

## MACROECONOMIC VARIABLES AND FINANCIAL MARKET STABILITY IN THE NIGERIA FINANCIAL SERVICES SECTOR

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**ABSTRACT:** This paper examines the macroeconomics variables and financial marketing stability and its implication for marketing financial services in the Nigeria banking sector. The quantitative research design was adopted for this study and secondary data was sourced and analyzed using Ordinary Least Square (OLS) estimation technique for the purpose of providing answers to key research hypotheses. Result rejected all null hypotheses and thus accepted all alternate hypotheses.

**KEYWORDS:** Macroeconomics Variables, Financial Market, Marketing Financial Services

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### INTRODUCTION

The financial market is the transmission mechanism for monetary policy. They intermediate between the surplus and the deficit economic unit and bridge the financial disec1Liilhnuni that exist among the economic agents and enhance the allocation efficiency of the economy (Ezirim, 2005). It facilitates the realization of monetary policy goals and enhance functionality of the payment system in Nigeria (Ngereho-a and Lucky, 2016). In Nigeria the financial market comprise the banking institutions, the non-banking institutions and the regulatory agencies. The realization of macroeconomic goals of full employment, price stability, economic growth and external balance depend on the country's stable and developed financial market. Apart from maximizing shareholders wealth one of the objectives of financial market regulation is to achieve stable financial market that would enhance the allocation, efficiency of investment and savings. International Monetary Fund [IMF] (1998) report reveled qualitative measures to assess financial system stability can be measured in capital agency, earning liquidity and financial sector deepening see also (Kindlebeger, I 978).

It is globally acknowledge that a stable financial market is required to achieve set macroeconomic goals. This means that the policy structure and policy thrust of the government is to achieve stable financial market that will enhance the development of the economy. The growth and interaction in the world of financial market have increased the importance of actions to safeguard the continual stability of the system at large. Sources of financial crisis remain one of the points of departure among scholars. There are three sources of financial crisis in literature: cyclical, the monetarist and asset pricing channel. For example, the monetarist believe that financial crisis is a monetary issue arising from monetary imbalance such as (Fredman and Schwartz, 1963). Keynesians economist blamed financial crisis and deficiencies in the component of aggregate demand and cyclical challenges such as business cycle in the economy a factor that can be blamed on macroeconomic variables (Kindebeger, 1978). Toby (2006) noted that the financial sector crisis in the 1990s was a result of high risk concentration and macroeconomic volatility within the period and this means that the opinion of the classical economists cannot be used as a determinant of financial crisis in Nigeria.

In Nigeria, existing studies had focused on the relationship between macroeconomic variables, stock market, banking institution, insurance and other financial institution performance using profitability measures as dependent variables and the effect of macroeconomic variables on stock market performance using stock market return and stock price (Maku and Atanda, 2010; Asaolu and Ogunmuyiwa, 2011; Adaramola, 2011; Izodondmie and Abudullahie, 2011; Osieni et al, 2011; Anayochuku, 2012; Akani and Lucky, 2014; Ngerebo-a and Lucky, 2016; Lucky, Akani and Ayamaobi, 2015). But, little is known about the relationship of macroeconomic variables and financial market stability in Nigeria hence the purpose of this study.

### **Research Hypotheses**

From the above specific objectives of the study, the following null hypotheses are formulated.

**H<sub>01</sub>:** There is no significant relationship between naira exchange rate against the US dollar and financial market stability.

**H<sub>02</sub>:** There is no significant relationship between interest rate and Nigeria financial market stability

**H<sub>03</sub>:** There is no significant relationship between inflation and Nigeria financial market stability.

**H<sub>04</sub>:** There is no significant relationship between oil price shock and Nigeria financial market stability.

**H<sub>05</sub>:** There is no significant relationship between Nigeria growth of gross domestic product and Nigeria financial market stability

**H<sub>06</sub>:** There is no significant relationship between growth of broad money supply and Nigeria financial market stability.

**H<sub>07</sub>:** There is no significant relationship between openness of the economy and Nigeria financial market stability.

**H<sub>08</sub>:** There is no significant relationship between Nigeria external debt and Nigeria financial market stability

**H<sub>09</sub>:** There is no significant causal relationship between macroeconomic variables and financial market stability.

### **LITERATURE REVIEW**

There are varieties of empirical studies of the relationship between stock market and macroeconomic variables. Some of these studies have investigated the co-integration and causality relationship between the stock market and macroeconomic variables. Lucky, Akani & Anyamobi (2015) examined the prudential determinants of stock prices of commercial banks in Nigeria and found that all the micro prudential variables have positive effects on the stock prices of the commercial banks except lending rate. Akani and Lucky (2014) examined the relationship between money supply and aggregate stock prices in Nigeria using time series data from 1980-2012 and found that there is a long run relationship between currency in circulation

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and demand deposit and aggregates' stock prices, time deposits, saving deposit whilst net foreign assets have negative relationship with aggregate stock prices. Ngerebo and Lucky (2016) examined rate and profitability of commercial banks in Nigeria from 1980-2014 using annual time series data. Fannery and Protopapadakis (2002) examined the influence of macroeconomic factors on aggregate stock returns using the US data and they found that stock market returns are significant correlated with inflation and money growth. Nassey and Strauss (2000) found a significant long-run relationship between stock prices and domestic and international economic activity especially in the Euro area-France, Germany, Italy, Netherlands, Switzerland and the U.K. Kwon and Shi (1999) found that the real returns on stock indexes are generally related to deviations from empirical long term relationships and to changes in macroeconomic variable. Dopke, Hartmann and Pierdzioch (2006) found that stock returns increase immediately after market opening without a concomitant increase in volatility. Stock markets become more efficient as determined by testing the random walk hypothesis. Liljeblom and Stenius (1997) analyzed the relationship between conditional stock market volatility and macroeconomic volatility using monthly data for Finland from 1920 to 1991. Conditional monthly volatility is measured as simple weighted moving averages, and also obtained from GARCH estimations. The results, according to the authors, are surprisingly strong as compared to those on US data. Significant results are obtained from stock market volatility as a predictor for macroeconomic volatility as well as the converse. Tests of the joint and simultaneous explanatory power of the macroeconomic vitalities indicate that from one-sixth to above two-thirds of the change in aggregate stock volatility may be related to macroeconomic volatility.

Adelegan (2003) investigated whether Nigeria stock market efficiently reacts to dividend announcement in price adjustment, using daily data on the Nigeria stock market. The author calculated market adjusted buy-and-hold returns for the samples for the three-day event period and for the 21 day and 61-day even windows. The results revealed that there were excess returns and cumulative excess return were significant for 30 days before and until 25 days after dividend announcement for dividend paying firms. It points to the fact that the Nigerian stock market is not semi-strong efficient. Ayadi, Chatterjee and Obi (2000) modeled the interrelationship among a variety of macroeconomic variables representing the financial, as well as the energy, sectors or the Nigeria economy from 1975 through 1994. They attempted investigating the impact of the energy sector on the functioning of the Nigeria economy, including the financial market. The investigation was explored within a vector autoregressive (VAR) model. The results revealed that the energy sector exerts a significant influence on the Nigeria economy by acting as a prime mover. More importantly, Nigeria seems to find itself in a vicious circle, because of its inability to exercise control over the price of its main export and its imports.

Olomola and Adejumo (2006) examined the effect of oil price shock on output, inflation, the real exchange rate and the money supply in Nigeria using quarterly data from 1970 to 2003. The VAR method was employed to analyze the data. The findings were contrary to previous empirical findings in other countries; oil price shock does not affect output and inflation in Nigeria. However, oil price shocks do significantly influence the real exchange rates. The implication is that a high real oil price may give rise to wealth effect that appreciates the real exchange rate. This may squeeze the tradable sector, giving rise to the "Dutch Disease". Sohail and Husain (2009) examine long-run and short-run relationships Lahore Stock Exchange and macroeconomic variables in Pakistan. Using monthly data from December 2002 to June 2008, they observe a negative impact of consumer price index on stock returns, while, industrial

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production index, real effective exchange rate, money supply were seen to have a significant positive effect on stock returns in the long-run using monthly data between 1994 to 2011.

Priyanka and Kumar (2012) also observe among other factors that exchange rate, gold price and inflation have significant effects on the Indian Capital Market. Aydemir and Demirhan (2009) use three different indices including national 100, services, financials, industrials, and technology indices to investigate the relationship between mentioned variables and macroeconomic indicators in Turkey using daily data from 23 February 2001 to 11 January 2008. They establish bidirectional causality exists from national 100, services, financials and industrials indices to exchange rate, there is a positive causal relationship from technology indices to exchange rate. Mohammad et al. (2009) establish the association between share prices of KSE (Karachi Stock Exchange) and foreign exchange reserve, foreign exchange rate, industrial production index, wholesale price index, gross fixed capital formation and broad money in the context of Pakistan. The result shows that after the reforms in 1991 the influence of foreign exchange rate and foreign exchange reserve significantly affected the stock prices. Other variables like whole sale price index, and gross fixed capital formation insignificantly affected stock prices while external factors like money supply and foreign exchange affected prices positively. Yusof et al. (2006) employ the autoregressive distributed lag model (ARDL) to examine the long run relationship between macroeconomic variables and stock returns in Malaysia. The macroeconomic variables tested in the study are the money supply, industrial production index, real effective exchange rate, rate and treasury bill rates. As hypothesized, money supply is found to be positively related to the changes in stock prices while exchange rate has negative effect on stock price in the Malaysian market. Khalid (2012) using Granger causality test establishes unidirectional causality running from exchange rate to stock performance on the Karachi Stock Exchange return.

Dasgupta (2012) using the Johansen and Juselius co-integration test find the Indian stock markets to be nonintegrated with macroeconomic variable. In the long-run, the stock prices are found to be positively related to interest rate and industrial production while the wholesale price index used as a proxy' for inflation and the exchange rate are negatively related to Indian stock market return. The findings however fail to establish short-run relationships between the stock market and the macroeconomic variables. Adam and Tweneboah (2008) establish the existence of a long-run relationship between macroeconomic variables and stock prices. They conclude that in the SLL inflation and exchange rates are significant determinants of share prices in Ghana; interest inflation matter more in the long-run. Kuwornu and Owusu - Nantwi (2011) found a significant relationship between stock returns macroeconomic variables such as inflation, exchange rate and treasury bill rate. Their findings show that inflation has a positive relationship with stock returns hue exchange rate and treasury bill rate have a negative impact on stock returns. They however find no significant relationship between stock returns and crude oil prices.

Again, Kuwornu (2012) using the Vector Error Correction approach did find that in the long-run stock returns are positively affected by inflation, exchange rate and treasury :ne and negatively by crude oil prices. But in the short-run, they attribute variations in sin returns inflation (negative effect, and treasury bill rate (positive effect). Kyerehoah-Coleman and Agyire-Tettey (2008) showed that lending rates from deposit banks have a negative impact on stock returns and tend to smother the growth business in Ghana. They also find a negative relationship between inflation rate and the performance of the stock market. These studies have two main defects. Firstly, they use the GSE-All share Index as a measure of returns ignoring

dividend payments. Second, they are unable to identify which specific macroeconomic variables have a bi-causal relationship with stock returns in Ghana.

Islam (2003) examined the short-run dynamic adjustment and the long-run equilibrium relationship between four macroeconomic variable rate, inflation rate, exchange rate, and the industrial productivity) and the Kuala Lumpur Stock Exchange (KLSE) composite Index. The study found that there was significant short-run (dynamic) and long-run (equilibrium) relationships among the macroeconomic variables and the KLSE stock returns. Maysami et al (2004) examined the long-term equilibrium relationship between selected macroeconomic variables and the Singapore Exchange sector indices. They study concluded that the Singapore's stock market and the property index form co-integrating relationship with changes in the short and long-term interest rates, industrial productions, price levels exchange rate and money supply.

Kandir (2008) investigated the role of macroeconomic factors in explaining Turkish stock returns from July 1997 to June 2005. Macroeconomic variables used were growth rate of industrial production index, change in consumer price index, growth rate of narrowly defined money supply, change in exchange rate, interest rate, growth rate of international crude oil price and return on the MSCI World Equity Index. The analysis was based on stocks portfolios rather than single stocks. It was found that exchange rate, interest rate and world market return seem to affect all the portfolio returns, while inflation rate was significant for only three of the twelve. Having examines the short-run dynamic relationship that exists between macroeconomic variables and financial market stability. The objective of Parsimonious error correction result is to validate the relationship that exists among the variables in the long-run. From model 1 evidence as shown that some of the variables are statistically not significant. The Model II also shows that the variables are statistically not significant. However, the ECM shows that are significant.

## METHODOLOGY

This study adopted the quantitative research approach. Secondary data sources from the Central Bank of Nigeria [CBN] statistical bulletin (2015). We used Ordinary Least Square (OLS) estimation technique and the test instruments in the OLS are T-statistics and F-test which were used to test the significance of variables and the overall significance of the regression respectively.

### Test of Hypothesis

$H_0$ . There is no significant relationship between Naira exchange rate against the US dollar and Nigeria financial market stability.

$$T_{cal} = 2.09701/0.23591$$

$$T \text{ critical} = 1.967$$

$$DF = N-2 = 35-2 = 33$$

$$\text{Level of significant} = 5\% \quad 0.25 \text{ (2tail)}$$

$$\text{Probability} = \mathbf{0.654/0.7225}$$

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From the above, accept alternate hypothesis in model 1 and accept null hypothesis in model II.

$H_{02}$ : There is no significant relationship between interest rate and Nigeria financial market stability.

Teal = 0.655956/0.520996

T critical = 1.967

Df = n-2 = 35-2 = 33

Level of significant = 5% (2tail)

**Probability = 0.0654/0.7225**

From the above, accept null hypothesis in model 1 and model 11.

$H_{03}$ . There is no significant between inflation and Nigeria Financial market stability

Teal = 1.250562/1.070544

T critical = 1.967

DF N-2 35-2=33

Level of significant = 5% = 0.025(2tail)

**Probability = 0.8177/0.1672**

From the above, accept null hypothesis in mode 1 and model11.

$H_{04}$ . There is no significant relationship between oil price shock and Nigeria financial market stability.

Teal = 0.061692/0.950238

T critical = 1.967

Level of significant = 5% = 0.025(2tail)

**Probability = 0.8883/0.7867**

From the above, accept null hypothesis in model 1 and model 11

$H_{05}$ . There is no significant relationship between Nigeria growth of gross domestic product and Nigeria financial market stability

Teal = 1.318410/0.617625

T critical = 1.967

DF = N-2 = 35-2 = 33

Level of significant = 5% = 0.025(2tail)

**Probability = 0.2199/0.5484**

From the above, accept null hypothesis in model 1 and model 11.

$H_{06}$ . There is no significant relationship between growth of broad money supply and Nigeria financial market stability.

Teal 1.250562/0.276791

T critical = 1.967

DF = N-2 =35-2=33

Level of significant =5%=-0.25 (2tail)

**Probability = 0.8869**

From the above, accept null hypothesis in model 1 and model II.

$H_{08}$ . There is no significant relationship between Nigeria external debt and Nigeria financial market stability.

Teal 0.399508/0.338014

T critical 1.967

DF N-2 35-2 = 33

Level of significant = 5%=-0.025 (tail)

**Probability = 0.4797/0.7412**

From the above, accept null hypothesis in model 1 and model II.

**Discussion of findings in sections**

The result of the unit roots test shows that all the variables are not stationary at level but stationary at first difference. This signifies that the variables are integrated of order one 1 (1). This means that the variable are not stationary at level form but when the variable where differenced once they attain stationary. The non stationary of the variables at level enable us to further check the co-integrating variables. The finding confirms the finding of Ademolola, (2007).

**Co-integrating Test Result**

Having establish that the variables are integrated in other of 1 (1), from the Johanson co-integrating test result, the trace test and the maximum Eigen indicates the rejection the null hypothesis of no co-integrating vectors in favour of three and two co-integrating vectors at 5% and 1% levels respectively. While the max-eigen value shows that rejection of the null hypothesis of no co-integrating vectors in favour of three and two co-integrating vectors at 5% and 1% level this finding confirm the expectation of the results and validate the various policies formulated through the macroeconomic environment that affect the performance of the Nigeria financial market.

### **Normalize co-integrating equation**

Establishing that there exist a long-run relationship between macroeconomic variable and Nigeria financial market stability was done through the result presented above. However, the nature of the relationship was not establish from the normalize co integrating equation, the study found that all the variables in model 1 have positive long-run relationship with Nigeria financial market liquidity except openness of the economy and Nigeria real gross domestic product. The positive effects of the variable confirm the a-prior expectation of the result and validate the policies aim to depending the operational efficiency of the financial market. However, the negative long-run relationship that exists between the variables is contrary to the expectation of the result all the independent variable have negative long-run relationship with financial market deepening except OPE and INTR. Again the positive effect confirm to a-priori.

### **Granger causality test**

Significant proportion of the studies examined in literature failed to establish the causality between macroeconomic variables and selected financial market indicators. In this study we establish the causality relationship that exists between the variables. From the test analysis, model 1 and II found that all the variable have no causal relationship except a uni directional from EXR to FLIO, FLIO to OIP, and OPE to FLIQ. The none casual relationship among the variable is contrary to the expectation of the result and can be blame on macroeconomic policies and financial market fragility within the period covered in this study.

### **The effect of exchange on Nigeria Financial Market Stability**

Exchange rate is defined as the purchasing power of one currency for another. Nigeria as an open economy exchange rate has significant effect on both macroeconomic and monetary policy. The rise and fall in exchange rate make influence significantly the macroeconomic volatility and financial market fragility. From the findings of the study the negative coefficient of -0.1149 and -0.026942 as parameter for exchange rate indicate that a unit decrease in exchange rate will lead to Nigeria financial market fragility by 11.9% and 2.6% this is validated by the negative effect of the variable in the vector error correction models. The negative effect of the variable confirm the opinion of Owen et al (2014) which noted that decreasing exchange rate lead to asset price bubble which can lead to financial market fragility. And examination of Nigeria Naira exchange rate shows that naira as been depreciating throughout the period covered in this study. The negative effect of naira exchange rate on Nigeria financial market stability is contrary to the objective of various exchange rate policies formulated by the monetary authorities to leverage the negative effect of naira exchange rate depreciation on the economy for instance, in less than ten years Nigeria had over 20 exchange rate policies, some are re-introduced after been abolished.

### **The effect of interest rate on Nigeria financial market stability**

The Treasury bill rate acts as the as the rate of return offered by risky free asset and the shifting of funds between risky equity and risk free assets by portfolio managers. Analysis from the regression result proves that interest rate have negative but insignificant relationship with Nigeria financial market stability. This is contrary to the expectation of the result and the financial market reforms such as the de-regulation of interest rate in the last quarter of 1986, and the financial market reforms. Evidence form the result shows that increase in Nigeria

interest rate as measure in this study will deepening Nigeria financial market crisis. This findings is contrary to the findings (Minsky, 1992) ( Margaret, 2012) (Kuworn, 2012) on the relationship between interest rate and capital market performance. The negative impact of interest rate on Nigeria financial market stability can be trace to unstructured and unparallel nature of interest of Nigeria financial market. An examination of Nigeria interest rate reveal that the interest rate cannot be said to be fully de-regulated, regulated or guided de-regulated. It is important to note that interest is the mechanisms that equilibrate the financial market just like price equilibrate the commodity market it could also be trace to monetary policy shocks. In the system, according to the classical opinion as consolidated by the liquidity trap theory of Keynesians, interest rate influence the rate of return on investment and the financial market activities.

### **The effect of inflation rate on Nigeria financial stability**

Empirical evidence had shown that rise and fall in inflation reduces or increases the purchasing power of investors and thus should have an impact on the financial market stability via asset pricing and exchange rate channel. This study found that inflation have negative effect on Nigeria financial market stability such that an increase will lead to 3.6% and 0.8% decrease on financial market stability as measured in this study. The negative effect of inflation on Nigeria financial market stability confirm the a-prior expectation of the study, this is because inflation reduce the purchasing power of money, crowd out investment and lead to macroeconomic instability. This finding confirm the findings of (Javed, 2009) (Hsing,2011) (Herr,2008) on the negative relationship between inflation and asset price, and stock market performance.

### **The effect of growth in money supply on Nigeria financial market stability**

Increase in money supply shows that liquidity of the economy and a measure of expansionary monetary policy that affect the interest rate and the economy at large. Evidence has shown that expansionary monetary policy reduces interest rate and has a transmission effect on the financial market. This study found that growth of money supply has positive relationship with Nigeria financial market stability. This finding confirm the expectation of the result that increase in money as shown in the time series have a positive impact on financial market stability. This finding justifies the injection of N620B in 2009 by the Central Bank of Nigeria of build the commercial banks from banking crisis. It also validate various monetary policy reforms transmitted through money supply to consolidate the financial sector such as the banking sector consolidation and re-capitalization, the re-capitalization of the insurance sector and the bureau de change. This findings confirms the finding of Akani and Lucky (2014) on the relationship between money supply and aggregate stock prices in Nigeria stock exchange.

### **The effect of oil price in Nigeria financial market stability**

Nigeria is an oil producing country, a member of OPEC, the sixth large exporter of crude oil export (Lucky & Nwosi, 2016). Crude oil production account for over 80% of Nigeria revenue empirical studies over the year as establish a link between oil price and the financial market stability of the oil producing countries. Finding of this study reveal that oil price shock have negative relationship with Nigeria financial market stability such that a decrease in oil price will result in financial market crisis in Nigeria. This finding confirms the a-prior expectation of the external borrowings from the government to finance budget deficit which make the economy and the financial market sensitive to external shock. It confirm the full dependent of

Nigeria economy on the oil sector. This finding is in line with (Jain, 1988) on the effect of oil price on capital market performance.

### **The effect of openness of the economy on Nigeria financial market stability**

Nigeria policies over the year have been to liberalize the economy to allow inflow of real and portfolio investment. The adoption of the structural adjustment program in 1986 was aimed at restructuring Nigeria economy for external investors. This study found that openness of the economy has positive relationship with Nigeria financial market stability. This finding confirms the a- priori expectation of the result and the objective of macroeconomic reforms to deepening Nigeria investment and trade relationship.

### **The effective of external borrowing on Nigeria financial market stability**

External borrowing are a component of expansionary monetary policy and expected to have a positive in Nigeria financial market. However findings in this study reveal that external debt has negative impact on Nigeria financial market. This findings is contrary to the expectation of the result and can be blamed on poor macroeconomic policies for effective utilization of the borrowed fund, in adequate policy to manage the borrowed fund and transmit to the financial market.

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