

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background to the Study

The importance of a vibrant stock market in any economy whether developed or emerging cannot be over emphasized. This is because of the role that the stock market plays in providing alternative investment finance to investors including the government in order to foster development. This sector has witnessed a lot of challenges in its intermediation role occasioned by the global financial crises that took the center stage between 2008 and 2009.

The global financial crisis started in the United States of America in August 2007 with sub-prime mortgage crisis as households faced difficulties in making higher payments on mortgages (Soludo, 2009) as cited by Ashamu and Abiola (2012). This was shortly followed by announcements of trouble among several big names in banking and investment in the United States of America by the first quarter of 2008 which led to wide spread credit contraction. The crisis no doubt started in the United States but spread to other regions of the world with dire consequences for global trade, investment and growth. According to Adamu (2009), large financial institutions collapsed as a result while government of wealthy nations rolled out packages to rescue their financial system.

The global financial crisis of 2008 therefore exposed the weaknesses of developing economies that depend largely on the big nations. In Nigeria for example, the stock market was believed to have been affected following the crash in stock prices and such situation if not tamed could result to worse scenario economy (Adamu, 2010).

The 2008 global financial crisis has been a painful reminder of the multi-facet nature of crisis. The crisis hit both the small and large countries of the world and even the rich and poor ones. Reinhart and Rogoff (2009) described financial crisis as “an equal opportunity menace”. Such crisis come in different shapes, sizes and evolve over time into different forms and can rapidly spread across borders which requires immediate and comprehensive policy responses, call for major changes in financial sector and fiscal policies and can even necessitate global coordination of policies (Reinhart & Rogoff, 2009).

The first trading day in 2008 witnessed bullish trading in the Nigerian Stock Exchange. The All Share Index (ASI) rose by 589.55 points representing 1.02% increase over 2007 while Market Capitalization rose to N100 billion (Nwude 2012). Such increase continued till March 2008 and towards the end of March 2008 when bearish condition set in. The trend continued to the extent that Market Capitalization that reached a peak of N12.6 trillion in March 2008 drastically dropped to N6.4 trillion in December 2008 (Ramzan & Kiani, 2012).

The bearish condition experienced in the Nigerian Stock Market was not unconnected with global financial crisis. The crisis began in the United States of America and the United Kingdom where the global market came to a standstill in July 2007 (Avgouleas, 2008) as cited by (Abdul, 2011). The crisis brewed for a while, really started to show its effects in the middle of 2008. This brought about a fall in stock prices all over the world and even large financial institutions collapsed which led to many governments of wealthy nations to roll out bail out packages to rescue the financial system (Ramzan & Kiani, 2012).

The approach adopted by the Nigerian Government to the financial crisis was however different as initial response was weak. According to Abdul (2011), it is either that they did

not understand the crisis or they underestimated its magnitude. They insisted that the fundamentals of the financial system look impressively strong even when the capital market was bleeding uncontrollably. For instance, the then Minister of National Planning stated: There is no problem in the nation's Capital Market, what we are experiencing is just the normal adjustments in shareholders prices. Shareholders are getting their bonuses and they are happy (Abdul, 2011). The then Central Bank of Nigerian Governor, Professor Charles Soludo gave repeated assurance that the financial crisis will not affect the Nigerian economy of course; basking in the euphoria of the recent recapitalization exercise of banks (Augustine, Otaru & Umar, 2011).

Although the decline witnessed in the Nigerian Stock Market cannot be separated from the financial crisis, Soludo in 2009 changed his earlier postulation and linked the dwindling fortune of the Nigerian Stock Exchange to the global credit crunch. According to him, the origin of the problem is the credit crunch that started globally. He posits that the institutional investors were pulling out in order to service their facilities elsewhere which forced down the stock prices (Augustine et al. 2011).

Growing economies of emerging markets have attracted the accumulated funds of developed economies or eagerly look forward to higher returns (Sezgin, Rafet & Sayfettin, 2008). The forms of capital flows that are of interest to us are foreign portfolio investment (FPI). According to Leiderman and Reinhart (1999), foreign portfolio investment appears to be generally short term and its benefits to developing countries are very doubtful.

On the foreign exchange rate, the depreciation of naira according to Abdurashied (2013) was partly attributed to decrease in foreign exchange inflows to the economy as a result of

drastic decline in the demand for oil which is the main source of foreign reserves to the Nigerian economy. This has reduced inflows from autonomous sources, increased repatriation of investments by foreign investments by foreign portfolio managers in both the capital and money markets.

Prior to the global financial crisis that hit the world in 2008, the Nigerian Stock Market has no doubt made remarkable progress in the past decades and the progress was attributed to sound oversight functions and competent management of the market by the various regulatory authorities like the Securities and Exchange Commission (SEC), and Nigerian Stock Exchange (NSE). The fortune was however changed in March 2008 and since then; the Stock Market has not fared better as unprecedented recession has taken it by force causing untold losses and decline in stock prices to investors and further creating crisis of confidence about the competence of the regulatory authorities to handle the situation. (Osaze, 2009).

## **1.2 Statement of the Problem**

The widespread impact of the latest global financial crisis underlines the importance of having a solid understanding of crisis. According to Osaze (2009), it is a continuous and dramatic drop in all economic indices over a relative period of time leading to corporate failures especially failures of the financial markets which provides the lubricants that oil the economy. This shows how interrelated the stock market is with development of an economy all over the world. Such is made possible as a result of increasing global integration in the financial markets, including the capital market thereby providing some ground for the suspicion that stock markets in both developed and developing countries influence each other positively and negatively. As the latest episode has vividly showed, the implications of

financial crisis can be substantial and greatly affect the conduct of economic and financial policies (Stijn & Kose, 2013). A thorough analysis of the consequences of and best responses to the crisis has become an integral part of current policy debates as the lingering effects of the last crisis is still being felt around the world.

The Nigerian Stock Market before the recent global financial crisis happen to be one of the most profitable financial investment in the economy due to bank consolidation exercise of 2004, of which both the All Share Index (ASI) and Market Capitalization (MC) grew over the years from a value of 12,137 in 2002 to 66,371 in March 2008 (George, 2008). In early 2008, the Nigerian Stock Exchange (NSE) started with All Share Index value of 58,580 listing with a Market Capitalization of N10.284 trillion and went on to achieve the highest value of 66,371 by the end of first quarter of 2008 due to a large troop of both public and private sectors to the market to raise fund (Jenrole & Daisi, 2012). However, in the third quarter of 2008, the All Share Index and Market Capitalization had started declining. Such led to eventual crash in the stock market prices which led serious debates from stakeholders as to the cause of the crash.

There appear to be a controversy regarding the effect of global financial crises on the Nigerian economy particularly the stock market prices. Some authors like Nwude (2012), Bamidele (2013), Onuoha and Nwaiwu (2016) even Augustine (2011) had argued that the global financial crises was primarily responsible for the crash in Stock Market Prices in Nigeria. Others like Yakubu and Akerele (2012), Genrole and Daisi (2012) were of the view that the crash had nothing to do with the financial meltdown, citing other factors to be responsible. It is against this backdrop that this work seeks to investigate if the effect of the global financial meltdown on the Nigerian Stock Market Performance is significant. It will

also find out if the 2008 global financial crises granger causes changes in the stock market performance in Nigeria.

### **1.3 Objectives of the Study**

The broad objective of the work is to examine whether the global financial crises has any significant effect on the stock market performance in Nigeria.

The specific objectives of the work are as follows:

1. To determine whether foreign portfolio investment significantly affected Stock market performance in Nigeria;
2. To examine the significant effect of external reserves on the Nigerian Stock market performance;
3. To determine the significant effect of exchange rates on the Nigerian Stock market performance; and
4. To investigate whether there was a significant break in the structural relationship between Stock market performance in Nigeria and Global Financial Crises.

### **1.4 Research Questions**

The work sought answers to the following questions:

1. To what extent does foreign portfolio investment significantly affect stock market performance in Nigeria?
2. How have changes in external reserves impacted on the Nigerian Stock market performance?
3. To what extent has exchange rates significantly affected the Nigerian Stock market performance?

4. How significant is the break in the structural relationship between Stock market performance in Nigeria and Global Financial Crises?

### **1.5 Statement of Hypotheses**

In order to guide the research, the following hypotheses were formulated in null format.

- H<sub>01</sub>:** Foreign portfolio investments have no significant effect on the Nigerian Stock market performance.
- H<sub>02</sub>:** There is no significant relationship between external reserves and the Nigerian Stock market performance.
- H<sub>03</sub>:** Exchange rate has no significant effect on the stock market performance in Nigeria.
- H<sub>04</sub>:** There is no significant structural break in the relationship between Stock market performance in Nigeria and Global Financial Crises of 2008.

### **1.6 Significance of the Study**

The crash in the Nigeria Stock market prices at the peak of the global financial crisis has dominated discussions in Nigeria. The study is particularly significant as issues addressed will benefit many persons.

The study would be of benefit to the following:

- i) **Government.** This study will assist the government and all other stake holders in the stock market like the regulators to take proactive measures to avoid future occurrence of the crash in the Stock Market. This is important since the growth of an economy depends on some of these alternative sources of finance like the Stock Market and such crisis could be avoided if proactive measures are taken.

- ii) **The Public.** Generally, the effect of the crisis is being felt by the general public and this has created heated debate as the cause and the way forward. The public would be enlightened the more on the effects and how best to cope with it.
- iii) **Investors.** Investors in the stock market would be helped to know whether the global financial crises was primarily responsible for the crash in the stock market prices or not as this has dominated discussions since 2008 when the crises took the center stage in Nigeria.
- iv) **Students.** The study will no doubt boost the existing literature and assist students who are still interested in carrying a research on this topic.

### **1.7 Scope of the Study**

In carrying out this research, attention was focused on only one performance indicator in stock market, the All Share Index (ASI) because of its popularity and three most popular variables that can be hit by global financial crises according to theory of financial crises. They include: External reserves, foreign portfolio investment and Exchange Rates.

The work was designed to cover 1986 to 2016. The choice of 1986 was necessitated because of the fact that, All Share Index figures became available in 1985 and we made room for one-year policy lag. Again, changes also occurred in 1986 in the Nigerian financial system following the introduction of structural adjustment programme (SAP) in 1986. The year 2016 became the end period because of the time of research, the data of 2017 and above were not yet published.



The study was designed to cover the Nigerian economy only as it is investigating the effect of global financial crises on the stock market performance in Nigeria.

### **1.8 Limitations of the Study**

In the course of carrying out the research, one of the greatest challenges to the researcher was:

**Scope:** A work like this which investigates a long run relationship was intended to cover a forty-year period but All Share Index which we used to proxy Stock market performance became available only in 1985. This made it difficult to achieve the period coverage the researcher wished. However, the researcher was able to overcome these challenges and still produced a good work to the best of his ability.

## CHAPTER TWO

### REVIEW OF RELATED LITERATURE

#### 2.1.1 Concepts of financial crises

A financial crisis is a sudden wide-scale drop in the value of financial assets, or in the financial institutions managing those assets (and often in both). A financial crisis may be triggered by a variety of factors, but the situation is typically aggravated by negative investment sentiment, fear or panic. A financial crisis often sparks a vicious circle where an initial decline sparks fear by investors that other investors will pull their money out leading to redemptions and increasing declines.

Financial crises are applied broadly to a variety of situations in which some financial institutions or assets suddenly lose a large part of their value, (Adamu, 2010). Sanusi (2010) is of the opinion that it is a moment when financial networks and markets suddenly become markedly unable or strained to the point where it may collapse. Eichengreen and Portes (1987) have defined it as a sharp change in asset prices that lead to distress among financial market participants. Eichengreen (2004) notes that it is not very clear where to draw the line between sharp and moderate price changes or how to distinguish severe financial distress from financial pressure.

This has remained a major challenge to economies and financial expert alike. Before the arrival of the current global financial crises, a lot of scholars in the field of economics and finance have predicted the impending economic doom. Notably among them was Minsky (1995) who was cited in Whalen (1999) to have noted that “Global financial integration is likely to characterize the next era of expansive capitalism. The problem of finance that will emerge is whether the financial and fiscal control and support institutions of national

governments can contain both the consequences of global financial fragility and an international debt deflation”. Similarly, Warburton (2003) reports that “Despite the Basel Capital Accord of 1988 and its planned successor, Central banks have effectively abdicated their roles as guardians of the credit and financial system. They have retained a role as trouble-shooters, and lifeboat providers, as shown in the rescue of Long Term Capital Management (LTCM) in 1998, but have lost the ability to influence the overall quality of private sector credit decisions, their well-known commitment to preventing the perverse effect of emboldening risk-takers to take even larger risk”.

Bamidele (2013) attempted the definition of economic meltdown. According to him, economic meltdown is a generalized recession which has several implications for various sectors and sub-sectors of the economy. One of such sub-sectors is the stock market (Agbonifoh & Evbayiro - Osagie, 2010). Ajakaiye and Fakiyesi (2009) as cited by Bamidele (2013) insinuate that there are direct impacts of the crisis on the Nigerian finance and banking system. In the same vein, Okereke Onyiuke (2009) attempts to paint a picture of the effects of the global financial crises on the Nigerian capital market, declaring that Nigerian markets although not well integrated into the world markets have been facing serious destabilizing effects since the emergence of the global financial crises in July 2008. Ahiauzu and Asawo (2010) declared that the crisis had given rise to: (a) waning capital investment and declining markets for manufacturers (b) huge non-servicing loans leading to liquidity and solvency problems for financial institutions (c) fallen stock prices that have threatened investments in capital market and (d) the near collapse of the real estate market due to failed mortgage financing.

Pettifor (2003) explains that as part of the financial sector expansion and growing dominance, it has fueled and expanded credit. This has helped to create a vast “credit bubble” which has in turn, financed bubble in assets, stocks, shares, property and dot.com companies. The easy availability of credit encouraged consumers, corporations and governments to run up huge debts. Greenhill (2003) on his part opines that the huge growth in the finance sector and the abrogation of control by governments over the supply of credit have not happened by accident. Rather, they are the result of deliberate policy decisions of governments, particularly in the west. Financial globalization has taken place because it is the interests of a small elite of politically and economically dominant people who have done extremely well out of it while ordinary people have found themselves increasingly indebted. While the freedom to innovate has led to the rapid development of the financial markets in major industrialized countries and emerging markets, it has become clear that there is an inherent danger in the manner the markets were developing without proper supervision and moderation (Sanusi, 2010).

According to Abdul (2011) the term financial crises is applied broadly to a variety of situations in which some financial institutions or assets suddenly lose a large part of their value. In the 19th and early 20th centuries, many financial crises were associated with banking panics, and many recessions coincided with these panics. Other situations that are often called financial crises include stock market crashes and the bursting of other financial bubbles, currency crises, and sovereign defaults (Kindleberger & Aliber, 2005, Laeven & Valencia, 2008). Some economic theories that explained financial crises includes the World systems theory which explained the dangers and perils, which leading industrial nations will be facing (and are now facing) at the end of the long economic cycle, which began after the

oil crisis of 1973. While Coordination games, a mathematical approach to modeling financial crises have emphasized that there is often positive feedback between market participants' decisions and financial crisis (Krugman, 2008). Positive feedback implies that there may be dramatic changes in asset values in response to small changes in economic fundamentals.

Minsky (1995) theorized that financial fragility is a typical feature of any capitalist economy and financial fragility levels move together with the business cycle, but the Herding and Learning models explained that asset purchases by a few agents encourage others to buy too, not because the true value of the asset increases when many buy (which is called "strategic complementarity's"), but because investors come to believe the true asset value is high when they observe others buying (Avery & Zemsky, 1998, Chari & Kehoe, 2004, Cipriani & Guarino, 2008).

Stijn and Kose (2013) explained that financial crises have common elements, hence they come in many forms. According to them, financial crisis is associated with one or more of the following phenomena: substantial changes in credit volume and asset prices, severe disruptions in financial intermediation and the supply of external financing to various actors in the economy; large scale balance sheet problems of firms, households, financial intermediaries and large-scale government support in the form of liquidity support and recapitalization. Financial crises sometimes appear to be driven by irrational factors which include sudden runs on banks, contagion and spillovers among financial markets, limits of arbitrage during times of stress, emergence of asset busts, credit crunches and fire sales and other aspects related to financial crisis (Keynes, 1930; Minsky, 1975; Kindleberger, 1978 as cited by Onuoha & Nwaiwu, 2016).

According to Olisaemeka (2009), the meltdown of the Nigerian Stock Market was characterized by the crash of the market capitalization from a record of N13.5million in early 2008 to less than ~~N~~4.5 trillion in the corresponding period of 2009. This has manifested into the following cost and consequences: first, there was Loss of confidence in the Nigerian economy, as many investors prefer to convert their naira to foreign currencies, especially the dollar and hold them through their domiciliary account. This has in part led to the worsening exchange rate against the naira currency. Secondly, there were mega losses by investors in the stock market whose total losses were not below two third of their investment before the meltdown. In other words, investors now have less than one third of the value of their investments before the free for all fall. Also, there was overexposure of investors and stock broking firms to banks. The market meltdown has also led to credit crunch in the economy as banks do not have enough to lend to the productive sector leading to high interest rate. Given that, interest rate cost of fund to manufacturers is a very significant component of cost of production; this translates to higher prices of goods and services, leading to inflation.

Avgouleas (2008) enumerated causes of financial crises to include: breakdown of underwriting standards for sub-prime mortgages, flaws in credit rating agencies assessment of Sub-Prime Residential Mortgage Backed Securities (RMBS) and other structured credit products especially Collateralized Debt Obligations (CDO's) and the other Asset Backed Securities (ABS).

Abdul (2011) however summarized the causes of financial crisis as follows:

1. Liberalization of Global Financial Regulations. According to him, the regulatory model adopted by banks in the United States emerged as a result of liberalization

of banking business in the early 1990's. This liberalization facilitates the global abolition of restrictions on capital flow in the 1990's and caused the operation of international investment funds to be largely unregulated (Scott, 2008 in Abdul, 2011);

2. Boom and Bust in the housing market. This is as a result of demand for housing which was on the increase in the US and UK. This made investors and home owners to take mortgage loans and invested them in housing;
3. Speculations. Traditionally, homes were not treated as investment like stocks but the trend changed during the housing boom. This made speculations in real estate a contributory factor; and
4. High-risk loans. There appeared to be wide spread agreement that made rapid credit growth to be accompanied by loosening lending standard (Dell' Arriccia et al, 2008). Without considering high risk borrowers, lenders give high-risk borrowers, lenders give high risk loans to no income, no job and no assets. They also give home loans to immigrants that are undocumented (Wikipedia, 2008).

Gilani (2008) as cited by Edogbanya (2013) also in his contributions, listed out the following factors to be responsible for the global financial crisis:

- a) Borrowers who sought credit beyond their reach;
- b) Lenders who throw caution to the winds and abandoned time-honored principles of sound loan appraisal in lending (overeager lending);
- c) Investment bankers who earned fees for bundling and sealing vaporous bonds without adequately disclosing risk (careless investing);

- d) Institutional investors who sought high returns without understanding the risk and real value of the underlying assets;
- e) Collapse of housing markets that eliminated the backstop provided by collateral;
- f) Lax regulations/outdated regulation and poor supervision;
- g) Inappropriate loan term designed to attract borrowers and to compensate for higher lending risks that turned out very burdensome for borrowers;
- h) Widespread failure of risk management. For instance, securitization failed to disperse risks effectively and, at the same time, weakened lenders' incentives to monitor the quality of their loans;
- i) The inability of central banks to use tougher monetary policy to steer investors towards more liquid products; and
- j) The lack of transparency of complex financial instruments for which there is no public market, making them tough to value and nearly impossible trade.

Other causes which are peculiar to Nigeria as emerging economy according to Gilani (2009) include the following:

- a. Depletion of External Reserve: Nigeria's declining crude oil production level which is far below its Organization of Petroleum Exporting Countries (OPEC) quota has impacted negatively on our foreign exchange reserve. For over a year, oil prices have remained low as the slowdown in United States and Chinese economies continues to hurt demand for crude oil, especially in the U.S. which serves as the major oil market for Nigeria. Consequently, the low-income level of the country has affected Federal allocation to the three tiers of government. Restriction on expenditure embarked upon by government has slowed down developments.



- b. Nigeria Stock Market: A major source of worry for the economy in the within the period was the depreciating trend in stock market prices, which saw the stock market capitalization fall by 47% to N6.382 trillion by January 13, 2009 from N12.047 trillion on April 1, 2008. During the same period, the All share index fell by 54% to 28,848.40 from 62,606.90. (Union Digest, December 2008). The cut off of bank facilities for stock market trading and the exit of foreign investors in the market have been fingered as factors in the crash of stock market prices in Nigeria. A deepening of the global recession means that foreign investors may take long to return to the market and with an exposure of 9% of their total loan portfolio in stock trading loans, banks are likely to continue to shun stock trading lending. As the stock market is a broad gauge of the mood of investors, continued slide in the market would dampen economic outlook and would make more difficult for corporations to raise external funds for business expansion, and this would frustrate economic recovery efforts.
- c. Manufacturing Sector: Before the global financial crisis, banking sector was regarded as the most robust sector going by the huge profits declaration. Today, it is a known fact that the sector is not insulated from the global crisis. In reaction to this glooming situation, banks have embarked on a number of survival strategies. Firstly, the lending rates have been jacked up and customers are already bearing the brunt. Secondly, allowances and estacodes of banking executives have been drastically slashed. Also, downsizing of staff and general reduction of overhead cost are being implemented by the banking custodians.

There is also loss of confidence in the sector following recklessness / greed of bank executives recently exposed by Central Bank of Nigeria. Worst still, many banks have

within the last two quarters declared huge losses as a result of mandatory full provisioning of losses on margin loans granted to stock market which was badly affected by the meltdown.

**Increased Unemployment:** The general unemployment level in Nigeria which was at intolerable level has further worsened? There has been a general downsizing by companies that have adversely affected by the crisis particularly, the financial sector. In 2009, over 20,000 workers lost their jobs, a development most companies defended as a survival strategy to reduce overheads. The massive job loss has brought about all kinds of pressures on families and the country as a whole.

**Instability and high Exchange Rate:** The foreign exchange market which was stable in 2007 suddenly lost ground against major traded currencies beginning from November, 2008 and has not been able to recover since then. The Central Bank of Nigeria effort to stem the market failed to achieve set objectives as the Naira continued its downwards plunge against the United States dollar and other traded currencies. Soludo (2009), attributed the pressure on the exchange rate to the fall in the price of crude oil from a peak of US\$147 a barrel attained in July, 2008 to about US\$34 per barrel in 2009. Since the beginning of 2010, there has been a gradual recovery and current price fluctuates between \$72 per barrel.

Bernanke (1995) defined Global Financial Crisis as a worldwide economic downturn. It is a period of general decline or depression in economic activity characterized by mass unemployment, general fall in profits, wages, interest rate, consumption, expenditure, investment, bank deposits and loans, factories closure and construction of all types of capital goods come to a standstill.

According to Aforika (2008), the 2008 global financial crisis is linked to the crisis in the mortgage sector of the United States (U.S.). The crisis in the U.S. mortgage was traceable to millions of home loans made by banks to people who either had bad credit ratings or lacked adequate income to qualify for the money under traditional lending practices, hence the reference to the loans as sub-prime. The risky loans did not go bad immediately because they usually began with artificially low rates that were to be adjusted upwards thereafter. As more people took advantage of the easy money to own property, home values escalated and there was refinancing facilities even when the mortgage payments became very expensive. But trouble started in 2006 as more borrowers began to default and home values began to depreciate, making refinancing more difficult and setting in motion a wave of foreclosures that further depressed house values.

Aforika (2008) further explains that sub-prime lending generally refers to lending by institutions that carry a higher level of risk. Consequently, it is generally accompanied by higher interest rate charges. It is a combination of credit status of the borrower, his income and job history, and the ratio of his income to mortgage payments that determines whether a borrower is sub-prime or not. Sub-prime lending also refers to bank loans taken on property that cannot be sold on the primary market, including loans on certain types of investment properties and to certain types of self-employed persons. Sub-prime lending covers a variety of credit instruments that include mortgages, car loans, and credits cards, it is important to note that sub-prime lending results from the business decision of lenders to exploit a market opportunity, comprising borrowers with unsatisfactory credit history.

### **2.1.2 Types of financial crisis**

Reinhart and Rogoff (2009) distinguished two types of crisis: those classified using strictly quantitative definitions and those dependent largely on qualitative and judgment analysis. The first group according to Reinhart and Rogoff (2009) mainly includes currency and sudden stop crisis while the second group contains debt and banking crisis. A currency crisis involves a speculative attack on the currency resulting in a devaluation (sharp depreciation) or forcing the authorities to defend the currency by extending large amount of international reserves or sharply raising interest while a sudden stop or balance of payments crisis can be defined as a large fall in international capital inflows or a sharp reversal in aggregate capital flows to a country, likely taking place in conjunction with a sharp rise in its credit spread (Stijn & Kose, 2013).

The first generation of models, largely motivated by the collapse in the price of gold, an important nominal anchor before the floating of exchange rates in the 1970's was often applied to currency devaluations in Latin America and other developing countries (Claessens, 1991). Salant and Henderson (1983) were of the view that a sudden speculative attack on a fixed or pegged currency can result from rational behavior by investors who currently foresee that a government has been running excessive deficits financed by the Central Bank credit. This implies that investors would continue to hold the currency as long as they expect the exchange rate regime to remain intact but they start dumping it when they anticipate that the peg is about to end. Such run leads the Central Bank to quickly lose its liquid assets or hard foreign currency supporting the exchange rate.

The second generation of the models according to Stijn and Kose (2013) stresses the importance of multiple equilibria. Obstfeld and Rogoff (1986) are of the view that these

models show that doubts about whether a government is willing to maintain its exchange rate peg could lead to multiple equilibria and currency crisis.

The third generation of crisis models explores how rapid deteriorations of balance sheets associated with fluctuations in asset prices, including exchange rates can lead to currency crisis. These models are motivated by the Asian crisis of 1990's. Chang and Velasco (2000) are of the view that in the case of Asian countries, macroeconomic imbalances were small before the crisis- fiscal positions were often in surplus and current account deficits appeared to be manageable, but vulnerabilities associated with financial and corporate sectors were large. According to them, if local banks have large debts outstanding denominated in foreign currency, this may lead to banking cum currency crisis. McKinnon and Pill (1996), Krugman (1998) and Corsetti, Pesenti and Roubini (1998) suggest that over-borrowing by banks can arise due to government subsidies, to the extent that government would bail out failing banks. Vulnerabilities can also trigger financial crisis. Burnside, Eichenbaum and Rebelo (2001) argued that crisis can be self-fulfilling because of fiscal concerns and volatile real exchange rate movements.

On sudden stops, Calvo (2006) is of the view that the models resemble the latest generation of currency crisis models in that they focus on balance sheet mismatches- notably currency but also maturity in financial and corporate factors. According to him, those models tend to give greater weight to the role of international factors like changes in interest rates and spread on risky assets. These models can account for the current account reversals and real exchange rate depreciation typically observed during crisis in emerging market.

Because of collateral constraints in lending, a sudden stop can lead to a debt-deflation spiral of declines in credit, prices and quantity of collateral assets resulting in a fall in output. Like the domestic financial accelerator mechanism, financial distress and bankruptcies cause negative externalities as banks become more cautious and reduce new lending which would in turn induce a further fall in credit thereby contributing to recession (Calvo, 2000). Relatively small shocks to imported input prices, the world interest rate or productivity can trigger collateral constraints on debt and working capital especially when borrowing levels are high relative to asset values (Stijn & Kose, 2013).

Empirical studies find that sudden stops have been associated with global shocks. For a number of emerging markets such as those in Latin America and Asia in the 1990's and in Central and Eastern Europe in the 2000s, following a period of large capital inflows, a sharp reversal of capital flows occurred, triggered by global shocks (Milesi-Ferretti & Tille, 2011).

Foreign and Domestic Debt Crisis: This is closely linked to those models explaining sovereign lending. Models developed here rely on either inter-temporary or intra-temporary sanctions. Inter-temporary sanctions arise because of threat of cut-off from future lending if a country defaults (Eaton & Gersovitz, 1981) such cost can induce the country to continue its debt payments today, even though there are no immediate, direct costs to default. Whereas, intra-temporary sanctions can arise from the inability to earn foreign exchange today because trading partners impose sanctions or shut the country out of international markets (Bulow & Rogoff, 1989). Both types of costs can support a certain volume of sovereign lending, (Panizza, Sturzenegger & Zettlemeyer, 2009) as cited by Stijn & Kose (2013). According to them, these models imply that inability to pay can results from

different factors. The incentives that governments face in repaying debt differ from those for corporations and households in a domestic context. In the inter-temporary model, a country defaults when the opportunity cost of not being able to borrow ever is low, one such case presumably being when the terms of trade is good and is expected to remain so (Kletzer & Wright, 2000). In the intra-temporary sanction, the cost of cut off from trade may be the least when the terms of trade is bad.

**Banking Crisis:** This is quite common but the least understood type of crisis. This is in view of the fragile nature thereby making banks to be subject to runs by depositors. While public safety nets-including deposit insurance can limit the risk, public support comes with distortions that can actually increase the likelihood of a crisis. Institutional weaknesses can also elevate the risk of crisis. For example, banks heavily depend on the information, legal and judicial environments to make prudent decisions (Stijn & Kose, 2013)

This can be challenging to date as to when they start and end. The crises are traced to series of events such as forced closures, mergers, government take-over of many financial institutions, runs on several banks or the extension of government assistance to one or more financial institutions. Reinhart and Rogoff (2009) pointed out events that signal crisis in banks to include: bank runs that leads to closure, merging or take over by the public sector of one or more financial institutions etc. Lopez-Salido and Nelson (2010) analyzed events surrounding financial difficulties in the United States of America. They reported and identified three major distinct crises: 1973-75; 1982-84; 1988-1991 whereas, Laeven and Valencia (2012) identified only one crisis- 1988 over the period. This confirms how problematic it is to identify banking crisis.

Stijn and Kose (2013) are of the view that the latest financial crisis had many elements in common with previous crisis. According to them, while observers differ on the exact weight given to various factors, the list of factors common to previous crisis is generally similar. Four features often mentioned include the following: asset price increase that turned out to be unsustainable, credit booms that led to excessive debt burdens, build-up of marginal loans and systematic risk and the failure of regulation and supervision to keep up with financial innovation and get ahead with the crisis when it erupted.

The global financial crisis was however also rooted in some new factors and the four new factors include: the widespread use of complex and opaque financial instruments, the increased interconnectedness among financial markets- nationally and internationally with the United States of America at the core, the high degree of leverage of financial institutions and the central role of the house hold sector (Colomiris & Gorton, 2009).

### **2.1.3 Dating, identification and frequency of financial crisis**

Currency crisis involves large changes in exchange rates and as such, related to inflation which is very easy to identify. Reinhard and Rogoff (2009) as cited by Stijn and Kose (2013) distinguished these by assigning threshold values. In the case of currency crisis, they considered exchange rate depreciations in excess of 15 percent per year as a crisis while for inflation; they adopted 20 percent per year. Frankel and Rose (1996) defined currency crisis as a depreciation of at least 25 percent cumulative over a 12-month period and at least, 10 percent points greater than the exceeding 12 months. But then, movements in international reserves or adjustment in interest rates can absorb exchange rates pressures and moderate fluctuations in the rate. Eichengreen, Rose and Wyplos (1996) adopted different



methodologies to look at movements in international reserves, interest rates and exchange rates. They were in agreement that movements in international reserves or even adjustments in interest rates can absorb exchange rate pressure.

Sudden stops and Balance of Payments crisis: Can be objectively classified. Calvo, Izquierdo and Talvi (2004) defined systemic sudden stop events as episodes with output collapses that coincides with large reversals in capital flows.

Calvo, Izquierdo and Mejia (2008) expanded on these in two ways, namely; the period contains one or more-year fall in capital flows that are at least two standard deviations below its sample mean and the one that starts and ends when the annual change in capital flows falls (exceeds) one standard deviation below (above) its mean (Mauro & Becker, 2006). However, the dating of these events (crisis) is similar.

Balance of payments crisis on its own can be identified using capital flows data. According to Forbes and Warnock (2012), although there are some different approaches, (eg. how reserve losses are treated) and statistical variations across studies whether the same current account deficit threshold is used for all countries or whether country specific variables are used.

External Sovereign Debt crisis: This is relatively easier to identify since they involve a unique event- a defaults in payments. Sturzenegger and Zettelmeier (2007) are of the view that typical dating of such episode relies on classification of rating agencies or on information from international agencies. It is easier to date the beginning of external debt crisis but difficult to date the end. Some studies date this as when a country regained access in some form to private financial markets.

Domestic Debt Crisis: This is more difficult to identify because of availability of data. First, consistent historical data on domestic public debt across countries was missing until recently. Second, countries can default in many ways which include outright direct defaults, periods of hyper- inflation, punitive taxation of interest payments, forced interest rates or principal adjustment, debasing of currency etc (Reinhart & Rogoff, 2009).

#### **2.1.4 Real effects of financial crisis**

Financial crises have large effects on economic activity and has what it takes to trigger recession. Claessens, Kose and Terrones (2012) are of the view that there are many recessions associated with financial crisis and financial crisis tend to make these recessions worse than a normal business cycle recession. According to them, the average duration associated with a financial crisis is some six quarters, two more than a normal recession. The cumulative loss that is associated with financial recession is also much larger than that of a recession without financial crisis.

The real impact of a crisis on output can be computed using various approaches. For instance, Claessens, Kose and Terrones (2012) used traditional business cycles methodology to identify recessions. They showed that recessions associated with credit crunches and housing busts tend to be costlier than those associated with equity price busts. Overall losses can also be estimated by adding up the differences between trend growth and actual growth for a number of years following the crisis or until the time when annual output growth returned to its trend. However, (Laeven & Valencia, 2012) are of the view that such crisis varies from country to country but tend to be larger in emerging economies.

Such crisis according to them, are associated with significant declines in a wide in a wide range of macroeconomic aggregates. Recessions following crisis exhibit much larger declines in consumption, investment, industrial production, employment, exports and imports compared to those recessions without financial crisis. For example, the decline in consumption during recessions associated with financial crisis is typically seven to ten times larger than those without such in emerging markets. In recessions without financial crisis, the growth rate of consumption slows down but does not fall below zero.

Debt crisis can also be very costly to the real economy. Borensztein & Panizza, (2009), Levy-Yeyati and Panizza (2011), Furceri and Zazienicka (2012) report that debt crisis are associated with GDP losses. According to them, debt crisis are more costly than banking and currency crisis and are typically associated with output declines of 3-5 percent after one year and 6-12 percent after 8 years.

### **2.1.5 Financial effects of financial crisis**

Crises are associated with large down ward corrections in financial variables. The most notable drag on the real economy from a financial crisis is the lack of credit from banks and other financial institutions. Dell'Ariccia, Detragiache, and Rajan (2005) and Klingebiel, Laeven and Krosszner (2007) show how after banking crisis, sectors grow slower than naturally need more external financing, likely because banks are impaired in their lending capacity. Recoveries in aggregate output and its components following recessions are associated with credit crunches tend to take place before the revival of credit growth and turnaround in house prices. These temporary patterns are similar to those in the case of house price busts i.e. economic recoveries start before house prices bottom out during recessions coinciding with sharp drops in house prices.

Credit loss recoveries are quite common to financial crisis associated with sudden stops in many emerging economies (Calvo, Izquierdo & Talvi, 2006).

### **2.1.6 Predicting financial crises**

It has been a long challenge to predict the timing of financial crisis. Knowing precisely when a crisis is to occur would be of great benefit so that adequate measures can actually be put in place which is aimed at preventing the crisis from occurring in the first place. Stijn and Kose (2013) are of the view that there is much to be gained from early detection of financial crisis. In spite of much effort, no single set of indicators has proven to explain the various types of crisis over time. It is even easier to document vulnerabilities such as increasing asset prices and high leverage but it remains difficult to predict with accuracy the timing of crisis.

Early warning signals had emerged over time with the first generation of models focusing on macroeconomic imbalances. In such early crisis prediction according to Stijn and Kose (2013), the focus was largely on macroeconomic and financial imbalances and often in the context of emerging markets. Kaminsky and Reinhart (1999) as cited by Stijn and Kose (2013) show that growth rate in money, credit and several other variables exceeding certain thresholds made a banking crisis more likely. Goldstein, Kaminsky and Reinhart (2000) report that a wide range of monthly indicators help predict currency crisis, including the depreciation of the real exchange rate, banking crisis, a decline in equity prices, a fall in exports, a high ratio of broad money to international reserves and a recession. For banking crisis, according to Kaminsky and Reinhart (1999), the best monthly indicators were: appreciation of the real exchange rate relative to trend, a decline in equity prices, a rise in

the money (M2) multiplier, a decline in real output, a fall in exports and a rise in interest rate.

Global factors can as well play important roles in driving sovereign, currency, balance of payments and sudden stops crisis. A variety of these global factors is often reported to trigger crisis which include deterioration in terms of trade, shocks to world interest rates and commodity prices (Jorda, Schularick & Taylor, 2011). Other studies conducted by Obstfeld and Rogoff (2012) argued that the global imbalances of the 2000s and the recent crisis are intimately connected. International trade and other real linkages can be channels of transmission and contagion in financial markets that is associated with crisis. These global factors can themselves be outcomes, as in the most recent crisis when interest rates and commodity prices experience sharp adjustments following the onset of the financial crisis.

### **2.1.7 Causes of financial crisis**

The reason for the financial crisis is varied and complex but can largely be attributed to a number of factors in both the housing and credit markets, which developed over an extended period of time. Some of these factors according to Abdul (2013) include the inability of homeowners to make their mortgage payments, poor judgment by borrowers and lenders, speculation and over-building during the boom period, risky mortgage products, high personal and corporate debt levels, financial innovation and regulation.

Avgoulea (2008) enumerated the causes of the crisis to include: breakdown in underwriting standards for sub-prime mortgages, flaws in credit rating agencies, assessment of sub-prime Residential Mortgage Backed Securities (RMBS) and other complex structured credit products especially Collateralized Debt Obligation (CDOs) and other Asset-Backed Securities

(ABS), risk management weaknesses at some large United States and European Financial institutions and regulatory policies including capital and disclosure requirements that failed to mitigate risk management weaknesses.

Keynes view was that financial crisis occurs when aggregate falls largely as a result of fall in private investment causing firms to produce below their capacity. In this case, producing less require that firms reduce their workers thereby leading to fall in employment. Firms, for reasons that economist continue to debate fail to cut wages to as low as the job seekers will accept and involuntary unemployment rises. Hoover (2013) believes that the Neo-Classical economics suggests a rejection of the Keynesian economics. The Neo-Classical economics believed that such step is irrational since involuntary unemployment would present firms with an opportunity to raise profits by paying workers a lower wage. If firms fail to take this opportunity, it means that they would not be optimizing. Lukas (1981) attempted to apply the rule of equilibrium saying that equilibrium in the market occurs when quantity supplied equals quantity demanded. This turned out be a radical step and according to Arinze and Mathew (2014) because involuntary unemployment is exactly the situation in which the amount of labor supplied exceeds the amount demanded, their analysis leaves no room at all for involuntary unemployment.

### **2.1.8 Prevention of financial crises**

Following the outbreak of the last financial crisis as well as many lessons learnt; many would agree that asset price bubbles and credit booms can entail substantial costs if they deplete rapidly. According to Stijn and Kose (2013), rapid increases in asset prices and credit can lead to financial crisis with significant adverse effect to the macro economy. It is therefore important to monitor the vulnerabilities stemming from such sharp increases so as to

determine if they could be followed by large and rapid declines (crashes, busts or crunches, capital outflows).

The challenge for policy makers and researchers are in two-fold (Stijn & Kose, 2013). Challenges of when and how to intervene according to Stijn and Kose (2013) has to do with first, determining when increases in asset prices and credit represent substantial deviations from those that can be explained by fundamentals and second, if the behavior of credit and asset markets suggest signs of risk, they need to determine what would be the optimal policy responses to minimize risks and mitigate adverse effects when risks materialize.

There has been an active debate on how monetary policy should respond to movements in asset prices and credit. The consensus before the crisis was that the formulation of monetary policy only needed to consider asset prices to the extent that they were relevant for forecasting economic outlook and inflation but not otherwise (Kohn, 2008; Bernanke, 2009). While the case for policy intervention is considered stronger when the banking system is involved in financing the bubble, other asset bubbles can more justifiably be left to themselves while the exact adjustment of monetary policy remains unclear.

There remain important lessons to be learnt about the design of micro-prudential regulations and institutional structures for the prevention of crisis. The nature of the 2008 global financial crisis has shown that financially integrated markets have benefits, but also presents risks, with the international financial structures still far from institutionally matching the policy demands closely (Taylor, 2010). While rules calling for well capitalized and liquid bank that are transparent and adhere to sound accounting standards are being put in place like Basel III, clarity on how to deal with large, complex financial institutions that operate

across many borders is still needed. The crisis further reveals that fiscal policies both micro and macro can play a role in creating vulnerabilities, but which adaptations are needed is not always clear. Stijn and Kose (2013) are of the view that macro-prudential policies and other monetary policies should be very clear. The exact designs of such policies that are not clear yet are needed.

### **2.1.9 The global financial crisis and the Nigerian economy**

The 2008 global financial crisis has some important common elements with the previous financial crisis in Asia, Mexico and Russia in terms of causes and consequences. According to Olawale (2010), the Mexican Peso crisis broke out on December, 1994 when the Mexican government suddenly announced that the Peso was devalued by 15% (Han, Lee & Suk, 2003). The Peso continued to fall as currency traders and investors panicked and sold their peso holdings. At the same time, there was rapid capital outflow and the Mexican stock market (Mexican IPC) fell by 47.94% in one month. The “tequila effect” spread to neighboring countries, especially Brazil (Sharma, 2001).

Hence the main symptoms of the Mexican crisis were threefold: exchange rate depreciation, fall in stock prices and capital outflows. The 1997 East Asian Financial crisis has been attributed to different factors by different researchers; however, there is consensus that the main causes included large external deficits, property market bubbles and stock market bubbles. The main symptoms were the collapse of the exchange rate and stock prices (Grouzille & Lepetit, 2008). Also, the crisis is attributed to the presence of internal weaknesses in the financial sector, such as traditional banking practices and inadequate bank regulation.



Inadequate bank regulation and supervision was rampant to the extent that “new banks and finance companies were allowed to operate without supervision or adequate capitalization” In addition, the crisis is attributed to excessive foreign borrowing mainly by the private sector; “firms borrowed heavily to fund plant expansion and acquired unsustainable debt/equity ratios” (Jackson, 1999). The symptom of the crisis is that countries in the regions were not directly vulnerable to contagion effects.

According to Jackson (1999) cited in Murinde (2009), “Countries such as Singapore and Hong Kong escaped the spread of the crisis in the region because they had stronger financial system, including adequate bank regulations”. The 1998 Russian Financial crisis broke out in August 1998, approximately one year after the break out of Asian Financial Crisis. Russians foreign currency reserves fell sharply, the Rouble rapidly depreciated and huge capital outflows followed. The stock market index fell quickly. The Rouble depreciated further by 34% at the end of December 1998, amidst speculative panics that marked the outbreak of the Russian financial crises to economic fundamentals, such as erosion of federal government revenues and collapse of financial discipline, which forced the government to borrow heavily by issuing bonds. Hence, the current global financial crisis has some important common elements with the previous crisis. First, these crises, especially the 1997 Asian Financial crisis and the current global financial crisis, can be attributed not simply to monetary issues or sub-prime mortgage problems, or any other form of credit crunch, but mainly to the spread of contagion effects due to financial globalization. Second, when the crisis occurred, key financial indicators, such as exchange rates, stock prices, short-term interest rates, asset prices, number of business bankruptcies and collapse of several financial institutions, produced very rapid deprivation in the host countries.

However, the crises differ in terms of how quickly and to what extent the nucleus of the crisis has spread to the rest of the world. Third, the Asian financial crisis, Mexican Peso crisis and the Russian financial crisis, which occurred in the emerging economies, were characterized by uncertainty in capital flows.

The main reason is “in an emerging market financial crisis, an economy that has been the recipient of large-scale capital inflows stops receiving such inflows and instead faces sudden demands for the repayment of outstanding loans. This abrupt reversal of flows leads to financial embarrassment, as loans fall into default or at least are pushed to the brink of default (Radelet et al, 1998). Taking the views of the various authors into consideration, the current financial crisis is caused by the following: Goodhart (2008) categorizes the reason of the crisis as mix-pricing of risk, new financial structure, poor credit rating agencies and insufficient liquidity.

The reasons for this crisis are varied and complex, but largely, it can be distributed to a number of factors in both the housing and credit markets which developed over an extended period of time. Some of these include: the inability of homeowner to make their mortgage payments, poor judgment by the borrower and /lender, speculation and over building during the boom period, risky mortgage products, high personal and corporate debt levels, financial innovation that distributed and concealed default risks, central bank policies and regulation.

Jenrola and Daisi (2012) enumerated causes of the Nigerian stock market crash in 2008 to include:

- (i) **The global financial crises:** According to them, the first stage of crisis emerged from the prolonged surge in oil and other commodity prices which eroded household

spending power. As a result, many economies gradually slowed down towards the end of 2007 and continued till 2008. Incidentally, the Nigerian Stock Market was witnessing massive credits driven by the recapitalization of banks. The economic crisis of the world stage resulted in the debts and obligations in the various countries thereby forcing foreign investment banks to service maturing obligations. The commencement of their fund withdrawal from Nigeria triggered the equity crash in Nigeria.

- (ii) **Margin loans:** These were loans granted by banks to stock brokers and institutional investors to trade in equity. The equity market boom in Nigeria between 2005 and early 2008 according to Jenrole and Daisi (2012) were driven by bank lending to stock broking firms primarily to buy the bank's shares in order to sustain the demand pressure on their stocks such that its prices continue to rise. As the international investors continue to withdraw their funds from Nigeria, it triggered an increase in drop in the holdings of bank shares particularly by these foreign.
- (iii) Investors who reckoned that the Nigerian market is indeed heading to experience what the global market was facing.
- (iv) Illiquidity in the banking system. Tight liquidity in the Nigerian banking system was also a causal factor. The liquidity problem according to Jenrole and Daisi (2012) were attributable to net foreign exchange outflows arising from divestment and repatriation of capital and dividends by foreign investors.

The impact of the crisis on the Nigerian economy has different implications for the capital market, the banking sector, foreign exchange and the balance of payments, as well as the real sector. Market capitalization fell by 45.8% in 2008, a sharp reversal of growth from

2007, when the market grew by 74.4% (Okereke-Onyiuke, 2009). The crude oil price (Bonny light) declined precipitously from U.S. and 147 percent per barrel in July 2008 to \$47 per barrel in January 2009, prompting the government to seek other sources of financing for the 2009 fiscal year, as it could not rely on earnings from crude oil exports. Eventually, there was a huge budget cut at all tiers of government and social spending, such as on education, health and other millennium development Goals was deeply affected. The Nigerian currency, the naira, has also been depreciating against the U.S. dollar and this has implications for foreign reserves, which dropped from \$67 billion in June 2008 to \$53 in December 2008 and to about \$34 billion in 2011. The all share index and the market capitalization of the 233 listed equities capture activities and performance on the Nigerian Stock Exchange (NSE). The index has been growing over the years from a value of 12,137 in 2002 to 66, 371 in March 2008, with a market capitalization of 4998 trillion because of the melt down. By the end of the first week of March 2009, values had declined to 21,893 points, with a market capitalization of 4900 trillion. This value had further declined to 21, 608 points, with a market capitalization of 4836 trillion, by the end of the second week of March 2009. This reveals that between March 2008 and March 2009, the all share index had lost a total share of 67%, while market capitalization had lost 62% of its value (Okonjo-Iweala, 2009). There are concerns regarding how rapidly the global financial crisis penetrated the Nigerian Capital Market, especially given that there is hardly any thriving domestic mortgage market. The decline of indicators of activities on the NSE before the escalation of the crisis on the global scene in July 2008 became a source of concern for many. However, the emerging facts reveal that the crisis may have been made evidence in the capital market through various channels (Soludo, 2009). Foreign Portfolio investment withdrawals and withholdings in order to service financial problems at the foreign investors

home as well as prospects of reduced FDI are bound to affect investor confidence in the economic health of Nigeria. Evidence on foreign portfolio withdrawals shows that the total financial inflows to Nigeria between 2007 and 2008 increased by 21%, while that between 2008 and 2009 reduced by 38.6% (Adewale, 2010). The adoption of a public-private partnership (PPP) policy platform to implement huge investment plans such as oil and gas (liquefied natural gas – LNG-project), power plants, railways, housing and roads, therefore exposed the country more to FDI uncertainties and vagaries. The credit crunch experienced by lending institutions, affected businesses that require short and long-term fund including bank, lending to corporate organizations as well as inter-bank short-term lending. In a country like Nigeria, where mortgages and credit card purchases are not well developed, this credit crunch became manifest in weakened risk assets of banks that had given out loans to some investors to invest in other financial instruments (particular secondary market purchase and initial public offerings (IPOs), in the hope of making quick returns through a quick turnaround of their portfolio. This was what was termed otherwise “margin lending”. This may also be termed Nigeria’s own version of the “Sub-prime problem”, resulting in an exploding domestic stock market and stock prices and astounding returns to both the spectaculars and providers of the margin funds (the banks). Other factors that have had a serious impact on the stock market are what can be called the intensifiers. These include policy interpretations by the market, which may have been induced by the slow government initial stand on the economy. This also includes interpretation of announcements, proclamations and rumors by the market. Examples include the proposed recapitalization plan of the stock market players (stock broking firms) as well as rumors on the termination of margin lending by banks.

### **2.1.10 Implications of the global financial crises on the world economy**

The current global financial crisis has important implications for banks; companies, investors and governments. The main implication for banks is the centrality of the financial intermediation role, such that there must be a stable source of funding for all types of banks, including commercial banks and investment banks (Ashamu & Abiola, 2012). Hence, it is very important for banks to maintain capital ratios to avoid liquidity and solvency risks. For example, if commercial banks ignore the basic principal of deposits ratio and over-relied on the money market financing, once market confidence is lost, the liquidity crisis of banks may soon appear. The United Kingdom Bank, Northern Rock is a typical example. The main business of Northern Rock is to provide residents with British mortgage buyers. However, unlike most commercial banks, Northern Rocks' finance primarily relied on borrowing from money market with inter-bank rate and selling its mortgage securities (Olawale, 2010).

When the sub-prime mortgage crisis broke out in 2007, the loss of market confidence made liquidity extremely difficult. Consequently, Northern Rock could not finance its business, and it ultimately ended up with United Kingdom Government nationalization. The main implication of the crisis for companies relates to executive compensation and corporate government, also sometimes called "the fat cat problem" (Ashamu & Abiola, 2012).

The point is that companies must beware of high incentives used in management which led to uncontrollable risks. Research shows that in 2007 the United States executive's salary level was 275 times that of ordinary employees. The ratio was only 35 to 1 about 30 years ago (Bloomberg, 2008). Incentives of executives of financial Institutions are often linked to short-term securities trading performance. Driven by attractive salary, the wall street "elite"

in the pursuit of huge short-term returns, one after another test the water “toxic securities” from engaging in financial innovation and financial risk. High incentives which have been out of control are seen as the initiator and one of the chief culprits for this financial crisis. To this end, the U.S. government rescue plan included some constraints on incentives and the tax deductibility of their income of executive in order to enhance market confidence and restore stability in the market order. Therefore, it is learnt that companies in any industry should have a reasonable margin of incentives, which must not breach the industry standard and appropriate balance of the principles of social equity. For investors, the main implications of the crisis are at least threefold.

Many investors lost nearly everything in this financial (tsunami). Hence, the first lesson investors should bear is that high returns always involve high risk; however, high risk does not necessarily guarantee high returns at least not constantly. More importantly, investors should be aware of the extra risk they are taking at all times. Secondly, investors should correctly understand and avoid high level of gearing, especially during such a volatile market condition. Gearing is absolutely a double-edged sword. No doubt, it can magnify investor’s potential gains, but it also and more often results to imposition closures at a direction. The third lesson investor need to remember is the importance of diversification and government bonds in their portfolio management. Investor may head the old saying: “Do not put all your eggs in one basket” by forming a portfolio with diversified stocks. However, they ignored the importance of “asset classes” meaning that diversification is only impactful with actively “asset classed” portfolio. Governments, in particular, have important lesson to learn from the current financial crisis (Olawale, 2010).

First, all government must be aware of the extensive risks associated with rapid financial innovations, including the likelihood of causing financial bubbles. The ongoing financial crisis which triggered and spread by the U.S. sub-prime mortgage losses due to improper use of financial derivatives, such as securitization of U.S. mortgage agencies into mortgaged backed securities for sale in the market. Then, investment banks used their financial engineering technology to repackage and trade the securities. Second, governments should beware of the excessive uncertainties and risks resulting from over speculation. Looking back the history of financial crises, no matter how big and small, almost all of them are connected and caused by the excessive speculation, ignorance of risk control. Moreover, modern investment banking business is heavily engaged in financial derivatives, which have leverage effects, such that investors can easily enlarge profits (as well as risks) by bearing a small amount of trading margin. High leveraging ratio has made investment banks highly dependent on financing investments during the credit crunch, investment banks' balance sheet deteriorated drastically; rating agencies S&P and Moody's therefore lowered their ratings so that the financing cost increased significantly.

#### **2.1.11 Exchange rate and all share index**

Exchange rate movement according to Okanta, Okonkwo and Idika (2014) has to do with an increase or decrease in the external value of a unit in a country's currency expressed in terms of foreign currency. Hence, a falling foreign value of a country's currency unit, say the naira would mean an increase in the number of that country's currency unit that would be forgone per unit of the foreign currency. Akpakpan (1999) referred to it as currency appreciation or depreciation.



Exchange rate stability and continuous growth in capital markets are required for financial stability. The financial system in Nigeria improved significantly moving from fragmented to relative efficient system (Abdulrasheed, 2013).

Over the years, the monetary authority has put in place various exchange rate regimes to achieve a sound financial system. Such rate depends on the prevailing conditions in the economy. Adbulrasheed (2013) opines that exchange rate of the Nigerian domestic currency remained at par with the pound sterling up to 1973 when it was changed to Naira and subsequently, it was fixed to the US Dollar and the British Pound Sterling In 1985, US Dollar was adopted as the intervention currency in which Nigerian Naira was tied with US Dollar. The introduction of structural adjustment programmes in 1986 with flexible regime and later improved to full deregulated system marked the turning point in Nigeria's exchange rate management Abdulrasheed (2013) observed that exchange rate regime moved from regulated to deregulated and then to guided regulation. From 2006 to 2011, the policy was quite flexible moving from retail Dutch Auction System to Wholesale Dutch Auction System and during the period of the global financial crisis, the autonomous inflow of foreign exchange declined which also reduced foreign reserves drastically.

Dornbusch and Fischer (1980) suggests that fluctuations in exchange rate can significantly have an effect on firm's value, as they influence the terms of competition, the input and output prices, the value of assets and liabilities denominated in foreign currencies. So, the fluctuations affect the competitiveness of firm's earnings and cost of its funds thereby impacting on the value of its shares. Although firms with foreign operations are more affected as compared to pure domestic firms and according to Dornbusch and Fischer

(1980), no company can be considered as fully insulated from the effects of exchange rate changes.

### **2.1.12 Conceptual framework on external reserves**

Management of external reserves stands as integral core function of any Central Bank of any nation including Nigeria. This involves maintaining an adequate volume of reserves in order to safeguard the value and exchange rate of the domestic currency. Such holdings according to Akinwumi and Adekoya (2016) are mostly denominated in foreign currencies such as Dollars, Pounds, Yen, Euro, Gold, Precious Stones, Foreign Treasury Bills, IMF Funds, SDR rights etc. Such tends to assist the country to withstand shock which might set in unknowingly or as a cushion effect when an economy is faced with pressing economic problems. It also provides a country with a fall back for the rainy day when a nation sometimes may experience drop in revenue and would need to fall back on their savings as a life line and timely meeting of international payment obligations.

Fapetu and Oloyede (2014) are of the view that Nigeria has introduced different Foreign Exchange Reserves Management since independence which includes policy initiatives and measures in the management of its external reserves. First was the ad hoc administrative measure which was applied between 1959 and 1967 when the country exchange rate was maintained in parity with Pound Sterling until the actualization of Sterling by 10% in 1967. Then, following the change of the Nigerian Pounds to Naira in 1973, fixed exchange rates were established for both the Pounds Sterling and the US Dollar. Egwakhe and Osabuohie (2008) opine that due to an unprecedented change that occurred in the International financial system in the 1970s, many countries were forced to change their exchange rate policies.

External reserves according to Akinwunmi and Adekoya (2016) is defined as official public sector foreign assets that are readily available to, and controlled by the monetary authorities for direct financing of payments of imbalances and directly regulating the magnitude of such imbalances through intervention in the exchange markets to affect the currency exchange and for other purposes. This implies that foreign reserves are also called International reserves or foreign exchange reserves. According to IMF (2009), external reserves are foreign currency deposits of Central Banks or other monetary authorities. These reserves are used to back Central Banks liabilities such as the local currency issued and even the reserve deposits of various banks. Therefore, the purpose of external reserve management varies from country to country depending on the objectives at hand but majorly, country needs to manage her external reserves for ensuring foreign exchange stability.

### **2.1.13 Conceptual framework on foreign portfolio investment (PFI)**

Foreign portfolio investment consists of securities and other fiscal resources inactively held by alien investors. It is a kind of investment which is relatively liquid, depending on the volatility of the market invested in as usually used by investors who do not want to manage a firm abroad. There has been a rapid growth in cross border capital flows since 1980s' with the enhancement of financial globalization. Capital flows are considered as a financial source and many emerging economies try to attract foreign capital to stimulate domestic output. According to Guluzar (2015), net inflows to some countries and regions such as Asia Pacific, Latin America, the Transition economies of Eastern Europe and Turkey have grown considerable.

Bird and Raja (2002) are of the view that foreign capital flows appear in two ways: foreign direct investment and foreign portfolio investment. Direct investments are foreign funds injected into domestic production such as building of new plants, installing new production lines, forming new ventures etc. According to them, potential positive effects generated by foreign direct investment such as technology transfer, human capital formation, creating a more competitive business environment lead country into creating a more competitive climate that is more attractive to investors thereby contributing to economic growth.

Foreign portfolio investment can be seen as investments by resident entity in one country in the equity and debt securities of an enterprise resident in another country which seeks primarily capital gains and do not necessarily reflect a significant and lasting interest in the enterprise. This category includes investment in bonds, notes, money market instruments and financial derivatives other than those not included under foreign direct investment.

Foreign portfolio inflows are expected to finance the difference between domestic savings and investment without increasing the foreign currency debt of the country. Guluzar (2015) opines that portfolios are considered as hot capital and move from one country to another, searching the highest returns and better market conditions. This according to the author makes portfolio investment to be more volatile and mobile than direct investments.

Baghebo and Apere (2014) are of the view that Foreign Portfolio Investment is an aspect of international capital flows comprising of transfer of financial asset such as cash, stock or bond across international borders in want of profit. This part of investment has become a significant part of the world economy over the past three decades and an important source of fund to support investment not only in developed but also developing countries.

Over the years, Nigerian Government has viewed Foreign Portfolio Investment as a vehicle for political and economic domination of Nigeria and hence, the introduction of indigenization policy through the Nigeria Enterprise Promotion Decree which was aimed at regulating foreign investment with a maximum of 40% foreign participation allowed.

## **2.2 Theoretical Framework**

### **2.2.1 Efficient market hypothesis**

A broader theory of stock price movements is the Efficiency Market Hypothesis (EMH) as spearheaded by Fama (1970). A market is efficient if scarce resources are allocated to their most productive uses which imply that market is efficient if current security prices reflect all available information about each security and quickly adjust to all available information. The theory is related to random walk theory. The idea that asset prices may follow a random walk pattern was introduced by Bachelier (1900) as cited by Poshakwale (1996). The random walk hypothesis is used to explain the successive price changes which are independent of each other. Ibenta (2005) is of the view that if the market is efficient as argued, then the market price is the only good and correct guide for the share selection.

Fama (1991) classifies market efficiency into three forms namely- strong, semi-strong and weak forms. In the case of the strong form efficiency, all information, even apparent company secrets are incorporated in security prices. Thus, no investor can earn excess profit trading on public or non-public information (Jones & Nether, 2002). This was buttressed by Omelehinwa (2001) who said that if the strong form efficiency exists, prices might not move at all when information is publicly announced and would have already reacted to the information. This is consistent with the position of (Ross, Westerfield & Jaffe, 1996).

Omolehinwa (2001) was of the view that the timing of new issues is irrelevant when the market is efficient but could also be relevant when considering inside information since companies that have some bad news which has not been released the public could take advantage by issuing new shares before the release causes the share price to fall. Again, insider information could enable a company to identify an undervalued company while considering mergers or take over (Brealey & Myers, 2000; Fapetu & Adesina, 2013). Olowe (1998) asserted that in a company where there is no stiff action on inside trading, management withheld unfavorable information about their company.

Bauman (1999) gave the summary of Marden's electronic trading model to help curb insider trading. According to him, to eliminate the insider's significantly excess profits, electronic communication was introduced to enable traders to easily track each other's stock order. Thus, if one trader had inside information about a company and put it in a large purchase order for stock, the computerized system will enable other traders to observe this activity and modify their trading activity accordingly. This creates a level playing field and makes it difficult to illegally profit from insider trading Semi-Strong Efficiency. This level of efficiency assumes that all publicly available information about a given security has been adequately featured into the present price of the security (Russel & Violet, 2002). Okwoli and Kpelai (2008) as cited by Sunday and Richard (2010) looked at semi strong efficiency as a situation where the security prices reflect not only past information but also other published information.

Weak form efficiency. Okwoli and Kpelai (2008) defined weak form efficiency as a situation where the security prices reflect all the past information as reported by the press. In this case, it is not possible for an investor to predict future security price by analyzing

historical prices and achieve a performance better than the stock market index. It is because the capital market has no memory and the stock market index has already incorporated past information about the security prices in the market price (Pandey, 2005).

### **2.2.2 World systems theory**

This theory has been closely associated with Wallerstein (1979). The theory is a macro-sociological perspective that seeks to explain the dynamics of the capitalist economy as a total social system. The theory according to Wallerstein (1979) was developed when the dominant approach to understanding development, modernization was under attack from many fronts and he offered to provide alternative explanation.

There are three major intellectual building blocks of world system theory as conceived by Wallerstein (1979) and cited by Carlos (2001). These include: The Annales School, Marx and Dependency Theory In his earlier definition, Wallerstein (1974) said that world system is a multicultural territorial division of labor in which the production and exchange of goods and raw materials is necessary for the everyday life of its inhabitants. The division of labor here refers to forces and relations of production of the world economy as a whole and it leads to existence of two inter-dependent regions: core and periphery. These are geographically and culturally different, one focusing on labor-intensive and the other on capital – intensive production (Goldfrank, 2000). Scoppol (1977) maintained that the core-periphery relationship is structural. Semi-peripheral states act as a buffer zone between core and periphery and has the mix of the kinds of activities and institutions that exist on them.

Among the most important structures of the current world system is a power hierarchy between core and periphery, in which powerful and wealthy (core) nations dominate and

exploit the weak and poor peripheral nations (Carlos, 2001). Technology is a central factor in the positioning of a region and based on this classification, the advanced or developed nations are the core while the less developed nations are the periphery. Peripheral countries are structurally constrained to experience a kind of development that reproduces their subordinate status (Chase-Dunn & Grimes, 1995). The differential strength of the multiple states according to Goldfrank (2000) is crucial to maintain the system as a whole, because strong states reinforce and increase the differential flow of surplus to the surplus zone. In this situation, there is unequal exchange according to Wallerstein (1974) since the systematic transfer of surplus from semi-peripheral sectors leads to capital accumulation at a global scale and does not necessarily involve the appropriation and transformation of peripheral nations.

It is important to point out that core countries are dominant capitalist countries that exploit peripheral countries for labor and raw materials. They are very strong in military power and not dependent on any country. They are focused on higher skills and capital-intensive production. These countries are very powerful and such power allows them to pay lower prices for raw goods and exploit cheap labor which constantly reinforces the unequal status between the core and peripheral countries (Wallerstein, 2000). Examples of core countries are: The United States, France, United Kingdom and Holland. The United States for instance has large amounts of capital, and its labor forces are relatively well paid.

Peripheral countries fall on the other end of the economic scale. They lack a strong central government and are being controlled by other states. Peripheral countries export raw materials to the core countries, are dependent on core countries for capital and even have under-developed industries. These countries have low-skill, labor-intensive production or even



cheap labor. In fact, they are generally referred to as third world countries. Examples of Peripheral countries include Cape Verde and some other African countries (Wallenstein, 2000).

Semi-Periphery Countries fall in the middle of the economic spectrum. These countries share the characteristics of both core and peripheral countries. Such countries may be exploited by the core countries but they may also exploit peripheral countries themselves. For example, India is largely dependent on core countries for capital but has a growing technology industry (Wallerstein, 2000).

### **2.2.3 Business cycle theory**

The business cycle theory is often buffeted by unexpected shocks. These shocks to aggregate demand are typically unanticipated changes in monetary or fiscal policies. Shocks to aggregate supply are typically changes in productivity that may result from transient changes to technology, prices of raw materials or the organization of production (Arinze & Mathew, 2014). Alan (2010) is of the view that firms will choose to produce more and pay workers more when the economy is hit by unfavorable shocks. The theory categorically rejects Keynesian economics and the real effectiveness of monetary policy. Business cycle occur at different point in time and for two reasons which include:

- (i) Sustenance of growth over time in the advanced economies; and
- (ii) Existence of seemingly random fluctuations around growth.

While there are times of faster growth and times of slower growth, the basic idea is to find a balance between the extent to which general growth trend follows cyclical movement and how smooth the movement is (Arinze & Mathew, 2014). Business cycle therefore refers to

periodic boom and slump in the economic activities reflected by fluctuations in aggregate economic magnitudes which include total production, employment, investment, bank credit, wages, and prices. Simply put, it refers to ups and downs explained in terms of expansion and depression that an economy experiences over time.

#### **2.2.4 Theory of financial crises**

Financial crises theory can be defined as failure of banks, the sharp decrease in credit and trade and the collapse of the exchange rate regimes which causes extreme disruption of the normal functions of financial and monetary systems thereby hurting the efficiency of the economy (Itay & Assaf, 2015). Over the years according to them, many theories have been developed to explain financial crises and guide policy makers in order to mitigate and prevent them. Such theories can be explained thus:

**Banking Crises and Panics.** Depository institutions are unstable according to the theory since there is always a mismatch in the maturity structure between their assets and liabilities. This therefore put banks on bank runs because many customers demand for their money in short term; banks will have no other option than to liquidate long term investment at a loss leading to bank failure. Diamond and Dybvig (1983) provides a classical framework capturing this phenomenon. According to them in their model, banks expose themselves to maturity mismatch when they offer demand deposit contracts which enable customers to enjoy the fruit of long term investment.

Diamond and Dybvig (1983) postulations specified the crises into three periods: namely (0, 1 and 2) which means that each agent is born in period 0 with an endowment of one unit and consumption therefore occurs only in periods 1 or 2. Each agent can be of two types, the

impatient and patient agents. Diamond and Dybvig (1983) therefore conclude that the demand deposit contract makes the bank more vulnerable to runs.

**Credit Frictions and Market Freezes.** In this model, Stiglitz and Weiss (1981) viewed return on assets and loans held by banks to be generally exogenous. In this case, problems in the financial sector arise from the other side of balance sheet and focus is on the behavior of depositors or creditors of the bank. The quality of loans provided by banks is determined in equilibrium by the behavior of the bank and its borrowers which can lead to frictions in the flow of credits in the economy. Stiglitz and Weiss (1981) provided the rationale for the presence of credit rationing which seems to be a common phenomenon during financial crisis periods. While basic economic theory suggests that in equilibrium, prices adjust so that supply equals demand and no rationing arises, they try to show in their theory that such demand and supply functions would not take place because of the endogeneity of the quality of loans. There are two key frictions according to theory which include: moral hazard. This implies that if borrowers are charged a very high cost for credit, they would lose the incentive to increase the value of their projects and are therefore less likely capable of paying back. The second one is adverse selection. This means that if interest rates are high, only borrowers with bad projects will attempt to get loans and again, the bank is unlikely to get their money back. For these reasons, banks will ration credit thereby hampering the effectiveness of the financial system in providing capital to those who need it and in extreme cases, leading to financial crisis when credit drops drastically. Ivashina and Scharfstein (2010) opines that credit rationing and credit freeze have been an important part of the recent financial crisis leading to firms and households decreasing sharply

**Currency Crises.** Currency crises originate from the attempt of governments to maintain certain financial and monetary arrangements, most notably a fixed exchange rate regime thereby having the stabilization of the economy as a goal. At times, these arrangements become unstable leading to a speculative attack on a fixed exchange rate regime and from there to financial crises. For a very long time, literature on currency crises has been developed independently from the literature of runs and frictions. Salant and Henderson (1979) are of the view that currency crises originate from the attempt of government to maintain certain financial and monetary arrangements, most notably fixed exchange rate regime. At times, these arrangements become unstable, which leads to a speculative attack on a fixed exchange rate regime and from there to financial crises since the government goal is to stabilize the economy. Currency crises therefore occur when the country is trying to maintain a fixed exchange rate with capital mobility but faces conflicting policy needs, such as fiscal imbalances or a fragile financial sector. This leads to a shift in the regime (Krugman, 1979). The sudden depreciation in exchange rate is referred to as currency crises which have implications for the financial system and the real economy as a whole.

Itay and Assaf (2015) classified currency crises into three, namely: First Generation of crises which describes a government that tries to maintain a fixed exchange rate regime but is subject to a constant loss of reserves due to the need to monetize persistent government budget deficits. It will eventually lead to attack on a fixed exchange rate regime. The second-generation model of currency crises came up following the collapse of the European Exchange rate mechanism in the early 1990's (Itay & Assaf, 2015). The events at that time featured governments actively making decisions between fighting the decline economic activity level and remaining in the exchange rate management system. Hence, there was a

need for a model in which the government's choice is endogenous, rather than the first-generation model in which the exchange rate regime is essentially an automatic pilot. The third-generation model of currency crises took the center stage also in the 1990's when the wave of crises hit the emerging economies in Asia, Thailand, South Korea, Indonesia, Philippines and Malaysia. A clear feature of these crises was the combination of the collapse exchange rate regimes, capital flows, financial institutions and credit. As a result, many researchers felt that the first two generation of models were not sufficient to analyze the event in Asia. There was a strong need to incorporate banking panics and credit frictions into these models which led to an extensive research on the interplay between currency and banking crises.

### **2.3.1 Empirical review of related literature on exchange rate**

Empirical review on the relationship between exchange rates and stock prices are mixed with some of those studies revealing positive relationship while some others suggest negative relationship.

Ajayi and Mougoue (1996) investigated the short and long run relationship between stock prices and exchange rates in eight advanced economies. Their findings show that an increase in stock prices causes the currency to depreciate for both countries. This implies that the demand for the currency drops and depreciates.

Agus and Carl (2004) investigated the statistical relationship between stock prices and exchange rates using Granger Causality and Johansen Co-integration test in four countries (Indonesia, Philippines, Singapore and Thailand). The study found that the relationship between stock prices and exchange rates is characterized by a feedback system. The co-

integration test found that all the stock prices and exchange rates in the four countries are co-integrated and causality runs from exchange rate to stock prices.

Abdalla and Murinde (1997) examined interactions between stock prices and exchange rates for four emerging markets (India, Pakistan, Korea and Philippines) using Granger Causality and C0-integration techniques. Their study reveals a unidirectional causality running from exchange rates to stock prices.

Ajayi, Friedman and Mehdian (1998) examined whether changes in stock prices leads to increase in the demand for real money and the value of domestic currency using co-integration techniques. They found out that changes in stock prices can have effect on the exchange rate.

Nasrin and Syed (2011) investigated the relationship between macroeconomic variables and stock prices in Bangladesh for the period 2003-2011. They used Granger Causality to test for the Causal relationship among the variables and co-integration to detect the long run relationship. Their findings show that there exist a long run relationship existing among the variables and M2 Granger cause stock prices.

Pethe and Karnik (2000) employed an error correction model to study the interrelationship between stock prices and macroeconomic variables. The study discovered that the state of economy and the prices of stock market do not show signs of a long run relationship.

Wongbampo and Sharma (2002) investigated the effect of macroeconomic variables (inflation, money supply, GNP, interest rates and exchange rate on stock returns in Asian countries. They found out in the long run, positively related to growth and negatively related

to the aggregate price level. They also found a negative relationship for Indonesia and Malaysia.

Arinze and Mathew (2014) investigated the effect of the recent global financial crisis on the Nigeria economy using Gross Domestic Product (GDP) to proxy the economy. According to them, the crisis started in the United States mortgage default which cumulated to the system wide credit collapse and finally the entire economy. The Ordinary Least Square method was adopted and dummies used to capture qualitative variables. One of their findings was that the global financial meltdown had a strong impact on oil price of bonny light and impacted positively on All Share Index. They concluded that the crisis provides an opportunity and rationale to move more quickly to address overdue reforms in areas as diverse as financial regulation and inclusion, trade competition and public-sector improvement in the Nigeria economy.

### **2.3.2 Empirical review on foreign portfolio investment**

Ozurumba (2012) examined the relationship between stock market prices and foreign portfolio investment in Nigeria using a single linear regression analysis to capture the impact of foreign portfolio investment. Granger Causality test was also used to determine the direction of causality between those variables. The result shows that foreign portfolio investment has a positive and significant impact on stock market returns. The result further proves that uni-directional causality runs from stock market returns foreign portfolio investment. The study therefore recommends that policies that will attract foreign portfolio investment be pursued in order to enhance stock market returns.

Jarita and Sallah (2009) investigated the relationship between foreign portfolio investment and Malaysia's economic performance using the country's real GDP. The study used innovative accounting by simulating variance decomposition and impulse response function for further inference. Using quarterly data covering 1991 to 2006, the study finds evidence that economic growth causes changes in foreign portfolio investment which means that economic growth is the major factor that attract foreign portfolio investment and not vice versa. The study therefore recommends a healthy economy for sustainable growth so as to build investors' confidence in the system.

Ogujiuba and Obiechena (2012) examined the relationship existing among foreign private capital components, foreign portfolio investment, economic growth and some macroeconomic variables like inflation and interest rates using time series data from 1986-2008. A non-restrictive Autoregressive (VAR) model was developed while restriction is imposed to identify the structural components of error terms. Findings show that the response of GDP to shocks from the foreign portfolio investment is not contemporaneous and it is applicable to other variables.

Baghebo and Apere (2014) investigated the impact of foreign portfolio investment and economic growth in Nigeria between 1986 and 2011. A three-stage mythological process was adopted to check the stationarity process of the variables using Augumented Dickey Fuller Unit root test. Findings show that foreign portfolio investment, market capitalization and trade openness have a positive long run relationship with real Gross Domestic Product in Nigeria. The authors recommend that authorities should look for ways of strengthening the capital market against fraudulent influence to ensure free flow of foreign capital into the economy that would stimulate growth.



Guluzar (2015) investigated whether foreign investment flows which comprise of direct and portfolio investment indicates an upward trend in developing countries using Turkey economy as a case study. The period 2003-2013 was surveyed using Granger Causality test. The result indicates that bi-directional causality exists between foreign direct investment and the rate of real exchange and interest. On the other hand, the foreign portfolio investment has bi-directional relationship with Istanbul index while rates of real exchange and interest Granger Causes foreign portfolio investment.

Agarwal (1997) examined the determinants of foreign portfolio investment and its impact on the national economy in six developing Asian countries. Regression results showed that inflation rate, real exchange rate, index of economic activity and the share of domestic capital market in the world stock market capitalization were four statistically significant determinants of foreign portfolio investments.

Gazioglu (2003) examined the relationship between capital flow and 2001 economic crises in Turkey. In this study, empirical results showed that unexpected capital outflow caused exchange rate fluctuations, balance of payment problems and international debt crises.

### **2.3.3 Empirical literature on stock prices and the economy**

Olokoyo and Ogunnaike (2011) empirically investigated the relationship between stock market crisis and the Nigerian economic growth as well as the relationship between stock market price crash and the crisis itself. Major indicators of stock market performance such as: Market Capitalization (MC), All Share Index (ASI), Number of Deals (NOD), Volume of Stock (VOS), Total Number of New Issues (TNNI) and Inflation rate were used between 1985 and 2009. Ordinary Least Square method was employed. The result shows a

significant relationship between stock market price crash and the market crisis itself. The authors recommended that in the face of the ongoing crisis in the global stock market, the Nigerian Stock market authorities should aim at making the market meet the world class standard. All sectors of the economy should act in a collaborative manner such that optimum benefits can be realized from the activities in the Nigerian stock market.

Genrole and Daisi (2012) investigated the implications of global financial crisis on the Nigerian capital market performance (2000-2008). Specifically, the extent and magnitude of contribution of current global financial meltdown on the performance of the Nigerian Stock Exchange as well as the financial system and their multiplier effect on the Nigerian economy was also examined. The study employed a simple regression analysis with market Capitalization as the dependent variable and used to proxy capital market. Explanatory variables used include: All Share Index (ASI), Number of Stocks (NOS) and Value of Trade (VOT) were all used to measure financial crisis. Results from the regression analysis revealed that the Nigerian Stock Exchange down fall is not attributable to the global financial crisis but the instability of macroeconomic variables in Nigeria like the unfavorable exchange rate, inflationary pressure, problem of insecurity, inadequate infrastructural facilities just to mention but a few. It was therefore recommended to policy makers to resuscitate the Nigerian capital market by providing an enabling business environment devoid of corruption, aiding and abetting among regulatory institutions as well as stability of macroeconomic variables to attract foreign portfolio investors.

Antonio (2010) investigated the casual relationship between stock market developments in Germany from 1965 to 2007 using Vector Error Correction Model (VECM). His results indicated that there is a uni-directional causal relationship between stock market

development and economic growth, with clear direction from stock market development to growth.

Ovat (2012) investigated the Nigerian stock market size and stock market liquidity as stock market indicators and found that stock market liquidity has dominance over market size. The author discovered that while there is a two-way causality between stock market liquidity and economic growth, the strength of causality is predominantly coming from stock market liquidity. Therefore, market size has no effect on growth. The result also suggested one-way causality between financial deepening and economic growth with causality running from financial deepening and economic growth.

Suliman and Dafaalla (2011) investigated stock market development and economic growth in Sudan and concluded that the causal relationship between stock market development and economic growth is sensitive to the proxy used for describing the stock market development. They found that when the stock market capitalization is used, a bidirectional causal relationship can be observed between stock market development and economic growth. Their overall conclusion is that Granger Causality tests results suggest that stock market development in Sudan leads to economic growth.

Ali and Aamir (2014) using panel data from five East Asian countries for the period of 1991 to 2011 concluded that GDP per capita is significantly explained by independent variables, which include stock market size and liquidity, foreign direct investment (FDI), investments, government expenditure as a percentage of GDP.

David (2012) critically looked into the issue of stock pricing and the various changes that occurred in the characteristics of banks' stock prices during the most recent global financial

crisis. With a panel data of ten (10) banks the study adopts a pooled least square regression analysis method. The study found out that when banks pooled together into one and when studied individually, dividends at previous periods is statistically a determinant of stock pricing. Also, the size of traded stock of seven (7) out of the ten (10) banks studied exerts significant negative effect on the prices of the seven banks but insignificant effect on the remaining 3 banks. The author therefore recommended among other things the need for improved regulation of the stock pricing and the stock market activities so as to reduce or forestall the possibility of such crisis in the future.

Hussain (1999) used GARCH model to examine the effect of Islamic holy month Ramadan on the stock market of Pakistan and concluded that there was no effect on stock return whereas the volatility of stock return reduced during Ramadan.

Augustine *et al* (2011) examined the impact of global financial crisis on the Nigerian financial system. The paper argued in strong terms that the Central Bank of Nigeria contributed to the crisis by not taking proactive measures even when they saw the crisis coming. The authors wondered why the CBN injected money into the banking sector for bailing out but could not extend such to the Stock Market even when it was obvious that such bail out was needed.

Ajao and Festus (2011) looked at the effect of the global financial meltdown on the Nigerian money by identifying the major problems associated with the global financial crisis. The Ordinary Least Square (OLS) regression analysis was adopted in analyzing the empirical data for non-crisis period (2000-2005) and the crisis period (2006-2009). GDP served as the dependent variable while independent variables were: TBs, CPs, BAs, CDs, BLR and INFR.

The findings reveal that in the non-crisis period (2000-2005), the explanatory variables met the a priori expectation but in the crisis period (2006-2009), only the coefficient of inflation retained it's a prior expectation. This implies that economic activities were adversely affected by the global financial meltdown. The paper therefore recommended adequate procedures for handling systemic crisis during any financial meltdown.

Olawale (2010) studied the effect of global financial meltdown on the Nigerian economy. Data were collected from the statistical Bulletin of the Central Bank, journals and textbooks that are related to topic under discussion and was tested using Ordinary Least Square analysis. The result therefore shows that linear relationship exists between dependent and independent variables of the model. The evidence established significant relationship between global financial crisis and capital market in Nigeria. Based on this, the author recommended a total overhaul of regulations and regulatory framework in order to enhance both the on-site and off-site examination and supervision of banks.

The effect of different financial crises during the last two decades on stock markets has also been explored by different researchers. Some of the studies considered contagion impact among different stock markets in the wake of Asian financial crisis 1997.

Alper and Yilmaz (2004) investigated this relationship for Istanbul and other prominent stock markets with particular reference to financial crisis that began in Turkey in 1994, Asian financial crisis 1997 and Latin America crisis during 1998 - 2001. This study confirms that international contagion Prevails among stock markets.

Lim, Brooks, and Kim (2008) explored the efficiency of the eight Asian stock markets in order to find the effect of Asian financial crisis 1997 with divisions of period from pre to

post financial crisis and found that during financial crisis 1997, efficiency of the Asian stock markets deteriorated of which Hong Kong stock market was the major victim of the crisis.

Bogunjoko (1997) examines the impact of financial crisis on Nigeria, which makes Nigerians to face an uncertain economic situation both in the near and far future as a result of the oxidizing global and domestic financial crisis. The findings show that the capital market is in ratters, banks are struggling, the sole dependency on oil continues to bedevil the nation, and our foreign reserve situation remains an enigma wrapped in a mystery. He concludes by calling for an urgent need to adjust government's expenditure and upcoming budget accordingly.

Okonjo-Iweala (2009) examines the impact of such crisis on oil price. Which she saw as the biggest component of external shock that has hit Nigeria in which she suggests two challenges faced by policy makers, which are; how to respond to the down cycle of oil prices and how to ensure that the economy emerges stronger and more diversified after the crisis ends. She concluded by saying that fiscal and exchange rate/monetary policy are the vehicles that will sustain the economy's growth and quest for diversification.

Ajakaiye and Fakiyesi (2009) used computable general equilibrium (CGE) methodology to examine the impact of global financial crisis. The study examined that the Nigerian economy is affected by the current global financial crisis which is transmitted via the fall in the prices of crude oil exported to the international market. Their result of the research shows that negative oil price shock has negative impact both in the short and medium-term growth of the economy, based on their findings, the oil price shock has had a stagflation effect on the Nigerian economy; the showdown in the rate of economy growth and increase

in the domestic price level. Also, they reduce the level of domestic investment and worsened the government account and income position. Besides, the shocks have increased the level of poverty and worsened household welfare over the period of August 2008 to January 2009 and are expected to worsen them in 2010.

#### **2.3.4 Empirical literature on external reserves**

Usman and Ibrahim (2010) made a study of external reserve holding with implications for investment, inflation and exchange rates. Using Vector Error Correction Model, they concluded that demand for external reserves in Nigeria has been driven mainly by current account variability, real exchange rate and opportunity cost of holding reserves measured by the difference between the real return on reserves and the real return on domestic investments.

Umeora (2013) investigated the effects of holding foreign exchange reserves on exchange rates in Nigeria and the effects of such reserves on inflation. Data were collected from the Central Bank of Nigeria Statistical Bulletin and simple regression was run for the two models. Findings show that there is a negative relationship and external reserves.

Akinwumi and Adekoya (2016) examined external reserves management and its effects on Nigerian economic growth from 1985-2013. Secondary data were sourced from the statistical bulletin of the Central Bank and other related journals. The study revealed that there is a significant long run relationship between external reserves and explanatory variables which implies that those explanatory variables studied contributes to a good performance in the economy.

Ibrahim (2011) investigated the impact of change in external reserves position in Nigeria on domestic investment, inflation and exchange rate between 1986 and 2006. He used a combination of Ordinary least square and vector error correction models. The results show that changes in reserves influence only foreign direct investment.

Osuji and Ebiringa (2012) examined the effect of external reserves management on macroeconomic stability of Nigeria from 1981- 2010. Secondary data were sourced from and analyzed using multiple regressions and Granger causality test. The study revealed a direct relationship between external reserves and explanatory variables. It was also observed that external reserves have an inverse relationship with other macroeconomic variables.

Alasan and Shaib (2011) examined the management of external reserves and economic development in Nigeria between 1980 and 2008. The study employed ordinary least square estimation techniques while data was sourced from the statistical bulletin of the Central Bank. The result show that there is a significant relationship in the management of external reserves.

Bamidele (2013) investigated stock market performance of some selected Nigerian commercial banks amidst economic turbulence. A sample of eight (8) banks- four each from the first generation and new generation banks were selected using multi-stage sampling procedures, a combination of stratified and purposeful sampling techniques. Secondary data were collected from the Nigerian Stock Exchange fact book. Data were analyzed using Trend analysis and ANOVA. Findings reveal that the stock market performance of all sampled banks declined especially from May 2008. The author therefore concluded that environmental threat to investment fortune might have caused investors to lose confidence



in the prospect for future growth which might have prompted them to reduce their shareholdings. It was recommended that the government and other agencies concerned with the management of the national economy should take proactive measures in dealing with issues that might constitute potential threat to investment interest.

Nwude (2012) investigated the crash in the Nigerian stock market with the aim of unmasking the causes and consequences as well as the possible working solutions to the problem. The author adopted exploratory research method and discovered that the down turn was caused by mainly fears of contagion effects of the rampaging global financial crisis. The consequences according to the author were legion as many investors lost heavily in terms of capital employed, confidence in the market and the capacity of pension funds to meet their obligations as they become due. The panacea lies in restructuring the toxic assets generated by the down turn into marketable instruments to give a fresh start to the affected firms.

Njiforti (2015) investigated the impact of the 2007/2008 global financial crisis on the Nigerian capital market. Monthly time series data from January 2006 to December 2009. All Share Index (ASI) was used as proxy for the performance of the Nigerian Capital market, while Credit to the Private Sector (CPS), Price of Crude Oil (POIL), Money Supply (MS) and Dow Jones Industrial Average (DJIA) were the set of explanatory variables used to ascertain the effects of the crisis on the capital market in Nigeria. The paper used the Vector Error Correction (VEC) model for the analysis. Based on the estimated Co-integration and the VEC analyses, the paper found that the global financial crisis adversely and significantly affected the Nigerian capital market both in the short run and long run. This was clearly evidenced by the fact that POIL slumped to a record low level, MS equally

decreased and the CPS contracted thereby reducing the idle balances which could have been invested in stocks. All these are clear evidences of the crisis on the performance of the Nigerian capital market. Hence the global financial crisis of 2007/2008 was no respecter of any economy, even though some writers in Nigeria were quick in concluding that the Nigerian financial sector was insulated and robust, but it was not long after the economy was brought to its knees as the stock market in Nigeria crashed leading to a valuable loss of capital assets and investments.

Rafaqet *et al.* (2012) and Jenrola *et al.* (2012) consider the 2007/2008 Global financial crisis that started from United States, the world's largest crisis after 1930s recession. Considering this, few studies have assessed the impact of this crisis on stock markets especially in Nigeria.

Using EGARCH model, Olowe (2009) studied the response of stock return and its volatility on Nigerian stock market and found that stock returns and its volatility in Nigeria are free from the severity of this crisis because of the low exposure the Nigeria stock market to international community.

In contrast to this, Adamu (2010) takes same objective for Nigerian stock market with conventional statistical analysis i.e. standard deviation and variance analysis and divided the data into pre and post crisis period and found that during the financial crisis period, volatility in Nigerian stock market increased.

Ashamu and Abiola (2012) examined the impact of global financial crisis on the Nigerian banking system and the entire economy. The study revealed that the financial crisis had caused depression of the Nigerian capital market and drop in the quality of part of the credit

extended by banks for trading in the capital market, exchange rates risk, tightening of liquidity, greater loan loss provisioning, slower growth rate of banks' balance sheet in response to the crisis and higher provisioning leading to profitability.

Yakubu and Akerele (2012) analyzed the impact of global financial crisis on the Nigerian Stock Exchange from 2008-2011. Market Capitalization proxy Nigerian Stock Exchange. Using the Ordinary Least Square (OLS), the authors found out the global financial crisis had no significant effect on the Nigerian Stock Exchange. This means that policy of regulators had deepened the recession on the Nigerian Stock Exchange. The government is therefore advised to put measures to step up investors' confidence and activities in the market so that it could contribute significantly to the Nigerian economy.

Abdul (2011) examined the influence of the global financial crisis on the Nigerian economy. He discovered that financial crisis will cause fall in commodity prices, decline in export, lower portfolio and FDI inflow, fall in equity market, decline in remittance from abroad etc. The author therefore recommended that the Federal Government should come up with intervention policies that will minimize these effects and jump start the economy. Again, business operators should learn to do things using resources at their disposal to develop and expand at manageable level to stem the tide of the crisis.

Hussain (1998) used GARCH model to examine the effect of the Islamic holy month of Ramadan on the stock market of Pakistan and concluded that there was no effect on stock return whereas the volatility of stock returns reduced during the Ramadan.

Javed and Ahmad (1999) used GARCH model to see the response of Korea Stock Exchange to nuclear detonations made by Pakistan and India. They argued that the Indian nuclear

detonation made adverse impact on stock return and volatility of the Indian Stock market whereas, Pakistan nuclear test only increased the volatility of stock returns and trade volume.

Pyun, Lee and Nam (2000) show that in Korea stock exchange, volatility of large firms is affected by the stock of small firms and vice versa. Miyakoshi (2002) used GARCH and EGARCH models to examine the information-based effect of conditional volatility in Japanese stock market. The results show that the GARCH effect is eliminated from conditional volatility of concerned stock prices when trade volume is included in the model.

Ali and Afzal (2012) investigated the impact of global financial crisis on stock markets: evidence from Pakistan and India. Daily data from 1<sup>st</sup> January 2003 to 31<sup>st</sup> August 2010 of KSE-100 and BSE-100 indices, representing stock market indices of Pakistan and India respectively. To find volatility, EGARCH model was applied. The study empirically reveals that negative shocks have more pronounced impact on the volatility than the positive shocks. These stock markets also faced persistent volatility clustering. In other words, the recent global financial crisis made mild negative impact on stock returns and enhanced volatility in Pakistani and Indian stock exchanges but this impact was stronger on Indian stock market.

#### **2.4 Summary of Empirical Review and Gap in Literature**

In this section, efforts were made to review some works done by other scholars in the field of Finance and Economics and results are not the same. Most scholars concluded from their findings that the global financial crisis was primarily responsible for the crash in the stock market prices in Nigeria; others concluded that there may be other factors that were

responsible for the crash which should be investigated. The summary of the literature reviewed are shown in table 2.1.

In all the works reviewed, it is very clear that there is no conclusion yet. Based on this, we decided to investigate whether there is a break in the structural relationship between stock market performances and global financial crises, using variables like exchange rate to proxy currency crises, investment crises using foreign portfolio investment to proxy it and liquidity crises using foreign exchange reserves to proxy it. However, scholars made effort to investigate the significant effect of the global financial crises on the GDP, stock market performance and the banking sub-sector using approaches. Some of these approaches are good but seems not robust enough to determine whether the global financial crises really impacted on the stock market performance. The work examined long and short run relationship between the variables of interest using the autoregressive distributive lag (ARDL) and Chow test to determine the effects of the global financial crises since 2008 was assumed to be the year the financial crises took the center stage in Nigeria. The use of Chow test which is specifically designed by Gregory Chow (1960) assumes that there is a known break point in the series.

**Table 2.1: Summary of Literature Review in Tabular Form**

<b>Author/s</b>	<b>Problem Investigated</b>	<b>Findings</b>	<b>Year</b>
Ajayi and Mougoue	Investigated the short and long run relationship between stock prices and exchange rates in eight advanced countries	Increase in stock prices causes currency to depreciate	1996
Abdalla and Murinde	Examined interactions between stock prices and exchange rates for four emerging countries (India, Pakistan, Korea and Philippines)	Unidirectional causality runs from exchange rates to stock prices	1997
Ajayi, Friedman and Mehdian	Examined whether changes in stock prices leads to increase in the demand for real money and value for domestic currency	Changes in stock prices can have effect on the exchange rate	1998
Nasrin and Syed	Examined the relationship between macroeconomic variables and stock prices in Bangladeshi	There is a long run relationship among the variables	2011
Wongbampo and Sharma	Investigated the effect of macroeconomic variables and stock returns in Asian countries	There is a long run positive relationship between stock prices and growth and a negative relationship with aggregate price level	2002
Arinze and Mathew	Investigated the effect of the recent global crises on the Nigerian economy using GDP	The global financial crises had a strong impact on oil prices and impacted positively on all share index	014
Agarwal	Examined the determinants of foreign portfolio investments on the national economy using six developing Asian countries	Inflation rates, real exchange rates, index of economic activity and the share of domestic capital market in the world stock were four statistically determinants of foreign portfolio investments	1997

Gazioglu	Examined the relationship between capital flow and 2001 economic crises in Turkey	The unexpected capital outflow caused exchange rate fluctuations, balance of payments problems and international debt crises	2003
Ozurumba	Examined the relationship between stock market prices and foreign portfolio investment in Nigeria	Foreign portfolio investment has a positive and significant impact on stock market returns	2012
Jarita and Shallah	Investigated the relationship between foreign portfolio investment and Malaysia,s economic performance	Changes in foreign portfolio investment is the major factor that attract foreign portfolio investment	2012
Baghebo and Apere	Investigated the impact of foreign portfolio investment and economic growth in Nigeria between 1986 and 2011	Foreign portfolio investment, market capitalization and trade openness have a positive long run relationship with real gross domestic product	2014
Guluzar	Investigated whether foreign investment flows indicate an upward trend in developing countries using Turkey as a case study	There is a bidirectional causality between foreign direct investment, real exchange and interest rates	2015
Alper and Yilmaz	Investigated the relationship for Istanbul and other prominent stock markets with particular reference to financial crises of 1994	The study confirmed that international contagion prevails among stock market	2004
Lim, Brooks and Kim	Explored the efficiency of the eight Asian stock markets to find the effect of Asian financial crises of 1997	During the crises, efficiency of the Asian stock market deteriorated	2008
Olawale	Studied the effect of global financial meltdown on the Nigerian economy	There is a linear relationship between the dependent variable and the independent variables	2010

Ajao and Festus	Looked at the effects of the global financial meltdown on the Nigerian money market	In the non-crises period, the explanatory variable met a prior expectation but in the crises period, only one variable which is inflation rate met the a prior expectation	2011
Olokoya and Ogunaike	Empirically investigated the relationship between stock market crises and the Nigerian economy	There is a significant relationship between stock market price crash and the market itself	2011
Suliman and Danfalla	Investigated stock market development and economic growth in Sudan	The causal relationship between stock market development and economic growth is very sensitive for describing stock market development	2011
Augustine, Otaru and Omar	Examined the impact of global financial meltdown on the Nigerian money market by identifying the major problems associated with the global financial crises	The Central Bank of Nigeria contributed to the crises by not taking proactive measures even when they saw the crises coming	2011
Genrole and Daisi	Investigated the implications of global financial crises on the Nigerian capital market performance (2000-2008)	Nigerian stock market down fall is not attributed to the global financial crises but the instability of macroeconomic variables in Nigeria like the unfavorable exchange rate, inflationary pressure, problem of insecurity, inadequate infrastructural facilities, etc	2012
Ovat	Investigated the Nigerian stock market size and stock market liquidity and stock market indicators	Stock market liquidity has dominance over market size and there is a two way causality between stock market liquidity and economic growth	2012



David	Critically looked into the issue of stock pricing and the various changes that occurred in the characteristics of banks stock prices during the most recent global financial crises	When banks pooled together into one and when studied individually, dividends at various periods is statistically a determinant of stock pricing	2012
Usman and Ibrahim	Conducted a study of external reserve holding with implications for investment, inflation and exchange rates	The demand for external reserves in Nigeria has been driven mainly by current account variability, real exchange rates and opportunity cost of holding reserves	2010
Alasan and Shaib	Examined the management of external reserves and economic development in Nigeria between 1980 and 2008	There is a significant relationship in the management of external reserves	2011
Osuji and Ebiriga	Examined the effect of external reserves management on macroeconomic stability of Nigeria from 1981 to 2010	External reserves has an inverse relationship with other macroeconomic variables	2012
Nwude	Investigated the crash in the Nigerian stock market with the aim of unmasking the causes and consequences of the problem	The crash was caused mainly as a result of fear of contagion effects of the rampaging global financial crises	2012
Umeora	Investigated the effect of holding foreign exchange reserves in Nigeria on inflation	There is a negative relationship between external reserves and exchange rates	2013
Bamidele	Investigated stock market performance of some selected Nigerian commercial banks amidst economic turbulence	Stock market performance of all the sampled banks declined during the period of global financial crises	2013
Akinwumi and Adekoya	Examined external reserves management and its effects on Nigerian economic growth from 1985-2013	There is a significant long run relationship between external reserves and explanatory variables	2016

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

The chapter highlights the various tools, procedures and techniques for data collection, analysis and decision rule. This is necessary since it would enable us to achieve accuracy in the investigation pattern.

#### **3.1 Research Design**

This research focused on the effects of global financial crises on stock market performance in Nigeria (1986-2016). An *ex-post facto* research design was used for the thirty-one-year period. Fraid (1973) affirms the importance of *ex-post facto* research, insisting that such research provides a systematic and empirical solution to research problems by using data which are already in existence. *Ex-post facto* research design is a realistic approach which involves gathering records of past events, analyzing the records and using the outcome to predict future events (Agbadudu, 2002). Since data already exist, no attempt was made to control or manipulate relevant variables and this suits the purpose of this research.

The variables used in this study and the model specification are based on established theoretical relationship, their use in previous studies and the availability of useable data. A good research design according to Gopinath and Itskhoki (2010) must be able to control independent variables that are extraneous to the study and should to a large extent influence the dependent variables in the study.

#### **3.2. Sources of Data**

This study employed data covering the period from 1986-2016 and mainly from secondary source. Data in respect of Stock Exchange were obtained from the statistical bulletin of the

Central Bank and Nigerian Stock Exchange Fact Book while the proposition is that global financial crises is manifest in liquidity crises which is measured by external reserves, currency crises measured by foreign exchange and foreign investment crises measure by foreign portfolio investment. These data were obtained from the World Bank data in the various years except for foreign exchange that were also obtained from the Statistical Bulletin of the Central Bank of Nigeria.

### **3.3 Method of data analysis**

In this work, we employed various estimation techniques which include log transformation. Transformation was introduced for easy interpretation, to conform to linearity role due to the nature of data and to address diagnostic problems. Other preliminary test that was conducted include: test for Spread, Central Tendency and Normality. These tests became necessary for us to know whether the variables are well behaved or not. Other necessary tests that were carried out in this work also include the following:

Unit Root Test. The Augmented Dickey- Fuller (ADF) which was developed by Dickey and Fuller (1981) was used in the study to test for stationarity problem. The choice of ADF unit root was because of its popularity as used by various scholars like Nwezeaku (2000) and Ogbulu (2010).

Descriptive statistics test. This test was carried out to ascertain how well behaved the variables. Such test includes the mean, median, skewness, kurtosis and the Jarque-Bera.

Co-integration Test: This test was conducted to determine the long run relationship existing between stock market which is proxied by All Share Index and those independent variables - foreign exchange, external reserves and foreign portfolio investments.

Pair wise Granger Causality Test. This test is used to prove the direction of influence. The assumption according to Granger (1981) is that the information relevant to the prediction of a variable is contained in the time series data of these variables.

Diagnostic Tests: This test was conducted to ascertain whether there is a structural break among these variables in the various years under study. This test was conducted using Zivot- Andrews Test to help us in the determination of structural break points. The Chow test was also applied to determine whether the financial crises impacted on the stock market performance in 2008. The test became necessary since we suspected 2008 to be the period the crises took the center stage in Nigeria.

### **3.4 Model specification**

The model adapted in this study was that of Onuoha and Nwaiwu (2016) but modified according to the variables used in this work. In this mode, All Share Index was used to represent Stock Market Performance and used as the dependent variable while the independent variables include foreign exchange, external reserves and foreign portfolio investments. The model is stated in such a way that it explains the relationship between global financial crises and stock market performance. It would be used to test hypotheses 1-3 and stated thus:

$$ASI = f(\text{FOREX}, \text{FPI}, \text{EXREV})$$

However, in order to eliminate abnormality in the data so far generated and to ensure that the result would confirm to linearity rule while avoiding heteroscedasticity, the data was transformed into logarithm, resulting in the model shown below:

$$\text{Log ASI} = f(\alpha_0 \text{Log} + \beta_1 \text{LogEXCR} + \beta_2 \text{LogFPI} + \beta_3 \text{LogRES})$$

Where:

ASI	=	All Share Index
EXCR	=	Foreign Exchange Rate
FPI	=	Foreign Portfolio Investment
RES	=	External Reserves
$\beta_1$ to $\beta_3$	=	Regression Coefficient
$\Delta_0$	=	Regression Coefficient
Log	=	Logarithm Transformation

Then in hypothesis 4, we adopted a chow test to determine if there is a structural break particularly in 2008 when the Global Financial Crises took the center stage. The idea of using chow test on the already obtained result was simply because we assume a particular year that such break could occur.

The a-priori expectation of the relationship is as follows:

$\beta_1$	<	0
$\beta_2$	>	0
$\beta_3$	>	0

These expectations come from theory which states that there exists a positive relationship between stock market performance, exchange rates and external reserves and a negative relationship between stock market performance and foreign portfolio investments. It therefore means that these variables increase following increase in stock prices.

The proposition is that global financial crises manifest itself in currency crises which is measured by foreign exchange, liquidity crises measured by external reserves and foreign investment crises measured by foreign portfolio investment.

### **3.5 Test of Significance**

In an attempt to test the significance or the effects of the global financial crisis on Stock market performance in Nigeria, the study specifically used the following variables to proxy stock market performance: All Share Index (ASI), as well as variables financial crises which include: Exchange rate, Foreign Portfolio Investment and External reserves. To test for significance or otherwise, the standard practice of 5% was adopted. In this case, if probability value is less than 5%, we can reject the null hypothesis since it is statistically significant but can refuse to accept the null if probability value is greater than 5%. The analysis was conducted using E-views 9.0 version.

## **CHAPTER FOUR**

### **DATA PRESENTATION, ANALYSIS AND INTERPRETATION**

#### **4.1 Data Presentation**

The annual time series data collected from various sources were presented in table 4.1. The data set was grouped into dependent and independent variables. The All Share Index represents the dependent variable while the independent variables include exchange rates, foreign portfolio investment and external reserves and were obtained from their various sources.

**Table 4.1 Data Presentation for ASI, FPI, EXTR AND EXCR**

YEAR	ASI	RESERVES (N)	EXR(N)	FPI(N)
1986	163.8	1,349,903,000	2.0206	86,633,300
1987	190.9	1,497,832,000	4.0179	1,084,153,000
1988	233.6	932,989,800	4.0179	757,715,100
1989	325.3	2,041,078,000	7.3916	219,831,400
1990	513.8	4,128,790,000	8.0378	197,148,100
1991	783.0	4,678,023,000	9.9095	61,109,600
1992	1,107.6	1,196,053,000	17.2984	1,884,268,000
1993	1,543.8	1,640,444,000	22.0511	17,780,310
1994	2,205.0	1,649,172,000	21.8861	27,141,300
1995	5,092.2	1,709,113,000	21.8861	82,216,270
1996	6,992.1	4,329,392,000	21.8861	172,625,300
1997	6,440.5	7,781,251,000	21.8861	66,619,740
1998	5,672.7	7,298,564,000	21.8861	8,293,332
1999	5,266.4	5,649,725,000	92.3428	11,013,880
2000	8,111.0	10,099,450,000	100.1194	502,251,700
2001	10,963.1	10,646,600,000	111.5166	831,781,000
2002	12,137.7	7,566,806,000	120.47	133,936,000
2003	20,128.9	7,415,088,000	129.223	182,897,400
2004	23,844.5	17,256,540,000	133.5	177,816,200
2005	24,085.8	28,632,050,000	135.6	487,949,800
2006	33,189.3	42,735,470,000	137.1	1,288,035,000
2007	57,990.2	51,907,040,000	127.4	799,533,800
2008	31,450.8	53,599,290,000	120.71	3,402,863,000
2009	20,827.2	45,509,820,000	161.64	345,258,700
2010	24,770.5	35,884,920,000	153.06	2,586,444,000
2011	20,730.6	36,263,660,000	159.31	3,540,339,000
2012	28,078.8	47,548,400,000	160.86	14,992,460,000
2013	41,329.2	46,254,760,000	162.4686	10,320,960,000
2014	34,657.2	37,497,240,000	159.4677	1,828,705,000
2015	26,458.20	29,624,240,000	192.44	1,270,960,000
2016	27,657.30	31,254,760,000	190.4887	1,266,870,000

**Source:** 2016 Statistical Bulletin of the Central Bank of Nigeria and World Bank Data

The table 4.1 shows at a glance the annual status of the data sets beginning in 1986 to 2016.

The table further displays a progressive trend in All Share Index and that also includes other variables in the set.



## 4.2 Descriptive Data Analysis

Descriptive analysis was conducted as part of preliminary test to observe the socio-economic characteristics of the variables used for this study. The raw data obtained from the Central Bank of Nigeria Statistical Bulletin was first log transformed. The transformation became necessary for easy interpretation and to conform to linear rule.

**Table 4.2: Descriptive Statistics**

	LASI	LEXR_N_	LFPI	LRESERVES
Mean	8.698155	3.826336	19.70392	22.90818
Median	9.151633	4.660268	19.83276	22.76101
Maximum	10.96803	5.259784	23.43081	24.70480
Minimum	5.098646	0.703394	15.93096	20.65390
Std. Dev.	1.794573	1.380983	1.917485	1.371547
Skewness	-0.744974	-0.717100	-0.117754	-0.129240
Kurtosis	2.246914	2.177680	2.416957	1.598551
Jarque-Bera	3.483855	3.416427	0.494253	2.538590
Probability	0.175182	0.181189	0.781042	0.281030
Sum	260.9446	114.7901	591.1175	687.2453
Sum Sq. Dev.	93.39430	55.30632	106.6257	54.55309
Observations	31	31	31	31

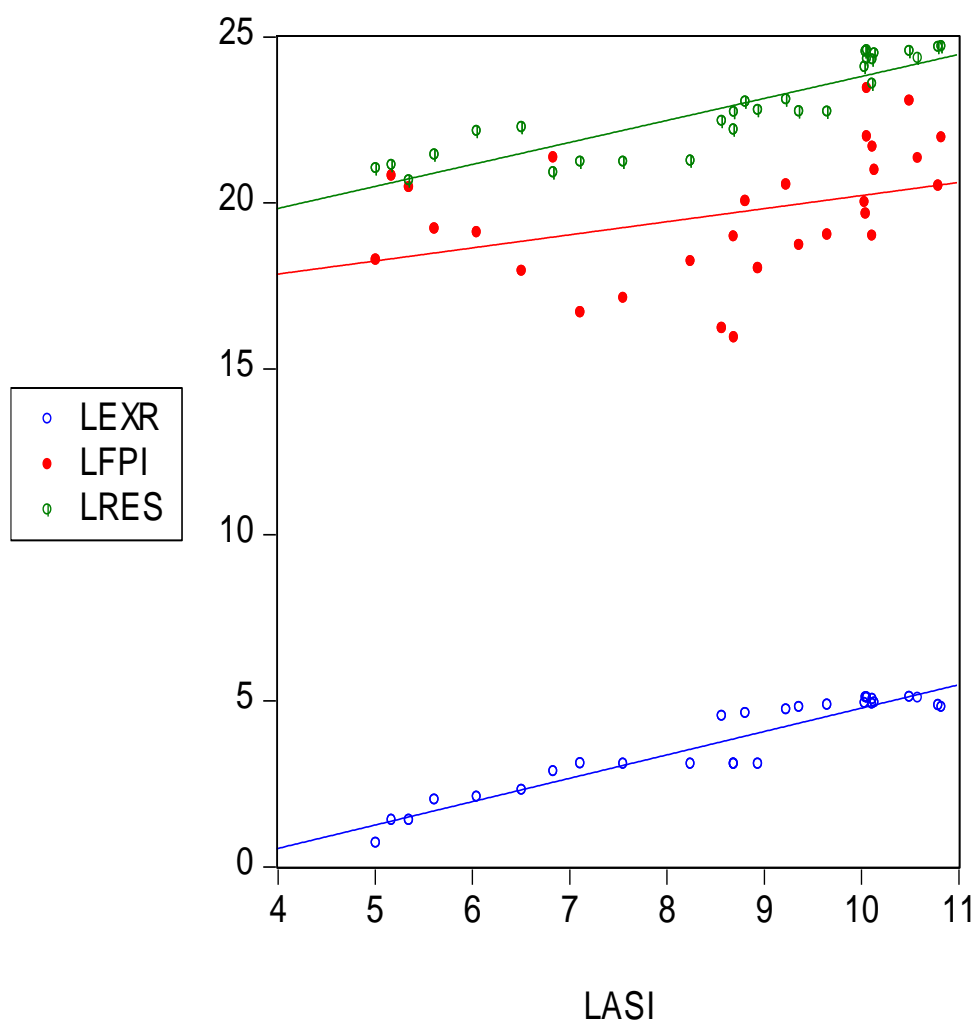
*Source:* E-view 9.0 version

Table 4.2 presents values for mean, median, minimum, maximum, standard deviation, skewness and the even the kurtosis. From the table, the mean value for LASI, LEXR, LFPI and LRES are 8.698155, 3.826336, 19.70396 and 22.90818 respectively while the median values were 9.151633, 4.660268, 19.83276 and 22.76101 respectively. Similarly, the maximum values were 10.968, 5.259, 23.430 and 24.70480 respectively while the minimum values were 5.0986, 0.7033, 15.9309 and 20.6539.

In the same vein, the skewness of -07449, -0.7171, -0.1177 and -0.1292 were observed for the transformed values of All Share Index, Exchange rates, Foreign Portfolio Investment

and External Reserves. In the Kurtosis test, it was observed that all the variables were Plato Kurtic since they were all less than 3 and the values were 2.2469, 2.1776, 2.4169 and 1.5985 respectively. The combined test for Skewness and Kurtosis which is the Jacque-Bera has the following values: 3.4838, 3.4164, 0.4942 and 2.5385 with their probability values of 0.1751, 0.1811, 0.7810 and 2.5395 respectively.

**Figure 4.1 Scatter regression line between dependent and independent variables**



*Source:* E-views, version 9.0

From the figure 4.1, the log of All Share Index can be seen on the horizontal axis while logs of Exchange rates, Foreign Portfolio Investment and External Reserves were on the vertical section. The Exchange rate which was marked by the blue line seems to be more fitted since

it has the greater no of dots. This was closely followed by the Log of External Reserves which was marked by the green and finally Log of Foreign Portfolio Investment.

### 4.3 Diagnostic Tests of Input Data

#### 4.3.1 Covariance analysis

**Table 4.3 Output data on covariance of input data**

Covariance Analysis: Ordinary

Date: 12/23/16 Time: 21:49

Sample: 1986 2016

Included observations: 31

Correlation				
t-Statistic				
Probability	LASI	LEXR_N_	LFPI	LRESERVE S
LASI	1.000000			
LEXR_N_	0.953683	1.000000		
	16.77585	-----		
	0.0000	-----		
LFPI	0.388555	0.411363	1.000000	
	2.231366	2.388148	-----	
	0.0338	0.0239	-----	
LRESERVES	0.885008	0.859079	0.555313	1.000000
	10.05857	8.881262	3.533306	-----
	0.0000	0.0000	0.0014	-----

*Source:* E-view 9.0 version

From the correlation results in table 4.3, the coefficient of Log of All Share Index and Exchange rate was 95.36% with t-statistic value of 16.77585 and probability value of 0.0000. This shows that the relationship between All Share Index and Exchange rate is positive and statistically significant. In the case of Log of All Share Index and Foreign Portfolio Investment, the coefficient was 38.85% with t-statistic of 2.231366 and probability value of 0.0338. This is also statistically significant since the p-value is less than 0.05 at 5% level of significant. The relationship is also positive. Similarly, the coefficient of Log of All

Share Index and External Reserve was 88.50 with t-statistic of 10.0585 and p-value of 0.000. This also demonstrates a positive and significant relationship between Log of All Share Index and External Reserve. It also explains what was obtained in the scatter graph where Exchange rate was best fitted, followed by external reserves and finally foreign portfolio investment.

#### **4.3.2 Unit root test**

The data collected from the 2016 Statistical Bulletin of the Central Bank and World Bank Data were also subjected to a unit root test as part of our preliminary test. This test became necessary in order to confirm the status of the data. The Unit root test was conducted with Augmented Dickey Fuller test. The summary results are shown in table 4.4 the results are attached in appendices VIII – XI.

From the test results, we followed the general rule of ADF which is being more negative than the critical values. The ADF statistic for log of All Share Index was -5.282855 which was more negative than the critical value at 5% level of significance. The result further showed that log of ASI was differenced once to be stationary with probability value of 0.0002.

In the case of log of exchange rate, the ADF statistic was -5.531434 which was also more negative than the critical value of -3.6891. The probability value at level series was non-significant and was differenced once for stationary. The probability at the first difference was 0.0001.

In the case of log of foreign portfolio investment, the ADF statistic was -7.172909 which was more negative than the critical value of -3.7378. The probability value was non-

significant at the level series but was significant at the second difference. This also implies that the log of foreign portfolio investment was differenced twice to be stationary.

In the log of foreign reserves, the ADF statistic was -4.399918 which was also more negative than the critical value at 5%. The probability value 0.0018 was obtained after differencing once.

**Table 4.4: Summary of unit root result**

Variable	ADF Statistic	Critical Value @5%	P-value	Order of Integration	Remarks
LASI	-5.282855	-3.6998	0.0002	1(1)	Stationary at 1st difference
LEXR	-5.531434	-3.6891	0.0001	1(1)	Stationary at 1 <sup>st</sup> difference
LFPI	-7.172909	-3.7378	0.0000	1(2)	2nd difference
LRES	-4.399918	-3.699871	0.0018	1(1)	1 <sup>st</sup> difference

*Source:* Computed from E-view 9.0 version

From the ADF unit root results in table 4.4, all the variables were integrated at order one except for the log of All Share Index that was integrated of order two. The probability values were all significant and they confirm to the general rule of being ADF which is being more negative than the critical values while their probability values were less than 0.05.

#### **4.4 Inferential Data Analysis**

This section presented results of ARDL output data with a view of establishing the relationship existing among the variables.

**Table 4.5 ARDL output data (ASI, FPI, EXTR and EXR)**

Dependent Variable: LASI

Method: ARDL

Date: 12/29/17 Time: 05:00

Sample (adjusted): 1990 2016

Included observations: 26 after adjustments

Maximum dependent lags: 4 (Automatic selection)

Model selection method: Akaike info criterion (AIC)

Dynamic regressors (4 lags, automatic): LEXR\_N\_ LFPI LRESERVES

Fixed regressors: C

Number of models evaluated: 500

Selected Model: ARDL(3, 4, 0, 3)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LASI(-1)	0.507230	0.233163	2.175434	0.0503
LASI(-2)	-0.322082	0.300370	-1.072283	0.3047
LASI(-3)	0.316889	0.196797	1.610234	0.1333
LEXR_N_	-0.072131	0.210536	-0.342605	0.7378
LEXR_N_(-1)	0.335662	0.278278	1.206211	0.2510
LEXR_N_(-2)	0.045966	0.271326	0.169412	0.8683
LEXR_N_(-3)	0.128778	0.225190	0.571863	0.5780
LEXR_N_(-4)	0.302581	0.221236	1.367686	0.1965
LFPI	0.050777	0.048912	1.038121	0.3197
LRESERVES	-0.060209	0.160494	-0.375148	0.7141
LRESERVES(-1)	-0.081166	0.229597	-0.353515	0.7298
LRESERVES(-2)	0.018544	0.180694	0.102625	0.9200
LRESERVES(-3)	-0.262351	0.125168	-2.095990	0.0580
C	9.730935	2.580085	3.771556	0.0027
R-squared	0.984945	Mean dependent var		9.205996
Adjusted R-squared	0.968635	S.D. dependent var		1.309040
S.E. of regression	0.231833	Akaike info criterion		0.218135
Sum squared resid	0.644959	Schwarz criterion		0.895572
Log likelihood	11.16424	Hannan-Quinn criter.		0.413212
F-statistic	60.38982	Durbin-Watson stat		2.134348
Prob(F-statistic)	0.000000			

\*Note: p-values and any subsequent tests do not account for model selection.

*Source:* E- views, version 9.0 output result

From the result of ARDL found in table 4.5, the R square was 0.984945 which implies that 98.5% can be explained by the independent variables. The adjusted R-square was 0.96.8 which explains the percentage of inclusion of more variables. However, the overall F statistic was 60.3898 with probability value of 0.0000 which is statistically significant and

good and this explains the goodness of fit of the variables under study. The Durbin Watson statistic was 2.1343 which made us not to suspect the presence of autocorrelation since the value was more than 2.

#### 4.5 Hypotheses Testing

The first three hypotheses tested in this work was based on the ARDL regression results after all the necessary preliminary tests were conducted, while in hypotheses four, we tested for structural break using Zivot- Andrews Unit Root test and Chow test for structural break.

**Hypothesis One:** Foreign portfolio investment have no significant effect on the Nigerian Stock market performance.

**Table 4.6 ARDL RESULTS (LFPI)**

Dependent Variable: LASI  
 Method: ARDL  
 Date: 08/08/17 Time: 04:31  
 Sample (adjusted): 1987 2016  
 Included observations: 29 after adjustments  
 Maximum dependent lags: 4 (Automatic selection)  
 Model selection method: Akaike info criterion (AIC)  
 Dynamic regressors (4 lags, automatic): LFPI\_  
 Fixed regressors: C  
 Number of models evaluated: 20  
 Selected Model: ARDL(1, 0)  
 Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LASI(-1)	0.920589	0.033130	27.78705	0.0000
LFPI_	0.007833	0.030932	0.253221	0.8021
C	0.707275	0.575492	1.228992	0.2301
R-squared	0.971786	Mean dependent var		8.822276
Adjusted R-squared	0.969616	S.D. dependent var		1.690214
S.E. of regression	0.294622	Akaike info criterion		0.491449
Sum squared resid	2.256853	Schwarz criterion		0.632894
Log likelihood	-4.126015	Hannan-Quinn criter.		0.535748
F-statistic	447.7671	Durbin-Watson stat		1.588101
Prob(F-statistic)	0.000000			

\*Note: p-values and any subsequent tests do not account for model

**Source:** E-views, version 9.0 output result

The Autoregressive Distribution Lag found in table 4.6 was used to measure the existence of long run and short run relationship and it shows a non-significant positive relationship between All Share Index and Foreign Investment Crises represented by Foreign Portfolio Investment. The t- statistic was 0.253221 with probability value of 0.8021 which is greater than 0.05. The coefficient is however 0.051 which is greater than 5.0% and therefore positive but non-significant relationship. Based on this result, we therefore refuse to accept the null hypothesis which implies that foreign portfolio investments have significant effect on the stock market performance in Nigeria.

**Hypothesis Two:** There is no significant relationship between external reserves and the Nigerian Stock market performance. This hypothesis was also tested with the Autoregressive Distributive Lag at first difference in table 4.7.



**Table 4.7 ARDL RESULTS**

(LRESERVES)

Dependent Variable: LASI

Method: ARDL

Date: 08/08/17 Time: 04:35

Sample (adjusted): 1989 2016

Included observations: 27 after adjustments

Maximum dependent lags: 4 (Automatic selection)

Model selection method: Akaike info criterion (AIC)

Dynamic regressors (4 lags, automatic): LRESERVES

Fixed regressors: C

Number of models evaluated: 20

Selected Model: ARDL(3, 0)

Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LASI(-1)	1.113466	0.199718	5.575181	0.0000
LASI(-2)	-0.530209	0.286644	-1.849713	0.0778
LASI(-3)	0.353418	0.195527	1.807511	0.0844
LRESERVES	-0.065244	0.100607	-0.648509	0.5234
C	2.286305	1.790745	1.276734	0.2150
R-squared	0.967792	Mean dependent var	9.079283	
Adjusted R-squared	0.961936	S.D. dependent var	1.442635	
S.E. of regression	0.281458	Akaike info criterion	0.467906	
Sum squared resid	1.742805	Schwarz criterion	0.707876	
Log likelihood	-1.316736	Hannan-Quinn criter.	0.539262	
F-statistic	165.2655	Durbin-Watson stat	1.999922	
Prob(F-statistic)	0.000000			

\*Note: p-values and any subsequent tests do not account for model selection.

**Source:** E-views, version 9.0 output result

The result shows that the t- statistic was -0.648509 with probability value of 0.5234 which is also greater than 0.05. The coefficient of the variable was -0.065 which is -6.5% which indicates a negative and non-significant relationship between All Share Index and External Reserves. Based on this result, we also refuse to accept the null hypothesis since the relationship is non-significant which implies that external reserves have significant effect on the stock market performance in Nigeria.

**Hypothesis Three:** Exchange rates have no significant effect on the Stock market performance in Nigeria. Again, this was tested using the ARDL result in table 4.8.

**Table 4.8 ARDL RESULTS (LEXR)**

Dependent Variable: LASI  
 Method: ARDL  
 Date: 08/08/17 Time: 04:33  
 Sample (adjusted): 1987 2016  
 Included observations: 29 after adjustments  
 Maximum dependent lags: 4 (Automatic selection)  
 Model selection method: Akaike info criterion (AIC)  
 Dynamic regressors (4 lags, automatic): LEXR\_N\_  
 Fixed regressors: C  
 Number of models evaluated: 20  
 Selected Model: ARDL(1, 1)  
 Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LASI(-1)	0.676655	0.088877	7.613409	0.0000
LEXR_N_	-0.144776	0.171609	-0.843637	0.4069
LEXR_N_(-1)	0.471228	0.174703	2.697316	0.0123
C	1.761045	0.370563	4.752350	0.0001
R-squared	0.980168	Mean dependent var		8.822276
Adjusted R-squared	0.977788	S.D. dependent var		1.690214
S.E. of regression	0.251903	Akaike info criterion		0.207894
Sum squared resid	1.586373	Schwarz criterion		0.396486
Log likelihood	0.985540	Hannan-Quinn criter.		0.266959
F-statistic	411.8655	Durbin-Watson stat		1.706222
Prob(F-statistic)	0.000000			

\*Note: p-values and any subsequent tests do not account for model selection.

**Source:** E-views, version 9.0 output result

From the results, the t-statistic was 2.697316 with probability value of 0.0123 which was less than 0.05 and therefore significant. The coefficient of determination for lag one was 0.4712 which was 47.12%. The result therefore indicates a positive and significant relationship between All Share Index and Foreign Exchange rates. Based on this result, we therefore reject the null hypothesis.

**Hypothesis four:** There is no significant structural break in the relationship between Stock market performance in Nigeria and Global Financial Crisis. We first tested all the variables

for structural break using Zivot-Andrews Unit Root test. The results can be found in appendix with Zivot-Andrews break point graph. For the Log of All Share Index, the result showed a break point in 1995 instead of 2008. The break could be as a result of some policies by the then Military Government. For the Logs of Exchange rate and Foreign Portfolio Investment there was a break point in 1999 instead of 2008 which could be as a result of transition from Military to Civilian rule in Nigeria. Then, in the case of Log of External Reserves, there was a break point in 2006 but not in 2008.

However, since we know the point of structural break which is assumed to be 2008, we adopted Chow test approach which was developed by Gregory Chow (1960).

**Table 4.9: Stability Test Using Dummy Variables**

Dependent Variable: SER01

Method: Least Squares

Date: 11/18/17 Time: 05:27

Sample: 1986 2016

Included observations: 31

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SER02	0.892567	0.141542	6.306003	0.0000
SER03	-0.085874	0.069808	-1.230134	0.2306
SER04	0.511598	0.165622	3.088946	0.0050
SER05	-0.023153	0.349934	-0.066165	0.9478
C	-4.800210	3.322174	-1.444900	0.1614
R-squared	0.930757	Mean dependent var	8.575571	
Adjusted R-squared	0.919216	S.D. dependent var	1.856136	
S.E. of regression	0.527561	Akaike info criterion	1.714481	
Sum squared resid	6.679691	Schwarz criterion	1.950221	
Log likelihood	-19.85997	Hannan-Quinn criter.	1.788312	
F-statistic	80.65079	Durbin-Watson stat	1.006407	
Prob(F-statistic)	0.000000			

**Source:** E-views, version 9.0 output result

**Table 4.10: CHOW TEST**

Chow Breakpoint Test: 2008

Null Hypothesis: No breaks at specified breakpoints

Varying regressors: All equation variables

Equation Sample: 1986 2016

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F-statistic	0.493835	Prob. F(4,21)	0.7403
Log likelihood ratio	2.607072	Prob. Chi-Square(4)	0.6256
Wald Statistic	1.975340	Prob. Chi-Square(4)	0.7403

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*Source:* E-views, version 9.0 output result

From the table 4.9, SER05 represents the dummy variable which depicts the suspected year of structural break. The t-statistic was -0.066165 with probability value of 0.1614 which is greater than 0.05. From Chow test result found in table 4.10, the overall f statistic was 0.494835 with probability value of 0.7403 which is also non-significant since the value was greater than 0.05. This therefore implies that the 2008 global financial crises had no significant effect on the stock market performance in Nigeria. The result is non-significant and based on this result, we refuse to accept the null hypothesis. This implies that there is a structural break in the relationship between global financial crises and stock market performance.

**4.6 Discussion of Findings**

The research work was designed to determine the significant effect of the global financial crises on the stock market performance in Nigeria. The first hypothesis was designed to know whether Foreign Portfolio Investment have positive significant effect on Stock market performance using All Share Index as proxy to Stock market performance. All the preliminary results show weak but positive relationship while the Autoregressive

Distributive Lag (ARDL) results showed a positive and non-significant relationship between Foreign Portfolio Investment and All Share Index at level series. The result therefore contradicted theory which postulated a negative relationship.

The second hypothesis tested whether external reserves have significant effect on stock market performance. All the preliminary results also showed positive correlation while Autoregressive Distributive Lag (ARDL) shows a positive and non-significant relationship between All Share Index and External Reserves. The result agrees with theory which postulated a positive relationship. However, since the probability value was greater than 0.05 which is non-significant, we therefore refuse to accept the null hypothesis as well.

In hypothesis three, exchange rates were tested against Stock market performance with ASI as proxy. The preliminary results show a positive and significant relationship which was confirmed in the Autoregressive Distributive Lag (ARDL).

The result there indicates that there is a positive and significant relationship between Exchange rate and All Share Index which confirms what the theory stated.

In hypothesis four, we tested for structural break using Zivot-Andrews for each of those variables. We found out that rather than break point in 2008, we had structural breaks in 1995, 1999, 1999 and 1996. We therefore subjected the result to Chow test since 2008 targeted to be our break point.

The t-statistic was -0.066165 with probability value of 0.1614 which is greater than 0.05. From table 4.6, the overall f statistic was 0.494835 with probability value of 0.7403 which is

also non-significant since the value was greater than 0.05. The result is non-significant and based on this result, we refuse to accept the null hypothesis.

The results obtained so far in this work agrees with the findings of Augustine (2011), Onuoha and Nwaiwu (2016), Bamidele (2013) and even Nwude (2012) that argued that the global financial crises were primarily responsible for the crash in the Nigerian Stock market performance. It however contradicted the findings of Takubu and Akerele (2012), Genrole and Daisi (2012) and many other scholars that are of the view that the global financial crises were not primarily responsible for the crash in the Nigerian Stock market performance.

## CHAPTER FIVE

### SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

#### 5.1 Summary of Findings

This research investigated the effect of global financial crises on the Stock market performance in Nigeria. There has been academic debate among researchers as to whether the global financial crises were primarily responsible for the crash in the Nigerian Stock market performance or not. Financial crises could be in form of foreign investment crises represented by foreign portfolio investment, currency crises represented by exchange rate and liquidity crises represented by external reserves. The results revealed that:

1. There is a positive and non-significant relationship between foreign portfolio investment and Stock market performance in Nigeria. The preliminary results also confirmed a positive relationship which implies that increase in foreign portfolio investment could increase Stock market performance proxy by All Share Index.
2. There is a positive and non-significant relationship between exchange reserves and Stock market performance in Nigeria.
3. There is a positive and significant relationship between exchange rates and Stock market performance in Nigeria.

There is a structural break in the relationship in 2008 among these variables. This implies that the global financial crisis was not primarily responsible for the crash in the stock market performance in Nigeria in 2008.

#### 5.2 Conclusion

The main objective of this work was to investigate whether the global financial crises has any significant effect on stock market performance in Nigeria. The time of study covered



1986 to 2016 but 2008 was chosen to be tested for structural break in the relationship. The result found out that though relationship exists among the variables of global financial crises and stock market performance, there was no structural breaks among the variables in 2008 when the global financial crises took the center stage in Nigeria.

The work sought to examine whether the global financial crises have any significant effect on stock market performance in Nigeria. The variables used to represent global financial crises include; foreign portfolio investment, exchange rates and external reserves. These variables indicate a non significant relationship with stock market performance represented by the All Share Index which implies that the global financial crises have no significant effect on the stock market performance within the period under review.

### **5.3 Recommendations**

Based on the findings, we recommend that:

Nigerian government must create a conducive environment for foreign investors to thrive since foreign portfolio investments cannot contribute positively to the growth of stock market performance if the environment is not conducive.

The current practice of intervening in the foreign exchange market to dampen exchange rate volatility by the Central Bank of Nigeria (CBN) should be sustained with increase efficiency until such a time that foreign exchange sources will be diversified from mainly crude oil sources.

Government and regulatory authorities should constantly check and monitor the participation of foreign investors in the Nigerian Stock market to avoid divestment problem as a result of contagion effect of panic in their home economies. This was the experience in

Nigeria Stock market in 2008 which also created fear among investors. Such regulation is necessary in view of the fact that the study shows that the financial crises was not primarily responsible for the crash in the Nigerian stock market performance.

In view of the positive relationship between exchange rates and stock market prices in Nigeria, the government should initiate policies that should attract foreign investors into the Nigeria Stock market. This would help to boost foreign currencies and help to reduce the pressure on the naira.

#### **5.4 Contributions to Knowledge**

The study has contributed to knowledge in the following ways:

The study has not only added to the existing literature but also provides an updated and larger scope of study in terms of years covered and methodology. Many scholars succeeded in testing the long and short run effect of the global financial crises on the stock market in Nigeria but could not really test whether the financial crises actually have a significant effect or not.

The study will also serve as a reference material for investigating the effect of global financial crises on the Nigeria Stock market.

#### **5.5 Suggestions for Further Studies**

The research work was carried out to critically ascertain whether the global financial crises has any significant effect on the performance of the stock market in Nigeria. In the first place, the study only focused on some variables of global financial crises and how they affected stock market performance within the period under review. However, further studies

should be carried out to examine how other factors such as weak regulations, suspension of credit to investors and market operators can affect stock market performance in Nigeria.

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**APPENDIX I:**

Descriptive statistics of input data

	LASI	LEXR_N	LFPI	LRESERVES
		–		
Mean	8.698155	3.826336	19.70392	22.90818
Median	9.151633	4.660268	19.83276	22.76101
Maximum	10.96803	5.259784	23.43081	24.70480
Minimum	5.098646	0.703394	15.93096	20.65390
Std. Dev.	1.794573	1.380983	1.917485	1.371547
Skewness	-0.744974	-0.717100	-0.117754	-0.129240
Kurtosis	2.246914	2.177680	2.416957	1.598551
Jarque-Bera	3.483855	3.416427	0.494253	2.538590
Probability	0.175182	0.181189	0.781042	0.281030
Sum	260.9446	114.7901	591.1175	687.2453
Sum Sq. Dev.	93.39430	55.30632	106.6257	54.55309
Observations	31	31	31	31

*Source:* E-views, version 9.0 output result

## Appendix II: Correlation Analysis on input data

Covariance Analysis: Ordinary

Date: 12/23/17 Time: 21:49

Sample: 1986 2016

Included observations: 31

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Correlation	LASI	LEXR_N_	LFPI	LRESERVES
t-Statistic				
Probability				
LASI	1.000000			
	-----			
	-----			
LEXR_N_	0.953683	1.000000		
	16.77585	-----		
	0.0000	-----		
LFPI	0.388555	0.411363	1.000000	
	2.231366	2.388148	-----	
	0.0338	0.0239	-----	
LRESERVES	0.885008	0.859079	0.555313	1.000000
	10.05857	8.881262	3.533306	-----
	0.0000	0.0000	0.0014	-----

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**Source:** E-views, version 9.0 output result

### **Appendix IIIa: Zivot-Andrews Unit Root test on input data (LASI)**

Zivot-Andrews Unit Root Test

Date: 11/08/17 Time: 15:11

Sample: 1986 2016

Included observations: 31

Null Hypothesis: LASI has a unit root with a structural  
break in both the intercept and trend

Chosen lag length: 0 (maximum lags: 4)

Chosen break point: 1995

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---

Zivot-Andrews test statistic

1% critical value:

5% critical value:

10% critical value:

---

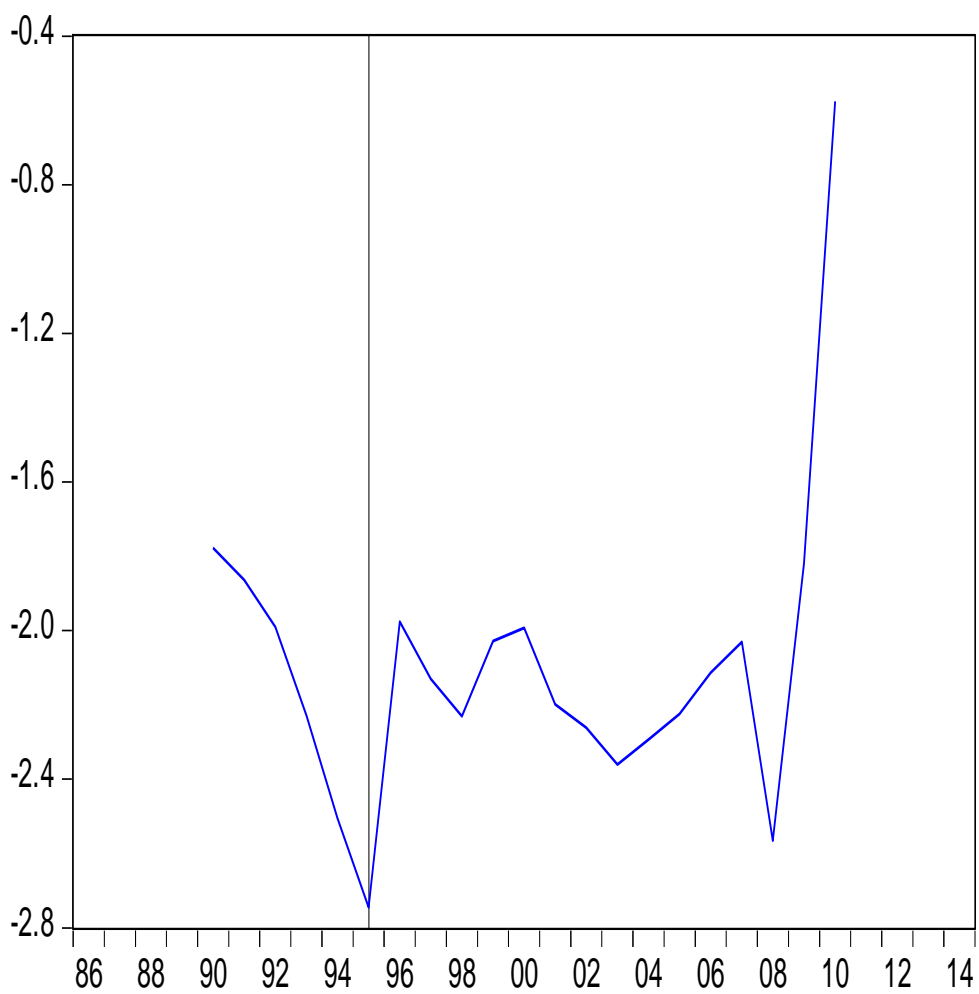
---

\* Probability values are calculated from a standard t-distribution  
and do not take into account the breakpoint selection process

**Source:** E-views, version 9.0 output result

**Appendix IIIb: Zivot-Andrews Unit Root test on input data (LASI)**

Zivot-Andrew Breakpoints



**Source:** E-views, version 9.0 output result

## Appendix IV: Zivot-Andrews Unit Root test on input data (LEXR)

Zivot-Andrews Unit Root Test

Date: 11/08/17 Time: 15:11

Sample: 1986 2017

Included observations: 31

Null Hypothesis: LEXR has a unit root with a structural  
break in both the intercept and trend

Chosen lag length: 0 (maximum lags: 4)

Chosen break point: 1999

---

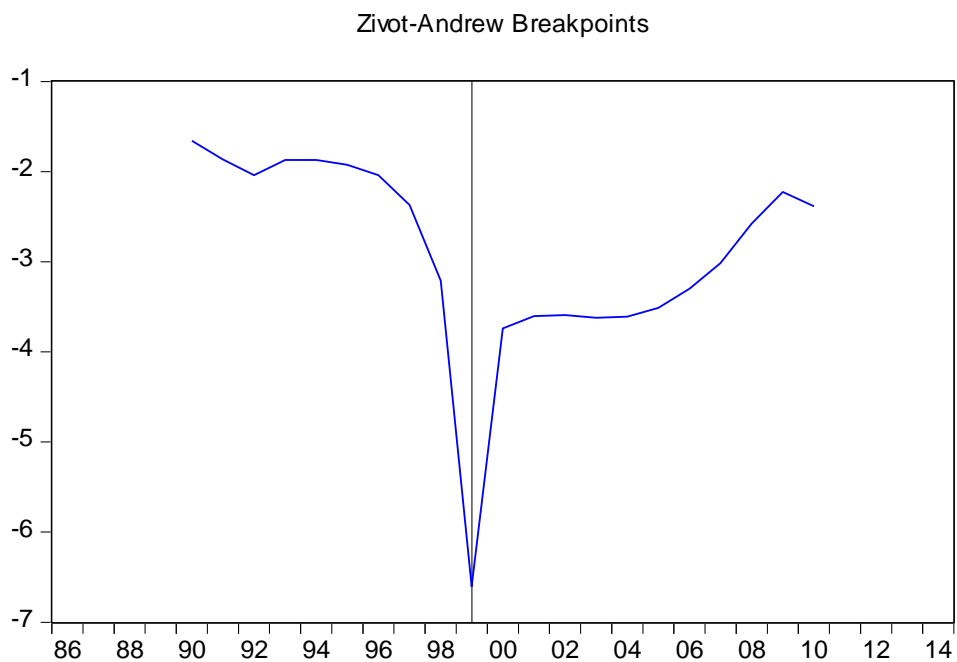
---

	t-Statistic	Prob. *
Zivot-Andrews test statistic	-6.603121	1.88E-07
1% critical value:	-5.57	
5% critical value:	-5.08	
10% critical value:	-4.82	

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\* Probability values are calculated from a standard t-distribution and do not take into account the breakpoint selection process



**Source:** E-views, version 9.0 output result



## Appendix V: Zivot-Andrews Unit Root test on input data (LFPI)

Zivot-Andrews Unit Root Test

Date: 11/08/17 Time: 15:11

Sample: 1986 2016

Included observations: 31

Null Hypothesis: LFPI has a unit root with a structural  
break in both the intercept and trend

Chosen lag length: 4 (maximum lags: 4)

Chosen break point: 1999

---

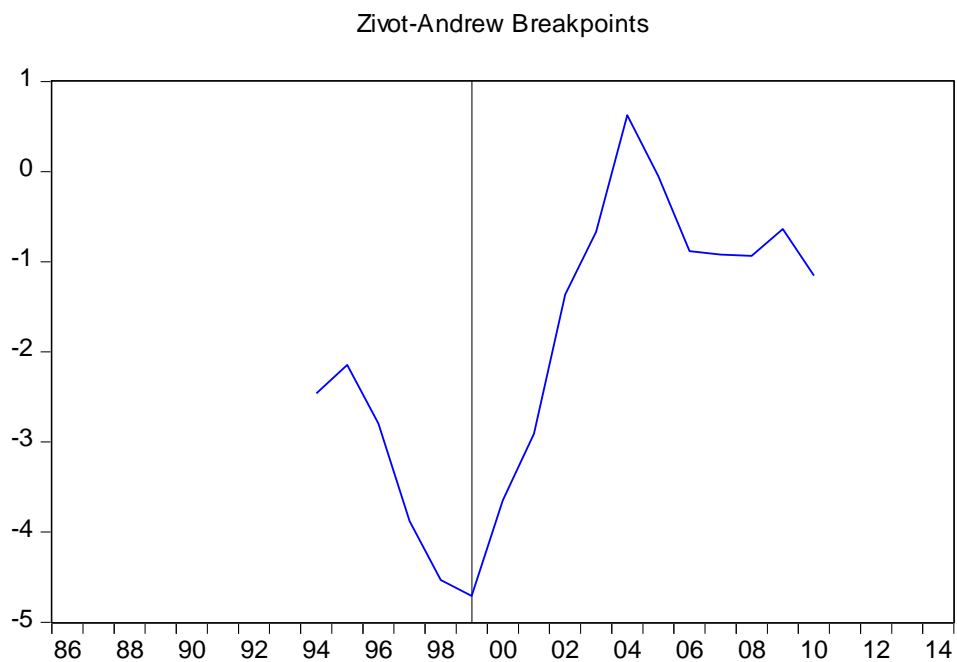
---

	t-Statistic	Prob. *
Zivot-Andrews test statistic	-4.707537	0.045218
1% critical value:	-5.57	
5% critical value:	-5.08	
10% critical value:	-4.82	

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\* Probability values are calculated from a standard t-distribution and do not take into account the breakpoint selection process.



**Source:** E-views, version 9.0 output result

## Appendix VI: Zivot-Andrews Unit Root test (LRES)

Zivot-Andrews Unit Root test (LRES)

Date: 11/08/17 Time: 15:11

Sample: 1986 2016

Included observations: 31

Null Hypothesis: LRES has a unit root with a structural  
break in both the intercept and trend

Chosen lag length: 1 (maximum lags: 4)

Chosen break point: 2006

---

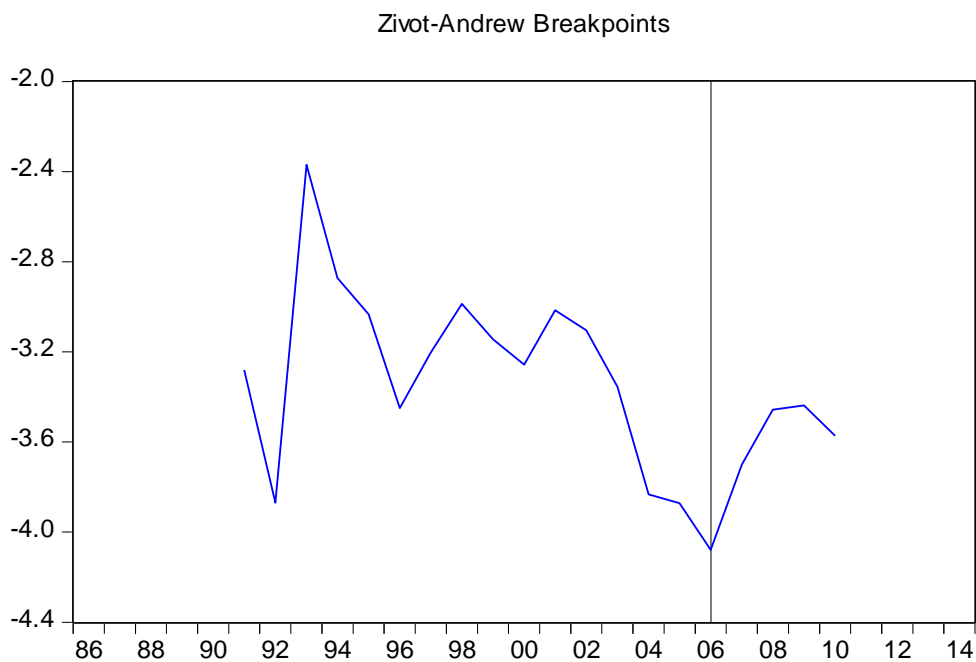
---

	t-Statistic	Prob. *
Zivot-Andrews test statistic	-4.079282	0.075756
1% critical value:	-5.57	
5% critical value:	-5.08	
10% critical value:	-4.82	

---

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\* Probability values are calculated from a standard t-distribution  
and do not take into account the breakpoint selection process



**Source:** E-views, version 9.0 output result

## Appendix VII: Unit Root test on input data at Level Series (ASI)

Null Hypothesis: ASI has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-1.591471	0.4740
Test critical values: 1% level	-3.679322	
5% level	-2.967767	
10% level	-2.622989	

\*MacKinnon (1996) one-sided p-values.

ADF Unit Root test

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(ASI)

Method: Least Squares

Date: 12/23/17 Time: 21:51

Sample (adjusted): 1987 2016

Included observations: 29 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ASI(-1)	-0.163137	0.102507	-1.591471	0.1231
C	3319.017	2145.243	1.547152	0.1335
R-squared	0.085762	Mean dependent var		906.7034
Adjusted R-squared	0.051901	S.D. dependent var		8395.753
S.E. of regression	8174.976	Akaike info criterion		20.92202
Sum squared resid	1.80E+09	Schwarz criterion		21.01631
Log likelihood	-301.3692	Hannan-Quinn criter.		20.95155
F-statistic	2.532781	Durbin-Watson stat		1.962126
Prob(F-statistic)	0.123145			

**Source:** E-views, version 9.0 output result

## Appendix IX: Unit Root test on input data at first difference (ASI)

Null Hypothesis: D(ASI) has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.282855	0.0002
Test critical values: 1% level	-3.699871	
5% level	-2.976263	
10% level	-2.627420	

\*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(ASI,2)

Method: Least Squares

Date: 12/23/17 Time: 21:53

Sample (adjusted): 1989 2016

Included observations: 27 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(ASI(-1))	-1.536753	0.290895	-5.282855	0.0000
D(ASI(-1),2)	0.410311	0.196066	2.092714	0.0471
C	1758.267	1651.071	1.064925	0.2975
R-squared	0.600845	Mean dependent var		-305.2463
Adjusted R-squared	0.567583	S.D. dependent var		12639.47
S.E. of regression	8311.521	Akaike info criterion		20.99311
Sum squared resid	1.66E+09	Schwarz criterion		21.13709
Log likelihood	-280.4070	Hannan-Quinn criter.		21.03593
F-statistic	18.06354	Durbin-Watson stat		1.944103
Prob(F-statistic)	0.000016			

**Source:** E-views, version 9.0 output result

**Appendix X: Unit Root test on input data at level series (LExR N)**

Null Hypothesis: EXR\_N\_ has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-0.206863	0.9269
Test critical values: 1% level	-3.679322	
5% level	-2.967767	
10% level	-2.622989	

\*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(EXR\_N\_)

Method: Least Squares

Date: 12/23/17 Time: 21:55

Sample (adjusted): 1987 2016

Included observations: 29 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXR_N_(-1)	-0.010012	0.048401	-0.206863	0.8377
C	7.377178	4.956194	1.488476	0.1482
R-squared	0.001582	Mean dependent var	6.566186	
Adjusted R-squared	-0.035396	S.D. dependent var	16.04723	
S.E. of regression	16.32877	Akaike info criterion	8.490206	
Sum squared resid	7198.972	Schwarz criterion	8.584502	
Log likelihood	-121.1080	Hannan-Quinn criter.	8.519738	
F-statistic	0.042792	Durbin-Watson stat	2.124041	
Prob(F-statistic)	0.837669			

**Source:** E-views, version 9.0 output result

**Appendix XI: L Exchange rate at first difference on input data**

Null Hypothesis: D(EXR\_N\_) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.531434	0.0001
Test critical values: 1% level	-3.689194	
5% level	-2.971853	
10% level	-2.625121	

\*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(EXR\_N\_,2)

Method: Least Squares

Date: 12/23/17 Time: 21:56

Sample (adjusted): 1988 2016

Included observations: 28 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(EXR_N_(-1))	-1.132751	0.204784	-5.531434	0.0000
C	7.475836	3.323194	2.249593	0.0332
R-squared	0.540610	Mean dependent var	1.106250	
Adjusted R-squared	0.522941	S.D. dependent var	23.88211	
S.E. of regression	16.49524	Akaike info criterion	8.512770	
Sum squared resid	7074.420	Schwarz criterion	8.607928	
Log likelihood	-117.1788	Hannan-Quinn criter.	8.541861	
F-statistic	30.59676	Durbin-Watson stat	1.921087	
Prob(F-statistic)	0.000008			

**Source:** E-views, version 9.0 output result

## Appendix XII: Unit Root test on input data LFPI at level series

Null Hypothesis: FPI\_ has a unit root

Exogenous: Constant

Lag Length: 3 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	3.538891	1.0000
Test critical values: 1% level	-3.711457	
5% level	-2.981038	
10% level	-2.629906	

\*MacKinnon (1996) one-sided p-values.

### Augmented Dickey-Fuller Test Equation

Dependent Variable: D(FPI\_)

Method: Least Squares

Date: 12/23/16 Time: 21:57

Sample (adjusted): 1990 2015

Included observations: 26 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FPI_(-1)	1.725710	0.487641	3.538891	0.0019
D(FPI_(-1))	-1.929349	0.464297	-4.155419	0.0004
D(FPI_(-2))	-2.668261	0.572707	-4.659034	0.0001
D(FPI_(-3))	-2.843127	0.589128	-4.825990	0.0001
C	-2.34E+08	5.30E+08	-0.441128	0.6636
R-squared	0.644472	Mean dependent var	40428023	
Adjusted R-squared	0.576753	S.D. dependent var	3.20E+09	
S.E. of regression	2.08E+09	Akaike info criterion	45.92229	
Sum squared resid	9.10E+19	Schwarz criterion	46.16423	
Log likelihood	-591.9898	Hannan-Quinn criter.	45.99196	
F-statistic	9.516784	Durbin-Watson stat	2.399779	
Prob(F-statistic)	0.000149			

**Source:** E-views, version 9.0 output result

**Appendix XIII: Unit Root test on input data (LFPI at first difference)**

Null Hypothesis: D(FPI\_) has a unit root

Exogenous: Constant

Lag Length: 7 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	2.384456	0.9999
Test critical values: 1% level	-3.788030	
5% level	-3.012363	
10% level	-2.646119	

\*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(FPI\_,2)

Method: Least Squares

Date: 12/23/17 Time: 21:59

Sample (adjusted): 1995 2016

Included observations: 21 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FPI_(-1))	7.518600	3.153172	2.384456	0.0345
D(FPI_(-1),2)	-8.923399	3.225920	-2.766156	0.0171
D(FPI_(-2),2)	-9.855001	3.317854	-2.970294	0.0117
D(FPI_(-3),2)	-11.23216	3.454327	-3.251621	0.0069
D(FPI_(-4),2)	-9.537982	3.311611	-2.880163	0.0138
D(FPI_(-5),2)	-6.923845	2.681989	-2.581608	0.0240
D(FPI_(-6),2)	-4.543771	1.852106	-2.453300	0.0304
D(FPI_(-7),2)	-1.710248	0.982444	-1.740810	0.1073
C	5.59E+08	5.62E+08	0.994755	0.3395
R-squared	0.887043	Mean dependent var	-27005047	
Adjusted R-squared	0.811738	S.D. dependent var	5.11E+09	
S.E. of regression	2.22E+09	Akaike info criterion	46.17585	
Sum squared resid	5.91E+19	Schwarz criterion	46.62350	
Log likelihood	-475.8464	Hannan-Quinn criter.	46.27300	
F-statistic	11.77936	Durbin-Watson stat	2.100779	
Prob(F-statistic)	0.000129			

**Source:** E-views, version 9.0 output result



**Appendix XIV: Unit Root test on input data (LFPI at second difference)**Null Hypothesis: D(FPI<sub>,2</sub>) has a unit root

Exogenous: Constant

Lag Length: 3 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-7.172909	0.0000
Test critical values: 1% level	-3.737853	
5% level	-2.991878	
10% level	-2.635542	

\*MacKinnon (1996) one-sided p-values.

## Augmented Dickey-Fuller Test Equation

Dependent Variable: D(FPI<sub>,3</sub>)

Method: Least Squares

Date: 12/23/17 Time: 22:00

Sample (adjusted): 1992 2016

Included observations: 24 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FPI <sub>(-1),2</sub> )	-8.095458	1.128616	-7.172909	0.0000
D(FPI <sub>(-1),3</sub> )	5.899733	0.974229	6.055799	0.0000
D(FPI <sub>(-2),3</sub> )	4.075189	0.806597	5.052324	0.0001
D(FPI <sub>(-3),3</sub> )	1.301237	0.478101	2.721675	0.0135
C	6.05E+08	4.82E+08	1.255543	0.2245
R-squared	0.933667	Mean dependent var	3.35E+08	
Adjusted R-squared	0.919703	S.D. dependent var	8.00E+09	
S.E. of regression	2.27E+09	Akaike info criterion	46.10492	
Sum squared resid	9.77E+19	Schwarz criterion	46.35035	
Log likelihood	-548.2590	Hannan-Quinn criter.	46.17003	
F-statistic	66.85891	Durbin-Watson stat	1.998524	
Prob(F-statistic)	0.000000			

**Source:** E-views, version 9.0 output result

**Appendix XV: Unit Root test on input data (LReserves at level series)**

Null Hypothesis: RESERVES has a unit root

Exogenous: Constant

Lag Length: 2 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-0.868468	0.7825
Test critical values: 1% level	-3.699871	
5% level	-2.976263	
10% level	-2.627420	

\*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RESERVES)

Method: Least Squares

Date: 12/23/17 Time: 22:01

Sample (adjusted): 1989 2016

Included observations: 27 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESERVES(-1)	-0.042890	0.049386	-0.868468	0.3941
D(RESERVES(-1))	0.850891	0.168567	5.047791	0.0000
D(RESERVES(-2))	-0.558414	0.193474	-2.886245	0.0083
C	1.69E+09	1.22E+09	1.379106	0.1811
R-squared	0.548135	Mean dependent var	1.06E+09	
Adjusted R-squared	0.489197	S.D. dependent var	6.13E+09	
S.E. of regression	4.38E+09	Akaike info criterion	47.37511	
Sum squared resid	4.42E+20	Schwarz criterion	47.56709	
Log likelihood	-635.5640	Hannan-Quinn criter.	47.43220	
F-statistic	9.300071	Durbin-Watson stat	1.826219	
Prob(F-statistic)	0.000325			

**Source:** E-views, version 9.0 output result

**Appendix XVI: Unit Root test on input data (LReserves at first difference)**

Null Hypothesis: D(RESERVES) has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.399918	0.0018
Test critical values: 1% level	-3.699871	
5% level	-2.976263	
10% level	-2.627420	

\*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RESERVES,2)

Method: Least Squares

Date: 12/23/17 Time: 22:02

Sample (adjusted): 1989 2016

Included observations: 27 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(RESERVES(-1))	-0.764426	0.173737	-4.399918	0.0002
D(RESERVES(-1),2)	0.622186	0.178079	3.493879	0.0019
C	9.54E+08	8.81E+08	1.082909	0.2896

R-squared	0.467234	Mean dependent var	2.71E+08
Adjusted R-squared	0.422837	S.D. dependent var	5.74E+09
S.E. of regression	4.36E+09	Akaike info criterion	47.33331
Sum squared resid	4.56E+20	Schwarz criterion	47.47729
Log likelihood	-635.9996	Hannan-Quinn criter.	47.37612
F-statistic	10.52397	Durbin-Watson stat	1.850956
Prob(F-statistic)	0.000523		

**Source:** E-views, version 9.0 output result

**Appendix XVII: Regression Results of input data**

Dependent Variable: LASI

Method: Least Squares

Date: 12/23/17 Time: 22:09

Sample: 1986 2016

Included observations: 31

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.956174	0.299936	13.19006	0.0000
LEXR_N_	1.239301	0.073874	16.77585	0.0000
R-squared	0.909511	Mean dependent var	8.698155	
Adjusted R-squared	0.906279	S.D. dependent var	1.794573	
S.E. of regression	0.549388	Akaike info criterion	1.704318	
Sum squared resid	8.451173	Schwarz criterion	1.797731	
Log likelihood	-23.56477	Hannan-Quinn criter.	1.734202	
F-statistic	281.4293	Durbin-Watson stat	0.916302	
Prob(F-statistic)	0.000000			

*Source:* E-views, version 9.0 output result**Appendix XVIII: Regression results on input data (LASI and LFPI)**

Dependent Variable: LASI

Method: Least Squares

Date: 12/24/17 Time: 06:31

Sample: 1986 2016

Included observations: 31

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.532862	3.225833	0.475183	0.6383
LFPI_	0.363648	0.162971	2.231366	0.0338
R-squared	0.150975	Mean dependent var	8.698155	
Adjusted R-squared	0.120652	S.D. dependent var	1.794573	
S.E. of regression	1.682835	Akaike info criterion	3.943177	
Sum squared resid	79.29412	Schwarz criterion	4.036590	
Log likelihood	-57.14765	Hannan-Quinn criter.	3.973061	
F-statistic	4.978995	Durbin-Watson stat	0.160256	
Prob(F-statistic)	0.033842			

*Source:* E-views, version 9.0 output result

**Appendix XIX: Regression results on input data (LASI AND LRESERVES)**

Dependent Variable: LASI

Method: Least Squares

Date: 12/25/17 Time: 05:55

Sample: 1986 2016

Included observations: 31

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-17.82885	2.641820	-6.748701	0.0000
LRESERVES	1.157971	0.115123	10.05857	0.0000
R-squared	0.783239	Mean dependent var	8.698155	
Adjusted R-squared	0.775498	S.D. dependent var	1.794573	
S.E. of regression	0.850298	Akaike info criterion	2.577881	
Sum squared resid	20.24420	Schwarz criterion	2.671295	
Log likelihood	-36.66822	Hannan-Quinn criter.	2.607765	
F-statistic	101.1748	Durbin-Watson stat	0.465460	
Prob(F-statistic)	0.000000			

**Source:** E-views, version 9.0 output result

## Appendix XX: Pairwise Granger Causality Tests on input data

Pairwise Granger Causality Tests on input data

Date: 12/25/17 Time: 06:10

Sample: 1986 2016

Lags: 1

Null Hypothesis:	Obs	F-Statistic	Prob.
LEXR_N_ does not Granger Cause LASI	31	10.0537	0.0039
LASI does not Granger Cause LEXR_N_		1.05728	0.3133
LFPI_ does not Granger Cause LASI	31	0.64494	0.4292
LASI does not Granger Cause LFPI_		0.98293	0.3306
LRESERVES does not Granger Cause LASI	31	1.51824	0.2289
LASI does not Granger Cause LRESERVES		6.33529	0.0183
LFPI_ does not Granger Cause LEXR_N_	31	1.12893	0.2978
LEXR_N_ does not Granger Cause LFPI_		1.93696	0.1758
LRESERVES does not Granger Cause LEXR_N_	31	1.34641	0.2565
LEXR_N_ does not Granger Cause LRESERVES		4.52940	0.0430
LRESERVES does not Granger Cause LFPI_	31	5.00049	0.0341
LFPI_ does not Granger Cause LRESERVES		0.08849	0.7685

**Source:** E-views, version 9.0 output result

## Appendix XXI: ARDL ANALYSIS on input data

Dependent Variable: LASI

Method: ARDL

Date: 12/29/17 Time: 05:00

Sample (adjusted): 1990 2016

Included observations: 26 after adjustments

Maximum dependent lags: 4 (Automatic selection)

Model selection method: Akaike info criterion (AIC)

Dynamic regressors (4 lags, automatic): LEXR\_N\_ LFPI

LRESERVES

Fixed regressors: C

Number of models evaluated: 500

Selected Model: ARDL(3, 4, 0, 3)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LASI(-1)	0.507230	0.233163	2.175434	0.0503
LASI(-2)	-0.322082	0.300370	-1.072283	0.3047
LASI(-3)	0.316889	0.196797	1.610234	0.1333
LEXR_N_	-0.072131	0.210536	-0.342605	0.7378
LEXR_N_(-1)	0.335662	0.278278	1.206211	0.2510
LEXR_N_(-2)	0.045966	0.271326	0.169412	0.8683
LEXR_N_(-3)	0.128778	0.225190	0.571863	0.5780
LEXR_N_(-4)	0.302581	0.221236	1.367686	0.1965
LFPI	0.050777	0.048912	1.038121	0.3197
LRESERVES	-0.060209	0.160494	-0.375148	0.7141
LRESERVES(-1)	-0.081166	0.229597	-0.353515	0.7298
LRESERVES(-2)	0.018544	0.180694	0.102625	0.9200
LRESERVES(-3)	-0.262351	0.125168	-2.095990	0.0580
C	9.730935	2.580085	3.771556	0.0027
R-squared	0.984945	Mean dependent var	9.205996	
Adjusted R-squared	0.968635	S.D. dependent var	1.309040	
S.E. of regression	0.231833	Akaike info criterion	0.218135	
Sum squared resid	0.644959	Schwarz criterion	0.895572	
Log likelihood	11.16424	Hannan-Quinn criter.	0.413212	
F-statistic	60.38982	Durbin-Watson stat	2.134348	
Prob(F-statistic)	0.000000			

\*Note: p-values and any subsequent tests do not account for model

**Source:** E-views, version 9.0 output result

**APPENDIX XXII: ARDL Results on input data (LASI)**

Method: ARDL

Date: 08/08/17 Time: 04:31

Sample (adjusted): 1987 2016

Included observations: 29 after adjustments

Maximum dependent lags: 4 (Automatic selection)

Model selection method: Akaike info criterion (AIC)

Dynamic regressors (4 lags, automatic): LFPI\_

Fixed regressors: C

Number of models evaluated: 20

Selected Model: ARDL(1, 0)

Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LASI(-1)	0.920589	0.033130	27.78705	0.0000
LFPI_	0.007833	0.030932	0.253221	0.8021
C	0.707275	0.575492	1.228992	0.2301
R-squared	0.971786	Mean dependent var	8.822276	
Adjusted R-squared	0.969616	S.D. dependent var	1.690214	
S.E. of regression	0.294622	Akaike info criterion	0.491449	
Sum squared resid	2.256853	Schwarz criterion	0.632894	
Log likelihood	-4.126015	Hannan-Quinn criter.	0.535748	
F-statistic	447.7671	Durbin-Watson stat	1.588101	
Prob(F-statistic)	0.000000			

\*Note: p-values and any subsequent tests do not account for model

**Source:** E-views, version 9.0 output result



### Appendix XXIII: ARDL Results on input data (LEXR)

ARDL Results on input data (LEXR)

Method: ARDL

Date: 08/08/17 Time: 04:33

Sample (adjusted): 1987 2016

Included observations: 29 after adjustments

Maximum dependent lags: 4 (Automatic selection)

Model selection method: Akaike info criterion (AIC)

Dynamic regressors (4 lags, automatic): LEXR\_N\_

Fixed regressors: C

Number of models evaluated: 20

Selected Model: ARDL(1, 1)

Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LASI(-1)	0.676655	0.088877	7.613409	0.0000
LEXR_N_	-0.144776	0.171609	-0.843637	0.4069
LEXR_N_(-1)	0.471228	0.174703	2.697316	0.0123
C	1.761045	0.370563	4.752350	0.0001
R-squared	0.980168	Mean dependent var		8.822276
Adjusted R-squared	0.977788	S.D. dependent var		1.690214
S.E. of regression	0.251903	Akaike info criterion		0.207894
Sum squared resid	1.586373	Schwarz criterion		0.396486
Log likelihood	0.985540	Hannan-Quinn criter.		0.266959
F-statistic	411.8655	Durbin-Watson stat		1.706222
Prob(F-statistic)	0.000000			

\*Note: p-values and any subsequent tests do not account for model selection.

**Source:** E-views, version 9.0 output result

## Appendix XXIV: ARDL Results on input data (LRESERVES)

Method: ARDL

Date: 08/08/17 Time: 04:35

Sample (adjusted): 1989 2016

Included observations: 27 after adjustments

Maximum dependent lags: 4 (Automatic selection)

Model selection method: Akaike info criterion (AIC)

Dynamic regressors (4 lags, automatic): LRESERVES

Fixed regressors: C

Number of models evaluated: 20

Selected Model: ARDL(3, 0)

Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LASI(-1)	1.113466	0.199718	5.575181	0.0000
LASI(-2)	-0.530209	0.286644	-1.849713	0.0778
LASI(-3)	0.353418	0.195527	1.807511	0.0844
LRESERVES	-0.065244	0.100607	-0.648509	0.5234
C	2.286305	1.790745	1.276734	0.2150
R-squared	0.967792	Mean dependent var		9.079283
Adjusted R-squared	0.961936	S.D. dependent var		1.442635
S.E. of regression	0.281458	Akaike info criterion		0.467906
Sum squared resid	1.742805	Schwarz criterion		0.707876
Log likelihood	-1.316736	Hannan-Quinn criter.		0.539262
F-statistic	165.2655	Durbin-Watson stat		1.999922
Prob(F-statistic)	0.000000			

\*Note: p-values and any subsequent tests do not account for model

**Source:** E-views, version 9.0 output result

## Appendix XXV: CHOW BREAK POINT Test Results on input data

Chow Breakpoint Test: 2008

Null Hypothesis: No breaks at specified breakpoints

Varying regressors: All equation variables

Equation Sample: 1986 2016

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F-statistic	0.458073	Prob. F(4,22)	0.7656
Log likelihood ratio	2.399969	Prob. Chi-Square(4)	0.6626
Wald Statistic	1.832291	Prob. Chi-Square(4)	0.7666

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*Source:* E-views, version 9.0 output result

## Appendix XXVI: Transformed Log Data

Year	LASI	LEXR_N_	LFPI_	LRESERVES
1986	5.098646171	0.703394497	18.27719482	21.02329857
1987	5.251749730731702	1.390759378079049	20.80406487391544	21.1272845662195
1988	5.453610250954072	1.390759378079049	20.44581801543471	20.65390482627597
1989	5.784747833479305	2.000344220321133	19.20837144687354	21.43674393660439
1990	6.241834084675782	2.084155413906056	19.09946578090949	22.14125022278462
1991	6.663132695990803	2.293493892982265	17.92817953127612	22.26614142172735
1992	7.009950791296806	2.850614011677549	21.35680525351472	20.90229280587427
1993	7.342002188515754	3.093362487269874	16.69360222321862	21.21823277384862
1994	7.698482787880946	3.085851732116764	17.11656711100276	21.2235391807242
1995	8.535465236203686	3.085851732116764	18.22486377231396	21.25924035943233
1996	8.852536219292595	3.085851732116764	18.96663390756333	22.18869295339722
1997	8.770361455836144	3.085851732116764	18.01451148799028	22.77498295912544
1998	8.643420473855282	3.085851732116764	15.93096237639543	22.71094345342158
1999	8.569102296153666	4.5255077393395	16.21466685352095	22.45487270835384
2000	9.000976444070345	4.606363473736986	20.03461194642213	23.03574680386533
2001	9.302290367223744	4.714173458742573	20.53907974298287	23.0885064293048
2002	9.404071590321701	4.791400759278761	18.71287263188197	22.74703688669304
2003	9.909913859522583	4.861539594080926	19.02443589784179	22.72678268030135
2004	10.07930886175593	4.894101477840304	18.99626099050428	23.57145703900678
2005	10.08937773420711	4.909709375506295	20.0057230896736	24.07779255670646
2006	10.40998281380164	4.920710586568268	20.97638363817241	24.47829509151491
2007	10.96802930973503	4.847331743138062	20.49953936576743	24.6727202633913
2008	10.3561790630929	4.793390974713036	21.94788297305943	24.70480165866678
2009	9.944013663287099	5.085371640210272	19.65980454906725	24.54119396379245
2010	10.11740951539991	5.030830001381774	21.67354979629389	24.30358298848222
2011	9.939367595706096	5.070851989584804	21.987488322219	24.31408197485162
2012	10.24277045	5.080534421	23.43081324	24.58501397
2013	10.62932430	5.090484752	23.05744261	24.55743021
2014	10.45325933	5.071841393	21.32687390	24.34753316
2015	10.18332140	5.259784416	20.9630383521.2173	24.1118587824.2322
2016	10.45333330	5.374445201	7604	0642

*Sources:* E-views, version 9.0 output result; 2016 Statistical Bulletin of the Central Bank of Nigeria and World Bank Data