IMPACT OF INTEREST RATE ON PORTFOLIO MANAGEMENT IN NIGERIA

ABSTRACT

This study carried out an investigation on the impact of interest rate on portfolio management in Nigeria. Specifically the study analyzed the impact of interest rate on both long term and short term portfolio investment in Nigeria using secondary data sourced from Central bank of Nigeria statistics bulletin and National bureau of statistics for the periods covering 1985 to 2014. Employing techniques of co-integration and error correction model analysis the study discovered that on the long run interest rate specifically prime lending rate significantly influence portfolio management both on long and short term basis and that total savings reflects significant positive impact on the portfolio investment both on long and short term basis. Hence the study recommended that monetary authorities should ensure that the nexus between interest rate and portfolio management is taken into consideration in the process of policy simulations.

Keywords: Interest Rate, Investment, Portfolio Investment, Portfolio Management

1. Introduction

Investment as the sacrifice of current consumption in order to enjoy higher level of future consumption can be viewed from two fundamental purviews: real investment purview and financial investment purview (Reilly and Brown, 2012). According to Myles (2003) real investment is the purchase/acquisition of physical capital such as land and machineries employed in production process, while financial investment is the purchase of paper security such as stocks and bonds. As explained by Reilly and Brown (2012) financial investment is the current commitment of fund for a period of time in order to derive future payments that will compensate the investor for the time the fund was committed, the expected rate of inflation, and the uncertainty of the future payments.

Portfolio investment is a financial type of investments in bonds, stocks, and securities with focus other than gaining lasting management control of the issuing entity. Portfolio investment requires analysis of risk-reward trade off, because to get higher returns on investment, an investor must be prepared to take on a higher level of risk. Therefore for optimality of portfolio investment there is need for objective management (Moreno-Vozmediano, Nadiminti, Venugopal, Alonso-Conde, Gibbins, & Buyya, 2007). One of the major advances in the investment field during the past few decades has been the recognition that the creation of an optimum investment portfolio is not simply a matter of combining a lot of unique...
securities that have desirable risk-return characteristics, as there is need for an investor to consider the relationship among the investments to build an optimum portfolio that will meet investment objectives.

Portfolio management is a strategic structure covering portfolio objectives and diversification outlines (Falana 1991). According to Balogun (2013) portfolio objectives majorly centers on maximization of wealth and minimization of loss which, In his explanation investment diversification requires that asset be analyzed from internal, external and policy purviews. He pointed out that analysis of the investment from the internal purview entails dynamic analysis of the firm of interest in order to verify its possibilities of generating future cash flow that can guarantee the expected or optimal investment return. He further explained that external analysis compares other firm’s performance to the performance of the firm of interest, while policy analysis focused on the likely effect of government policies on the firms operation. This argument brings policies variables to the center of discussion of portfolio management.

In practice the value and structure of portfolio is influenced by policy measures which determines the quantity, price and value of money. Notably the impact of interest rate on portfolio management cannot be overemphasized. Interest rate as a policy variable undoubtedly influence the price and value of securities held (CDIAC, 2008). Changes in interest rate will ultimately engender changes in the prices of securities both in the money and capital markets, as such there will be adjustment in the mix of portfolio by investors in the bit to hedge the interest rate risk. The nexus between policy variable such as interest rate and portfolio management had attracted great deal of research focus all over time. Macdonald and Moore (2014) emphasized the positioning of bond portfolio for rising interest rate in the United States of America. They pointed out that sensitivity of securities to interest rate movement differs substantially based on duration, credit quality, and type of security e.t.c, noting that corporate bonds (both investment-grade and high-yield) floating-rate notes, emerging-market debt, shorter-term issues, and certain types of structured securities may provide greater protection from losses during periods of rising interest rate. In such environments, spreads between Treasury yields and yields on lower-rated, higher-yielding securities tend to narrow largely because improving economic conditions typically lead to lower expected default rates for non-Treasury products, making them a potentially better relative value with a more favorable risk/reward tradeoff than Treasuries.
Morgan (2015) established that interest rates are major drivers of bond prices, given the fact that rise in interest rates will bring about a fall in the value of bond and bond fund and vice versa. He established that bond prices are not immune to rising interest rate. Hence portfolio management in volatile interest rate environment requires diversification to ensure maximum yield, diversified sources of return and reduced exposure to interest rate volatility. Premise on this background this study set out to analyze the impact of interest rate on portfolio management in Nigeria with an aggregated focus.

1.2 Statement of Problem

Portfolio management requires that consideration be given to the risk-return scenario of portfolio mix, which often time makes investors to prefer risk-free government bond to other forms of securities available both at the money market and capital market. In Nigeria over the years it was observed that the share of government bond in the domestic portfolio investment had increased significantly. Specifically in 2004 total government bond stood at #72.6 billion (6.92%) of the total value of money market instrument outstanding (CBN 2014). Since then the share of government bond continue to rise. Statistics revealed that in 2005 government bond was 18.68%. In 2006 it rose to about 40.62% and continue rising with reported percentage share of 53.69% in 2007, 50.77% in 2008, 58.18% in 2009, 65.24% in 2010, 63.56% in 2011, 65.30% in 2012, 61.60% in 2013 respectively (CBN 2014). During these periods it was observed that the weighted deposit rate trended downward from 11.69% in 1996 to 3.83% in 2005, 2.82% in 2008, 1.41% in 2011, 1.70% in 2012 (CBN, 2014). Given the trend of the share of government bond in the aggregate portfolio investment in the country and the corresponding interest rate movement it become a matter of interest for researchers to investigate portfolio management in the country. However an overview of extant literatures on portfolio management reveals the dearth of empirical investigation into the nexus between portfolio management and interest rate. Hence this study conducted an aggregated analysis of the impact of interest rate on portfolio management in Nigeria.

1.3 Objectives of the Study
The broad objective of the study is to analyze the impact of interest rate on portfolio management in Nigeria. While specific objective of the study is to examine the impact of interest rate on long term portfolio investment in Nigeria

2.0 LITERATURE REVIEW

2.1 Conceptual review

2.1.1 Concept of Portfolio Management

Portfolio investment has been conceptualized to mean investment in financial assets such as shares, stocks, debt instruments, mutual fund e.t.c with varying risk and returns (Myles, 2003; Levišauskait, 2010). According to Reilly and Brown, (2012), investors in pursuance of optimal investment portfolio unavoidably become risk averse selecting assets with the lowest risk in the list of options open to them. Portfolio investment is hinged on the framework of risk-return trade-off, as higher return on investment is accompanied by higher level of risk (Moreno-Vozmediano, 2007). According to Myles (2003) risk inherent in holding a security is a measure of the size of the variability or uncertainty of its return which often time is influenced by maturity, priority, liquidity and underlying activities. It therefore stands that the management of the risk-return trade-off of a set of portfolio towards optimality is what is refer to as portfolio management. Portfolio management entails managing combination of investment between short-term portfolio investment such as treasury bills, commercial papers, bankers acceptance, negotiable certificate of deposit e.t.c and long term investment assets such as debt securities, bonds, preferred stock, common stock with consideration to the risk and return involved (Levišauskait, 2010). Portfolio management involves three main activities namely: selection of security, construction of all feasible portfolios with the help of the selected securities and taking decision on the weight/proportions of the different securities in the portfolio to ensure optimality (ICAI, 2010)

2.1.2 Concept of interest rate

Interest has been a subject of fierce controversy from very early times. In ancient times, interest was likened to usury and people were enjoined from accepting it on ethical and religious grounds. Interest rate is the price paid for inducing those with money to save it rather than spend it, and to invest in long-term assets rather than hold cash. Interest rates reflect the interaction between the supply of savings and the demand for capital; or between the demand for and the
supply of money. Rates of interest can be expressed as a percentage payable (a .coupon.), usually per annum; or as the present .discounted. Value of a sum payable at some future date (the date of .maturity). According to John Maynard Keynes interest rates were generally set in the market for loans. The interest rate was determined by the level of reward they demanded for tying up their money in bonds or other assets rather than keeping it in cash (Patterson and Lygnerud, 1999)

2.2 Empirical Review

Balogun (2013) examined portfolio management an appraisal of insurance industry’s investment profile under interest rate deregulation in Nigeria between 1985 and 2007. The study focused on life assurance on the basis that they have relatively stable idle fund at hand. Specifically the study examined the direction that investment moves in a deregulation interest rate regime on government securities in comparison with others. The study made use of deceptive and trend analysis from the result of the analyses it was discovered that the presence of flexible interest rate do channel investment and that a compulsory laws will only lead to disincentives as investors are interested in ventures with high yield.

Ekeocha (2008) conducted an investigation of modeling the long run determinants of foreign portfolio investment in an emerging market. Evidence from Nigeria the study models the long run determinant of foreign portfolio investment over the period of 1986-2006 using variable like market capitalization, sovereign risk premium, real exchange rate, level of financial openness and trade openness. Employing time series techniques of analyses including cointegration and error correction model (ECM) estimation. The study discovered foreign portfolio. Investment in the capital market, real interest rate and investment in the capital market, that foreign portfolio is negatively related to real exchange rate, market capitalization, trade openness and institutional quality in Nigeria.

Magali (2014) analyzed effectiveness of loan portfolio management in rural SACCOS: evidence from Tanzania. The study made use of 496 loans from ABC rural SACCOS located in the northern zone of Tanzania to describe the effectiveness of loans portfolio management. The data analysis was done by quantitative methods. Data for the study was collected at the end of may 2013, the findings revealed that women constituted 52% of the loan portfolio, that loans were aged into 4 classes and the loans aging was not very effective because loan of different ages were classified in a single class. The regression result also revealed that the quality of loan
portfolios was positively influenced by the loan size while the influence of gender and location of the borrowers were not significant and finally the study revealed that fluctuation of the price of agricultural produce threatened the quality of loan portfolio. Hence it was recommended that ABC rural SACCOS should seek the effective insurance services, use the effective software for loan portfolio management, search the market for agriculture produce and write off non-repaid loans.

Akingunola, Adekunle and Ojodu (2012) analyzed the impact of interest rate on capital market growth in Nigeria, shedding light on how other macroeconomic variables such as inflation rate, exchange rate also influence capital market growth. The study employed multiple regression analysis to determine the impact of interest rate and other macroeconomic variables, while pooled data regression method was used to estimate the specified model equation. The findings of the study revealed that interest rate have an adverse effect on capital market growth. The study recommended that interest rate must be properly put to check and that this must be done in relation to appropriate monetary policies to ensure macroeconomic stability.

Macdonald and Moore (2014) examined positioning bond portfolios for rising interest rate. They identified four factors to consider in designing an effective fixed income strategy including the prospect of rising interest rate. In their analysis it was emphasized that to hedge against rising interest rate considerations must be given to diversification active portfolio management through flexibility. Hence they concluded that the prospect of higher interest rate is real and that investors who are inclined to reduce their overall fixed income allocation because of interest rate concerns should do so judiciously, positioning their remaining exposure with an emphasis on diversification, active management and a long term perspective.

2.3 Theoretical Reviews
In an attempt to form theoretical underpinning for the study prominent theories on the discourse of portfolio management and interest rate were reviewed below:

2.3.1 Theories of Portfolio Management

 Traditional theory
Traditional portfolio management approach, analyze the investor, definition of portfolio objectives, investment strategy, diversification and selection of individual investment. Investor’s
study include an insight into his age, health, responsibility, other assets portfolio need, need for
income capital maintenance, liquidity, attitude towards risk and taxation.

- **Markowitz modern portfolio theory**

  This theory was originally developed by Henry Markowitz in the early 1950’s. The theory
  provides a logical framework in which investors can optimize their risk and return. The central
  plank of the theory is that diversification through portfolio formation can reduce risk and that
  return is a function of expected risk. According to Markowitz (1952) investors are mainly
  concerned with two properties of assets: risk and return. This theory stressed that the risk of an
  asset hardly matters to an investor, rather what really matter is the contribution to the investors
  overall risk.

2.3.2 Theories of Interest Rate

- **Classical theory**

  According to the classical theory interest rate is the factor that equilibrate the demand for
  investment and the supply of savings. The classical interest rate theory which was developed
  under the assumption of full employment of labour and capital is a flow analysis in which both
  investment and saving are flow variables directing attention to a period of time rather than to a
  point of time. However the classical theory of interest rate was severely criticized by Keynes to
  be incomplete as it considers only the real as distinct from the monetary and only the flow as
  distinct from the stock, (Vaish, 2002; Ahuja, 2009)

- **Neoclassical theory**

  The neoclassical theory of interest rate (loanable fund theory) developed among others by
  Knut Wicksell and Denis Holme Robertson states that long run equilibrium rate of interest is
determined at the point of intersection of the demand curve and supply curve of loanable funds.
According to this theory supply of loanable fund consist of the current savings, dishoarding of
the existing cash balances and newly created money, while demand for loanable fund consist of
borrowing for investment, hoarding to accumulate cash balances and reduction in the money
supply by the banking system (Vaish, 2002; Ahuja, 2009)

- **Liquidity preference theory**
Liquidity preference theory propounded by Keynes states that the rate of interest is the price which equilibrates the desire to hold wealth in the form of cash with the available quantity of cash. In his opinion the rate of interest is purely a monetary phenomena and its determination has nothing to do with savings and investment (Vaish, 2002; Ahuja 2009)

**3.0 METHODOLOGY**

**3.1 Model specification**

This study analyzed two single equation models which recognize Long Term Portfolio Investment (LTPI) and Short Term Portfolio Investment (STPI) as dependent variables, while independent variables include Prime Lending Rate (PLR), Savings Rate (SAVR), and Total Savings (TSAV). The long term portfolio investment is measured in terms Transactions in the Nigerian Stock Exchange including government bond, industrial loan, second tier securities, and Equities, while short term portfolio investment is measure in terms of value of money market instrument outstanding including treasury bills, treasury certificates, development stocks, certificate of deposits, commercial papers, as well as banker’s acceptance. Thus the models of the study are specified below:

**Functional specification**

\[ LTPI = f(PLR,SAVR,TSAV,U) \] \--------------------------- Model 1

\[ STPI = f(PLR,SAVR,TSAV,U) \] \--------------------------- Model 2

**Linear specification**

\[ LTPI = \alpha_0 + \alpha_1 PLR + \alpha_2 SAVR + \alpha_3 TSAV + U \] \------------------------Model 1

\[ STPI = \alpha_0 + \alpha_1 PLR + \alpha_2 SAVR + \alpha_3 TSAV + U \] \------------------------Model 2

**3.2 Sources of Data and Methods of Estimation**

Data used in the study were sourced from the central bank of Nigeria (CBN) and National Bureau of statistics (NBS). Data collated covers a period of 30 years spanning from 1085 to 2014. The study employed techniques of co-integration and error correction model (ECM) after carried out correlation and stationary test on the data collated to ascertain the direction of relationship between the series, and the order of integration. The intention behind the use of co-
integration and error correction model is to tack both long run and short run nexus between interest rate and portfolio management.

4.0 EMPIRICAL RESULTS AND DISCUSSION

4.1 Correlation Matrix

<table>
<thead>
<tr>
<th></th>
<th>LTPI</th>
<th>STPI</th>
<th>PLR</th>
<th>SAVR</th>
<th>TSAV</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTPI</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STPI</td>
<td>0.8352669</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLR</td>
<td>-0.26086227</td>
<td>-0.23732284</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAVR</td>
<td>-0.57058041</td>
<td>-0.64313948</td>
<td>0.41735569</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>TSAV</td>
<td>0.82476843</td>
<td>0.98717899</td>
<td>-0.23677023</td>
<td>-0.59349278</td>
<td>1</td>
</tr>
</tbody>
</table>

**SOURCE:** Author’s Computation, (2016)

Table 4.1 presents the correlation coefficients between pairs of variables used in the study. Notable the tables revealed that there is positive correlation between long term portfolio investment and short term portfolio investment as well as total savings, while it negatively correlate with prime lending rate, and savings rate. The table also reveals that short term portfolio investment negatively correlation with prime lending rate and saving rate but positively correlate with total savings. As reported in table 4.1 also prime lending rate correlate positively with savings rate but negatively with total savings, as saving rate also correlation negatively with total savings. from the table it can observed the correlation coefficients are strong for pairs of variables such as LTPI and SLPT, LTPI and TSAV, STPI and TSAV, mild for pairs of variables such as LTPI and SAVR, STPI and SAVR, SAVR and TSAV, and PLR and SAVR while the table the correlation between pairs such as LTPI and PLR, STPI and PLR, PLR and TSAV remain weak.

4.2 Unit Root Test

Table 4.2 Augmented Dickey Fuller Unit Root Test of all Variables (1985-2014)

<table>
<thead>
<tr>
<th>Variables</th>
<th>ADF stat</th>
<th>1% critical value</th>
<th>5% critical value</th>
<th>Order of integration</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTPI</td>
<td>-4.671635</td>
<td>-3.689194</td>
<td>-2.971853</td>
<td>I(1)</td>
<td>Stationary</td>
</tr>
<tr>
<td>STPI</td>
<td>-4.414130</td>
<td>-3.724070</td>
<td>-2.986225</td>
<td>I(1)</td>
<td>Stationary</td>
</tr>
<tr>
<td>PLR</td>
<td>-5.082314</td>
<td>-3.699871</td>
<td>-2.976263</td>
<td>I(1)</td>
<td>Stationary</td>
</tr>
<tr>
<td>SAVR</td>
<td>-4.734855</td>
<td>-3.689194</td>
<td>-2.971853</td>
<td>I(1)</td>
<td>Stationary</td>
</tr>
<tr>
<td>TSAV</td>
<td>-4.176929</td>
<td>-3.689194</td>
<td>-2.971853</td>
<td>I(1)</td>
<td>Stationary</td>
</tr>
</tbody>
</table>

Note: * (***) denotes significance at 1%(5%) significant levels respectively
Table 4.2 reports the unit root test results of the series used in the study. Notably table 4.2 reveals that all the series include in the models of the study are non-stationary series that only become stationary after first differencing. Hence the table shows that variables used in the models are integrated of order one i.e. I(1) which connotes that they retain external shock only for a short period of time.

**4.3 Co-integration Results**

This section presents the result of the co-integration test conducted in the study to ascertain if there is presence of long run relationship amidst the variables despite the presence of unit root. The test is conducted to test the null hypothesis of no co-integrating equation in the two models specified. The study made of Johansen co-integration test given the fact that all the variables are integrated of the first order.

**Table 4.3a Co-integration Result (Model 1)**

<table>
<thead>
<tr>
<th>Series: LTPI PLR SAVR TSAV</th>
<th>Eigen Value</th>
<th>Trace statistics</th>
<th>5 Percent Critical Value</th>
<th>Probability</th>
<th>Hypothesized No of CE(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.618946</td>
<td>56.27150</td>
<td>54.07904</td>
<td>0.0314</td>
<td>None *</td>
<td></td>
</tr>
<tr>
<td>0.407861</td>
<td>29.25671</td>
<td>35.19275</td>
<td>0.1896</td>
<td>At most 1</td>
<td></td>
</tr>
<tr>
<td>0.360364</td>
<td>14.58432</td>
<td>20.26184</td>
<td>0.2512</td>
<td>At most 2</td>
<td></td>
</tr>
<tr>
<td>0.071340</td>
<td>2.072351</td>
<td>9.164546</td>
<td>0.7633</td>
<td>At most 3</td>
<td></td>
</tr>
</tbody>
</table>

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level

**Source: Author’s computation 2016**

The normalized long run equation is thus estimated as:

<table>
<thead>
<tr>
<th>LNLLTPi</th>
<th>LNLPLR</th>
<th>LNLSAVR</th>
<th>LNTSAV</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.000000</td>
<td>-18.07233</td>
<td>-2.244511</td>
<td>-3.527368</td>
<td>73.38365</td>
</tr>
<tr>
<td>(6.29970)</td>
<td>(4.70612)</td>
<td>(1.69094)</td>
<td>(15.1616)</td>
<td></td>
</tr>
</tbody>
</table>
Table 4.3b Co-integration Result (Model 2)

<table>
<thead>
<tr>
<th>Series</th>
<th>STPI</th>
<th>PLR</th>
<th>SAVR</th>
<th>TSAV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eigen Value</td>
<td>Trace statistics</td>
<td>5 Percent Critical Value</td>
<td>Probability</td>
<td>Hypothesized No of CE(s)</td>
</tr>
<tr>
<td>0.695786</td>
<td>33.32067</td>
<td>28.58808</td>
<td>0.0114</td>
<td>None *</td>
</tr>
<tr>
<td>0.447199</td>
<td>16.59718</td>
<td>22.29962</td>
<td>0.2579</td>
<td>At most 1</td>
</tr>
<tr>
<td>0.333813</td>
<td>11.37318</td>
<td>15.89210</td>
<td>0.2254</td>
<td>At most 2</td>
</tr>
<tr>
<td>0.194802</td>
<td>6.066662</td>
<td>9.164546</td>
<td>0.1856</td>
<td>At most 3</td>
</tr>
</tbody>
</table>

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level

Source: Author’s computation (2016)

The normalized long run equation is thus estimated as:

<table>
<thead>
<tr>
<th>LNSTPI</th>
<th>LNPLR</th>
<th>LNSAVR</th>
<th>LNTSAV</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.000000</td>
<td>-1.316541</td>
<td>0.139286</td>
<td>-0.815884</td>
<td>2.515910</td>
</tr>
<tr>
<td>(0.26299)</td>
<td>(0.20706)</td>
<td>(0.07440)</td>
<td>(0.60082)</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.3a&b report results of co-integration test conducted in the study for the two models respectively, alongside the normalized long run equation. Notably co-integration results reported in table 4.3a&b reveals rejection of the null hypothesis of no co-integrating equation in favour of one co-integrating equation for the two models respectively. However the normalized long run estimation revealed that prime lending rate, savings rate and total savings negatively influence long term portfolio investment on the long run while as against the negative impact of prime lending rate, and total savings, saving rate exerts positive influence on short term portfolio investment on the long run. Notably the standard error test of significance reveals that only prime lending rate exerts significant influence on both long term portfolio investment and short term portfolio investment respectively. It thus implies that on the long run (when the effect of shocks is been neutralized by the passage of time) increase in prime lending rate will significantly culminate into increased long term portfolio investment and short term portfolio investment in Nigeria.

4.4 Error Correction Model (ECM) Results

This section present the parsimonious error correction models for models 1 & 2, which was derived using general to specific approach to streamline the over-parameterized estimations for the two models respectively. The result reported the speed of adjustment as represented by the coefficient of a period lagged residual series ECM(-1) made for the two models of the study.
Table 4.4a Parsimonious (ECM) Model 1

Series: \textit{LTPI PLR SAVR TSAV} \\

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std Error</th>
<th>t-statistics</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>-28177.19</td>
<td>53468.22</td>
<td>-0.526989</td>
<td>0.6040</td>
</tr>
<tr>
<td>D(LTPI(-1))</td>
<td>1.150757</td>
<td>0.210593</td>
<td>5.464361</td>
<td>0.0000</td>
</tr>
<tr>
<td>D(LTPI(-2))</td>
<td>-0.277476</td>
<td>0.228702</td>
<td>-1.213267</td>
<td>0.2392</td>
</tr>
<tr>
<td>D(PLR)</td>
<td>-11660.75</td>
<td>9858.295</td>
<td>-1.182836</td>
<td>0.2507</td>
</tr>
<tr>
<td>D(SAVR)</td>
<td>11242.49</td>
<td>23937.36</td>
<td>0.469663</td>
<td>0.6437</td>
</tr>
<tr>
<td>D(TSAV(-1))</td>
<td>1119.319</td>
<td>95.30528</td>
<td>11.74456</td>
<td>0.0000</td>
</tr>
<tr>
<td>ECM(-1)</td>
<td>-0.970309</td>
<td>0.268552</td>
<td>-3.613115</td>
<td>0.0017</td>
</tr>
</tbody>
</table>

R-Squared=0.906553
Adjusted R-Square=0.878518
Durbin Watson stat=1.966695
F-statistics=32.33736
Prob(f-statistics)= 0.000000

Table 4.4b Parsimonious (ECM) Model 2

Series: \textit{STPI PLR SAVR TSAV} \\

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std Error</th>
<th>t-statistics</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>80.72217</td>
<td>51.28024</td>
<td>1.574138</td>
<td>0.1339</td>
</tr>
<tr>
<td>D(STPI(-1))</td>
<td>0.931370</td>
<td>0.295569</td>
<td>3.151107</td>
<td>0.0058</td>
</tr>
<tr>
<td>D(STPI(-2))</td>
<td>2.006067</td>
<td>0.287278</td>
<td>6.983013</td>
<td>0.0000</td>
</tr>
<tr>
<td>D(STPI(-3))</td>
<td>2.968273</td>
<td>0.334402</td>
<td>8.876363</td>
<td>0.0000</td>
</tr>
<tr>
<td>D(PLR)</td>
<td>-10.13620</td>
<td>9.296732</td>
<td>-1.090297</td>
<td>0.2908</td>
</tr>
<tr>
<td>D(SAVR(-1))</td>
<td>-29.66936</td>
<td>22.68671</td>
<td>-1.307786</td>
<td>0.2084</td>
</tr>
<tr>
<td>D(TSAV)</td>
<td>0.344758</td>
<td>0.084013</td>
<td>4.103608</td>
<td>0.0007</td>
</tr>
<tr>
<td>D(TSAV(-2))</td>
<td>0.693679</td>
<td>0.208725</td>
<td>3.323408</td>
<td>0.0040</td>
</tr>
<tr>
<td>ECM(-1)</td>
<td>-0.496524</td>
<td>0.232290</td>
<td>-2.137519</td>
<td>0.0474</td>
</tr>
</tbody>
</table>

R-Squared=0.955320
Adjusted R-Square=0.933117
Durbin Watson stat=1.410601
F-statistics=451.8915
Prob(f-statistics)= 0.000000

The result of parsimonious error correction model presented in table 4.4a&b for model 1 and 2 above reveals that there existed pronounced feed-back of the previous period disequilibrium, from the long-run trend. Specifically, the results indicated feed-back of about 97% and 50% for models 1 and 2 respectively, which connotes that about 97% and 50% of the short run inconsistencies for the models 1 and 2 are corrected annually and incorporated into the long run dynamics. Notably Table 4.4a&b revealed that on the short run prime lending rate exerts negative impact on both long term portfolio investment and short term portfolio
investment though such impact is not significant. Savings rate exerts positive impact on long
term portfolio investment but negatively influence short term portfolio investment on the short
run without any evidence of significance. However from the parsimonious result it was revealed
that on the short total saving positively influence long term portfolio investment as well as short
term portfolio investment, notably the table revealed that on the short run the influence of total
saving on portfolio both long term and short term tends to be significant.

Table 4.4a&b reported an R-square values of 0.906553 and 0.955320 for models one and
two thus suggesting that about 91% and 96% of the systematic variation in long term portfolio
investment and Short term portfolio investment respectively can be explained by variation in
prime lending rate, savings rate and total savings in the economy. Reported in table 4.4a&b are
respectively f-statistics values of 32.33736 and 451.8915 and corresponding probability values of
0.0000, hence confirming the goodness of fit of the two models respectively. While the reported
Durbin-Watson statistics of 1.966695 and 1.410601 suggest that there is no auto-correlation
between successive values of error term of model 1 while that of model 2 is inconclusive.

5.0 Conclusion and Recommendations

From the analyses conducted in the study it becomes obvious that on the long run interest
rates specifically prime lending rate significantly influence portfolio management on the
aggregate in Nigeria, with declining prime lending rate culminating into increase portfolio
investment both on long and short term basis. However the influence of interest rate (prime
lending rate) on the short run though agrees with what ensued on the long run tend not to be
significant, while on the short run total savings reflects significant positive impact on the
portfolio investment both on long and short term basis. Hence it stands that on the aggregate,
interest is a key determining factor of portfolio management in Nigeria, given the notable
influence of prime lending rate on the long run and the influence of total savings on the short
run. Premise on this discovery the study recommends that monetary authorizes should be aware
of the connection between interest rate and portfolio management and take that into
consideration during the process of policy simulation to ensure that on the aggregate portfolio
investment in the country is adequately and rightly fine-tuned to foster the necessary growth at
corporate and national level.
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