Dynamism of Monetary Transmission Mechanism in Nigeria: Interest Rate and Market Capitalization Causality Evidence

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Abstract

The potency of monetary transmission channels anchors the process by which interest rate movements and other cardinal aggregates influence critical financial fundamentals in an economy. This study, thus, examines dynamism of the monetary transmission mechanism with focus on the causality of interest rate and market capitalization in the Nigerian economy. Time series data covering a period of 36 years (1981 - 2015) were extracted from publications of monetary authorities and related agencies, including annual reports of Deposit Money Banks (DMBs) in the country. Facilitated by E-Views software, the analytical proceedings generated the required statistical outcomes in terms of coefficient of correlation (r), coefficient of determination (R2), t-statistic, and F-statistic. Granger causality test was also conducted to clearly establish the direction of causality between the focal variables. Essentially, the null hypothesis is rejected as probability of the F-statistic is less than the specified 0.05 level of significance. The granger causality test statistics run from four interest rate components to the operational capital market fundamental (with F-statistics of 5.758, 5.540, 4.209,and5.656; as well as probability values of 0.008, 0.009, 0.002, and 0.009 respectively). In view of the analytical outcomes, it is recommended that interest rate components be efficiently synergized to boost investors' confidence and further drive monetary policy dynamics towards greater financial system vitality and sustainability in Nigeria.

Keywords: Interest Rate, Market Capitalization, Monetary Transmission, Nigerian Economy.

1. Introduction

Capital market activities greatly contribute towards the socio-economic growth and development of national economies. The intermediation role of mobilizing funds from surplus units to deficit units is critical to the economic growth of nations (Donwa & Odia, 2010). In the process, several financial institutions interface to mobilize and channel long-term funds for productive investment. By so doing, funds are exchanged for assets traded by stockholders, which in turn grant access to a variety of other financial instruments to enable economic agents feature more actively in the financial system. Through investment in assets with attractive yields, savings are boosted, thus galvanizing the machinery of economic growth and ultimately affording government, industries, and other corporate bodies the much needed long-term capital for financing new projects, as well as for the expansion/modernization of strategic industrial concerns. Against the imperativeness of capital market

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functionality and overall financial sector vitality, government is poised to sustainoptimum performance of these critical institutions.

Basically, the Nigerian capital market has primary and secondary market constituencies. In the primary market segment, new securities are featured to afford government and corporate entities the window to raise fresh capital and meaningfully trade in securities. Thesecondary market segment, on the other hand, provides complementary window for sellers and buyers to deal on existing (issued) securities. This, by extension, defines efficacy and efficiency of a functional financial primary market. Anchoring on the dynamism of the market framework, the monetary transmission mechanism represents a systemic process by which critical elements such as aggregate demand, interest rate, exchange rate and credit are creatively channelled to generate desired macroeconomic performance (Benassy, 2011; Agundu, 2012).

Many schools of thought have offered explanations to the behaviour of monetary policy variables in relation to capital market fundamentals. The *fundamental school* argue that stock prices have relationship with future earnings expectation, giving due consideration to future discount rate. The *technical school* contends that current stock prices have linear relationship with preceding prices. These positions basically affirmthat stock prices are sensitive to the dynamics of macroeconomic variables as well as dividend policy of a firm. Furthermore, scholars who are associated with the Capital Assets Pricing Model (CAPM) and Arbitrage Pricing Model (APM), agree that stock prices are functionally determined by risk and market rate of return (Kevin, 2009; Ogbulu & Torbira, 2012). In the light of these dispositions, this study addresses dynamism of the monetary transmission mechanism with focus on the relationship between interest rate and market capitalization in the Nigerian economy.In line with this purpose, the following research hypothesis is elicited:

Ho. There is no significant relationship between interest rate and market capitalization in the Nigerian economy.

2. Literature Review

The dynamism of monetary transmission mechanism reflects in the sensitivity of consumption and investment to the exigencies of inter-temporal substitution. Basically, the elasticity of aggregate demand to interest rate equally determines the extent to which the encapsulated (component) channels would influence critical macroeconomic fundamentals. Hypothetically, financial intermediation is not underscored by analysts as they elect to (conveniently) work on the assumption of an economy without banks, where borrowers and lenders rather exchange their resources directly. However, the interest rate channel finds expression to the extent that a shift in real interest rate impacts economic aggregates, especially consumption, investment, output level, and prices. Again, increase in interest rate exerts substitution effect which discourages investment and consumption, and subsequently creates wealth effect, depending on the borrowing or lending capacity of economic institutions (Ohale & Onyema, 2002). Decline in interest ratesalso feature as a factor that stirs future inflation. Where contractionary monetary policy offsets such inflationary trend, long-term rates end up increasing relative to anticipated increase in the future policy rate.

Wherea rise in interest rate is caused by monetary contraction, any investment or consumption tendency whose risk-adjusted expected returnis lower than the financing cost to be relegated or discarded. In the circumstance, inefficiency is strictly not allowed to exist in the afore-mentioned contracting investment or consumption deals. This implies that resources necessarily have to be efficiently employed at the prevailing interest rate (Cechetti, 1999). Nonetheless, the investment decisions of a firm/householdare viewed by analysts in terms of the Tobin's q, which is determined as ratio of market value of a firmto the replacement cost of capital (Tobin, 1969). Consequently, when the q is high, market price of firms is also high relative to the replacement cost of capital; while new plant and equipment capital becomes cheap relative to market value of firms. Firms then issue stock and attract high price for the issued stock relative to the cost of equipment and other facilities being

procured. As a result, investment spending increases relative to the tendency of firms to procure new investment goods with minimal issue of stock.

In principle, this reasoning addresses household investment decisions, as the *Tobin'sq*theory is connected with the user cost of capital approach. Characteristically, the analysis underscores a link between the *q-theory* and the user-cost approach, which allows for convenient functionalization and emphasis on higher degree of richnessin the relationship between stock prices and investment spending (Hayashi, 1982). From the *classical* view point, the traditional channel of monetary transmission mechanism addresses the impact of interest rates on cost of capital, thereby impacting business/household investment spending (particularly on residential and consumer durables). The standard neoclassical models of investment further demonstrate that user cost of capital is a key determinant of the demand for capital, be it investment goods or residential housing/consumer durables, and this could be functionally expressed in terms of critical variables such as:

- Relative price of new capital,
- Nominal interest rate,
- Expected rate of price appreciation of the capital asset, and
- Depreciation rate.

The user cost function, thus, allows for deductibility of the interest rate where the nominal interest rate is adjusted by the marginal tax rate. By this, the user cost of capital is relatively simplified in terms of after-tax real interest rate and expected real rate of appreciation of the capital asset, given the expected inflation rate. In essence, easing monetary policy and lowering interest rates is expected to cause increase in demand for stocks and, consequently, rise in stock prices. It eventually leads to increase in investment spending and aggregate demand, although macroeconomic response to policy-induced interest rate changes may be considerably larger than the magnitude indicated by conventional estimates of interest elasticity of consumption and investment (Bernanke & Gertler, 1995). The focus of this study, therefore, is on the relationship between the interest rate and market capitalization in the Nigerian economy.

3. Methodology

In furtherance of the study, secondary data were sourced from publications of Central Bank of Nigeria (CBN), Nigerian Stock Exchange (NSE), National Bureau of Statistics (NBS), and Federal Ministry of Finance (FMF), including financial statement information from listed Deposit Money Banks (DMBs) in Nigeria. The dependent variable is denoted by ratio of Market Capitalization to Broad Money Supply (MC/M2), while Interest Rate, the independent variable, comprises Prime Lending Rate (PLR), Monetary Policy Rate (MPR), Savings Rate (SR), Maximum Lending Rate (MLR), and Long-term Savings Rate(LSR).

By adoptinganex-post facto research design, there was no room for direct control of the focal variables, as the macroeconomic/financial time series have already been recorded by the relevant authorities/agencies. The apparatus, thus, involved scientific and analytical examination of the dependent variable, combining theoretical consideration (a priori criterion) with real time evaluation. Essentially, the study relied on the historical time seriesdata undertake initial investigation of characteristic properties of the variables. Subsequently, examination of possible long-run relationship between the interest rate and market capitalization was logically effected (Akani, 2013; 2017). The data for the study cover a period of 36 years (1981 - 2015), while the inferential outcomes are featured in terms of coefficient of correlation (r), coefficient of determination (R²), t-statistic, andF-statistic.

The analytical model specification in the study elicitedthe adoption of Ordinary Least Square (OLS) and Granger Causalityanalytical techniques. Also, Vector Error Correction Mechanism (VECM) employed to address shortcomings of Vector Auto Regression (VAR) and retain the convergence-fostering attributes of the model

(Gujarati, 2003; Ogbulu & Uruakpa, 2011; Akani, Okonkwo & Ibenta, 2016). Accordingly, the model captures and mainstreams the study variablesthus:

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\begin{array}{lll} MC/M2 & = & f\left(PLR,MPR,SR,MLR,LSR\right) & \dots & (Equation \ 1) \\ MC/M2 & = & \beta_0 + \beta_1 PLR + \beta_2 MPR + \beta_3 SR + \beta_4 MLR + \beta_5 LSR + e \ \dots & (Equation \ 2) \\ Where: & e & = & Error \ term \\ & & \beta_0 = & Regression \ intercept \\ & & \beta_1 - \beta_5 & = & Independent \ variables \ coefficients \end{array}
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Since unit root exists in most macroeconomic time series, inherent stationarity properties of the research data are examined using the Augmented Dickey Fuller (ADF) test. By this approach, the null hypothesis is rejected if obtained t-statistic is less than critical t-statistic; otherwise, it refrains from rejecting the null hypothesis at the specified level of confidence. The Johansen's co-integration test is conducted to ascertain the existence of long-run equilibrium among the time series variables, particularly if the residual is stationary at the specified level. Where the variables are co-integrated, then a long-run relationship exists among them (Dickey & Fuller, 1981; Johansen, 1991).

The presence of co-integrating relationship forms basis of use of the Vector Error Correction Model. With the aid of E-views software, the analysis takes into consideration the critical values and empirical perspectives underscored by leading proponents of the afore-stated techniques, including Vector Auto-regression (VAR) - based co-integration. For analytical comprehensiveness, Granger causality test is conducted to clearly establish the direction of causality between the variablesspecified in the model (Engel &Granger, 1987). To thisend, the null hypothesis is rejected if probability of the F-statistic is less than the specified level of significance (0.05). In this study, therefore, the analytical outcome is expected to substantiate the direction of causality between interest rate components and marketcapitalization.

4. Results

The analytical results comprise outcomes of regression, unit root, co-integration/normalized co-integration, and Granger causality tests. Vector Error Correction results determining the long-run relationship between the variables are also featured, with the operationalized OLS outcomes indicating the dynamism of interest rate components of the monetary transmission mechanism in relation to the capital market performance proxy. The overall fit of the model is established with an F-statistic of 4.218 (p-value = 0.005) while the Durbin-Watson (D-W) statistic of 1.23 situates outside the critical range (dL – dU) of 1.50 - 1.84 respectively. In view of the dependence of the research data on time, results of unit root test using the Augmented Dickey Fuller (ADF) approach are featured, indicating that the variables are integrated of order 1(1). This revelation is indicative thata long-run relationship exists between the research variables, which further corroborate the outcome of Johansen's co-integration test.

The Johansen co-integration test results visibly justify acceptance of the alternative hypothesis, that the linear serialization of the variables are stationary in the long run. They affirm the existence of long-run relationship between the interest rate components and market capitalization. The normalized co-integration test results equally establish existence of long-run relationship among the variables. Concerning the pair-wise test of causality between the dependent variable and the independent variable, the results indicate uni-directional causality at 5% level of significance. The Vector Error Correction Model (VECM) results indicate R^2 of 61% and adjusted R^2 is 59%. This ultimately exemplifies a good fit, alongside the parsimonious error correction results. Categorically, the *granger causality* test statistics run from:

- LSR to MC/M2, with F-statistic of 5.758 and p-value of 0.008;
- MLR to MC/M2, with F-statistic of 5.540 and p-value of 0.009;

- PLR to MC/M2, with F-statistic of 4.209 and p-value of 0.002, and
- SR to MC/M2, with F-statistic of 5.656 and p-value of 0.009.

The baseline time series andensuing analytical statistics are detailed in Tables 1 to 9:

Table 1: Time Series Data for Analysis

| Year | MC/M2 % | PLR % | MPR % | SR % | MLR % | LSR % |
|------|---------|-------|-------|-------|-------|-------|
| 1981 | 34.55 | 7.75 | 6.00 | 6.00 | 10.00 | 6.50 |
| 1982 | 31.67 | 10.25 | 8.00 | 7.50 | 11.75 | 8.00 |
| 1983 | 32.23 | 10.00 | 8.00 | 7.50 | 11.50 | 8.00 |
| 1984 | 27.36 | 12.50 | 10.00 | 9.50 | 13.00 | 10.00 |
| 1985 | 29.60 | 9.25 | 10.00 | 9.50 | 11.75 | 10.00 |
| 1986 | 28.56 | 10.50 | 10.00 | 9.50 | 12.00 | 10.00 |
| 1987 | 29.74 | 17.50 | 12.75 | 14.00 | 19.20 | 15.80 |
| 1988 | 26.07 | 16.50 | 12.75 | 14.50 | 17.60 | 14.30 |
| 1989 | 27.88 | 26.80 | 18.50 | 16.40 | 24.60 | 21.20 |
| 1990 | 30.84 | 25.50 | 18.50 | 18.80 | 27.70 | 23.00 |
| 1991 | 30.64 | 20.01 | 15.50 | 14.29 | 20.80 | 20.10 |
| 1992 | 28.08 | 29.80 | 17.50 | 16.10 | 31.20 | 20.50 |
| 1993 | 28.73 | 18.32 | 26.00 | 16.66 | 36.09 | 28.02 |
| 1994 | 28.79 | 21.00 | 13.50 | 13.50 | 21.00 | 15.00 |
| 1995 | 62.40 | 20.18 | 13.50 | 12.61 | 20.79 | 14.27 |
| 1996 | 82.64 | 19.74 | 13.50 | 11.69 | 20.86 | 13.55 |
| 1997 | 68.21 | 13.54 | 13.50 | 4.80 | 23.32 | 7.43 |
| 1998 | 53.80 | 18.29 | 13.50 | 5.49 | 21.34 | 10.09 |
| 1999 | 47.70 | 21.32 | 18.00 | 5.33 | 27.19 | 14.30 |
| 2000 | 53.76 | 17.98 | 14.00 | 5.29 | 21.55 | 10.44 |
| 2001 | 52.19 | 18.29 | 20.50 | 5.49 | 21.34 | 10.09 |
| 2002 | 50.79 | 24.85 | 16.50 | 4.15 | 30.19 | 15.57 |
| 2003 | 69.60 | 20.71 | 15.00 | 4.11 | 22.88 | 11.88 |
| 2004 | 99.09 | 19.18 | 15.00 | 4.19 | 20.82 | 12.21 |
| 2005 | 109.94 | 17.95 | 13.00 | 3.83 | 19.49 | 8.68 |
| 2006 | 134.83 | 17.26 | 10.00 | 3.14 | 18.70 | 8.26 |
| 2007 | 257.08 | 16.94 | 9.50 | 3.55 | 18.36 | 9.49 |
| 2008 | 119.41 | 15.14 | 9.75 | 2.84 | 18.70 | 11.95 |
| 2009 | 74.71 | 18.99 | 6.00 | 2.68 | 22.62 | 12.63 |
| 2010 | 89.88 | 17.59 | 6.25 | 2.21 | 22.51 | 7.19 |
| 2011 | 84.41 | 16.02 | 12.00 | 1.41 | 22.42 | 6.30 |
| 2012 | 106.52 | 16.79 | 12.00 | 1.70 | 23.79 | 7.63 |
| 2013 | 125.84 | 16.72 | 12.00 | 2.17 | 24.69 | 6.72 |
| 2014 | 95.45 | 16.55 | 13.00 | 3.38 | 10.00 | 9.89 |
| 2015 | 89.96 | 16.85 | 11.00 | 3.57 | 26.96 | 8.26 |

Source: Financial Publications of CBN, NBS, FMF & DMBs (Various years).

Table 2: Ordinary Least Square (OLS) Statistical Details

| VARIABLE | COEFFICIENT | STD ERR. | T-STATISTICS | PROB. |
|---------------------|-------------|----------|--------------|--------|
| LSR | 1.569015 | 3.448946 | 0.454926 | 0.6525 |
| MLR | -0.275657 | 1.997400 | -0.138008 | 0.8912 |
| MPR | -1.967750 | 2.585367 | -0.761111 | 0.4527 |
| PLR | 2.515877 | 2.270794 | 1.107928 | 0.2770 |
| SR | -6.749467 | 2.639834 | -2.556777 | 0.0161 |
| β_0 | 86.30675 | 27.31523 | 3.159656 | 0.0037 |
| \mathbb{R}^2 | 0.421061 | | | |
| ADJ. R ² | 0.321243 | | | |
| F-STATISTICS | 4.218319 | | | |
| F-PROB | 0.005286 | | | |
| Durbin-Watson stat | 1.230796 | | | |

Source: E-views AnalyticalOutput (2017)

Table 3: Unit Root Statistical Details

| VARIABLE ADF | | MA | CKINNON | PROB | ORDER OF | |
|--------------|------------|-----------|----------|-------------|----------|-------|
| | STATISTICS | 1% | 5% | 10% | • | INTR. |
| | | | | | | |
| MC/M2 | -7.710413 | -3.661661 | -2.96041 | -2.619160 | 0.0000 | 1(1) |
| | | | 1 | | | |
| LSR | -9.907440 | -3.661661 | -2.96041 | -2.619160 | | 1(1) |
| | | | 1 | | 0.0000 | |
| MLR | -6.594827 | -3.653730 | -2.95711 | -2.617434 | 0.0000 | 1(1) |
| | | | 0 | | | |
| MPR | -7.981873 | -3.646342 | -2.95402 | -2.615817 | 0.0000 | 1(1) |
| | | | 1 | | | |
| PLR | -5.711991 | -3.653730 | -2.95711 | -2.617434 | 0.0000 | 1(1) |
| | | | 0 | | | |
| SR | -5.923445 | -3.646342 | -2.95402 | -2.615817 | | 1(1) |
| | | | 1 | | 0.0000 | |

Source: E-views AnalyticalOutput (2017)

Table 4: Johansen Co-Integration (Maximum Eigen) Statistical Details

| Hypothesized | Eigen Value | Maximum-Eigen | 0.05 Critical | Prob.** | Decision |
|--------------|-------------|---------------|---------------|---------|-----------------------|
| No. of CE(s) | | | Value | | |
| None * | 0.769540 | 48.43333 | 40.07757 | 0.0046 | Reject H ₀ |
| At most 1 | 0.628354 | 32.66384 | 29.87687 | 0.0092 | Reject H ₀ |
| At most 2 | 0.475008 | 31.26430 | 27.58434 | 0.0406 | Reject H ₀ |
| At most 3 | 0.228945 | 28.57984 | 21.13162 | 0.0048 | Reject H ₀ |
| At most 4 | 0.208898 | 7.732834 | 14.26460 | 0.4065 | Reject H ₀ |
| At most 5 | 0.087682 | 3.028286 | 3.841466 | 0.0818 | Accept H ₀ |

| None * | 0.750483 | 45.81157 | 40.07757 | 0.0102 | Reject H ₀ |
|-----------|----------|----------|----------|--------|-----------------------|
| At most 1 | 0.580551 | 38.67080 | 33.87687 | 0.0043 | Reject H ₀ |

NB: The test assumes linear deterministic trend in the data series comprising LSR, MLR, MPR, PLR, SR, and MC/M2

Source: E-views AnalyticalOutput (2017)

Table 5: Normalized Co-integrating Analytical Results

| Coefficient | Std. Error | | Remark (Expectation) |
|-------------|--|--|--|
| 1.000000 | | | |
| 16.99819 | 3. | .85552 | Confirmed |
| -11.77181 | 2. | .28873 | Contrary |
| 12.71421 | 2. | .24945 | Confirmed |
| -7.566577 | 2. | .50337 | Contrary |
| 8.535571 | 2. | .80487 | Confirmed |
| | 1.000000 16.99819 -11.77181 12.71421 -7.566577 | 1.000000 16.99819 3 -11.77181 2 12.71421 2 -7.566577 2 | 1.000000 16.99819 3.85552 -11.77181 2.28873 12.71421 2.24945 -7.566577 2.50337 |

Source: E-views AnalyticalOutput (2017)

Table 6: Pair-Wise Granger Causality Test Results

| Null Hypothesis: | Obsv | F-Statistic | Prob. | Decisio | Remark |
|----------------------------------|------|-------------|--------|-----------------------|----------------|
| | | | | n | |
| LSR does not Granger Cause MC_M2 | 33 | 5.75796 | 0.0080 | Reject H ₀ | Causality |
| MC_M2 does not Granger Cause LSR | | 0.40023 | 0.6739 | Accept H ₀ | No Significant |
| | | | | | Causality |
| MLR does not Granger Cause MC_M2 | 33 | 5.53959 | 0.0089 | Reject H ₀ | Causality |
| MC_M2 does not Granger Cause MLR | | 0.76391 | 0.4753 | Accept H ₀ | No Significant |
| | | | | | Causality |
| MPR does not Granger Cause MC_M2 | 33 | 0.95765 | 0.3960 | Accept H ₀ | No Significant |
| | | | | | Causality |
| MC_M2 does not Granger Cause MPR | | 2.74178 | 0.0818 | Accept H ₀ | No Significant |
| | | | | | Causality |
| PLR does not Granger Cause MC_M2 | 33 | 4.20940 | 0.0023 | Reject H ₀ | Causality |
| MC_M2 does not Granger Cause PLR | | 1.23246 | 0.3069 | Accept H ₀ | No Significant |
| | | | | | Causality |
| SR does not Granger Cause MC_M2 | 33 | 5.65603 | 0.0090 | Reject H ₀ | Causality |
| MC_M2 does not Granger Cause SR | | 1.24658 | 0.3030 | Accept H ₀ | No Significant |
| | | | | | Causality |

Source: E-views AnalyticalOutput (2017)

^{*(**)} Denotes rejection of the hypothesis at 5%.

Table 7: Over-Parameterized Analytical Results

| VARIABLE | COEFFICIENT | STD ERR. | T-STATISTICS | PROB. |
|---------------------|-------------|----------|--------------|--------|
| С | 3.705379 | 8.348647 | 0.443830 | 0.6658 |
| D(MC_M2(-1)) | 0.296947 | 0.404806 | 0.733553 | 0.4786 |
| D(LSR(-1)) | -5.770891 | 4.802849 | -1.201556 | 0.2548 |
| D(MLR(-1)) | 2.533071 | 2.666899 | 0.949819 | 0.3626 |
| D(MPR(-1)) | -5.847021 | 4.806143 | -1.216573 | 0.2492 |
| D(PLR(-1)) | -1.250728 | 4.898301 | -0.255339 | 0.8032 |
| D(SR(-1)) | 11.47860 | 7.139423 | 1.607777 | 0.1362 |
| ECM(-1) | -1.092006 | 0.448192 | -2.436466 | 0.0630 |
| \mathbb{R}^2 | 0.608955 | | | |
| ADJ. R ² | 0.566486 | | | |
| F-STATISTICS | 3.901566 | | | |
| F-PROB | 0.054452 | | | |
| Durbin-Watson | 2.104219 | | | |

Source: E-views AnalyticalOutput (2017)

Table 8: Parsimonious Error Correction Results

| VARIABLE | COEFFICIENT | STD ERR. | T-STATISTICS | PROB. |
|---------------------|-------------|----------|--------------|---------|
| С | 4.977777 | 6.609843 | 0.753086 | 0.4606 |
| D(MC_M2(-1)) | 0.109992 | 0.257258 | 0.427556 | 0.6738 |
| D(LSR(-1)) | 1.155015 | 2.958291 | 0.390433 | 0.7006 |
| D(MLR(-1)) | 0.535722 | 1.723301 | 0.310870 | 0.0593 |
| D(MPR(-1)) | -3.552114 | 2.954150 | -1.202415 | 0.0040* |
| D(PLR(-1)) | 2.762367 | 2.161138 | 1.278200 | 0.0066* |
| D(SR(-1)) | 5.459298 | 5.166434 | 1.056686 | 0.3039 |
| ECM(-1) | -0.708108 | 0.291797 | -2.426715 | 0.0054 |
| \mathbb{R}^2 | 0.723373 | | | |
| ADJ. R ² | 0.689537 | | | |
| F-STATISTICS | 4.268205 | | | |
| F-PROB | 0.000738 | | | |
| Durbin-Watson | 2.173426 | | | |

Source: E-views AnalyticalOutput (2017)

Table 9: Hypothesis Test Results

| | Hypothesized | F-Statistic | Probability | Decision | Remark |
|----------|---|-------------|-------------|----------|-----------------------|
| H_{01} | Interest Rate and Market Capitalization | 4.268205 | 0.000734 | Sig. | Reject H ₀ |

Source: E-views AnalyticalOutput (2017)

These analytical results comprehensively establish that there is a significant relationship between interest rate and market capitalization in the Nigerian economy.

4. Discussion

Precipitating from the analytical process, there is long-run equilibrium in the relationship between interest rate and market capitalization in the Nigeria economy. Essentially, the analytical components of the interest rate channel *granger cause* changes in market capitalization. Their causality is uni-directional as the run (interface) of eligible independent variable components and the dependent variable is buttressed by the *granger causality* test. This disapproves of the tendency of banks to set high interest rates, while seeking to earn maximum interest income. They face the challenge of having to consider the realities of adverse selection challenges and associated moral hazards in view of the apparent difficulty in forecasting borrower types at the start of the bank facilitating relationship. Those who dare to charge very high interest rates may end up inducing adverse selection problems where high-risk borrowers are willing to accept the facilities at the high rates. Once the deal is struck and borrowers get the disbursements, they take on high-risk projects/investments (Ezirim & Emeyonu, 1998; Toby, 2006; Agundu, Akani & Agbahiwe, 2013).

Nonetheless, the Keynesian liquidity preference theory holds sway in the analysis of interest rate. This prevails by interplay of the forces of demand for and supply of money. The *stock* analysis assumes supply of money as given during the short-run, hence interest rate is determined by liquidity preference or demand for money. On the other hand, the *flow analysis* relates to loanable funds, of which interest rate is expected to be determined by the demand for and supply of loanable funds. In all this, interest rate is linked to savings (bank money) on the supply side hence the liquidity preference theory (driven by Keynesianism) and the interest rate theory (advanced from classicalism) remain crucial in analysing the dynamism of monetary transmission mechanism relative to market capitalization. As the parsimonious vector error correction results analytically established a significant relationship between interest rate and market capitalization, the high adjusted R² (0.689) implies that the model attributes 69% of variations in the percentage of market capitalization to broad money supply to the components of interest rate (PLR, MPR, SR, MLR, and LSR). The vector error correction model features a negative value (-0.708), indicating that 71% of the deviation from long run equilibrium in the inverse relationship between interest rate and market capitalization is corrected as the analytical aggregates evolve annually.

The error correction term (from the vector error correction model) indicates theextent to which disequilibriumin the relationship is corrected in the course of time. The parsimonious error correction results (evolving from general to specific) are also indicative of good fit with enhanced R² of 72%, and adjusted R² of 69%. Thus, with the analytical proceeds of model, monetary transmission mechanismaccounts for 69% of variations in capital market fundamentals. The D-W statistic of 2.17 (and p-values of 0.0013, 0.0593, 0.0040, and 0.0066 for LSR, MLR, MPR, and SR respectively) indicate absence of autocorrelation, hence they are stationary in the long-run. Their coefficients are statistically significant at the 5% level. Ultimately, it is established that interest rate is significantly related with market capitalization in the Nigerian economy.

6. Conclusion

This study examined the dynamism of monetary transmission mechanism with focus on interest rate and market capitalization in the Nigerian economy. The dependent variable, market capitalization, was denoted by the ratio of total naira market value of outstanding sharesto broad money supply. The independent variable, interest rate, featured five analytical components. First is the prime lending rate, which commercial banks charge their most credit-worthy customers. Second is the maximum lending rate, the highest at which commercial banks lend to critical sectors of the economy, as determined by market forces. Third is the monetary policy rate, at which the CBN lends to banks under temporary liquidity squeeze. This usually go a long way in determining the rate banks adopt for on-lending of funds to businesses in the country. Fourth is the short-term savings rate, applied on deposits with maturity of not more than one year. Fifth is the long-term savings rate, applied on deposits with

maturity above one year as reported by the monetary authorities.

The coefficients of components of the independent variable are positive except for long-term saving rate, maximum lending rate and monetary policy rate. Furthermore, their t-statistics are negative, except monetary policy rate, maximum lending rate, and prime lending rate whose probability valuesare significant. These monetary variables, in particular, are functionally identified with the performance of the capital market in Nigeria. Added to them are several factors which contribute in defining the dynamism of monetary transmission mechanism. They range from direct, user-cost channels to the horizon over which interest rate influences spending. As capital assets are of long-term nature, adjustment of stocks involves planning, procurement, and installation costs. To this end, businesses and households are expected to take a long view in factoring variation in interest rates into their investment decisions.

In the light of the analytical outcomes, thisstudy particularly establishes that there is long-run equilibrium in the relationship between interest rate components. Maximum lending rate, saving rate, prime lending rate, and long-term saving rate have a significant relationship with market capitalization. The parsimonious error correctionoutcome affirms high equilibrating capacity in the explanatory variables as they evolveannually. Maximum lending rate, saving rate, prime lendingrate, and long-term saving rate granger cause changes in market capitalization (with uni-directional causality specificity). It is, therefore, recommended that interest rate components be efficiently managed to enhance investors' confidence, check capital flight, and strategically drive monetary policy dynamics towards greater systemic soundness in Nigeria. This will attract domestic/foreign investors on a sustainable basis, boostcapital market liquidity, and make for deeper dynamism of the monetary transmission mechanism in the Nigerian economy.

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