



IMPACT OF PARALLEL FOREIGN EXCHANGE RATE ON THE GROWTH OF THE MANUFACTURING SECTOR IN NIGERIA

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ABSTRACT

This study examined the impact of parallel foreign exchange rate on the growth of the manufacturing sector in Nigeria. The specific objectives of the study were to determine the impact of parallel foreign exchange rate on the manufacturing sector performance, to determine the impact of parallel foreign exchange premium on the growth of the manufacturing sector, and to investigate the impact of inflation rate on the growth of the manufacturing sector in Nigeria. Ex-post factor research design was adopted in the study. The dependent variable was manufacturing sector contribution to gross domestic product (MGDP) while the independent variables were parallel foreign exchange rate (PFEXR), official foreign exchange rate (OFFER), Parallel foreign exchange premium (PPR) and inflation rate (INFR). Data analysis was done using the ordinary least squares regression technique. The study found that there is a negative and significant impact of parallel foreign exchange rate on the growth of manufacturing sector in Nigeria. The study also found a long-run relationship among the variables used. The study recommends that: government should take appropriate steps to coordinate and harmonize foreign exchange policies in order to rescue the manufacturing sector from weakening effects of the instability in foreign exchange rates in Nigeria; conservation of external reserve should remain a priority target of monetary policies to ensure that there are no set-backs relating to the allocation of foreign exchange to the activity sectors of the economy

especially the productive sectors led by the manufacturing sector; and monetary authorities should think with the operations of Bureau De Change and illegal foreign exchange markets whose activities creates artificial scarcity of foreign exchange making it difficult for manufacturing sector to easily import raw materials and other expatriate services required for production purposes.

Keywords: Parallel Foreign Exchange rate, Manufacturing sector, Growth

INTROCUCTION

Recently, there is much debate regarding the policies needed to sustain rapid growth and promote productivity in the manufacturing sector in Nigeria. Questions about external competitiveness, exchange rate fluctuations vis-à-vis parallel foreign exchange rate, and the appropriate exchange rate policy have featured prominently in this debate (Jongbo, 2014). This is an offshoot from the fact that the parallel foreign exchange operations is a key factor influencing manufacturers regarding purchase of input materials, production and marketing distribution of finished goods. Ayinde (2014) asserts that the interaction between exchange rate volatility and manufacturing sector performance has remained topical among economists and policymakers alike, since the period of currency differentials among nations. The bearing of parallel foreign exchange market operations in Nigeria is a fall-off from institutional and macroeconomic factors in the demand for foreign exchange by utilizers overwhelms the capacity of the legally permitted disbursing institution, and this incapacitation has led to the existence of illegal traders who have created a foreign exchange trading environment which is conveniently referred to as “black market”.

Parallel exchange market known as black market can be defined as the diversion of foreign currencies through the unofficial market or illegal market which affect the official foreign exchange market (Bekefalu, 1994). An increase in the demand for foreign exchange with a shrinking supply line encouraged the development of a flourishing parallel “black” market for foreign exchange. As a result, a high parallel premium emerged overtime due to inadequate supply of official foreign exchange leading to various abuses including over-invoicing of imports and under-invoicing of exports. The consequence of this is capital flight and the diversion of

official foreign exchange to the parallel market , a practice termed “round tripping” Garba (1994).

Parallel market premium can be defined as the percentage difference between the parallel market exchange rate and the official foreign exchange rate (Nkurumziza, 2007).

Manufacturing activities, industries and institutions collectively form the manufacturing sector of the Nigerian economy engaged in the transformation of primary products into intermediate and finished goods for further production or for final consumption. According to the CBN (2015), manufacturing activities comprise of oil refining; cement production; food, beverage and tobacco; textile apparel and footwear; wood and wood products; pulp, paper and paper products; chemical and pharmaceutical products; non-metallic products; plastics and rubber products; electrical and electronics; base metal, iron and steel; motor vehicles and assembly; and other manufacturing. These activities source raw materials usually imported from abroad thereby creating the inescapable need for foreign exchange and for a heavily import-dependent sector as such, sourcing for and obtaining the needed foreign exchange involves very critical decision frameworks due to the instability of exchange rates

The parallel foreign exchange window is the most easily accessible for manufacturers but at very exorbitant costs. Parallel foreign exchange rate being a flow variable is left to the whims and caprices of the market forces. Ayodele and Obafemi (2016) observed that “fiscal effects of parallel market premium arise because the Nigerian government is a net seller of foreign exchange to the private sector”. By this view, we may conveniently suggest that the parallel foreign exchange market environment will persist and its ripple effects on the activity sectors of the economy (manufacturing precisely) and the nature of the effects will depend largely on the market situation at any time.

The evolution of the foreign exchange market in Nigeria from inception to its present state has been influenced by a number of factors which include the changing pattern of international trade, institutional changes in the economy and the structure of production. The early 1970s came with increased crude oil exports with accompanying price increases which enhanced foreign exchange receipts. Most economic agents had depended on the CBN for the foreign exchange to meet international business obligations. During the early 1980s, the institution of comprehensive foreign exchange controls which were due mainly to the foreign

exchange crisis of 1982. Activities of speculators and middlemen increased during this period. An increased demand for foreign exchange with a shrinking supply line encouraged the development of a flourishing parallel “Black” market for foreign exchange. As a result, a high market premium emerged overtime due to inadequate supply of official foreign exchange which led to various abuses including over-invoicing of imports and under-invoicing of exports. This usually culminates in capital flight and the diversion of official foreign exchange to the parallel market, a practiced which has been codenamed “round-tripping” (Garba, 1994).

Overtime, the parallel market has become a major source of foreign exchange to a wide variety of economic agents, and the rate in the market is usually more depreciated than the official window rate. The expansion of the parallel market for foreign exchange leads to the loss of government control over the economy as more and more of the official transactions are diverted to the parallel market. Kiguel and O’Connel (1995) argued that the parallel foreign exchange rate feeds back into the economy through illegal trade and prices. They postulated large premiums have detrimental effects on official receipts and hence on growth while providing only limited insulation from external shocks. A rough estimate indicates that a 10% premium is likely to reduce growth by 0.4% points yearly while the impact wanes as the premium goes up and a 10% premium cuts GDP growth by 2% points a year. A high parallel premium for foreign exchange market nevertheless has adverse effects on the growth of the manufacturing sector. It is also important to note that authorities of some developing countries argue that parallel foreign exchange market premium may be socially desirable because this market accommodates transactions whose demand for foreign exchange is not met by the official foreign exchange market (Derdunoo, 1994). The primary goal of the foreign exchange market is to allocate foreign exchange to the various sectors of the economic while trying to maintain a suitable exchange rate for the local currency and at the same line achieve competitive macroeconomic performance in terms of growth and stability.

In an attempt to boost the economic growth or performance of the country, the Nigerian government has adopted some measures concerning parallel foreign exchange market because they believe that it may probably affect their economic performance of the manufacturing sector in the economy. Ehinomen and Oladipo (2012) observed that Since Nigeria is heavily factor-input import dependent; the inability to locally source the required inputs in the manufacturing sector in the country is a chronic problem. Consequently, the exchange rate plays an important

role in the ability of the economy to attain a realistic growth in the manufacturing sector. Similarly, the over-dependence of the economy on imported capital goods implies that a depreciating exchange rate would crowd out marginal investment as a result of high investment cost. The depreciation in the naira exchange rate has resulted in a shift in finance from the productive sector to the trading sub-sector. This assertion is corroborated by the use to which foreign exchange has been deployed over the years. While the proportion of foreign exchange utilization in raw material imports, machinery and equipment decline, the utilization on finished goods remained high between 2001 and 2015. Given the import dependent nature of the Nigerian manufacturing sector, the continued depreciation of the naira exchange rate vis-à-vis the currencies of other major trading partners, implies that more resource would be needed to increase domestic output. A depreciating exchange rate in the absence of domestic sources for input and inadequate infrastructure will raise the cost of production, which will in turn make locally produced goods less competitive compared to the imported counterparts, thus, reversing the benefit of cheaper exports expected from depreciation of any currency.

The foreign exchange rate in Nigeria has witnessed a continuous slide in all segments of foreign exchange markets (official market and parallel market windows). Jongho (2014) observed, that the exchange rate of the naira depreciated progressively in the official market from ₦7.94 per U.S. dollar in 1990 to ₦81.02 per dollar in 1995 and further to ₦129.02 in 2003. It depreciated similarly in the other foreign exchange windows from ₦9.62 per dollar in 1990 to ₦141.36 per dollar in 2000.

Figures from the CBN (2015) shows that the annual average foreign exchange rate at the parallel market window was ₦222.72 per dollar, in the last quarter of 2015 the parallel foreign exchange rate hovered between ₦222.68 and ₦232.40 per dollar in September and November respectively with a final end-period figure of ₦267.00 per dollar representing approximately 20% increase from September to December. The manufacturing sector contribution to GDP did not show a commensurate percentage progress as the same document shows that sectoral utilization of foreign exchange by the manufacturing sector for import purposes declined by about 40.32% from \$8,428.1 million in the 1st quarter of 2015 to \$5,029.7 million in the last quarter. This is an apparent attestation to the difficulties in securing foreign exchange by manufacturers.

Despite expectation of a better environment in 2016, the reverse was the case for the operators in the manufacturing sector of the economy. The foreign exchange rate skyrocketed to about ₦520 per dollar around the 3rd and last quarter of 2016 – that is about 94.75% increase with resultant negative effects on manufacturing activities.

According to CBN (2016), manufacturing profit margin index (PMI) dropped 45.8% in the preceding month. This implies that the manufacturing sector performance declined at a faster rate in the period reviewed. Of the sixteen (16) manufacturing subsectors, fourteen (14) recorded decline in the following order: electrical equipments, non-metallic products, furniture and fabricated non metal products, chemical and pharmaceutical products, printing and related support activities, paper product, food, beverages and tobacco, cement, plastics and rubber product etc. This has resulted in many companies scaling down their production and reduced staff strength while those who retained their workers reviewed their salaries downward. Examples of such companies were local tomato manufacturers, Erisco foods Ltd which shut its ₦ 4 billion tomato paste processing plant and sacked 1500 workers out of its 20520 entire workforce and moved its operation to China due to the refusal of CBN to allocate foreign exchange to the company to for importation of raw materials. This has resulted to increase in prices of the product but not reflecting in the volume growth.

In a bid to achieve the goal of a stable and favorable exchange rate of the naira with other international currencies particularly the dollar, the country embarked on devaluation of currency to promote export. In- spite of this, the goal has not being realized. The inability to realize this goal has brought the manufacturing sector face-to-face with the challenges of a constantly fluctuating exchange rate. This was necessitated by the dwindling external reserve, devaluation of the naira, the weak and narrow productive base of the sector as well as the rising import bills. Stemming this development and ensuring a stable exchange rate has seen the monetary authority in a round-the-clock working effort that has led to a number of exchange rate policies with little or no achievement.

Consequent upon this, the problem of parallel exchange rate fluctuation has persisted, and in addition the premium between the official and the parallel market has remained wide over the period 1995 to 2016. Having noted the import-dependent nature of Nigeria economy, the continued depreciation of the naira exchange rate vis-à-vis the currencies of other major trading

partner implies that more resources would be needed to improve domestic output. A depreciating exchange rate in the absence of domestic sources for inputs and inadequate infrastructure will raise the cost of production which in turn, will make locally produced goods less competitive compared to imported goods. Thus reversing the benefit of cheaper exports expected from currency devaluation (Jongbo, 2014).

The manufacturing sector was one of those badly hit by the economic recession in the country. Trouble started for manufacturers when the Central Bank of Nigeria (CBN) removed 41 items from the list of utilizers of foreign exchange and also the continued drop in the naira to dollar exchange rate. The high cost of sourcing dollar made it difficult for firms to bring their raw materials and those who were able to pay did not even get the dollar supplied to them until after three or four months. Consequently players in the sector recorded huge drop in patronage, turnover and profit margin, as well as decline in production, layoffs and factory closures Franklin (2017).

In Nigeria the dominant sources of supply of foreign exchange for the parallel market are largely contraband exports and imports (smuggled exports and imports) of goods and services and unofficial private transfers. On the other hand, legal and illegal imports, portfolio diversification motive and capital flight, and residents' travel abroad are generally the principal sources of demand for foreign exchange. Contraband importers (who want to escape import taxes as long as the risk of engaging in illegal import is a worthwhile venture) and invisible payment such as payment for medical, educational and travels services abroad are the dominant sources of demand for foreign exchange in the parallel foreign exchange market of Nigeria.

The implication of an extremely high parallel foreign exchange rate is an output gap created in the real sector which has negatively affected the growth of production, with consumption whittled down. The manufacturing sector is in comatose and the economy generally has not fared well. Some years ago, fuel was ₦65 per liter but now it is ₦145. The masses are paying directly without any succor. In terms of power supply, most people including manufacturers use generating sets, while some allocations in the budget are far-reaching. 40% of the total cost of production goes to power generation in Nigeria. The contribution of the manufacturing sector to growth of the economy is greatly hindered due to difficulties in processing and accessing foreign exchange to fund import of necessary input raw materials. The

consequence of this is hopelessness and frustration on the faces of the people, abject poverty, unemployment, suicide and deaths especially by young people, high inflation rate and reduction in GDP in the Nigerian economy. The oil marketers were allowed to fix the price within the new price band of ₦145, as it became imperative in the face of extreme difficulties faced by importers in sourcing foreign exchange (Udeme, 2016).

With the background set above and the apparent problems observed, this study thus seeks to address the impact of parallel foreign exchange rate on the manufacturing sectors growth. Arguments shall be backed with empirical evidence in the following sections of the study.

REVIEW OF RELATED LITERATURE

The parallel market for foreign exchange has been in existence from the exchange control era. The disparity in exchange rates was even greater in some of the periods before Nigeria's major economic reforms. The widening gap in exchange rates has further been strengthened by the existence of the parallel or black market due largely to the windfall gains arising from its operations. The parallel market is a residual market as it accommodates spill over demands from other sources (CBN,2002). Parallel foreign exchange market known as, black market can be defined as the market for diversion of foreign currencies through the unofficial market or illegal market which affect the official foreign exchange market activities (Befekalu, 1994). An increase in the demand for foreign exchange with a shrinking supply line encouraged the development of a flourishing parallel "black" market for foreign exchange. The parallel foreign exchange rate is the rate that is determined by market forces in an informal market different from the formal autonomous market, Oluremi (2015). He adds that under the current policy dispensation, it is often equated with the rates determined through the operations of Bureau De Change.

As one of the variable that affects economic performances in Nigeria, foreign exchange can be defined as the means of effective payment for international transaction (CBN, 2009). It is made up of convertibles currencies that are generally accepted for the settlement of international trade and other external obligation. Parallel market premium can be defined as a difference between the parallel exchange rate and the official exchange rate (Nkurumziza, 2007).

When faced with foreign constraints governments of developing countries as Nigeria often prefer foreign exchange controls to devaluations or tighter macroeconomic policies in their attempt to protect their international reserves. Meanwhile extensive controls on foreign exchange limit the accessibility of foreign exchange demanders to the official market, i.e. tighter foreign exchange controls throw an increasing number of foreign exchange demanders out of the official market. This lead to the emergence of an illegal market for foreign exchange; which then grows and becomes macro economically important as the concerned authorities respond to deteriorating balance of payments by tightening and extending controls of foreign exchange to maintain an overvalued exchange rate (Degefa, 2001).

When we consider the concept of exchange rate, we usually look at how the currencies of two different countries exist side-by-side. According to Afolabi (1998) exchange rate is the rate at which one currency exchanges for another. We may therefore add that exchange rate of the naira to the Dollar is just about how many units of naira we need to purchase one unit of U.S. dollar so that if for every unit of dollar purchased we give up say ₦5, and then the exchange rate will be \$1 to ₦5. In the continuing analysis he added that in independent economies such as Nigeria, “exchange rate will be the important price in that it determines all other prices”. This view is correctly applicable in Nigeria given that we are mostly import-dependent. Fahrettin (2001) quoted by Imoughele and Ismaila (2015) asserted that exchange rate as a price of one country’s money in terms of another, is among the most important prices in an economy, it influences the flow of goods, services and capital in a country and exerts a strong pressure on the balance of payment, inflation and other macroeconomic variables.

The submission by Afolabi is in a somewhat agreement with Nzotta (2004) that “exchange rate is the rate of transformation of one currency to another, or the rate at which one currency is exchanged for another , Mordi (2006) and (Fahrettin (2001) also share this view. Nzotta added the clause that “it is maintained by arbitrage”. Arbitrage according to him is a mechanism whereby a speculator buy in one market where the price is low and sells in another where the price is high, and the difference constitutes arbitrage income. This term “arbitrage” as supposed by Nzotta is what Garba (1994) terms “round-tripping” but specified government functionaries as the major perpetuating elements. Garba noted that an increase in the demand for foreign exchange with a shrinking supply line encouraged the development of a flourishing black market for foreign exchange as fallout of corrupt practices by government functionaries.

The determination of exchange rate is market oriented, and Umeora (2010) explains it as the demand and supply of naira traded in the foreign exchange market. Prior to the trade liberalization as part of the conditions accompanying the Structural Adjustment Programme (SAP), exchange rate in Nigeria followed a managed system which gave way to a float system where market forces determined the rate. There is a three-way approach to exchange rate determination which includes: the traditional flows, the portfolio balance and the monetary models. In the traditional flow, exchange rate is viewed as the product of the interaction of demand for and supply of foreign exchange. The portfolio balance model views it as the result of the substitution between model and financial assets; whereas the monetary approach is predicated upon the importance of money so that exchange rate is a function of relative shift in money stock and domestic output between an economy and another trading partner economy. We must state here that the purchasing power parity is one of the monetary approach to exchange rate analysis.

Parallel Exchange Rate and the growth of the Manufacturing Sector in Nigeria

Research related to exchange rate environment particularly parallel foreign exchange rate interaction with manufacturing economic activities remains of interest to economists especially developing countries. This notion is couched on the view according to Imoughele and Ismaila (2015) that in what “exchange rate in whatever conceptualization, is not only an important relative price which connects domestic and world markets for goods and assets, but it also signals the competitiveness of a country’s exchange power vis-à-vis the rest of the world in a pure market.

The manufacturing sector of the Nigerian economy appears to be gradually bouncing back to reckoning, based on the achievement recorded in the sector to the outgoing year. Manufacturing activities were paralyzed at the beginning of the year due to the depreciation in the exchange value of the Naira to the dollar.

Manufacturing sector has the potential of becoming the cornerstone of the Nigerian economy. This crucial sector is central of the creation and retention of good jobs and a good standard of living for working families. In large and smaller communities and cities across Nigeria, manufacturing jobs (especially unionized jobs) offer high profiting economic benefits.

As a sector, manufacturing firms are especially valuable to the economy because when they export goods, they bring back to their communities much of the wealth earned from sales around the country and the world.

The impact of parallel exchange rate fluctuations on the Nigerian manufacturing sector as argued by scholars and industrialists is that it adversely affect output of the manufacturing sector. This is because Nigerian manufacturing is highly dependent on import of inputs and capital goods. These are paid for in foreign exchange majorly sourced from the parallel market. Thus, this apparent fluctuation is bound to adversely affect activities in the sector that is dependent on external sources for its productive inputs. Oladipo and Adegbite (2012), Copelman and Wermer (1996), and Ehinomen and Oladipo (2012) agrees that exchange rate appreciation will promote growth in Nigeria's manufacturing sector.

However, the manufacturing sector has not performed any better because of the influence of the earlier mentioned factors which affect the manufacture sector performance. These are an inverse relationship between parallel exchange rate fluctuations and the manufacturing sector performance. The manufacturing sector makes significant contribution to economic development through its incomes and employment linkage with other sector of the economy in both developing and developed countries.

Moreover, the challenge of rapid development of Nigeria's manufacturing is largely fed by its vast pool of cheap labour. The quality and competitiveness of Nigeria's manufacturing sector has grown slower than its scale. In comparison with other developed industrialized countries, Nigeria's productivity and value added are still at a low level, which remains a fundamental problem.

Aliyu (2011) noted that appreciation of exchange rate results in increased imports and reduced exports while depreciation would expand exports and discourage imports. In addition, depreciation of exchange rate tends to cause a shift from foreign to domestic goods.

The manufacturing sector plays a catalytic role in developing economies like Nigeria with varying benefits that are crucial for economic transformations and output growth. For Fakiyesi, (2005), it leads to increase in productivity in relation to import substitution and export expansion, creates foreign exchange earning capacity, raises employment, and promotes the growth of investment at a faster rate than any other sector of the economy, as well as wider and more efficient linkage with other sectors of the economy. The table below is a description of a 5year

period average performance indices of parallel foreign exchange situation and manufacturing sector in Nigeria between 1986 and 2015:

Table 1.0 10year Average Values and Percentage Change f Parallel Exchange Rate and Manufacturing Sector Contribution o GDP From 1986-2015

Period	Average PFEXR ₦/\$	% change	Average MGDGP N' Billion	% change
1986-1990	5.2009	-	94.67	-
1991-1995	30.4295	485.08	441.358	366.20
1996-2000	88.1652	189.73	1359.418	208
2001-2005	129.9546	47.39	3383.714	148.9
2006-2010	139.9840	7.71	8115.514	139.84
2011-2015	175.4380	25.32	17519.282	115.87

Source: author computation using figures from CBN Statistical Bulletin of 2015

Summarily, manufacturing costs in Nigeria are rising faster than manufacturing growth performance of the sector. Among the key factors that impacts on manufacturing output includes parallel foreign exchange situation, cost of raw material and capital, in addition to energy needs.

Empirical Review

Obi, Oniore and Nnadi (2016), in the study of the relationship between exchange rate regimes and output growth in Nigeria from 1970 to 2014, employed the Generalized Method of Moments (GMM) to estimate economic growth equation as a result of endogeneity problem. Their findings suggest that fixed exchange rates constrain the performance of the Nigerian economy as real exchange rate depicts inverse relationship with economic growth during the whole period and period of fixed exchange regime.

Lawal (2016) examined the effect of exchange rate fluctuations on manufacturing sector output in Nigeria for the period 1986 to 2014 using the Autoregressive Distribution Lag (ARDL) multiple regression analysis discovered that exchange rate fluctuations have long run and short run relationship on manufacturing sector output.

Jongbo and Olajide (2014) in their study of the impact of real exchange rate fluctuation on industrial output focused on the effect of misalignment of real exchange rate on the output of the Nigeria industrial sector. The results show that real exchange rate play a significant role in determining the industrial output and also in addition, availability of foreign exchange increase through contentious export drive from both oil and non-oil products will contribute tremendously to increase industrial output.

Enekwe,Ordu and Nwoha (2013) examined the effect of exchange rate fluctuations on manufacturing sector in Nigeria for the period 1985-2010. The study employed the multiple regression including manufacturing employment rate, exchange rate, manufacturing private investment and manufacturing gross domestic product as variables. The major finding shows that exchange rate fluctuations had positive and significant relationship with manufacturing output. Official exchange rate is not as erratic as the parallel exchange rate which may be an indicator to the result reported in this study.

Ehinomen and Oladipo (2012) , on Exchange Rate Management and the Manufacturing Sector Performance in the Nigerian Economy using Ordinary Least Square (OLS) multiple regression analysis. The study covered the periods of 1986-2010 with the use of time-series data. The empirical result of this study shows that exchange rate depreciation has no significant relationship with the manufacturing's sector productivity while exchange rate appreciation has a significant relationship with domestic output. And that exchange rate appreciation will promote growth in the manufacturing sector.

Oladipo and Adegbite (2012) examined the impact of exchange rate movements on the growth of the manufacturing sector in Nigeria. They employed ordinary least squares (OLS) multiple regression analysis covering the period of 1986-2010 using time series data. Their major findings show shat exchange rate depreciation which forms part of the Structural Adjustment Programme (SAP) has no significant relationship with manufacturing sector productivity. This result may not be unconnected with the instability in exchange rate which makes importation of needed raw materials by manufacturers difficult.

David, Ume and Ameh (2010) also examined the effect of exchange rate fluctuations on Nigeria's manufacturing industry. They employed multiple regression econometric tools which

revealed a negative relationship between exchange rate volatility and manufacturing sector performance.

Munoz (2006) studied the impact of the parallel market and Governance factor on Zimbabwe's export performance using co-integration test. According to estimation results, real exchange rate devaluation would be the most important factor in boosting exports. The evidence gathered suggested that the overvaluation of the official exchange rate has had a cost for Zimbabwe in terms of competitiveness. Exports have been affected by the overvaluation of the exchange rate. There was a negative relationship between the parallel market rate depreciation and the value of legal exports.

Caporale and Cerrato (2005) studied the Black market and official exchange rate:- Long run equilibrium and short-run dynamics, and where empirical results on the relationship between black market and official exchange rate in six emerging economies, (Iran, India, Indonesian, South Korea, Pakistan and Thailand), was studied; Empirical analysis suggests that black market and official rates are linked in the long-run. This pointed to weak form information inefficiency which might reflect the existence of transaction cost and / or foreign exchange controls.

Nkurunziza (2002) studied the parallel market against macroeconomic policies in Burundi, using time series properties of the variables used in an empirical model covering 1970 – 1998, the test reveals that the premium is stationary. Econometric results show that the premium is determined by the expected rate of devaluation, trade policy variables and GDP growth, although this confirms empirical findings for other African countries. He also noted that Burundi's case is particular in one respect, that is, Burundi's parallel premium is low by comparison.

Degefa (2001) in a study on parallel foreign Exchange market and macroeconomic performance in Ethiopia using granger test looked into changes of the parallel premium in relation to movement of macroeconomic variables. First he looked at the determinants of the parallel premium and the relationship between the premium and merchandize export and the impact of the parallel exchange rate on inflation. Estimation of results revealed that the parallel premium has a negative effect on merchandise exports and that its long-run determinants are real money balances, the real effective exchange rate, and inflow of aid (grants).

The implications of the results reported by Jongho (2014), Ehinomen and Oladipo (2012), Opaoluwa et al (2005), Enekwe, Ordu and Nwoha (2013) , and Lawal (2016) is a confirmation of the earlier submissions by Imoughele and Ismaila (2015) that exchange rate as a price of one country's money in terms of another, is among the most important prices in an economy as it influences the flow of goods, services and capital in a country and exerts a strong pressure on the balance of payment, inflation and other macroeconomic variables.

Theoretical Framework

The monetary and traditional flow theory serves as the theoretical basis for this study.

The stock flow theory:

The stock flow model was developed by Branson (1975) and Swoboda (1976). It is essentially based on the principle of the interplay of demand and supply. The forces of the market (interaction between demand and supply) determine the rate of exchange. According to Olisadebe (1991) the traditional flow model presumes that exchange rate is determined by the forces of demand and supply for foreign exchange and concludes that exchange rate is in equilibrium when supply equals demand. To him, a current account imbalance can be offset by a net flow of capital in the opposite direction for instance, a current account surplus is financed by acquisition of financial assets abroad or outflow of capital. Similarly, a deficit is finance by inflow of capital. This goes further to assume that the current account is determined by relative prices and real income. An increase in domestic prices relative to foreign prices leads to exchange rate depreciation. This is because increase in domestic price level adds to costs thereby making exports costly and less competitive, consequently the supply of foreign exchange is constrained on the other hand, imports become higher because countries find such demanding countries to export to. Furthermore, the model posits that an increase in domestic interest rate relative to the foreign interest rate causes an appreciation through induced capital flows. Following the model, a depreciation of the exchange rate tends to increase the real income which results in increase in demand for imports which have a negative effect on the current account and hence the balance of trade but without offsetting any increase in capital inflow owing to the fact that exports do not increase in the same direction.

The monetary approach theory:

the monetary approach to exchange rate theory was developed by Johnson G. Harry in 1976 and extended by Frenkel (1978). This theory of exchange rate is couched in relative hypothesis, it stipulates that a situation of falling prices with a given nominal money supply results in exchange rate depreciation . This theory is predicated upon the importance of money and identifies exchange rate as a function of relative shift in money stock (external reserve) and inflation rate as a proxy and domestic output between an economy and a trading partner economy. It adds that a fixed exchange rate regime can increase trade and output growth by reducing exchange rate uncertainty and thus the cost of hedging, and also encourage investment by lowering currency premium from interest rates. However on the other hand it can also reduce trade and output growth by stopping, delaying or slowing the necessary relative price adjustment process. Ayinde (2014) agrees with this postulation of the monetary approach that a situation of falling prices with a given nominal money supply results in exchange rate depreciation.

However, when there is a speculation or expectation of a change in the rate of exchange, this could lead to the disequilibrium even without any change in the initial determined forces. Exchange rate can adversely affect the ability to import and therefore manufacturing growth. Fluctuations in parallel exchange rate can cause instability in purchasing power and hence negatively impact on investment in the import of manufacturing inputs. On the other hand the effect on manufacturing growth and overall income level will also affect investment in imports of input and invariably the exchange rate, this is owing to the fact that the demand for foreign exchange, and the supply itself as being influenced by an economy's productivity level, are among the factors that determine exchange rate.

Issues/Literature Gap

The foreign exchange rate movements in Nigeria from the second quarter of 2015 have raised a lot of interest in policymakers, manufacturers and researchers due to the chain-effects that accompany it. The major gap in literature on this subject area is in the concentration of efforts on the exchange rate without due attention to implication of the parallel exchange rate on the manufacturing sector. This gap is bridged by this study.

METHODOLOGY

Research Design

In this study, we have adopted the ex-post factor design due to its suitability in forecasting time series variables. In this design, the use of past values to explain future outcomes is made possible. The processes to be followed will begin with the unit root test of stationarity, followed by the test for co-integration using the Johansen approach and then the ordinary least squares analysis.

Sources of Data

To ensure reliability of the information resulting from this study, time series secondary data is the most suitable and reliable for this study, therefore data employed in this study were sourced from the Central Bank of Nigeria (CBN) statistical bulletin (2015). The period under review is 1985-2015, which is a range of 31 years, with annual data on manufacturing growth (proxied by manufacturing sector contribution to GDP), parallel market foreign exchange rate, parallel premium, official foreign exchange rate, and inflation.

Model Specification

In their research on the effect of exchange rate fluctuations on manufacturing sector in Nigeria; Enekwe, Ordu and Nwoha (2013) used a model incorporating manufacturing sector contribution to GDP as the dependent variable while Exchange rate, manufacturing employment rate, and manufacturing foreign private investment were the independent variables. The model was specified as below:

$$MGDP = f(MPFI, MER, ER) \dots \dots \dots (1)$$

The linearized form of the model is:

$$MSGDP = \beta_0 + \beta_1 MFPI + \beta_2 MER + \beta_3 ER + E_i \dots \dots \dots (2)$$

Where MGDP = manufacturing gross domestic product (output)

MFPR = manufacturing sector foreign private investment

MER = manufacturing sector employment rate

ER = exchange rate.

Therefore, in our estimation of the impact of parallel foreign exchange rate fluctuation on the manufacturing sector growth in Nigeria, we adopt the model above with modifications as follows:

$$MGDP = f(PFEXR, PPR, OFFER, INFR) \dots\dots\dots (3)$$

The mathematical form of our model is:

$$MGDP = \beta_0 + \beta_1 PFEXR + \beta_2 PPR + \beta_3 OFFER + \beta_4 INFR + U_t \dots\dots\dots (4)$$

Where β_0 = constant term

$\beta_1, \beta_2, \beta_3$ and β_4 are the coefficients of the parameter estimate

MGDP = manufacturing sector growth (proxy by manufacturing sector contribution to gross domestic product)

OFFER = official foreign exchange rate

PEXR = parallel foreign exchange rate

PPR = parallel premium

INFR = inflation rate

U_t = the error term

The a priori assumptions of our model are: $\beta_1, \beta_2,$ and $\beta_4 < 0$ while $\beta_3 > 0$

Description of research Variables

Given the design adopted in this study, the variables used in the model are classified into explained (dependent) and explanatory (independent) variables. Manufacturing sector growth (MGDP) is the dependent variable, it is a measure of the contribution of the manufacturing sector to the gross domestic product of Nigeria, while parallel foreign exchange rate (PFEXR), parallel premium (PPR), official foreign exchange rate (OFFER) and inflation rate (INFR) are the independent variables.

Parallel Foreign Exchange Rate (PFEXR): this is the rate of exchange of the naira to the dollar as is obtained in the unofficial window. It describes how much naira is given up to obtain a unit of a foreign currency.

Parallel Premium: this is the difference between the exchange rate at the official market and the rate at the non-official (parallel) market.

Official Foreign exchange Rate (OFFER): this is the rate at which the naira exchanges with another currency as determined by government through its monetary authorities.

Inflation Rate (INFR): this describes a situation of a persistent rise in the general prize of a representative basket of goods and services over time. It means that people will need more and more money to be able to purchase goods and services.

The inclusion of these variables is informed on their link-effects and relationship. For instance, any consideration of manufacturing sector operations must look at their ease of obtaining raw materials which is defined by the exchange rate and inflation rate situations being that they contribute in determining the ability of manufacturers to purchase raw materials and the allocation thereof of foreign exchange.

Analytical Techniques

The estimation procedure adopted in this study is in three sequences. In order to stem the problem of spurious regression, the Augmented Dickey Fuller unit root diagnostic test was first conducted to ascertain the time series properties of the data set employed in the estimation of the model; the implication of a stationary series is that it makes a model suitable for prediction, forecasting and policy analysis.

The Johansen co-integration test will follow if the data set indicates integration property of order 1(1) for the variables employed. The co-integration test also helps to find out the existence or not of a sustainable long run relationship among the variables, where co integration is identified, then there is the existence of short run fluctuation. The vector error correction mechanism will be employed to tie the short run fluctuation with the long run equilibrium and then, we can proceed to the ordinary least regression to determine the impact of parallel foreign exchange rate fluctuations on the growth of the manufacturing sector in Nigeria . The tests and estimation will be carried out using econometrics-views (E-views 8.0)

The decision rule to conclude the existence of the impact of Parallel foreign exchange rate on the manufacturing sector growth will be made using the probability values at 5% level of significance. To accept any of the objectives, the probability value must be less than 0.05 being the level of significance, otherwise we reject.

RESULTS AND DISCUSSION

Descriptive Results

Table 2.0

	MGDP	PFEXR	OFFER	PPR	INFR
Mean	4987.617	97.84742	80.67864	57.32194	20.13839
Median	2100.510	111.5100	102.1052	12.28000	12.00000
Maximum	18973.77	191.8000	193.2792	306.5800	76.80000
Minimum	51.08000	3.900000	0.893750	1.480000	0.200000
Std. Dev.	6310.066	60.26768	65.00778	92.21251	19.76793
Skewness	1.216935	-0.413012	0.015206	1.786702	1.553584
Kurtosis	3.015379	1.699855	1.336231	4.719442	4.192375
Jarque-Bera	7.651783	3.064728	3.576695	20.31235	14.30682
Probability	0.021799	0.216024	0.167236	0.000039	0.000782
Sum	154616.1	3033.270	2501.038	1776.980	624.2900
Sum Sq. Dev.	1.19E+09	108965.8	126780.3	255094.4	11723.13
Observations	31	31	31	31	31

Source: Author's computation (E-views 8.0)

The table above shows the statistical summary of the data employed in this study. As observed, the manufacturing gross domestic product (MGDP) being the dependent variable has the highest mean value of 4987.617 whereas the mean value for parallel foreign exchange rate (PFEXR), official foreign exchange rate (OFFER), parallel premium (PPR) and inflation rate (INFR) are 97.84742, 80.67864, 57.32194 and 20.13839 respectively. The analysis is also fortified by the value of the skewness and kurtosis of all the variables used. Skewness is a measure of dispersion away from the mean value while kurtosis is symmetrical measure of the histogram. The benchmark for symmetrical distribution is how close the individual values are to zero while in the case of kurtosis, when it is 3.0 it is called mesokurtic, when it is higher than 3.0 it is

called leptokurtic and values lower than 3.0 are called platykurtic. Information from the table above show that MGDG, PFEXR, OFFER, PPR and INFR have individual values of 3.015379, 1.699855, 1.336231, 4.719442 and 4.192375 respectively; for this, PPR and INFR with values higher than 3.0 are leptokurtic, MGDG with 3.015379 is mesokurtic while PFEXR and OFFER with values lower than 3.0 are platykurtic.

Empirical Result

Table 3. Unit root test result

Variable	ADF@level	ADF@1 st difference	5% critical value	Order	Remark
MGDP	-0.562575	-4.323404	-3.574244	1(1)	stationary
OFFER	-2.262089	-4.916597	-3.574244	1(1)	stationary
PEXR	-1.585492	-3.635566	-3.574244	1(1)	stationary
PPR	-2.477294	-5.174741	-3.574244	1(1)	stationary
INFR	-3.340652	-5.125761	-3.574244	1(1)	stationary

Source: Author's computation (E-views 8.0)

The result in table 3.0 shows that initially (@ level), the variables were not stationary, but at first difference they became stationary and are integrated of order 1(1). Our conclusion of stationarity is based on the fact that the individual ADF statistic of the variables became greater than the 5% critical value the series became stationary where the ADF statistic is greater than the 5% critical value. The implication of stationary means that the model we have employed can be relied upon for policy analysis and decision making.

Relationship between parallel foreign exchange operations and manufacturing sector growth.

Table 4: Johansen Co-integration Test Result

Series: MGDG PFEXR OFFER PPR INFR

Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized	Trace	Statistic	Critical Value	Prob.**
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.781685	97.77561	69.81889	0.0001
At most 1 *	0.699844	53.64295	47.85613	0.0130

Source: Author's computation (E-views 8.0)

The Johansen co-integration test was conducted having established that the variables are integrated of the same order. Co-integration helps to test for the existence of long-run relationship among or between variables. The result as presented above indicate two (2) co integration equations at 5% level of significance, this is because the trace statistics of 97.77561 and 53.64295 are greater than the 5% critical values of 69.81889 and 47.85613 respectively. This shows that there is a long run relationship between manufacturing gross domestic product and all the explanatory variables. In other words, they possess the characteristics that would cause them to converge in the long-run. The implication of long run relationship is that over a long periods, the variables can be allowed to work together in the economy to produce growth sustaining results.

Since the presence of co-integration between or among variables means the presence of short-run errors, we had need for the error correction estimation. Usually the error correction mechanism smoothens the short-run errors associated with co-integrated variables. The conditions for smoothening effects being that the error correction coefficient must be negative, fractional and significant. Our result indicated an error correction value of -0.064936 which means that about 6.49% of the short run errors are corrected each year. The conditions for error corrections are satisfied since the value is negative, fractional and significant.

Impact of Parallel Foreign Exchange Rate on Manufacturing Growth Performance

Our interest in this study is to measure how fluctuations in parallel foreign exchange rate explain the growth of the manufacturing sector in Nigeria. Having reported the presence of co-

integration among the variables and the error corrections, we went on to run the ordinary least squares (OLS) regression as stated below:

Table 5.0 Ordinary Least squares Estimation Result

Dependent Variable: MGDGP

Method: Least Squares

Date: 07/24/17 Time: 19:32

Sample: 1985 2015

Included observations: 31

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PFEXR	-57.37868	35.35956	-1.622720	0.1163
OFFER	132.3094	38.16513	3.466761	0.0018
PPR	11.17125	11.93225	0.936224	0.3575
INFR	-30.20860	42.24443	-0.715091	0.4807
R-squared	0.694472	Mean dependent var	4987.617	
Adjusted R-squared	0.660525	S.D. dependent var	6310.066	
S.E. of regression	3676.529	Akaike info criterion	19.37724	
Sum squared resid	3.65E+08	Schwarz criterion	19.56227	
Log likelihood	-296.3472	Hannan-Quinn criter.	19.43756	
Durbin-Watson stat	0.437237			

Source: Author’s computation (E-views 8.0)

From table 5.0, it could be observed that parallel foreign exchange rate (PFEXR) conforms to its appriori predicted sign. This shows that a positive change in (PFEXR) variable will lead to a negative change in manufacturing sector growth in Nigeria. Precisely, one percent increase in (PFEXR) will lead to 57.37868 percent decrease in manufacturing sector growth in Nigeria. The implication of this finding is that parallel foreign exchange rate has a negative effect on the growth of manufacturing sector in Nigeria.

Official foreign exchange rate also did not defy the apriori prediction of a positive sign; this indicates that a positive change in (OFFER) will lead to a positive change in the growth of the manufacturing sector in Nigeria. The estimated coefficient of 132.3094 implies that one unit increase in official foreign exchange rate will bring about 132.3094 unit increases in manufacturing sector growth. The positive sign and a probability value of 0.0018 imply that official foreign exchange rate has positive effect on manufacturing activities in Nigeria in the period under review.

The result also shows that inflation rate (INFR) variable coefficient bears a negative sign. This is consistent with the model apriori expectation. The coefficient of this variable has a magnitude of 30.20860. The implication is that there is an inverse relationship between the rate of inflation and the growth of the manufacturing sector in Nigeria.

The parallel premium appeared with a positive sign and a magnitude of 11.17125. it means that there is a positive interaction between parallel foreign exchange premium and manufacturing sector growth. The implication of this positive interaction is that growing difference in the market rates of the official and parallel foreign exchange windows is favorable but we want to add that it is preferable if the official rate was higher than the parallel market rate

CONCLUSION AND POLICY RECOMMENDATIONS

In this study, we set out to empirically examine the impact of parallel foreign exchange rate on the growth of the manufacturing sector in Nigeria for a sample period of 1985-2015. Based on the ordinary least squares estimation output, we then conclude that parallel exchange rate fluctuations have negative and statistically significant impact on manufacturing sector growth, but we must add that whether this impact will continue to be significantly negative will depend on the increasing or decreasing trend in the parallel foreign exchange environment.

A long-run sustainable relationship among the variables was identified as indicated by the Johansen co-integration test result conducted, with the implication that the possibility of convergence in the long-run between parallel foreign exchange rate and Nigeria's manufacturing sector is by the empirical evidence present.

Recommendations

Based on the findings made so far in the course of this study, we hereby make the following recommendations:

- i. Government should take appropriate steps to coordinate and harmonize foreign exchange policies in order to rescue the manufacturing sector from weakening effects of the instability in foreign exchange rates in Nigeria.
- ii. Conservation of external reserve should remain a priority target of monetary policies to ensure that there are no set-backs relating to the allocation of foreign exchange to the activity sectors of the economy especially the productive sectors led by the manufacturing sector.
- iii. Monetary authorities should think with the operations of Bureau De Change and illegal foreign exchange markets whose activities creates artificial scarcity of foreign exchange making it difficult for manufacturing sector to easily import raw materials and other expatriate services required for production purposes.

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