ABSTRACT
The study was conducted to examine the behavior of exchange rate during periods of global financial crisis using time series data from 1985 to 2017. The main objective of the study is to examine the determinants of exchange rate behaviour in Nigeria during and after the 2008 global financial economic meltdown which emphasis on capital flows. To analyze its objectives, the OLS econometrics tool was used and the result of the study shows that, exchange rate behaviour in Nigeria was not affected by eternal financial crisis before the 2007 global crisis. The study also found that during and after the global financial crisis that started in 2007 and in 2014, crisis from foreign private financial/capital flow have significant negative effect on exchange rate fluctuations in Nigeria. The study recommends that optimal policies therefore should be perceived in terms of what is possible in the short run as a response to the global financial crisis, and what should be the long-term objective, in order to avert reoccurrence of current experiences.

Keywords: Impact, crisis, global, financial flow, economic, Nigeria.
the financial markets in the US, with the contagion and impact spreading unevenly across the globe [2]. The global economic crisis pulled countries down from around the globe to a recession. Wide-ranging declines in many aspects of growth characterize the overall impact it had on the global scale.

Global financial crisis began in the United States and the United Kingdom when the global credit market came to a standstill in July 2007 [3]. The crisis really started to show its effects in countries like Nigeria in the middle of 2008 as it began to spread rapidly around the world, leading to a global downturn of economic activity. Around the world stock markets have fallen, large financial institutions collapsed or been bought out, and governments in even the wealthiest nations had to come up with rescue packages to bailout their financial systems [4]. The crisis became a major concern for political leaders, economists, and managers of financial institutions around the globe as it spread beyond the borders of the United States.

The Nigerian economy has long been undermined with long-term structural problems such that sustainable economic development is yet to be a dream comes true. Economic growth record of the country has been disappointing in comparison with other developing countries blessed with such abundant resources. What makes matters worse is the seemingly perennial impoverished state of its inhabitants, The Nigerian economy was affected by the 2008/2009 global financial crisis and presently been affected by the crude oil price crisis especially in three aspects: exports, remittances from overseas workers, and foreign direct investments. This shows that the Nigerian economy demonstrated particular vulnerability to the emergent global economic crisis [5].

After the 2007/2008 global financial crisis, the world experienced another financial shock with the fall in the crude oil prices which hit more on countries like Nigeria. The steady decline in the price of crude oil in the global market spread anxiety in Nigeria and other countries that derive the bulk of their revenue from oil causing another shock to the domestic economy as a result of external oil price shock. With oil prices dropping further Nigeria started earning far fewer dollars. The stock market which is known for reacting faster than most other markets in the economy retreated consequently this led to devaluation of the naira [6].

Heavily dependent on oil export and electronic and semiconductor imports, the Nigerian economy has seen a downward trend in its export earnings as most countries in demand of these exports experienced recession or using alternative sources of energy. The global economic shocks have seen foreign direct investments (FDI) lowered because of investors losing confidence in the financial market. Lower FDIs mean slower economic growth [7].

The Global Financial crisis impacted the Nigerian economy through several channels amongst which were: Lower crude oil demand, Lower crude oil price, Lower revenue, Lower foreign exchange earnings/export receipts, and Lower capital inflow, and drying-up of lines of credit to Nigerian banks and higher capital outflow-divestment from capital market particularly of portfolio investments. The decline in foreign exchange earnings led to a reduction in revenue and expenditure profiles of the three tiers of government as a result of the steady fall in the monthly allocations from the Federation Account. The wider implication of this was the limited implementation of government projects, with the financing of capital projects limited to the priority sectors leading to non-realization of key government programmes [8].

The impact of the crisis on the Nigerian economy has different ramifications for the capital market, the banking sector, foreign exchange and the balance of payments, as well as the real sector, [9]. The one concerned in this study is the Naira-Dollar exchange. Studies on factors
affecting exchange rate is very important, this is because according to [10], exchange rate policies are contained in monetary policies, thus, anything affecting exchange rate, invariably affects the country’s monetary policy. Thus, due to the crisis, the Nigerian currency, the naira, was depreciated against the US dollar, and this had implications for foreign reserves, which dropped from $67 billion in June 2008 to $53 in December 2008. However, alongside the shocks in global financial transactions, exchange rates across the world have fluctuated widely particularly after the collapse of the Bretton Woods system of fixed exchange rates. And this scenario has continued after major financial crisis in the world. In Nigeria the aftermath of major global economic shocks, be it financial crisis or oil price falls have seen the country adopting many exchange rate management options such as the use of reserves to defend the naira, gradual depreciation, shock therapy i.e. rapid depreciation and supplementary measures such as suspension of inter-bank foreign exchange market, and introduction of band of +/- 3% [11].

Although the Naira exchange rate has witnessed some period of relative calm since the implementation of the structural adjustment programme (SAP) in July, 1986, its continued depreciation, however, may have implications for the level of real sector activities in the country. The Naira which traded at N0.935 = US$1.00 in 1985 depreciated to N2.413 to $1.00 and further to N7.901 against the US dollar in 1990. To stem the trend, the policy of guided deregulation pegged the naira at N21.886 against the dollar in 1994. Further deregulation of the foreign exchange market in 1999, however, pushed the exchange rate to N86.322 to US$1.00. With huge inflow of oil revenue due to hike in the oil price, the end-period rate stood at N117.97 in December, 2007. This remained stable until towards the end of 2008 when the naira exchange rate depreciated from N116.20 in November, 2008 to N131.5 in December, 2008 or a decline in value by 12.95% and further to N142.00 or a decline by 7.98% in February 2009, [12]. Moreover, since 2014 till present period, the same crisis is repeating itself. This time around, declining crude oil prices fluctuating between $30 and $33 per barrels [13] is being accompanied by stock market price declines in major oil producing countries and by renewed calls for devaluation of the naira. It should be noted that clamour for devaluation is not based on calculated balance-of-payments position of the country but rather on rapidly increasing demand for foreign currency a large part of which is speculative, and to finance frivolous import items which can easily be produced in the country [14]. Since then, there has been extensive debate about the link between global economic crisis and exchange rate volatility, this form the core basis for this study.

Statement of the Problem

Like most developing countries, Nigeria felt the effect of the global financial crisis largely through trade and capital flows because of the openness of the economy and the near total reliance on crude oil exports for government revenue and foreign exchange earnings. The news of the financial crisis affected the financial institutions especially banks. This is because, prior to the crunch, the Nigerian banking industry experienced remarkable changes after the consolidation exercise. Shortly after the recapitalization of the capital base in the industry, the crisis began, and the Nigerian banking industry witnessed a lot of stress, uncertainty and anxiety.

More so, the value of investor shares in the Stock Market was also depreciating. These problems greatly impaired the quality of the bank’s assets as non-performing assets became unbearable and became huge burdens on many of the banks. The financial intermediation role of the banks became heavily impaired.
while the macroeconomic activities seriously slowed down.
All these led to the declining of capital inflow in the economy vis-a-vis decrease in accumulation of foreign reserves and attendant pressure on Nigerian exchange rate. It also led to limited foreign trade finance by banks due to low liquidity and dry-up of credit line. Being an economy heavily dependent on the external sector, exchange rate behavior became a major challenge to the country’s economy managers. As a result, the Nigerian currency has suffered large depreciations. Thus, the pressure on the exchange rate raises particular challenges for Nigeria that is seeking to enhance her integration with international capital markets.

Meanwhile, research linking global economic crisis and the behavior of exchange has been scanty in developing countries and Nigeria in particular. Moreover, studies that have examined the concepts found conflicting results, i.e positive and negative relationships. Thus, it is the problem of this study among others to investigate the behaviour of exchange rate in periods of global economic crisis.

**Research Objectives**
The general aim of the study is to investigate the determinants of exchange rate behaviour in the Nigerian economy, during and after the 2008 global financial crisis. Specific objectives are:

1. To ascertain the effect of crisis in external capital inflow on exchange rate behavior in Nigeria during and after periods of world economic crisis.

**Research Questions**
1. To what extent has crisis in external capital flow affected exchange rate behaviour in Nigeria?

**Hypothesis of the Study**

Ho: Crisis in external capital flow does not have a positive and significant effect on the behaviour of exchange rate in Nigeria.

**Scope of the Study**
The study covers the period 1985-2017 which is a period of global economic turbulence and the adoption of floating exchange rate in Nigeria. Also, the computation of exchange rate fluctuations is a matter of methodological question whose outcome depends on the approach adopted which suppose to take a long time approach.

**Significance of the Study**
The study will be of great relevant for number of reasons: the changing character of monetary policy especially, the exchange rate and global financial crises that have both affected trade, financial flows and price stability in recent times.

**METHODOLOGY**
The study adopted the Ex Post Facto Research Design. This is necessary because the study used existing data to predict future outcomes. *Ex-post facto* research design is systematic empirical inquiry in which the scientist does not have direct control of independent variables because their manifestations have already occurred or because they are inherently not manipulated [15]. Inferences about relations among variables are made, without direct investigation of independent and dependent variables.

The study made use of econometrics research design for addressing the objectives of the study. The researcher adopted the multiple regression analysis based on the classical linear regression model, otherwise known as Ordinary Least Square (OLS) technique to analyze the objectives. For the econometrics model, the specification of the model is based on the empirical work of [16] who conducted an empirical analysis of the effect of global financial crisis on Nigeria’s capital market with the use of ordinary least square to demonstrate the aftermath of the global financial crisis on the Nigerian capital market indicators like MC, External Reserves, International inflows and others as well as theoretical
framework which are largely derived from the neo-classical framework.

Their model is an econometric analysis, of which the market capitalization is proxied as Nigerian capital performance as dependent variable while the independent variables like Number of Stocks (NOS), Value of Trade (VOT), Dummy variable for GFC (DGFC) and All Share Index (ASI) respectively. The model is expressed functional and econometrical in the equations below as:

\[ MC = \beta_0 + \beta_1\text{NOS} + \beta_2\text{VOT} + \beta_3\text{DGFC} + \beta_4\text{ASI} + \mu \]

Where

MC = Market Capitalization is proxied as Nigerian capital market performance as dependent variable.
NOS = Number of Stocks
VOT = Value of Trade
DGFC = Dummy variable for pre and post-GFC crisis (i.e., 0 for pre and 1 for post GFC).
ASI = All Share Index.

The work of [17] is on the effect of global financial crisis on Nigeria’s capital market. They only capture the linkage between capital market performance and economic growth in Nigeria, the study captures global economic crisis on exchange rate in Nigeria.

Nature of the Data

The data is a time series secondary data showing aggregate data for the Nigerian economy. Apart from population growth rate in percentages, all other variables are in N millions.

Model Theoretical Backup

Basically, there are many theoretical schools of thought that attempt to explain the behavior of exchange rate volatility in international trade. However, the notable guiding the methodology of this study is the business cycle theory and the theory of the traditional school which holds that higher volatility increases risk and therefore depresses trade flows. This school of thought brought out the traditional model which examined the exchange rate volatility effect on trade based on producer theory of the firm under uncertainty, where firm profitability is related to the movements of the exchange rate. A risk-averse firm, in a situation of a dependency between its profit and exchange behavior, would prefer to reduce risk, and reducing the level of trade.

Model Specification

In this study, four hypotheses have been stated with the view of assessing the impact of global economic shocks on exchange rate fluctuation in Nigeria’s economy (1985-2015). The models of this study are based on the model of [18]. An econometric Analysis, of which the exchange rate is the dependent variable while the independent variables are variables like foreign capital inflow. The model is stated below:

Specification of Models

Model 1

In order to examine the effect of crisis on external capital flow on exchange rate behaviour in Nigeria, the model is shown below;

\[ \text{Pre-Financial Meltdown and global oil market crises Periods (1985-2007)} \]
\[ \text{EXCH} = \beta_0 + \beta_1\text{FDI} + \beta_2\text{COILP} + \beta_3\text{OPN} + \mu \]

\[ \text{During and Post-Financial Meltdown and global oil market crises Periods (2008-2017)} \]
\[ \text{EXCH} = \beta_0 + \beta_1\text{FDI} + \beta_2\text{COILP} + \beta_3\text{OPN} + \mu \]

Where

EXCH = Real exchange rate as dependent variable.
OPN = Trade Openness (which capture trade crisis).
FDI = Foreign Direct Investment which captures the effect of external capital inflow to Nigeria.
COILP = Crude oil Price (which captures the international oil market crisis)
\( \beta_0 = \) Constant intercept, \( \beta_i = \) coefficient of the explanatory Variables.
U = Error term.

Technique of Estimation

In the preliminary test, since the emphasis is on whether the value of exchange rate differs before and after period of global economic shocks, the
unit root test was carried out to examine the behavior of the variables used in the model.

**Justification of the Model**

Here ordinary least square estimation technique was used because of its reliable qualities as the best unbiased estimator. Based on the fact that the emphasis here is to ascertain the reaction of exchange rate to external economic variables, the use of OLS becomes necessary. Since the response can be either short-term or long term, an appropriate technique is to adopt the error correction modeling (ECM) and residual based co-integration approach.

**Analytical Tools - Statistical Tests**

Based on the statistical criteria, three important tests were carried out, first is the test of goodness of fit which shows or measures how the conditional expected mean of the dependent variable based on the known value of the independent variable, varies with the true value of the dependent variable. The second test is the student’s t-test, which measures the individual statistical significance of the independent variable. The third test is the F-test of significance, which measures the overall statistical significance of the whole regression plane.

**RESULTS**

The result of the Augmented Dickey Fuller (ADF) test is reported in Table 4.2. The essence of carrying out a unit root test is to verify whether the data employed were stationary over time in order to avoid spurious regression results. The Augmented Dickey Fuller (ADF) was used to determine whether or not the series are stationary. However; the results of the Augmented Dickey Fuller (ADF) test is reported in Table 1 thus.

**Source of Data and Econometrics Software**

The data used in this study was sourced from the 2017 CBN statistical bulletin and economic and financial review. The statistical survey to be used is the E-views 9.0

**Description of Variables**

1. **Exchange Rate (EXCR):** Exchange Rate refers to the price of one currency in terms of another currency. That is, it is the number of units of one currency that will be exchanged for one unit or a given number of units of another currency. It is used here as the dependent variable.

2. **Openness:** This refers to value of export and import divided by the nation’s gross domestic product. It is one of the indicators of global economic crisis and is used here as the independent variable.

3. **Crude Oil Price:** This is the world price of crude oil in dollars and represent crisis from the global oil market.

4. **Foreign Capital Inflow:** This is represent all the credit, and financial flows into the country from private investments and represent financial crisis from the global financial market.
Table 1 ADF Unit root test results of the series in levels

<table>
<thead>
<tr>
<th>Variable</th>
<th>Test at levels</th>
<th>Test at 1st difference</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ADF stat.</td>
<td>Constant &amp; Trend</td>
<td>5% critical level</td>
</tr>
<tr>
<td>OPENESS</td>
<td>0.603342</td>
<td>None</td>
<td>-1.951000</td>
</tr>
<tr>
<td>FDI</td>
<td>-0.830583</td>
<td>None</td>
<td>-1.951000</td>
</tr>
<tr>
<td>EXCHR</td>
<td>1.937925</td>
<td>None</td>
<td>-1.951000</td>
</tr>
<tr>
<td>COILP</td>
<td>-0.906445</td>
<td>None</td>
<td>-1.951000</td>
</tr>
</tbody>
</table>

Source: Computed by the Author

(i) (*) means significant at 5%. Critical values for ADF statistic in levels are:

The unit root test result above show the different order of integration of the variables. From the table above, all the variables were non-stationary at levels as the absolute value of their respective ADF statistic did not exceed the critical values, thus were differenced. Furthermore, the results in the table indicate that all the variables become stationary at first difference. The variables been stationary at first difference means that they are integrated of order 1 - I(1). The evidence suggests that first differencing is sufficient for modeling the time series considered in this study. Thus, in order to eliminate the possibility of spurious regression results and enormous inferences, the first differences of the relevant variables in the estimation process was used. This is necessary for the purpose of determining the underlying properties of the process that generate these time series variables.

Estimated Results

Table 2 Pre-global economic crisis period (1985-2007)

<table>
<thead>
<tr>
<th>Dependent Variable: EXCHR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent Var</td>
</tr>
<tr>
<td>Constant</td>
</tr>
<tr>
<td>FDI</td>
</tr>
<tr>
<td>OPN</td>
</tr>
<tr>
<td>COILP</td>
</tr>
</tbody>
</table>

R-Squared 0.6512; Adjusted R-squared 0.605757; DW Stat 1.573961
F-stat 14.31639; Prob(F-stat) 0.000018

Result Interpretation

The estimated pre global economic crisis result in table 2 above shows the independent variables that exert a significant influence on exchange rate behavior. The result revealed that trade openness and crude oil price has significant positive effect on exchange rate behavior in the country before the 2008 global financial crisis. A unit increase in trade openness increases exchange rate behavior by 1.5 units. And a unit increase in crude oil price also increases exchange rate behavior by 3.3 units. The effect of crude oil price is higher than that of trade openness.
Table 3 Post-global economic crisis period (2008-2017)

<table>
<thead>
<tr>
<th>Dependent Variable: EXCHR</th>
<th>Constant</th>
<th>FDI</th>
<th>OPN</th>
<th>COILP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent Var</td>
<td>Coefficient</td>
<td>Std. Error</td>
<td>t-Statistics</td>
<td>Probability</td>
</tr>
<tr>
<td>Constant</td>
<td>-411.6403</td>
<td>104.8951</td>
<td>-3.924305</td>
<td>0.0172</td>
</tr>
<tr>
<td>FDI</td>
<td>-0.000230</td>
<td>6.55E-05</td>
<td>-3.515148</td>
<td>0.0246</td>
</tr>
<tr>
<td>OPN</td>
<td>6.977845</td>
<td>1.155147</td>
<td>6.040654</td>
<td>0.0038</td>
</tr>
<tr>
<td>COILP</td>
<td>-0.292707</td>
<td>0.116374</td>
<td>-2.515226</td>
<td>0.0371</td>
</tr>
</tbody>
</table>

R-Squared 0.941961; Adjusted R-squared 0.898431; DW Stat 1.665946
F-stat 21.63959; Prob(F-stat) 0.006193

Result Interpretation
The estimated result during and after global economic crisis is presented in table 3 above, the result shows the independent variables that exert a significant influence on exchange rate behavior during and after the global economic crisis. The result revealed that capital inflow, trade openness and crude oil price all have significant effect on exchange rate behavior in the country after the 2008 global financial crisis. Trade openness has a positive and significant effect while foreign private capital inflow and crude oil price have a negative and significant effect. A unit increase in foreign private capital inflow will decrease exchange rate erratic behavior by a 0.0002 units, and a unit increase in trade openness increases exchange rate erratic behavior by about 7 units. And a unit increase in crude oil price decreases exchange rate behavior by 0.3 units. The effect of global trade crisis is higher during and after the global economic meltdown.

Discussion of Findings
Based on the result above, the findings of the study are discussed below,

i. The study found that before the financial crisis that started in 2008, foreign private financial/capital flows have no significant effect on exchange rate fluctuations in Nigeria before the global financial crisis but has a significant effect after the crisis.

a. Post-global economic crisis

ii. The study found that during and after the global financial and crude oil market crisis that started in 2008 and in 2014, crisis from foreign private financial/capital flow have significant negative effect on exchange rate fluctuations in Nigeria. A unit increase in foreign capital shocks will decrease the value of exchange in Nigeria by 0.0002 units. This result is consistent with the findings of [19] who examined the impact of financial crisis under reference on business in Nigeria using Benue State as a case study from 2007 – 2009. They found that the global financial crisis had some effects on business development in Nigeria.

CONCLUSION
The global financial crisis and oil market crisis has caused a considerable slowdown in most developed countries. Governments around the world are trying to contain the crisis, but many suggest the worst is not yet over. Many developing country economies are still growing strongly, but forecasts have been downgraded substantially. The resultant effect of the slowdown has posted into short fall in export
revenues resulting into trade deficits; others include reduced capacity utilization for most industries, as majority depends on imported raw materials. The depreciation of global currencies precipitated by external shock impacted negatively on the economy. These brought about decline in output of this prominent sector. The depth and vastness of financial meltdown cannot but require a leap by the government to reduce its effect on businesses and therefore the income of citizen. Finally, this study has revealed that over the years, both the period before and during the global financial crisis the exchange rate has been mostly affected by external and internal macroeconomic shocks independently. This is due to the level of openness of the economy and financial integration within the global system. Although, their exist slight structural changes in the level of exchange rate in Nigeria during the period of global financial crisis in first and fourth quarters of 2007 and 2008 (2007Q1 and 2008Q4) the negative impact of the global oil market crash still remains untamed. Hence, it is appropriate to suggest the need for government intervention in Nigeria in order to fully insulate the economic against the contagious effects of the global financial and oil crisis.

RECOMMENDATIONS

The current macroeconomic and social challenges posed by the global financial crisis require much better understanding of appropriate policy responses. The analysis has several economic implications. Some recommended policy responses which can be applied to the situation in Nigeria are enumerated as follows:

i. There needs to be a better understanding of what can provide financial stability, how cross border cooperation can help to provide the public good of international financial rules and systems, and what the most appropriate rules are with respect to develop.

ii. There needs to be a stable and consistent policy financial policy that will strengthen the financial institutions and position them against external financial shocks.

REFERENCES


