of the study clearly shows that there is positive insignificant relationship between exchange rate and economic growth. The paper recommends improved and robust exchange rate policy to sustain the growth potentials in the Nigerian economy.

Keywords: Exchange Rate, Inflation Rate, Economic Growth and 2SLS

1. INTRODUCTION

Effective management of foreign exchange is one of the major macro-economic objectives of countries. Exchange rate policy plays a veritable role in national economic development management if well managed, it could facilitate the achievement of macro-economic objectives of rapid economic growth, low rate of inflation, high employment generation, buoyant balance of payment condition and progressive income distribution. Of all economic policies, it is the most suitable policy for ensuring internal and external balances. There is scarcely any country that lives in absolute autarky in this globalised world. The economies of all the countries of the world are linked directly or indirectly through asset and goods markets. This linkage is made possible through trade and foreign exchange. The consequences of weak exchange rates policy can lead to output contraction and extensive economic hardship. Moreover, there is reasonably strong evidence that exchange rates policy has a critical influence on the rate of growth of per capita output in low income countries (Isard, 2007).

In specific terms foreign exchange intervention and management '(in terms of policy options) occur when the monetary authority of a country buys or sells foreign exchange rate in the foreign exchange market in order to affect the exchange rate. The motive behind initiating an exchange rate policy, is to preserve the value of the domestic currency, maintain favourable external reserves and ensure the realization of price stability in the domestic economic.

Over the years, most countries of the world have practiced different types of exchange rate regimes. Among these regimes are fixed, floating and hybrid, which are predominantly found particularly in developing economies. In Nigeria, all the aforementioned regimes had been practiced at different periods. Each regime is modified to address the problems confronting the foreign exchange market at any particular time. Thus, the imperative to investigate the impact of exchange rate on the Nigerian economy.

2. LITERATURE REVIEW

Several options exist for managing foreign exchange. In Nigeria, these options include; pegging to a single intervention currency, pegging to a basket of currency floating independently at a managed rate and floating freely without official management of the exchange rate Obadan (1993). Following the collapse of the Bretton Wood monetary system and the emergency of generalized floating from 1973 the naira exchange rate was fixed independently from 1974 to 1977 for the us dollar intervention currency and the pound sterling .Nigeria through

administrative action had to change the exchange rate. From February 1978 the naira was pegged to a system of import weighted basket of currencies of seven major trading partners of Nigeria.

With the introduction of Structural Adjustment Programme in July 1986, a managed floating system in the form of a foreign exchange auction system and a market-determined exchange rate system were introduced. The exchange rate policy was pursued within the institutional framework of second tier foreign exchange market (SFEM). The SFEM started as dual exchange rate system which produces the official first tier rate which was administratively determining and gradually depreciated and the free market rate which was determined by the market forces of demand and supply within the framework of foreign exchange auction system. Ojo(1990)

Thereafter the first tier market was abolished and a unified foreign exchange market with single rate came to being, the FEM encouraged the development of autonomous market which was highly competitive with parallel foreign exchange market and thus become attractive to exporter to repatriate their proceeds. Towards the early 90's the operation of autonomous market later became destabilizing arising from tendency towards high arbitrage and acquisition of authorized dealers of diverting official fund to the autonomous segment of the market and making effortless gain (Ojo 1990) other malpractices were also developed, consequently the Interbank foreign exchange market was introduced. IFEM entail a daily bidding system under which the CBN injected official fund into the market by way of direct sales to the bank as and when funds were available. Shortly after, between 2002 and 2008, the Dutch Auction System (DAS) was introduced. it entails the payment of foreign currency by an authorized dealer at the exchange rate that it bids. The exchange rate policy appeared to have predicated on various approach that yet to achieve the desire goal.

Foreign exchange according to Adetifa (2000), is defined as any currency other than the local currency and in the case of Nigeria any currency other than Naira. It is also the mathematical expression of the international medium of exchange and the monetary systems as a process of settling foreign accounts or debts arising from international economic activities, the central theme of which is the exchange rate. Several literature had been documented on exchange rate and economic growth specifically, currency crises can have significant cost in terms of growth forgone. Exchange rate volatility discourages trade and investment. Obadan (1993) observed that given the problem of structural imbalances in the economy reflecting the heavy concentration on crude petroleum export and excessive reliance of the production structure on imported inputs the exchange rate policy objectives accomplishments have however been less than satisfactory. McPherson and Rakovski(2000) posited that there is no evidence of strong direct relationship between changes in the exchange rate and economic growth. Rather, economic growth has been directly affected by fiscal and monetary policies, the availability of foreign aid and other economic variables, particularly the growth of exports which have tended to sustain the pattern of real exchange rate. Odusola (2006) undertook an empirical investigation on the economic significance of exchange rate and its management. He observed that exchange rate and its management is anchored on the goals of exchange rate policy in any economy.

The literature has sought to recover the underlying relationship between exchange rate and performance of an economy by focusing on specific determinants of growth that are likely to be particularly responsive to exchange rate variability rather than on growth itself. One strand considers the impact of real exchange rate variability on attribute of growth such as trade and investment. While Ghura and Grennes (1993) and Bleaney and Greenaway (2001) found no impact on growth. Servén (2002) constructed a GARCH-based measure of real exchange rate volatility and finds that it has a strong negative impact on economic via trade and investment. However, the variable only matters when it exceeds a threshold level, and it appears to matter more in economies that are relatively open and that have less developed financial systems. But, using industry-level data for the United States, Goldberg (1993) found an unstable relationship between real exchange rate variability and investment positive in some periods and negative in others. Using data for a sample of developing countries, Bleaney (1991) found neither linear nor nonlinear effects of real exchange rate variability in his investment equations. That these empirics are inconclusive is not surprising, given that the predictions of theoretical models of the impact of uncertainty on investment are ambiguous as well.

Most recently, Aghion et al. (2006) examined the impact of real exchange rate variability not on factor accumulation but on factor productivity. They found that a more variable exchange rate is negatively associated with productivity growth in financially underdeveloped economies but not in countries with deep financial markets. The implication is that financial development provides hedging instruments and opportunities, enabling firms to guard against this risk. This result is consistent with the intuition that less developed economies find it more difficult to embrace greater exchange rate flexibility because firms and households lack the instruments needed to manage risks.

3.0 METHODOLOGY.

3.1 Model Specification

To ascertain the relationship between exchange rate and economic growth in Nigeria, we posit the following model:

$$GDP = \beta_0 + \beta_1 ER + \beta_2 INF + \beta_3 OPNS + \beta_4 GEXP + \beta_5 FINDEV + U \text{----- (1)}$$

Where

GDP = Gross Domestic Product

ER= Exchange Rate

INF= Inflation Rate

OPNS=Openness

GEXP= Government Expenditure

FINDEV = Financial Development

B1 B2 B3 B4 and B5 are regression coefficients

U = Stochastic variables or error term.

We expect 'a priori' $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5 > 0$

3.2 Estimation Technique

In this study we employ time series econometric techniques to ascertain the relationship between exchange rate and economic growth in Nigeria from 1971 to 2009. Specifically, we use two stage least square estimation (2SLS) technique to establish the relationship. The control variables are some of the variables that extar studies have established as drivers of economics activities. In the study we used, inflation rate Bruno and Easterly (1995), degree of openness Tokode and Akinbobola (2007), government expenditure Musgrave and Musgrave (1989), and Easterly and Rebelo (1993) and financial development Levine, Loayza and Beck (2000).

5. RESEARCH FINDINGS

TABLE 1: Result of Two-Stage Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ER	1887.309	1199.042	1.574014	0.1250
INF	4473.830	1561.627	2.864852	0.0072
OPNS	6716.529	21574.39	0.311319	0.7575
GEXP	0.086327	0.151165	0.571077	0.5718
FINDEV	-0.003305	0.137027	-0.024118	0.9809
C	32864.34	38998.70	0.842703	0.4055
R-squared	0.807657	Mean dependent var		258067.0
Adjusted R-squared	0.778514	S.D. dependent var		201778.1
S.E. of regression	94961.34	Sum squared resid		2.98E+11
F-statistic	29.86809	Durbin-Watson stat		0.769549
Prob(F-statistic)	0.000000			

Instrument list: GDP1 ER1 INF1 OPNS1 GEXP 1 FINDEV1

Source: Authors' computation 2011

The regression results in table 1 above showed that exchange rate positively but insignificantly influence economic growth at 5 percent level of significance during the period under consideration. This implies that although the estimate conforms to the 'a priori' expectation, it is a weak predictor of economic growth in Nigeria. The low influence could be attributed to the minimal effect of non-oil exports and the relatively low inflow of foreign direct investments (FDI) in the face of high dependence on importation, which generally dampens whatever positives accruable from exportation, FDI and other external inflows.

With respect to the control variables, only inflation rate is a significant determinant of economic growth, although it is wrongly signed. On the other hand, the degree of openness and government expenditure are insignificant determinant of economic growth, in spite of having the correct sign. Moreover, the coefficient of financial development is neither significant nor rightly signed, as it indicates that financial development negatively and weakly influenced economic growth in the country during the period under consideration. The result also showed that the co-efficient of determination (R^2) was 0.81, meaning that the variability in economic growth could be attributed to changes in the independent variables. The Durbin –Watson statistic suggests that there is the presence of positive autocorrelation.

5. CONCLUSION AND RECOMMENDATIONS

The study examines foreign exchange rate and the Nigerian economy. The results showed that exchange rate is not a major determinant of economic growth in Nigeria, although the former exerted a positive influence on the latter. Likewise, the degree of openness and government expenditure are insignificant determinant of economic growth, in spite of having the correct sign. Inflation on its part, entered with the wrong sign but its influence is significant. With respect to financial development, it is neither a major driver of economic growth in the country and has a wrong sign.

We therefore recommend that the exchange rate policy should be strengthening and robust enough to translate the gain realized from the oil sector to improve exchange rate. It is equally recommended that domestic inflation rate should be stabilized for improved exchange rate policy. The benefit derived from the oil sector should be used to develop various sectors of our economy to improve the export value as well minimize our dependency on importation of goods and services for sustainability and improved foreign exchange and economic growth.

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STOCK MARKET DEVELOPMENT AND ECONOMIC GROWTH IN NIGERIA: APPLICATION OF GRANGER CAUSALITY TEST

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Abstract

This study examines whether there is a long run relationship between stock market development and economic growth in Nigeria as well as the direction of causality between selected capital market indicators of performance and economic growth. The study employs ordinary least square regression method in addition to the Granger casualty test. Findings from the study show that there exists a long-run relationship between market capitalization, volume of transactions and market turnover. However, the direction of causality between the capital market measures and economic growth is mixed, unidirectional from economic growth to market capitalisation and no directional relationship between market turnover and volume of transactions.

Keywords: Stock Market, Economic Development, Granger Causality Test.

I. Introduction

The capital market is the framework of institutions that arrange for long term financial assets such as shares, debentures, stocks, mortgages among others (Alile and Anao, 1986). (Olowe 2011) opines that the market provides an additional channel for engaging and mobilizing domestic savings for productive investment.

Capital markets globally are essential ingredients of economic development. The Nigerian capital market is made up of two segments namely; the market for direct negotiated long-term funds and the securities market.

An efficient capital market mobilizes and allocates a greater proportion to those companies with the highest prospective rates of returns after giving due allowance for risk. This allocative function is critical in determining the overall growth of the economy. If capital resources are not provided to those economic areas, especially industries where demand is growing and which are capable of increasing production and productivity, the rate of expansion of the economy inevitably suffers (Onyuike 2003).

Economic growth on the other hand refers to a positive change in the level of production of goods and services produced by a country over a period of time. When measured over the population of a given country, then economic growth can be stated in terms of per capita income according to which the aggregate production of goods and services in a given year is divided by the population of the country within the given period (Ogbulu 2009).

Economic growth can be measured in nominal term which include inflation or in real terms which are adjusted for inflation.

Very often, a clear line of distinction is not easily drawn between economic growth and economic development. Torado and Smith (2009) propose that the component of economic growth include capital accumulation, growth in population and technological progress. Some economic development scholars' like Kindleberger and Herrick (1977), Jhingan (2008) as well as Torado and Smith, (2009), admitted that the two concepts are used synonymously. However, the earlier work of Kindleberger and Herrick (1977:3) present a very clear attempt at differentiating between economic growth and development.

They insist that economic growth means more output, while economic development implies both more output and changes in the technical and institutional arrangements by which the output is produced and distributed. Succinctly put they argued;

"Growth and development are sometimes used synonymously in economic discussions. Occasionally, the usage is entirely acceptable. But where two terms exist, separating their meaning has merit. Implicit in general usage and explicit in what follows, economic growth means more output, while economic development implies both more output and changes in technical and institutional arrangements by which it is produced and distributed. Growth may well involve not only more output derived from greater efficiency, that is, an increase in output per unit of input. Development goes beyond this to imply changes in the composition of output and in the allocation of inputs by sectors. As with humans, to stress "growth" involve focusing on height or weight (or GNP), while to emphasize development draw attention to changes in functional capacity (or the ability of the economy to adapt). Given the above assertion, economic growth can be proxied by quantifiable economic indices like gross national product among others.

In the light of the above controversies, this study seeks to contribute to the on-going debate by examining empirically whether there is any functional long-run relationship between stock market and economic growth in Nigeria and to explore the direction of causality between the stock market indicators and economic growth in the Nigerian context.

Objectives of the Study

The objectives of this study are as follows:

1. To explore the direction of causality between the stock market indicators and economic growth in Nigeria.
2. To determine empirically whether there is any functional long-run relationship between stock market and economic growth in Nigeria.

Research Hypothesis

H_{01} : Stock market activities do not Granger-cause economic growth.

Scope of the study

This study covers the period between 1980 and 2010

Organization of the study

This research work is divided into five sections. Section I deals with introduction, , objectives of the study, research hypothesis as well as the scope of the study. Section II examines the literature review while section III deals with research methodology, Section four deals with discussion of results while section five which is the last section deals with concluding remarks.

II. Literature Review

There have been growing concerns and controversies on the role of the stock market development and economic growth. Alile (1984), Atje and Jovanovic, 1993). Levine and Zervos (1996), Levine (1997), Nyong (1997), Dernirguc-Kunt and Maksirnoric (1998), Nervos (1998), Luintel and Khan (1999), Kar and Pentecost (2000), Osinubi (2002), Ngerebo (2002), Unalmis (2002), Coporale, Hovells and Soliman (2004), Wagabaca (2004), Osei (2005), Capasso (2006), Surva & Neupane (2006), Nzue (2006), Guryal et. al (2007), Yartey and Adjasi (2007), Ahmed, Shahbaz & Au (2008), Ewah etal (2009), Ogbulu (2009). There have been mixed results; while some are in - support of a positive link, some negative link and others do not find any empirical evidence to support such conclusion.

Ogbulu (2009) in his study, Capital Market Development and Economic Growth in Nigeria, where he used co-integration and causality tests to determine a long-run relationship between the market indicators and economic growth. The study employed a time series data from 1970 to 2008 and Engle-Granger and Johansen-Joselius method of co-integration in a VECM setting. The results show that the value of new issues (VN) and foreign exchange rate of the Naira (FXR) are positively and significantly related to GDP while the degree of openness of the economy (EMR) and Degree of Government Regulation (DGR) impact negatively and significantly on GDP.

Ewah et al (2009) appraised the impact of the capital market efficiency on the economic growth of Nigeria using time series data from 1961 to 2004. They show a two-way causality between financial development and economic growth in Nigeria.

III. Methodology

Time series analysis was adopted for the study. This study covers a period of thirty-one years that is, between 1980 and 2010.

Sources of Data

Secondary data was used for the study and the data were collected from the Nigerian Stock Exchange Fact Book and the Central Bank of Nigeria.

Method of Data Analysis

This study employs ordinary least square regression method and Granger causality test to determine whether there is a long-run relationship between the capital market and economic growth. The direction of influence was also established among the variables under consideration. The Gross Domestic Product (GDP) was used to represent economic growth. The GDP is the dependent variable while market capitalization, the volume of shares traded, market turnover, and number of listed securities are the independent variables.

Model specification

The model specified for the study is shown below:

- (1) $LGDP = \beta + \beta_2 LMC + \mu_1 \dots\dots\dots (i)$
- (2) $LGDP = \beta + \beta_2 LVT + \mu_1 \dots\dots\dots (ii)$

$$(3) \quad LGDP = \beta + \beta_2 + LTOR + \mu_1 \dots\dots\dots (iii)$$

LGDP = Logarithm of Gross Domestic Product

β = Elasticity

LMG = Logarithm of Market Capitalization

LVT = Logarithm of Volume of Shares Traded

LTOR = Logarithm of Market Turnover

μ_t = Error Term

$$(4) \quad GDP = \beta_0 + \beta_1 MC + \beta_2 VT + \beta_3 LTOR + \mu_t \dots\dots\dots (iv)$$

Where:

GDP = Gross Domestic Product

MC = Market Capitalization

VT = Volume of Shares Traded

TOR = Market Turnover

μ_t = Error Term

$$(5) \quad MC = \sum_{i=1}^n x_i GDP + \sum_{t=1}^N B_{jmc} + \mu_t$$

$$(6) \quad VT = \sum_{i=1}^n x_i GDP + \sum_{t=1}^n \beta_1 VT + \mu_t$$

$$(7) \quad TUR = \sum_{i=1}^n x_i GDP + \sum_{t=1}^n \beta_1 TOR + \mu_t$$

IV. Discussion of Findings

Table 1.1 Correlation matrix

	LOG(GDP)	LOG(MCAP)	LOG (MKTUR)	LOG (VOLT)
LOG (GDP)	1.000000	0.988417	0.999591	0.945755
LOG (MCAP)	0.988417	1.000000	0.990899	0.968616
LOG (MKTUR)	0.999591	0.990899	1.000000	0.953097
LOG (VOLT)	0.945755	0.968616	0.953097	1.000000

Source: Author's computation

Table 1.1 above shows the log values of gross domestic product, market capitalization, market turnover and volume of transactions between 1980 and 2010.

Table 1.2 Logarithm of GDP, MCAP, MKT TURN & VOLT

Sample: 1980-2010				
	LOG(GDP)	LOG(MCAP)	LOG (MKTUR)	LOG (VOLT)
Mean	13.92675	4.889646	14.04492	11.56620
Median	14.47469	5.195177	14.50111	10.81003
Maximum	17.34142	9.495106	17.25411	15.07840
Minimum	10.77100	1.568616	10.98123	8.873188
Std. Dev.	2.269115	2.713015	2.196107	1.87812
Skewness	-0.065009	0.251823	-0.029081	0.473246
Kurtosis	1.558498	1.675721	1.560664	1.875060
Jarque-Bera	2.705826	2.592857	2.680299	2.791728

Probability	0.258486	0.273507	0.261806	0.247619
Observations	31	31	31	31

Source: Author's computation

Table 1.2 above shows the mean values of the log of Gross Domestic Product to be 13.92%, that of market capitalization, 4.88%, market turnover, 14.04% and volume of transactions, 11.56%. The table also shows the minimum and maximum values of gross domestic product, market capitalisation, market turnover, volume of transactions among others.

Pairwise Causality Test

Pairwise Granger Causality tests were run on the model with an optimal lag of 2. The result is presented in table 1.3 below

Table 1.3 Pairwise Granger Causality Test Result

Pairwise Granger Causality Tests			
Sample: 1980-2010			
Lag: 2			
Null Hypothesis:	Obs	F-Statistic	Probability
LOG (MCAP) does not Granger Cause LOG (GDP) 29		1.36962	0.27337
LOG (GDP) does not Granger Cause LOG (MCAP)		4.42151	0.02319
LOG (MKTURN) does not Granger Cause LOG (GDP) 29		0.86980	0.43183
LOG (GDP) does not Granger Cause LOG (MKTURN) 29		1.16238	0.32973
LOG (VOLT) does not Granger Cause LOG (GDP) 29		1.20670	0.31670
LOG (GDP) does not Granger Cause LOG (VOLT)		2.03562	0.15254

Source: Author's computation.

The results show that the F-statistic from the null hypothesis of the causality test running from log MCAP to log GDP is 1.36962 with a probably value 0.27337 and from log GDP to log MCAP, the F. Statistic is 4.42151 and probability value of 0.02319 indicating a uni-directional causality from log GDP to log MCAP at 5% level of significance.

The other results show that F-Statistic from the null hypothesis are not unidirectional that is from log MKTTURN to log GDP, from log GDP to log MKT TURN and log VOLT to log GDP and log GDP to log VOLT are not unidirectional.

The results from this study finds robust support from the earlier works of Levine and Zervous et al (2004), Abu-Qarn (2005), Capasso (2006), Ogbulu (2009) among others.

The results of the Granger causality test above agree with the findings of Kar and Pentecost (2000), Unalónisis (2002), Yartey and Adjas (2007) and Ogbulu (2009) which show that causality tests are mixed and inconclusive.

V. Concluding Remarks

This study makes an attempt to add to the growing body of literature on the issue of stock market in context of the Nigerian capital market. Using ordinary least square regression method, the empirical evidence suggests that there is a long-run relationship between market capitalization, volume of transactions and market turnover. The Granger Causality test on the other hand shows that there is a uni-directional relationship between gross domestic product and market capitalization while there is no directional relationship between gross domestic product and market turnover as well as that of gross domestic product to volume of transactions.

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Full Length Research Paper

Exploration of the impact of international trade on the growth of Nigeria's manufacturing sector: 1975-2010

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The study investigates the impact of international trade on Nigerian Manufacturing sector growth (MSGR). It employs cointegration and error-correction modeling techniques to explore the long-run dynamic relationship between some proxies of international trade on one hand, and Nigeria's manufacturing sector growth on the other. The study shows that there is a long-run relationship between the two. Again, the findings show that despite the positive relationship between, exports and imports and the Nigerian manufacturing sector's growth, both exports and imports do not have significant impact on the Nigerian manufacturing sector's growth. In all, trade had a weak explanatory power of just 40% of the total variation in the MSGR. The findings further reveal that Nigeria's manufacturing sector has not been benefiting from trade liberalization as the coefficient of trade openness is negative. The causality test confirms the weak influence of the Nigerian manufacturing sector on the major macroeconomic variables. The policy recommendation is that both export promotion and import substitution policies of the government should be made more vibrant in terms of implementation while making the country more investment friendly.

Key words: International trade, manufacturing sector growth rate, imports; exports, Nigeria.

INTRODUCTION

Output growth enhancement remains crucial to the drive for rapid industrialization and economic growth in all countries of the world. Output growth in an economic sense means the rate of an increase in the amount of goods and services that are being produced in an economy over a period of time. However, output growth in the manufacturing sector happens to receive greater attention. This is because the manufacturing sector has been regarded as the heart of an economy. Hence, the growth of the sector remains one of the major indices used in appraising the development of an economy (World Bank, 2002). Over the years, some developing countries, like Nigeria, have embarked on unilateral trade liberalization in recent years with very limited results in terms of increased growth and development. Based on these facts, several researchers, such as Analoguei (2000) and Oviemuno (2003), have made output growth concerns their priority.

Globally, the output growth rate of the manufacturing industry is seen as one of the crucial factors in determining the level of dependency of any economy. The manufacturing sector, which can be expressed as part of industrial sector that deals with the production of goods in large quantities for private and commercial use, has served a very important purpose in both human and capital development (World Bank, 1999). Therefore, all hands must be on deck to enhance output through accelerated investment in the industry.

International trade and output growth are both recognized as a catalyst for economic development. The contribution of trade to economic development is immense owing largely to the obvious fact that most of essential elements of development, such as capital goods, raw materials and technical know-how, are almost entirely imported because of inadequate domestic supply especially in the developing countries.

The World-Bank report of 2002 stresses that inability of many countries in sub-Saharan Africa to efficiently utilize the gains from trade contributes to their economic predicament. The report further emphasizes that it

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manufacturing sector of these countries should serve as the medium through which the benefits from trade is transformed to all-round economic development.

It is very clear from this report that empirical analysis of the relationship between international trade and output growth of the Nigerian manufacturing sector is necessary. This is because, despite the growth of international trade in Nigeria (one of the sub-Saharan African countries), the growth of the manufacturing sector has not been encouraging, which question the role of the manufacturing sector in the effective transformation of gains from trade to all-round economic development (World Bank Statistical Bulletin, 2003).

Over the years, many researchers centered their research work on trade and manufacturing growth have not examined the link between international trade and output growth of Nigeria's manufacturing sector. For instance, Olomola (2003) examines empirically the link between foreign trade and economic growth. Craft (1992) and Nash (1993) assess the effects of the trade policy environment on productivity among others factors. The common feature of most of these studies is the fact that the manufacturing sector, which is the major catalyst through which the positive impact of trade can be felt, has not been given priority in their analyses. Again, the direction of causality between international trade and manufacturing output growth has been a source of concern, which requires special attention. For instance, Analogbe (2000) stresses that there will be a positive relationship between trade and output growth of Nigeria's manufacturing sector if the problem of inappropriate implementation of industrial policies is put under control, while Iyoh and Ekanem (2002) is of the opinion that trade will cause manufacturing output to grow if properly managed.

On this note, it is very apparent that research work that examines empirically the link between international trade and manufacturing output growth is necessary. This is the major focus of this research work as it studies the impact of international trade on manufacturing sector output growth in Nigeria and explores the long-run relationship between the two from 1975 to 2007.

LITERATURE REVIEW

Olomola (2003) focuses on assessing the nature and direction of causality between foreign trade and economic growth in Nigeria. The study employs the use of co-integration and error-correction modelling after the estimation of his model which expresses economic growth (using Nigeria Gross Domestic Product (GDP)) as a function of foreign trade; he discovers a bi-directional causality between the two, that is foreign trade and economic growth during the trade and economic growth during the period under review.

Oviemuno (2003) makes use of a model that expresses the GDP of Nigeria as a function of export value, import

value, exchange rate and inflationary rate. He used ordinary least square of the estimation technique and discovers that all the four regressors, that is exports, imports, exchange rate and inflationary rate do not have any impact on Nigeria's economic growth.

Analogbe (2000) conducts a pure desk research on trade reforms and output growth in Nigeria. He undertakes an examination of different trade policies in Nigeria ranging from per-SAP trade policies, structural adjustment programmes (SAP) trade policies among others. He also appraises different output trends in Nigeria, that range from per-SAP output trend and output trend since SAP. In addition, he identifies the factors responsible for low output growth in Nigeria, taking into account that the assessment was carried out before and after the adoption of SAP. He, however, concludes that the growth in the manufacturing sector of Nigeria was hampered by inappropriate implementation of all these industrial policies.

Craft (1992) and Nash (1993) in similar studies examine the effects of trade policy environment on productivity in an economy. They make use of varieties of variables to capture the trade policy environment. Some of the variables used are imports growth rate, simple average tariff rate and concentration ratio, and all these are regressed on the growth rate of gross domestic product of the economy.

While Craft (1992) uses developing Asian countries as his case study, Nash (1993) uses developing countries in Africa as his case study. Craft (1992) observes that the trade environment has a significant positive impact on the output growth of the Asian countries, whereas Nash discovers that there has been no noticeable improvement in the growth of many African countries despite the increase in the volume of trade in these countries.

METHODOLOGY

Lucas (1988) makes use of the conventional production function to explain the relationship between output growth and trade liberalization in the model:

$$Y = F(K, L, H, TL)$$

Where:

Y	=	Output growth
K	=	capital input
L	=	Labour input
H	=	Human capital
TL	=	Index of Trade Liberalization

He further breaks down trade liberalization to include degree of openness (DOP) and real exports (RXT). Hence the modified version of Equation 1 is

$$Y = F(K, L, H, DOP, RXT) \quad (2)$$

Other things being equal, Lucas, in his measure of the empirical relationship among the variables, is of the opinion that the real depreciation of domestic currency will raise the price of tradables relative to that of non-tradables and, thus, resources will move out of the non-tradables sector into the tradable sector. Consequently, real exports would rise. Also, the degree of openness enters positively into the model. With trade liberalization, a country with a high degree of openness tends to enjoy greater growth than a country with a low degree of openness.

Model specification

The model formulated for the purpose of assessing the impact of international trade on the Nigerian manufacturing sector's growth follows the work of Oviemuno (2003). The model is a modified form of that used by Lucas (1988). In Lucas's model the index of trade liberalization only includes real exports and degree of openness but in our model, real imports and the exchange rate are added so as to complete the major variables of international trade.

$$MSGR = f(REXPRT, RIMPRT, EXR, TOP)$$

It is stated in log-linear form as

$$MSGR = a_0 + a_1 \ln REXPRT + a_2 \ln RIMPRT + a_3 \ln EXR + a_4 \ln TOP + u$$

Where: *MSGR* = Nigerian Manufacturing Sector Growth, *REXPRT* = Real Export, *RIMPRT* = Real import, *EXR* = Exchange rate and *TOP* = Trade Openness.

Estimating technique

The first step is to examine whether the time series contained in the equation has a unit root. In the cointegration literature, the more frequently used tests for a unit root are the Augmented Dickey-Fuller (1979 and 1981) Philips – Perron (1988) and Perron (1986 and 1988) test. These tests agree in their treatment to the intercept parameter. Thus, the null hypothesis model to test for unit root has the following form:

$$X_t = \mu + aX_{t-1} + E_t \quad (3)$$

And the model under the alternative hypothesis:

The estimating technique adopted for this study is cointegration and error connection model. According to Engle and Granger methodology,

$$X_t = \mu + \theta(1 - \frac{T}{2}) + aX_{t-1} + E_t$$

When X_t is the of the time series, and under the null hypothesis; $a = 1$ and $\theta = 0$. T represents the number of observations. In this paper, we use the Augmented Dickey-Fuller (*ADF*) to test for the stationarity of the time series. The *ADF* test can be obtained by applying *OLS* to estimate the coefficients of the following relation:

$$\Delta X_t = \mu + \theta_1 + X_{t-1} + \sum_{i=1}^p \lambda_i \Delta X_{t-i} + u_t \quad (4)$$

n is chosen to eliminate the autocorrelation. If a unit root exists, then $\gamma = a - 1$ would not be statistically different from zero. The *ADF* test can be conducted by comparing the t-value on the coefficient of X_{t-1} with critical values.

The Granger representation indicates that if X_t and λ_t are integrated, then they will have an error correlation representation as follows:

$$a(L)\Delta Y_t = a_0 - \lambda(y_t - a_t X_t) + b(L)\Delta \lambda_t + c(L)E_t$$

Where $a(L)$, $b(L)$ and $c(L)$ are stable and invertible polynomials respectively. Such models provide a more attractive way of presenting and modeling cointegrating series. The error correction models combine long-run ($y_t - aX_t$) and short-run dynamics.

The second step of the Engle and Granger methodology is to estimate the following regression:

$$\Delta y_t = a + \sum_{i=1}^p a^i \Delta y_{t-i} + \sum_{j=1}^q \beta_j \Delta X_{t-j} + bEC_{t-1} \quad (5)$$

Where Δ denotes the first difference and the EC represents the error term. The estimated error term coefficient must have a statistically significant negative sign. This coefficient indicates the percentage of the disequilibrium in the dependent variable that would be adjusted from one period to another. It is widely recognized that the Engle and Granger test for cointegration would be enough if we want to examine the effect of the error correction mechanism on the dependent variable for two sequences periods such as t and $t - 1$.

The maximum likelihood procedure (Johansen's test), suggested by Johansen (1988 and 1991) is particularly preferable when the number of variables in the study exceeds two variables due to the possibility of the existence of multiple cointegrating vectors. The advantage of Johansen's test is not only limited to multivariate case, but it is also preferable to the Engle-Granger approach even with a two-variable-model (Gonzalo, 1990).

To determine the number of cointegrating vectors,

Table 1. Unit root test result.

Variable	ADF Statistics	Order of Integration
<i>MSGR</i>	4.5152	1 (1)
$\ln REXPRT$	-5.7062	1 (1)
$\ln RIMPRT$	-4.5255	1 (1)
$\ln EXR$	-3.5572	1 (1)
$\ln TOP$	-5.1213	1 (1)

ADF critical value

Table 2. Test for cointegration using Johansen procedure.

Trace				Amax			
Ho	H1	Stat	95%	Ho	H1	Stat	95%
$r = 0$	$r = 1$	180.2707*	82.2300*	$r = 0$	$r = 1$	115.4904*	82.2300
$r \leq 1$	$r = 2$	64.7804*	58.9300	$r \leq 1$	$r = 2$	33.6652*	58.9300
$r \leq 2$	$r = 3$	38.1152	39.3300	$r \leq 2$	$r = 3$	22.9612	39.3300
$r \leq 3$	$r = 4$	15.1940	11.5400	$r \leq 3$	$r = 4$	12.4701	11.5400

* indicates statistical significance at the 5% level.

(Johansen, 1988 and 1991) and Johansen and Juselius (1990) suggest two statistic tests. The first one is the trace test (λ_{trace}). It tests the null hypothesis, that the number of distinct cointegrating vectors is less than or equal to (q) against a general unrestricted alternative ($q = r$). The second statistical test is the maximal eigenvalue test (λ_{max}). This test concerns a test of the null hypothesis that there is (r) of cointegrating vectors against the alternative that there is ($r + 1$) cointegrating vectors.

RESULTS AND DISCUSSION

Augmented Dickey Fuller tests for stationarity result is shown in Table 1

Augmented Dickey Fuller test for stationarity indicates that all the variables are integrated of order 1. The univariate analysis of the non-stationary series indicates that these variables can be characterized as (1).

The result of the Johansen Cointegration test is presented in Table 2

Table 2 is a summary of results of cointegration analysis using the Johansen maximum likelihood approach, that is the cointegration likelihood ratio tests based on trace of the stochastic matrix and maximal eigenvalues. In the cointegration test for the variables, both the trace and maximal eigenvalues were carried out. The first line of the table tests the hypothesis $r = 0$, that is there is no cointegration relations. This is rejected at 5

percent level by both the maximum eigenvalue (λ_{max}) and trace statistics.

Therefore, there is a long-run relationship. Again the result further confirms the existence of at least two cointegration vectors.

After using the cointegration test to establish the long-run relationship, the long-run regression analysis was carried out for the manufacturing output growth rate and variables of international trade. The cointegration regression result is presented thus:

$$MSGR = 95.17 + 11.64 \ln REXPRT + 3.32 \ln RIMPRT + 6.52 \ln EXR - 8.21 \ln TOP$$

(26.82)* (6.95)* (4.36) (2.23)*

$$R^2 = 0.42 \quad \bar{R}^2 = 0.35 \quad D.W. = 2.23 \quad ()^* \text{ Standard error in parenthesis } F(4,33) 6.0809 (0.001)$$

Both the exchange rate and exports exert a positive and significant relationship on the manufacturing sector growth rate in Nigeria. A positive but insignificant relationship exists between import and manufacturing sector growth rate. A trade openness has a negative but significant relationship with the manufacturing sector growth rate. The R^2 of 0.4243 is relatively low as showed that international trade indicators explain about 42% change in the manufacturing sector growth rate in Nigeria. The overall regression model is statistically significant by considering the F statistics. The Durbin Watson value of 2.23 is evidence of absence of

Table 3. Granger Causality Test.

Hypotheses:	F Statistics	Probability
Export does not Granger cause manufacturing growth rate.	2.0090	0.092
Manufacturing sector growth rate does not Granger cause export	7.5017	0.000
Import does not Granger cause manufacturing growth rate	1.7582	0.1391
Manufacturing sector growth rate does not Granger cause import	7.3876	0.000
Exchange rate does not Granger cause Manufacturing Growth rate	1.3227	0.2791
Manufacturing growth rate does not Granger cause exchange rate	181.5965	0.000
Trade openness does not Granger cause manufacturing growth rate.	1.6470	0.1671
Manufacturing growth rate does not Granger cause trade openness.	150.1680	0.000

correlation problem.

Considering the interpretation of the empirical result, it is apparent that Nigeria has not maximized its gains from international trade with special reference to the manufacturing sector growth.

According to the result, Nigerian imports have not impacted significantly on the manufacturing sector's growth. This might not be unconnected with the position of Obadan and Odusola (2000) who stresses that excessive importation of goods that can be produced locally will affect the growth of the Nigerian manufacturing sector. This is an indication that the long-term import substitution policy of the federal government in Nigeria has not yielded any significant results since the results have shown that imports are not making any significant impact on the Nigerian manufacturing sector's growth. This situation is corroborated by the coefficient of trade openness in the result, which is negative. The evidence from this result shows that the degree of openness has an inverse relationship with the Nigerian manufacturing sector's growth, it shows that the rate at which Nigeria opens its border for trade with other countries is not bringing the expected benefits to the manufacturing sector. In fact the other countries that are Nigeria's trade partners are benefiting more than Nigeria from their trade relationship. Again, the result shows that an increase in the exchange rate will promote the growth of the manufacturing sector. This is because a high exchange rate discourages the importation of goods and, more importantly, goods that can compete with the locally manufactured products are discouraged through this means hence it will accelerate the growth of the Nigerian manufacturing sector.

The result in Table 3 for the causality test show that only exports and the manufacturing sector growth rate has bidirectional causality. In other words, exports can Granger cause manufacturing sector growth and vice versa. For other variables, there is a unidirectional causality between each of them and the manufacturing sector's growth. The unidirectional causality for all the variables show that manufacturing sector growth does Granger cause all the variables, that is exchange rate, imports and trade openness. This follows the rejection of

all hypotheses that manufacturing sector growth does not Granger cause each of these variables. This is evidence that manufacturing sector growth has little or no influence on all these variables used as indicators of international trade except exports.

CONCLUSION AND RECOMMENDATIONS

The empirical result shows that there is long-run positive relationship between manufacturing sector growth and exports. The same relationship goes for imports and the exchange rate while trade openness has a long-run negative relationship. The causality tests have revealed the weak influence of the manufacturing sector in Nigeria on key macroeconomic indicators such as exchange rate, imports and trade openness. It affirms the moribund nature of the manufacturing industry in Nigeria. Evidence from various empirical works like Fabayo (2000) have shown that a good number of manufacturing firms are folding up daily while some are leaving the country for other neighboring countries in their bid to survive. The most worrisome aspect of this scenario is the fact that Nigeria's trading partners are benefiting more than Nigeria from their trade relationships; hence, trade liberalization measured by trade openness has not positively influenced the Nigerian manufacturing sector's growth. Excessive importation of finished goods that can be produced locally is a colossal setback for the growth of the Nigerian manufacturing sector. This has over the years killed the skill and initiative of many entrepreneurs in the country. Recently, the federal government has opened the borders for the importation of cement, a product that the country has abundant raw materials to produce. This may have a long-term negative effect on the manufacturing sector as shown by the findings in this research work.

Finally, if Nigeria is to maximize its gains from international trade an effort must be made to revitalize the implementation of export promotion and import substitution policies. These two policies are just "paper tigers" going by the findings in this research work, that they have not made the expected impact on the Nigerian

manufacturing sector. Again, effort must be made to make the production environment in Nigeria friendlier by ensuring security of life and properties as well as improving power generation, roads and other infrastructural facilities. This will limit the alarming exit of manufacturing firms from the country.

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