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How Far Do Nigerian Capital and Money Markets Promote Each Other in the Economic Growth Process?

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Abstract
This study evaluates the extent to which the Nigerian Capital and Money Markets support and promote themselves in the growth process. Employing data, which covers the period 1981 to 2015 and sourced from Central Bank of Nigeria's Statistical Bulletin, this study employs Stationarity and Granger Causality techniques. The results provide substantial evidence to confirm the prevalence of substantial bi-directional causality between money and capital market operations in Nigeria. Consequently, the study recommends for more professionalism, disclosure of information as enhanced public enlightenment to ensure the prevalence and superiority of market forces within the Nigerian environment. Further recommended is intensified product development by participating institutions to enhance the level of intermediation in the Nigerian financial markets.
Keywords: Money Market, Capital Market, Causality, Market Forces.

1. INTRODUCTION

The core relevance of financial markets has motivated varied forms of theoretical and empirical studies which focus on their capacity to boost both financial and economic growth of nations. Abushmmala *et al.,* (2015) as well as Demirguc-kunt and Levine (1996) observe that this key relevance as well as attendant potentials of the financial markets combine to secure a priority position for them in the economic scheme of nations. On the whole, while the financial markets can be decomposed into the capital and money markets, the capital market provides the platform for creation and dealings in long-term securities, while the money market on the converse, accommodates such transactions with respect to short tenured financial instruments.

On the other hand, Reddy (2003) asserts that financial markets provide a platform for transmission of price signals to market interested parties. Various scholar have studied the interrelationships that often prevail between the money and capital markets with evidence of significant interplay. Among these studies, those of Smirlock and Yawitz (1985) as well as Elton and Gruber (1988), observe that money market activities, especially interest rates, do often spill into the capital market by influencing stock prices and equity returns. On the other hand, other studies like Jasienė and Paškevičius (2009) equally observe negative and weak correlations between the activities of both markets.

Interestingly, studies including Apergis and Lambrinidis (2011) argue that substantially, Money and Capital market operations could be significantly interrelated because many corporations and financial institutions are active in both markets. The study asserts that this provides market participants with the opportunity and capacity to forecast the future of each of the markets given the trend of activities in the other. The study further observes that this degree of market integration consequently, provides basis for market participants to understand the extent to which both markets are driven by similar economic factors ranging from industrial output, inflation, investment yields, to attendant market risks and pricing.

A study of this interaction between money and capital markets in Nigeria is consequently imperative for the following reasons: (i) the Nigerian Stock Market is one of the biggest and fastest growing stock markets in Africa even before the emergence of world-wide financial meet-down, (ii) Virtually all the quoted companies in Nigeria have substantial need for short term funding of their operations, and (iii) both the public and private sectors of the Nigerian economy rely on the operations of these markets as they remain fundamental for national economic funding and financial stability as noted in Zubair (2013).

Most of the studies cited above concentrated on the signaling and transmission effects of these components of the financial market inclusive of their predictive potentials given the prevailing level of activities in each other. However, these markets provide fundamental funding sources for quoted firms in Nigeria. Further, both the government and quoted firms in Nigeria require funds from these market ends to finance their long term and working capital requirements. Given these facts, there is then a core need for an objective understanding of the extent to which these Nigerian financial market ends do support/promote themselves in the economic growth process in order to ensure both industrial harmony and public funding in Nigeria. The above key issues therefore, constitute the key problem of this study.

This study adds to the growing volume of literature on this subject in Nigeria. It is hoped that the results

will provide financial policy makers in both the private and public sectors with improved opportunity to plan for the funding requirements of their anticipated investment opportunities while also, providing information on the expected financial market reactions to their planned actions. Having introduced the subject as above in this section 1, the rest of this study is presented in the remaining four sections. Section 2 provides the theoretical framework and attendant literature review while section 3 discusses the materials and methods. In section 4, the results are presented while section 5 concludes the study through presentation of the discussions, conclusions and recommendations.

2. THEORETICAL FRAMEWORK AND REVIEW OF PREVIOUS STUDIES:

This study draws its foundation from two fundamental theories. These include the Financial Intermediation Theory and the Efficient Market Hypothesis, subsequently followed by review of previous studies.

2.1 Theoretical Foundations:

2.1.1 Financial Intermediation theory

The financial intermediation theory views the financial markets and operating institutions therein as established formal institutions that function to facilitate efficient fund intermediation at optimal prices desired for rapid economic growth and attendant financial development. The classical studies of Schumpeter (1934), Goldsmith (1969) and Shaw (1976) among others, analyse the varying capacities of financial markets and inherent financial institutions to function in different perspectives. First as hand maid to industry, Schumpeter (1934) perceives financial institutions and markets to be demand following and only follow while enterprise leads. in other studies, Goldsmith (1969) views the financial sector as playing supply leading roles while the studies of Shaw (1976) argues on their capacity to play contemporaneous roles. Of vital dimensions are their postulations on the employment of market determined and flexible real interest rates and other financial market induced measures for the purpose of financial liberalization which accelerates the growth of savings and investments. On the other hand, administrative control of financial market variables would introduce a repressive financial environment and consequent suppression of savings mobilization, investment and economic growth.

2.1.2 Efficient Market Hypotheses:

Whether in the Weak, Semi-strong or Strong forms, efficient market models generally assume that security prices fully reflect all available information. In essence security prices occur randomly and as such, independent of each other (Fama, 1965; 1970). Since all market participants are price takers, no parity has capacity to earn abnormal returns. Under such conditions of market efficiency, all are equally exposed to and conditioned by market forces, which invariably have the overwhelming capacity to transmit market trends as well as spillover effects between functional financial markets inclusive of any resulting signaling and predictive effects. In this sense, Clarke *et al.,* (2001) conclude that following the postulations of Efficient Market Hypotheses, excess or abnormal market returns cannot be consistent. These theories become relevant to the study as they hold factors which prove and also cloud the perceived synchronized development between money and capital Market activities.

2.2 Review of Previous Studies.

Various studies have evaluated the interrelationships between Money and Capital markets operations. Roopali and Kapil (2012), examine the relationship between shares and bonds over the period January, 2005 to December, 2010. Employing correlation technique, the results indicate a significant association between the returns on bonds and stocks.

Kganyago and Gumbo (2015) examine the nature of long run relationship between money market interest rates and stock market returns in Zimbabwe between April 2009 and December 2013. The estimation model controls for money supply growth rate, inflation, volume of manufacturing index, crude oil price and political stability. The results provide strong evidence of the fact that Zimbabwean Stock Market significantly promotes money market operations especially interest rate movements. Apergis and Lambrinidis (2011) explore the interrelationships between the capital market and the real estate market over the period, 1985 to 2006. Co-integration and Error Correction Models were employed: The results show that the capital and real estate markets are highly integrated.

Zubair (2013) examine the nature of long run and causal relationships between the stock market index, money supply and exchange rates in Nigeria using monthly data for the period 2001–2011. The results suggest absence of long-run relationship. However, the Granger-Causality test results show evidence of significant Uni-directional causality running from broad money supply to all-share Index. Jasienė and Paškevičius (2009) evaluate the interrelationship prevailing between money and capital markets over the period of 1994-2008 across various nations such as Japan, Korea, Australia and New Zealand. The results are however mixed.

Berben and Jansen (2005) evaluate the link between Money Market and Stock Market instruments in nine European countries and the US in the period 1980-2003. Employing GARCH estimation technique, stocks and

government treasury market activities were observed to have experienced significant correlated movements. Küçükkocaoğlu *et al.,* (2013) evaluate the response of stock returns to monetary poliy announcements in Turkey. The results indicate that returns on all bank stocks listed on Istanbul Stock Exchange respond significantly to movements in monetary policy announcements.

Keray (2009) study the nature of long run relationship between stock prices and monetary policy variables in Jamaica. Using Vector Error Correction Model and Johansen Cointegration tests, the study found a significant long run relationship between Stock prices and monetary policy variables. Nasrin and Syed (2011) estimate the relationship between Macroeconomic Variables and Stock Prices in Bangladash for the period 2003-2011. The study employs Granger Causality test to evaluate the nature of causal relationships among the variables and cointegration test to detect the nature of long run relationship. Their findings reveal that there exists a long run relationship among the study variables and also, that money supply Granger- Causes stock prices as well as other macroeconomic variables employed in the study.

Davidson and Froyen (1982) analyze the interrelationships that prevail between money market policies and capital market returns, over the period 1954 to 1977. Employing secondary monthly data and five mean deviation model, the results show that stock markets are efficient. Further, they confirm that from week to week, the capital market seems to quickly utilize the most recent information on monetary aggregates which spilled over from the money market.

Similarly, Kuwornu (2012) employs the Vector Error Correction technique and finds that in the long-run, stock returns are positively affected by inflation, exchange rate and treasury bill rates, but negatively by crude oil prices. Similarly, the studies of Kyereboah-Coleman and Agyire-Tettey (2008) show that lending rates from deposit money banks have a negative effect on stock returns in Ghana. Clare and Thomas (1994) investigate the effects of macroeconomic factors on stock returns in the United Kingdom. The results show that oil prices, retail price index, banking lending rate and corporate default risk are important factors that explain stock returns.

Ologunde and Ibiwoye (2006) examine the interrelationships between stock market capitalization rate and interest rate in Nigeria. The study employ multiple regression technique. The results show that the prevailing interest rate exerts positive influence on stock market capitalization. Further, government development loan stock rate tends to exert negative influence on stock market capitalization.

3. MATERIALS AND METHODS

For a clear presentation, this section is divided into the following subsections:

3.1 Data and Employed Variables Description:

This study employs aggregated values of annualized money market instruments which in Nigeria, include the following; treasury bills (TBILL), treasury certificates (TCEF), certificates of deposit (CODP), commercial papers (CMPP), bankers' acceptance (BKAC) and Bank credit to private sector (BCPS). Also, the aggregated values of capital market instruments include those of Development Loan stocks/shares (DLS), Bonds (BNDS) and Equities (EQUT). The data were sourced from the Statistical Bulletin of Central Bank of Nigeria over the period 1981-2015, as shown in table 1 below:

Table 1. Treasury Bills (TBILL), Treasury Certificates (TCEF), Certificates of Deposit (CODP), Commercial Papers (CMPP), Bankers' Acceptance (BKAC), Bank Credit to the Private Sector (BCPS), Development Loan Stocks (DLS), Bonds (BNDS) and Equities (EQUT), Aggregated Money Market instruments (AMMI) and Aggregated Capital Market Instruments (ACMI) in Nigeria over the period of 1981 to 2015 (N'b.).

Year	TBILL ۞	TCEF ۞	CODP ۞	CMPP ۞	BKAC ۞	BCPS ۞	(AMMI)	DLS	BNDS	EQUT	(ACMI)
1981	5.8	2.3	0.2	0.1	0.0	8.6	**16.9**	3.1	0.0	1.9	**5.0**
1982	9.8	1.7	0.3	0.1	0.0	10.7	**22.6**	3.0	1.0	1.0	**5.0**
1983	13.5	4.9	0.4	0.2	0.0	11.7	**30.6**	3.5	0.0	2.2	**5.7**
1984	15.5	6.4	0.3	0.2	0.0	12.5	**34.8**	2.9	0.2	2.4	**5.5**
1985	17.0	6.7	0.2	0.1	0.0	13.1	**37.1**	3.5	0.4	2.7	**6.6**
1986	17.0	6.7	0.3	0.3	0.0	15.2	**39.4**	2.7	0.4	3.7	**6.8**
1987	25.2	6.7	1.3	0.5	0.0	21.1	**54.8**	4.2	0.0	4.0	**8.2**
1988	35.5	6.8	1.9	0.7	0.1	27.3	**72.3**	4.5	0.4	5.1	**10.0**
1989	24.1	6.9	1.2	0.6	0.1	30.4	**63.4**	4.2	0.6	8.0	**12.8**
1990	25.5	34.2	1.9	0.8	0.1	33.5	**96.1**	3.4	0.8	12.1	**16.3**
1991	56.7	34.2	1.1	0.8	0.2	41.4	**134.4**	3.3	1.4	18.4	**23.1**
1992	103.3	35.2	0.5	1.6	0.1	58.1	**198.9**	3.2	1.8	26.2	**31.2**
1993	103.3	36.6	0.1	3.4	1.9	127.1	**272.3**	3.6	2.1	41.8	**47.5**
1994	103.3	37.3	0.0	5.3	4.7	143.4	**294.0**	3.2	2.1	61.0	**66.3**
1995	103.3	23.6	0.0	10.0	8.1	180.0	**325.1**	3.2	2.1	175.1	**180.4**
1996	103.3	0.0	0.1	8.0	12.2	238.6	**362.3**	3.0	3.0	279.8	**285.8**
1997	221.8	0.0	0.0	13.4	11.7	316.2	**563.1**	2.8	2.8	276.3	**281.9**
1998	221.8	0.0	0.0	7.3	17.5	352.0	**598.5**	2.7	3.1	256.8	**262.6**
1999	361.8	0.0	0.0	20.5	12.0	431.2	**825.4**	2.4	3.1	294.5	**300.0**
2000	465.5	0.0	0.0	19.0	31.8	530.4	**1046.7**	2.1	4.1	466.1	**472.3**
2001	584.5	0.0	0.0	35.3	30.8	765.0	**1415.6**	8.3	5.8	648.4	**662.5**
2002	733.8	0.0	0.0	37.0	32.2	930.5	**1733.4**	12.7	3.5	748.7	**764.9**
2003	825.1	0.0	0.0	47.6	33.9	1096.5	**2003.1**	25.2	8.4	1325.7	**1359.3**
2004	871.6	0.0	0.0	80.1	24.0	1421.7	**2397.4**	178.1	7.9	1926.5	**2112.5**
2005	854.8	0.0	0.0	194.6	41.1	1838.4	**2928.9**	365.5	9.8	2523.5	**2898.8**
2006	701.4	0.0	0.0	193.5	45.7	2290.6	**3231.3**	903.0	3.5	4227.1	**5133.6**
2007	574.9	0.0	2.5	363.4	81.8	3680.1	**4702.7**	2976.6	17.0	10180.3	**13173.9**
2008	471.9	39.7	0.0	822.7	66.4	6941.4	**8342.1**	2559.0	16.4	6957.5	**9532.8**
2009	797.5	0.0	50.5	509.1	62.2	9147.4	**10566.7**	2030.8	10.1	4989.4	**7030.2**
2010	1277.1	0.0	0.0	189.2	79.2	10157.0	**11702.5**	1939.3	56.4	7913.8	**9909.4**
2011	1727.9	0.0	0.0	203.0	73.4	10660.1	**12664.4**	2400.5	1341.3	6532.6	**10274.3**
2012	2122.9	0.0	34.0	1.1	9.9	14649.3	**16817.1**	4425.0	1400.4	8974.4	**14799.9**
2013	2581.6	0.0	20.5	9.3	20.5	15751.8	**18383.7**	4456.9	1394.0	13226.0	**19076.9**
2014	2815.5	0.0	35.5	10.5	31.2	17129.7	**20022.4**	5248.0	145.0	11477.7	**16870.6**
2015	2772.9	0.0	51.5	6.7	16.1	18674.1	**21521.4**	6942.9	205.9	9850.6	**16999.4**

Source: Central Bank of Nigeria, Statistical Bulletin, (2015).
Note: - ۞- Money Market Instruments
-Capital market Instruments

3.2. Specification of Analytical Tools and Tests.

This study is basically driven by the need to ascertain empirically the extent to which the operations of Nigeria's money and capital markets support and promote the operations of each other in the economic growth process.

First executed is the augmented Dickey-Fuller (ADF) test which seeks to ascertain the stationarity of the employed time-series data before proceeding to the second stage which seeks to verify the extent to which the money and capital market do promote and/or support themselves in the growth process. On the whole, confirmation of stationarity of employed time-series data is a basic prerequisite if spurious estimates must be avoided (Maddala, 2007).

Granger Causality Analysis

Following the studies of Maddala (2007), the PairWise-Granger Causality test serves to determine the extent to which movements in a given time series can explain variations in a paired variable and also, whether inclusion of their lagged values can improve the explanation and vice versa.

Brooks (2009) and Maddala (2007) accordingly provide the following generalized expressions for causality analysis as shown in equations (1) and (2) below;

$$\gamma t = \beta 0 + \sum_{i=k}^{n} \beta i \gamma t - i + \sum_{i=k}^{n} \beta \mu \, Xt - i + \mu t \qquad (1)$$

$$Xt = \alpha 0 + \sum_{i=k}^{n} \alpha i \gamma t - i + \sum_{i=k}^{n} \alpha i \, \gamma t - i + Vt \qquad (2)$$

where, Yt and Xt represent the series being examined. Vt and Ut are their idiosyncratic errors, while the maximum lag allowed is 2.

4. PRESENTATION OF RESULTS

This section is presented under the following sub-headings:

4.1 Presentation of Stationarity (Unit Root) Test Results:

The results of the stationarity tests for all the study variables are presented in table 2 below:

Table 2: Presentation of Stationarity Test Results:

Differenced Variable	ADF Test statistic	Mackinnon's Critical Values at 1%, 5% & 10%			Order of Integration	Prob.
		1%	5%	10%		
D(AMMI)	- 3.093670	-2.660720	-1.955020	-1.609070	I(1)	0.0009
D(ACMI)	-5.428761	-2.636901	-1.951332	-1.610747	I(1)	0.0000

Source: Extracts from E-view 9

Where: D(AMMI) and D(ACMI) represent differenced variants of aggregated money market instruments (AMMI) and aggregate capital market instruments (ACMI) in Nigeria over the study period.

The results in table 2 above show that the absolute values of the ADF test statistics for each of the aggregated study variables is higher than all the corresponding Mckinnon's critical values at 1%, 5% and 10% respectively. Accordingly, they are all stationary at first difference. As such, they are said to be integrated of order I(1).

4.2 Graphical Representation of Variables

Below is the graphical representation of the aggregated money and capital market funds over the study period.

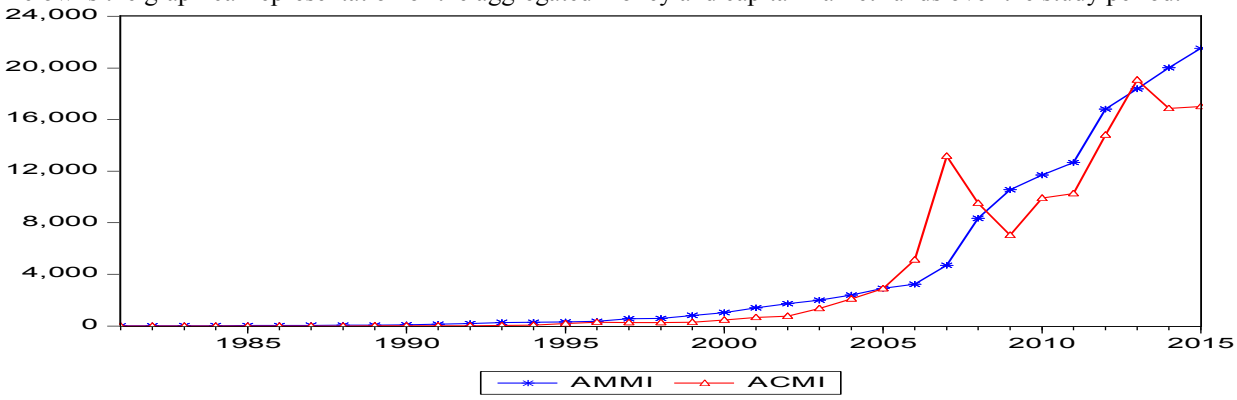

Figure 1: Graphical Output of Aggregated Money and Capital Market instruments: 1981 to 2015
Source: Extracts from E-view 9

Figure 1 above shows that Money and Capital Market activities have periodically displayed same patterns. The similarities start with their slow growth which is largely seen from 1981 to 1995. Increased money and capital market activities are observed after 1995. By 2005, the tempo of capital market activities overtook those of the market. The capital market-however, witnessed a significant drop by 2008 signifying the beginning of financial meltdown in Nigeria. It dropped below money market, however, the two moved up slowly together until 2013 when the capital market trend shows a significant drop from even the slow growth trend portrayed by money market activities.

4.3 Presentation of Granger Causality Test Results:

The results of the Pair-Wise Granger Causality tests are presented in table 3 below:

Table 3. Granger Causality Test Results:

Pairwise Granger Causality Tests
Date: 02/10/17 Time: 11:47
Sample: 1981 2015
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
D(ACMI) does not Granger Cause D(AMMI)	33	8.35191	0.0014
D(AMMI) does not Granger Cause D(ACMI)		4.49367	0.0203

Source: Extracts from E-view 9

The results of Pair-wise Granger Causality shown in Table 3 above confirm the prevalence of a significant bi-directional causal relationship between money and capital market operations in Nigeria. They therefore, provide a compelling evidence to assert that the two major components of the Nigerian financial market re-inforce each other's operations in Nigeria's economic growth process.

5. DISCUSSIONS, CONCLUSIONS AND POLICY RECOMMENDATIONS:

The results of this study provide significant evidence to assert that the two major components of the Nigerian financial market do not significantly function in a disharmonious manner. They provide sufficient basis for significant information effects which could be utilized for valuable investment and policy decisions. The results further provide evidence of the level of maturity of the Nigerian financial market irrespective of the fact that it is still an emerging market. The results support the findings of Berben and Jansen (2005) for even capital markets in Europe and US.

In view of the above, it is concluded that the Nigerian capital and money markets, significantly, promote, support and reinforce the operations of each other in a harmonious manner. Consequently, it is recommended that:

(i) Disclosure of more information and transparency on the part of all market participants should be encouraged; (ii) The Nigerian Securities and Exchange Commission in collaboration with the Nigerian Stock Exchange should increase their tempo of public enlightenment on available investment opportunities in both the capital and money markets. And (iii) Extensive product development should be encouraged by the participating money and capital market institutions in the Nigeria in order to enhance greater intermediation in the financial market.

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