Assessment of Relationship between Market Dynamics, Bank Credit and Inflation Rate: Experience from Nigeria

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Abstract

The study examined the relationship between the capital market and the inflation rate in Nigeria. Secondary data was employed and sourced from the publications of the Security and Exchange Commission and Central Bank of Nigeria. The variables for which the data was sourced include: market capitalisation, all-share index, market volume and market turnover, inflation rate, and gross domestic product for the period 1988 to 2019. The data was analyzed using multiple regression analysis and other econometric tests such as the unit root test, co-integration test, and vector error correction mechanism (VECM).Market capitalization had a negative effect on inflation both in the short and long run (b =.1864346, t = 4.99, P > t| =0.000).A granger causality relationship existed between capital market dynamics, banking credit, and inflation. It is concluded that the capital market is embedded with an effective instrument to curb inflation in the country. In view of the above findings, it is recommended that the capital market regulatory bodies should introduce and implement policies that will increase the level and size of market capitalization in the Nigerian capital market as an increase in market capitalization will surely increase fund availability for desired investment, which will trigger an increase in the productivity of the nation and curb inflation in the country.

Keyword: Capital market, Economic Development, Inflation, Bank Credit variables, Market Capitalization

1. Introduction

In a healthy economy, prices tend to increase, which leads to a process called inflation. A moderate amount of inflation is generally considered a sign of economic development, because as the economy grows, demand for stuff increases. This increase in demand pushes prices a little higher as suppliers try to create more of the things that consumers and businesses want. Literature reveals that low inflation rates also have a negative influence on the economic growth of a nation because they are an indication that demand for goods and services is lower than it should be, and this tends to slow economic growth and depress wages. Most of the time, low demand can even lead to a recession with an increase in the unemployment rate, as seen in many developing countries, including Nigeria. There is no doubt that economic growth is usually anchored on the financial development of a country. This is underscored by the fact that an effective financial system, in addition to its economic transformation role, provides the possibility of better savings mobilization and allocation of the same for development purposes (Levine, 2007). This can be achieved by increasing the level of investment in general as well as in human resources in particular to control inflation and induce economic development. This has been the concern of economists, bankers, and financial managers over the years. The correlation between capital market dynamics and bank credit impacts on inflation has become a subject of debate among practitioners. A capital market is an economic institution that promotes efficiency in capital formation and allocation. The capital market contributes to economic growth through the specific services it performs, either directly or indirectly. Notable among the functions of the capital market are the mobilization of savings, the creation of liquidity, risk diversification, improved dissemination and acquisition of information, and enhanced incentives for corporate control. Okereke (2000) opined that improving the efficiency and effectiveness of these functions through prompt delivery of their services can augment the rate of economic development through proper control of inflation. Inflation control is the steady development of the productive capacity of the economy. The dynamism between the capital markets and bank credit has not been fully explored in many developing countries, especially Nigeria. As a result, the current study seeks to fill this void by investigating the dynamic relationship between the capital market, bank credit, and the inflation rate.

1.2   Statement of the Problem

Studies reveal that to stimulate development and formulate optimum growth enhancing economic policies, expert knowledge of the relative importance of the banking sector and stock market in the financial system is vital. This raises a question of nexus that should be addressed as a study of this nature. The argument in the literature about capital market development and banking sector development has not been adequately resolved. Stephen and Nkamare (2015), Modebe, Ugwuegbe, Ugwuoke (2014), Allen and Gale (2000), and Capasso (2008) have all argued that the stock market does have a positive effect on economic development, while others, like Kolapo, Michael, and Temitayo (2018), tend to favour the banks' role in the growth process. Meanwhile, Blackburn, Bose, and Capasso (2005) have all shown that both stock markets and banks are necessary to control inflation and promote economic growth. Therefore, they consider stock markets to be complementary to banks rather than substitutes for them. From the empirical studies, different conclusions can also be drawn based on the different techniques. Rousseau and Wachtel (2000), Arestis, Demetriades, and Luintel (2001), Beck and Levine (2004), Dritsaki and Dritsaki-Bargiota (2005), Ang (2008), Singh (2008), Handa and Khan (2008), Christopoulos and Tsionas (2004), and Enisan and Olufisayo (2009) have all arrived at different conclusions. The inconclusive nature of these theoretical and empirical studies provides the basis for a further empirical investigation into the impact of capital market dynamics and bank credit on the inflation rate. A study of this nature has become imperative to explore the effects of capital market dynamics like market capitalization, total new issue, and volume of transactions on the inflation rate. Also, the influence of bank credits on the inflation rate is worthy of examination.

Research Hypothesis

H₀: There is no significant causal relationship between Capital Market and inflation rate in Nigeria.

2. Literature Review and Conceptual Explanation

2.1.   Concept of Capital Market

A capital market is a market for securities (debtor equity), where business enterprises (companies) and government can raise long-term funds (Sullivan &Sheffrin, 2003). It is defined as a market in which money is provided for periods longer than a year, as the raising of short-term funds takes place at other market, which in this case is the money market. The capital market includes the stock market such as equity securities and the bond market which is about debt. Lending and borrowing in long-term loan able funds. Mbat (2001) describes it as a forum through which long-term funds are made available by the surplus economic unit to the deficit economic units. It must, however, be noted that

although all the surplus economic units have access to the capital market, not all the deficit economic units have the same easy access to it. The restriction on the part of the borrowers is meant to enforce the security of the funds provided by the lenders. In order to ensure that lenders are not subjected to undue risks, borrowers in the capital market need to satisfy certain basic requirements such as the capital base of the organization, financial worthiness and a host of others. Gugler, Muler and Yurtoglu (2003) argue that the strength of a country's capital market determines the degree of a firm's investment performance regardless of how closely managers' and owners' match. The capital market offers access to a variety of financial instruments that enable economic agents to pool, price and exchange risks. Through assets with attractive yields, liquidity and risk characteristics, it encourages savings in financial form.

2.2   The Nigerian Capital Market

The capital market is the complex of institution and mechanisms through which economic units desirous to invest their surplus fund, interact directly or through financial intermediaries with those who wish to procure funds for their businesses. Okereke (2000) describes the capital market as constituting of market and institutions that facilitates the issuance and secondary trading of long-term financial instruments. Unlike the money market that represents the short-end of financial system that provides facilities for claims and obligations with maturity vary from one day to a year, the capital market provides government at all levels an effective way of financing public projects; thus playing a vital role in stimulating industrial as well as economic growth and development. Assuming the role of the major supplier and user of capital market funds, the government has a lot of pervading influence on the capital market. In Nigerian, the government influences the capital market through the Nigerian Securities and Exchange Commission (SEC) and the Nigerian Stock Exchange (NSE). SEC has the primary objective of being in charge of the overall regulation of the entire capital market while NSE supervises the operations of the formal quoted market (as a self- regulatory organization). However, the Nigerian financial markets are experiencing challenges such as poor infrastructural facilities, low level of public awareness as to the benefits derivable from the operation of the capital market, inadequacy of supply of securities, stringent stock exchange listing requirements limiting mostly the smaller companies, illiquid market and unfavorable government policies. The capital market is the cornerstone of every financial system since it provides the funds needed for financing not only business and other economic institutions, but also the programme of government as whole. The capital market is essentially a market for long term securities that is stock, debenture and bonds lasting for usually longer than three years. The proper functioning of the capital market was not set up until the establishment of the Central Bank in 1959 and launching of the Lagos stock exchange in 1961even though securities were floated as far back as 1946.

2.3   Capital Markets Dynamics

- **Market Capitalization**

Market capitalization represents the aggregate value of stock size (Adewoyin,2004). Market capitalization is the measurement of the size of businesses and corporations which are equal to the market share price times the number of shares in this case shares that have been authorized, issued, and purchased by investors of a publicly traded company (Al-Faki, 2006). Market capitalization is also calculated by multiplying the shares of the company by the price per share. In summary, market capitalization refers to the number of shares of a company multiplied by the market share price. In other words, market capitalization is usually considered as reflecting the worthiness of a company used by the investing public to determine the credit worthiness of a firm in terms of investing in such companies.

- **Volume of Transaction**

Volume of transaction refers to the total amount of securities traded in the capital market regardless of what type of security instrument. The volume of transaction often determines the level of transactional activities or the performance of the capital market as far as the business transaction of the market is concerned and this in turn could have an effect on the growth of the economy as either positive or negative outcome of the transaction volume (Adewoyin, 2004).Volume of Transaction has to do with the number of shares or contracts traded in a security or in an entire market during a specific period. It is simply the total amount of shares that change hands between buyers and sellers (Mbat, 2001). Volume of transaction is the number of shares traded in a country's stock market or in an entire market over a specific period.

2.4   Banking Sector Credit

The Central Bank of Nigeria Brief (2003) defined bank credit as the amount of loans and advances given by the banking sector to the various economic agents. The Central Bank of Nigeria (CBN) Monetary Policy Circular (2010) identifies such bank credits as comprising loans and advances, commercial papers, bankers' acceptance and bills discounted. Bank credit is usually accompanied with some collateral that helps to ensure the repayment of the loan in the event of default. The banking sector includes monetary authorities and deposit money banks as well as other banking institutions that do not accept transferable deposits but do incur such liabilities as time and savings deposits. This sector is viewed as the only financial means of attracting savings on a large scale which is further extended to borrowers as credit (Singaraj&Josephin, 2015). According to Nwanyanwu (2008), the banking sector helps to make credits available by mobilizing

surplus funds from the savers, who do not have immediate need for them, and channeling them, in the form of credits, to the investors who have good ideas on how to create some additional wealth in the economy but lack the necessary capital to make use of those ideas.

2.5   Inflationary Trend in Nigeria

Inflationary trend in Nigeria during the period 1980 to 2012 was characterized by large growth rate that may be attributed to several inconsistent macroeconomic policies and structural bottlenecks. According to the official statistics from the National Bureau of Statistics (NBS), the inflation rate of 1980 was 11.4 percent. In 1981, inflation rate rose to 17.4 percent and thereafter fell to as low as 6.94 percent in 1982. In 1983, the inflation rate rose to a high double digit of 38.77 percent, 22.63 percent in 1984 and thereafter recorded an all-time low of 1.03 percent in 1985.Apart from 1982, 1985 and 1987; the inflationary growth rate in Nigeria since 1980 has become two digits. In 1988, the inflation rate stood at a very high 61.21 percent, due to the Structural Adjustment Programme (SAP) which was introduced in 1986.In 1990, the inflation rate fell again to a low 3.61 percent and subsequently rose to 22.96 percent in 1991, and 48.80 percent in 1992. In 1994, the inflation rate recorded an all-time high of 76.76 percent the highest in the decade and ever recorded. In 2000, the inflation rate stood at 14.56 percent but however fell to 11.60 percent in 2005. The year 2008 recorded an inflation rate of 15.10 percent which however dropped to 12.2 percent in 2009. In 2011 and 2012, inflation rate stood at 12.4 and 13.2 percent respectively. The annual changes in inflation rate over the entire period of 1980 – 2012 are quite instructive. It shows that inflation rate has been double digit, except for 1982, 1985, 1987, 1990, and 2006, when inflation rate respectively stood at a single digit.

2.6 Empirical Review

The empirical studies can be sorted into three distinct groups: event studies, short horizon studies, long horizon and long-term studies (Luintel and Paudyal, 2006). From the event studies, evidence shows that there is a negative (or significant) effect of unexpected inflation announcements on stock market. Flannery and Protopapadakis (2012), Graham et al. (2002) and Adams et al. (2004) all found a significant negative impact of inflation news on stock market . But Joyce and Read (2002) found no significant evidence of unexpected inflation impact on stock prices. The empirical studies are viewed from two perspectives; short run and long run. From the short horizon studies, a large number of studies document the cross-sectional negative relationship between stock returns and inflation. Examples include Kaul (1987, 1990), Lee (1992), Graham (1996), Hess and Lee's (1999). They all found that common stock returns are negatively related to inflation.

However, some short-horizon studies show that the relationship could be either positive or negative varying over different time horizons, across countries or even across different industries (Schotman and Schweitzer, 2000, Ryan, 2006) or depending on different monetary regimes, different components of inflationary economies or regimes

Corroborating this empirical studies is the work by Choudhry (2001) which further showed that the relationship varies across different inflationary regimes. In the long-horizon, most studies found that a positive relationship between inflation and stock returns, while others showed mixed results, indicating lack of consensus; see (Schotman and Schweitzer, 2000; Engsted and Tanggared, 2002; Wong and Wu 2003). The literature on the relationship between inflation and stock market has been examined by numerous studies but the empirical findings are mixed, positive, negative or neutral. Negative or insignificant relations have been found in inflation announcement studies, while positive, negative or insignificant relations have been found in short horizon studies and a positive relationship is found in most long or long-term cointegration analysis. In addition, empirical results also show that the relationship between inflation, stock returns and inflationary economies or regimes varies in the short horizon study

Maku and Atanda (2010) examine critically the long-run macroeconomic determinants of stock market performance in Nigeria between 1984 and 2007. The Augmented Engle-Granger (AEG) cointegration test results indicate that the macroeconomic variables have long-run simultaneous significant effect on the stock market performance in Nigeria. Generally, the empirical analysis showed that the NSE all-share index is more responsive to changes in exchange rate, inflation rate, money supply, and real output. While, the entire incorporated macroeconomic variables were found to have simultaneous and significant impact on the Nigerian capital market performance in the long-run. The Construct of this present is embedded on endogenous growth theory. This is informed by the fact that the endogenous growth theory links human capital, capital market growth and innovation to economic growth

3. Methodology

Secondary data was employed. The population of this study consists of all institutions in the Nigerian financial sector. Commercial banks; discount houses; other financial institutions; capital markets; asset management; insurance companies and pension sub-sectors in Nigeria. The relevant data was sourced from the publications of the Security and Exchange Commission and the Central Bank of Nigeria. The variables for which the data was sourced include: market capitalisation, All-Share index, market volume, market turnover, and inflation rate for the period 1988 to 2019. The data was analyzed using multiple regression analysis and other econometric tests such as the unit root test, co-integration test, and vector error correction mechanism (VECM).

3.1 Model specification

$$Y = f(x1, x2, x3, x4, x5, \mu) \tag{1}$$

Where Y is inflation $=$ dependent variables, $x1 - x5$ are independent variables or macro-economic factors and F represents the functional notation.

According to this model, capital market is a hedging towards inflation.

$$INF = \beta_0 + \beta_1 LnMCAP + \beta_2 LnSHI + \beta_3\ MVOL + \beta_4\ BAKCRD + \beta_5\ MTURN + u \quad (2)$$

Where;

Ln: Log

LogRGD: Real Gross Domestic Product, LnMCAPMarket Capitalization, Ln SHI: All share index, LnMVOL: Market Volume of Transactions. LnBAKCRD:Bank Credit, LnMTURN: Market Turnover

4. Results and Discussions

4.1   Impact of Capital market on inflation in Nigeria

This section of the study focuses on the effect of capital market on inflation in Nigeria Analysis in table1 revealed that 1% increase in level of market capitalization (MCAP) reduces INFL by-1.35 percent. This suggests a negative effect of market capitalization on inflation in Nigeria. A percent increases in all- shall index (SHI) also reduces INFL by 0.05% suggesting that if all shall index increases, inflation reduces. The effect of MVOL on INFL is also positively significant because 1% increase in MVOL amount to 0.02% increases in INFL. A percent increase in BAKCRD reduces INFL by 1.68%, this connotes an increase in BAKCRD reduces INFL increases. MTURN also increases INFL by 0.024%. More so, 1% increases in EXCH increases INFL by 0.12 percent suggesting that there is positive and significant effect of EXCH on INFL.

The R^2 coefficient (0.6266) which is the coefficient of determination indicates that the explanatory variables accounted for 62.7% of the variation in the influence of market capitalization, share index, market turnover, market volume, and gross domestic product on inflation ratein Nigeria for the period under study. Adjusted R^2 with the value of 55.4%, predicts that independence variables incorporated into this model are able to determine variation of capital market on Inflation (INFL) to 70.4%.The F and probability statistics also confirmed the significance of this model. More so, the ADF test results (MCAP@4.235:   INFL@4.609:   SHI@3.892:   MVOL@(3.742):BAKCRD@4.621: MTURN@3.391: EXCH@3.286 and all stationary @1, 5 and 10% respectively) reported in the table 2 are evident to unable to reject the null hypothesis for the presence of a unit root at level of each of the time series. All of the time series are stationary at their first difference. Since each of the time series is stationary at its first difference so the variables are co integrated. There exists an equilibrium or long run relationship between the time series if all the variables are integrated of the same order. All the variables are stationary at first level which exhibited that there is long run relationship between Capital Market and Inflation Rate in Nigeria.

Table 1: Effects of Capital market on inflation in Nigeria

Dependent Variable	Independent Variables	Coef.	Std Err	T	P>|t|	95% Conf. Interval]	
INFL	MCAP	-1.35E-01	3.21E-02	-4.21	0.000	-.0000142	3.72e-06
	SHI	-0.05495	1.35E-02	-4.08	0.000	-.0013267	.0012277
	MVOL	0.0245604	4.23E-03	5.81	0.000	-5.95e-06	.0000862
	BAKCRD	-1.681791	4.92E-01	-3.42	0.005	-6.841427	-.5221553
	MTURN	0.034057	0.005811	4.14	0.001	-.0000673	.0001484
	EXCH	0.126752	0.008227	4.49	0.000	6.489849	16.55985
	constant	22.8086	1.49E+00	15.31	0.000	2.96297	56.851
R-squared = 0.6266	Adj R-squared = 0.5572	Prob> F = 0.000	F(5, 21) = 119.0				

Source: Author's computation (2021)

Table 2: Unit Root Test

Variables	ADF stat	1% critical value	5% critical value	10% critical value	Order of integration	Remark
MCAP	4.235	-3.750	-3.000	-2.630	I(1)	Stationary
INFL	4.609	-3.750	-3.000	-2.630	I(1)	Stationary
SHI	3.892 ***	-3.750	-3.000	-2.630	I(1)	Stationary
MVOL	-3.742***	-3.750	-3.000	-2.630	I(1)	Stationary
BAKCRD	4.621***	-3.750	-3.000	-2.630	I(1)	Stationary
MTURN	3.391	-3.750	-3.000	-2.630	I(1)	Stationary
EXCH	3.286	-3.750	-3.000	-2.630	I(0)	Stationary

(*), (**) and (***) means stationary at 1%, 5% and 10% respectively.
Source : Author's computation (2021)

4.1.1 Selection-Order Criteria

The Hannan–Quinn information criterion (HQIC) method, Schwarz Bayesian information criterion (SBIC) method, and sequential likelihood-ratio (LR) test all chose four lags, as indicated by the "*" in the output. Both the SBIC and the HQIC estimators suggest that there are four co integrating equations in the balanced-growth data. Having determined that there is a co integrating equation among the INFL, MCAP, SHI, MVOL,

BAKCRD, MTURN and EXCH series, the parameters of a bivariate co integrating VECM for these four series by using Vector error-correction model were estimated Table 3. Lags four was used for this bivariate model because the Hannan–Quinn information criterion (HQIC)method, Schwarz Bayesian information criterion (SBIC) method, and sequential likelihood-ratio (LR) test all chose four lags, as indicated by the "*" in the output.

Table3: Selection-Order Criteria

Lag	LL	LR	Df	P	FPE	AIC	HQIC	SBIC
0	-556.233				1.5e+25	74.9645	74.9614	75.2477
1	-465.854	180.76	36	0.000	1.6e+22	67.7139	67.6927	69.6964
2	.	.	36	.	-1.4e-40*	.	.	.
3	2267.94	.	36	.	.	-290.392	-290.437	-286.144
4	2320.81	105.74*	36	0.000	.	-297.441*	-297.487*	-293.193*

Endogenous: INFL, MCAP, SHI, MVOL, BAKCRD, MTURN,EXCH
Exogenous: _cons
Source : Author's computation (2021)

4.1.2 Vector Auto regression

In order to confirm the output result of Selection-order criteria in selecting the appropriate Lag, Vector Auto regression was also tested. Lags four was also chosen for this model because the Hannan–Quinn information criterion (HQIC) method, Schwarz Bayesian information criterion (SBIC) method, and sequential likelihood-ratio (LR) test all confirmed four lags as indicated by in the table 4.

Table 4: Vector Auto regression

Equation	Parms	RMSE	R-sq	chi2	P>chi2
INFL	13	586.566	0.9914	1969.496	0.0000
MCAP	13	383.213	0.9143	234.77	0.0000
SHI	13	273.048	0.8927	141.46	0.0000
MVOL	13	418.947	0.9824	950.3603	0.0000
EXCH	13	2.21029	0.9965	4901.892	0.0000
BAKCRD	13	16.7811	0.9970	5661.722	0.0000
MTURN	13	36.5297	0.9910	1862.083	0.0000
Log likelihood =.	Det (Sigma_ml) = -2.65e-14	AIC = .	HQIC = .	SBIC =.	

Source : Author's computation (2021)

4.1.3   Johansen Tests for Co-integration

Analysis in table 5 produces information about the sample, the trend specification, and the number of lags included in the model. The main table contains a separate row for each possible value of r, the number of co integrating equations. When r = 3, all three variables in this model are stationary. In this study, because the trace statistic at r = 0 of 110.6664 exceeds its critical value of 94.15, the null hypothesis of no co integrating equations are rejected. Similarly, because the trace statistic at r = 1 of 71.4663 exceeds its critical value of 68.52, the null hypothesis that there is one or fewer co integrating equation is also rejected. In the same vein, because the trace statistic at r = 2 of 44.9085*1*5 is less than its critical value of 47.21, the null hypothesis that there is two or fewer co integrating equation cannot be rejected. The trace statistic at r = 3 of 24.6067 is less than its critical value of 29.68, the null hypothesis that there is three or fewer co integrating equation cannot be rejected. The trace statistic at r = 4 of 12.0278 is less than its critical value of 15.41, the null hypothesis that there are four or fewer co integrating equations cannot be rejected. The trace statistics at r = 5 of 4.6435 exceeds its critical value of 3.76, the null hypothesis that there is five or fewer co integrating equation is also rejected. Because Johansen's method for estimating r is to accept as $r^{\wedge}$ the first r for which the null hypothesis is not rejected, we accept r = 2 as our estimate of the number of co integrating equations between these six variables. The "*" by the trace statistic at r = 2 indicates that this is the value of r selected by Johansen's multiple-trace test procedure. The Eigen value shown in the last line of output computes the trace statistic in the preceding line.

Table 5: Johansen Tests for Co-integration

Rank	Eigen Value	Parm	LL	Trace statistic	5% critical value	1% critical	Eigen Value
0	-	6	-638.18078	110.6664	94.15	103.18	-
1	0.88671	17	-618.58075	71.4663	68.52	76.07	0.88671
2	0.77132	26	-605.30183	44.9085*1*5	47.21	54.46	0.77132
3	0.67628	33	-595.15096	24.6067	29.68	35.65	0.67628
4	0.50283	38	-588.86151	12.0278	15.41	20.04	0.50283
5	0.33651	41	-585.16937	4.6435	3.76	6.65	0.33651
6	0.22739	42	-582.8476				0.22739

Source: Author's computation (2021)

4.1.4   Vector Error Correction Model (VECM) Short run Effect

Analysis presented in table 6 **s**hows short run effect of capital market on inflation in Nigeria, it was discovered that MCAP has significant effect on INFL in the short run because of P>chi2 which is 0.000 but less than 0.005 significant level. Also, SHI has significant effect on INFL in the short run at 10% level of significant because of P>chi2 which is 0.055 but less than 0.1. In the same vein, at 10% significant level, both MVOL and EXCH have relevant significance on INFL in the short run (P>chi2 = 0.0916; 0.0819 respectively)**.** BAKCRD and MTURN also impacted INFL positively and significantly in the short run at 5% significant level ((P>chi2 = 0.0000; 0.0289 respectively).

Table 6: Vector Error Correction Model (VECM) Short run Effect

Equation	Parms	RMSE	R sq	chi2	P>chi2
D_ INFL	8	518.897	0.8423	48.05591	0.0000
D_ MCAP	8	510.439	0.7221	46.54371	0.0000
D_ SHI	8	370.246	0.4313	6.825719	0.0505
D_ MVOL	8	652.813	0.6025	13.6429	0.0916
D_ EXCH	8	4.46693	0.6086	13.99634	0.0819
D_ BAKCRD	8	14.041	0.9233	108.3092	0.0000
D_MTURN	8	42.1156	0.6555	17.12309	0.0289
Log likelihood = -291.6162	Det(Sigma_ml) = -3.20e+07	AIC = 40.54308	HQIC = 40.80129	SBIC	= 43.14075

Source: Author's computation (2021)

4.1.4.1 Vector Error Correction Model (VECM) Long run Effect

Analysis in table 7 contained information about the sample, the fit of each equation, and overall model fit statistics. The test contains the estimated parameters of the co integrating vector for this model, along with their standard errors, z statistics, and confidence intervals at long run effect. According to Johansen normalization restriction imposed table, 1% increase in MCAP reduces INFL by 0.27% in the long run; this shows that there is a negative effect of MCAP on INFL. 1% increase in SHI increases INFL by 0.24% in the long run; this shows that there is a positive effect of SHI on INFL. Also, 1% increase in MVOL increases INFL by 0 .96% in the long run; this also shows a positive effect of MVOL on INFL in the long run. In the same vein, 1%increase in EXCH, reduces INFL by -.99% in the long run, this also shows that there is a negative significant effect of EXCH on INFL in the long run. More so, 1% increase in BAKCRD, increases INFL by 6.29% in the long run, this also shows a positive effect of BAKCRD on INFL in the long run. 1% increases in MTURN, reduces INFL by -27.24% in the long run, this shows a negative effect of MTURN on INFL. Coefficient is statistically significant confirmed by

P>|z| which is 0.000. Overall, the output indicates that the model fits well. The coefficient on INFL in the co integrating equation is statistically significant.

Vector Error Correction Model (VECM) Long run Effect
Table 7: Johansen normalization restriction imposed

Beta	Coefficient	Std Error	Z	P>|z|	[95% Conf. Interval]	
_ce1						
INFL	1	.	.	.	.	
MCAP	-27.24198	1.356582	-20.08	0.000	-29.90083	-24.5831
SHI	.2438491	.3826237	0.64	0.524	-.5060796	.9937777
MVOL	.9632854	.1127142	8.55	0.000	-.7423696	1.1842011
EXCH	-.999929	12.34935	-0.08	0.935	-25.20421	23.20435
BAKCRD	6.285831	3.720383	1.69	0.091	-1.005986	13.57765
-CONS	3710.076	.	.	.	.	.

Source : Author's computation (2021)

4.1.5   Causality between Capital Market and Inflation Rate in Nigeria

The results of the five tests for the first equation are shown in the Table8. The first is a Wald test that the coefficients on the four lags of MCAP that appear in the equation for INFL are jointly zero. The null hypothesis that MCAP does not Granger-cause INFL cannot be accepted because Prob> chi^2 is 0.000 which is less than 0.05, therefore MCAP granger-cause INFL   The null hypothesis that SHI does not Granger-cause INFL cannot be accepted because Prob> chi^2 is 0.045 which is less than 0.05, therefore SHI granger-cause INFL. Also, the null hypothesis that the coefficients on the four lags of MVOL in the equation for INFL are jointly zero cannot be accepted because Prob> chi2 is 0.000 which is less than 0.05. So the hypothesis that MVOL does not Granger cause INFL cannot be accepted, therefore MVOL granger-cause INFL. The null hypothesis is that EXCH does not Granger-cause INFL cannot be accepted because Prob> chi2 is 0.000 which is less than 0.05, therefore EXCH granger-cause INFL. More so, the null hypothesis that the coefficients on the four lags of BAKCRD in the equation for INFL are jointly zero cannot be rejected because Prob> chi2 is 0.611 is greater than 0.05. Therefore BAKCRD does not granger-cause INFL. The null hypothesis that the coefficients on the two lags of MTURN in the equation for INFL are jointly zero cannot be accepted because prob>chi2 is 0.000 is less than 0.05, .Therefore MTURN granger-cause INFL .The fifth null hypothesis is that the coefficients on the four lags of all the other endogenous variables are jointly zero. This null hypothesis cannot be accepted in the sense that Prob> chi2 is 0.000 which is less than 0.05, that is MCAP, SHI, MVOL, EXCH, BAKCRD and MTURN jointly do not Granger-cause INFL. Therefore the null hypothesis is rejected, alternative hypothesis is accepted that is there is causality between Capital Market and Inflation Rate in Nigeria.

Table 8: Granger causality Wald tests - Causality between Capital Market and Inflation Rate in Nigeria

Equation	Excluded	chi2	Df	Prob>Chi2	Decision
INFL	MCAP	21.342	2	0.000	MCAP granger-cause INFL
INFL	SHI	6.2148	2	0.045	SHI granger-cause INFL
INFL	MVOL	16.385	2	0.000	MVOL granger-cause INFL
INFL	EXCH	18.031	2	0.000	EXCH granger –cause INFL
INFL	BAKCRD	.98593	2	0.011	BAKCRD granger-cause INFL
INFL	MTURN	19.165	2	0.000	MTURN granger-cause INFL
INFL	ALL	72.233	10	0.000	ALL jointly granger cause INFL
MCAP	INFL	55 465	2	0.000	INFL granger-cause MCAP
MCAP	SHI	17.454	2	0.030	SHI granger-cause MCAP
MCAP	MVOL	33.011	2	0.022	MNOL granger-cause MCAP
MCAP	EXCH	19.224	2	0.027	EXCH granger-cause MCAP
MCAP	BAKCRD	45.768	2	0.001	BAKCRD granger-cause MCAP
MCAP	MTURN	5.6762	2	0.044	MTURN granger-cause MCAP
MCAP	ALL	70.599	10	0.000	ALL jointly granger cause MCAP
SHI	INFL	.86037	2	0.650	INFL granger-cause SHI
SHI	MVOL	1.0797	2	0.583	MVOL granger-cause SHI
SHI	EXCH	14.032	2	0.001	EXCH granger-cause SHI
SHI	BAKCRD	14.127	2	0.001	BAKCRD granger-cause SHI
SHI	MTURN	1.8947	2	0.388	MTURN granger-cause SHI
SHI	ALL	65.117	10	0.000	ALL jointly granger –cause SHI
MVOL	INFL	28.792	2	0.000	INFL granger-cause MVOL
MVOL	SHI	5.3887	2	0.068	SHI granger-causeMVOL
MVOL	EXCH	36.45	2	0.000	EXCH granger-cause MVOL
MVOL	BAKCRD	45.214	2	0.000	BAKCRD granger-cause MVOL
MVOL	MTURN	52.392	2	0.000	MTURN granger-cause MVOL
MVOL	ALL	171.35	10	0.000	ALL jointly granger-cause MVOL
EXCH	INFL	20.129	2	0.000	INFL granger-cause EXCH
EXCH	SHI	37.321	2	0.000	SHI granger-cause EXCH
EXCH	MVOL	10.088	2	0.006	MVOL granger-cause EXCH
EXCH	BAKCRD	78.684	2	0.000	BAKCRD granger- cause EXCH
EXCH	MTURN	.63398	2	0.728	MTURN granger-cause EXCH
EXCH	ALL	292.96	10	0.000	ALL jointly granger-cause EXCH

BAKCRD	INFL	47.741	2	0.000	INFL granger-cause BAKCRD
BAKCRD	SHI	8.7361	2	0.013	SHI granger-cause BAKCRD
BAKCRD	MVOL	3.8788	2	0.144	MVOL granger-cause BAKCRD
BAKCRD	EXCH	10.259	2	0.006	EXCH granger-cause BAKCRD
BAKCRD	MTURN	19.073	2	0.000	MTURN granger-cause BAKCRD
BAKCRD	ALL	97.189	10	0.000	ALL jointly granger-cause BAKCRD
MTURN	INFL	2.5593	2	0.278	INFL granger-cause MTURN
MTURN	SHI	7.0975	2	0.029	SHI granger-cause MTURN
MTURN	MVOL	1.1642	2	0.559	MVOL granger-cause MTURN
MTURN	EXCH	2.5694	2	0.277	EXCH granger-cause MTURN
MTURN	BAKCRD	3.5648	2	0.168	BAKCRD granger-cause MTURN
MTURN	ALL	49.987	10	0.000	ALL jointly granger-cause MTURN

Source : Author's computation (2021)

4.1.5.1 Direction of Causality between Capital Market and Inflation Rate in Nigeria

Table 9 showed the results of the causality analysis among Market capitalization (MCAP), Share index (SHI), Market Volume (MVOL), Exchange rate (EXCH), Bank Credits (BAKCRD), market turnover (MTURN) and Inflation (INFL). The results showed that there was causality between (MCAP) and inflation (INFL). That is there is bi-directional causality between INFL and MCAP. Also, it was showed that there was causality between (SHI) and inflation (INFL). Also, the findings revealed that there was causality from market volume (MVOL) to inflation (INFL) and vice visa. That is market volume granger cause inflation (INFL), and inflation market volume. Furthermore Exchange rate (EXCH) with the Chi-square statistic (18.031) and the probability value (0.000), being statistically significant, granger cause INFL. In the same vein, INFL granger cause EXCH. More so, it was revealed that Bank Credits (BAKCRD) with the Chi-square statistic 0.98593 and the probability value 0.000, being statistically significant, granger cause INFL. Also, INFL granger caused BAKCRD. INFL granger cause market turnover (MTURN) with the Chi-square statistic (19.165) and the probability value (0.000), being statistically significant, granger cause INFL .Also, INFL granger cause MTURN .Therefore the null hypothesis is rejected, alternative hypothesis is accepted, that is there is casualty between non oil taxation and inflation in Nigeria.

Table 9: Direction of Causality between Capital Market and Inflation Rate in Nigeria

Equation	Excluded	chi2	Df	Prob> chi2	Decision
INFL	MCAP	21.342	2	0.000	MCAP granger- cause INFL
MCAP	INFL	55 465	2	0.000	INFL granger- cause MCAP
INFL	SHI	6.2148	2	0.045	SHI granger- cause INFL
SHI	INFL	.86037	2	0.650	INFL granger- cause SHI
INFL	MVOL	16.385	2	0.000	MVOL granger - cause INFL
MVOL	INFL	28.792	2	0.000	INFL granger- cause MVOL
INFL	EXCH	18.031	2	0.000	EXCH granger- cause INFL
EXCH	INFL	20.129	2	0.000	INFL granger- cause EXCH
INFL	BAKCRD	.98593	2	0.611	BAKCRD granger – cause INFL
BAKCRD	INFL	47.741	2	0.000	INFL granger- cause BAKCRD
INFL	MTURN	19.165	2	0.000	MTURN granger-cause INFL
MTURN	INFL	2.5593	2	0.278	INFL granger-cause MTURN

Source : Author's computation (2021)

4.2   Discussion of Findings

Findings from the reveals that that market capitalization, share index, and bank credit have negative significant effects on inflation both in the short and long run. The implication of these results is that market capitalization and share index reduce inflation rate in the circulation. This translated that market capitalization and share index are the effective hedge on inflation in Nigeria. Findings reveal that there is causality between Capital Market and Inflation Rate in Nigeria. More so bank credit exert negative effect of inflation, this is based on low circulation of bank to the populace to fight inflation through effective utilization of bank. This results are in line with opined of scholars like (Maku and Atanda, 2010; Engsted and Tanggared, 2002; Wong and Wu 2003) and negate the outcome of Joyce and Read (2002) that no significant evidence of relationship between inflation and capital market.

5. Conclusion and Recommendation

The study concluded that capital market has negative significant impact on inflation in Nigeria both in the short and long run. There existed granger causality of relationship

between capital market dynamics, banking credit and inflation. It is concluded further that capital market is embedded with an effective instrument to curb inflation in the country. In view of the above findings it is recommended that the capital Market regulatory bodies should introduce and implement policies that will increase the level and size of Market Capitalization in the Nigerian Capital Market as an increase in market capitalization will surely increase fund availability for desired investment which will trigger increasement in productivity of the Nation and serve as an instrument to curb inflation in the country

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