

Efficacy of Financial Institution Indicators on Capital Formation: The Nigerian Experience

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Abstract

This study investigates the efficacy of the Nigerian financial institution indicators in capital formation. It had the specific aim of examining the impact of financial institutions intermediation on capital formation. Against the background of the importance of capital formation on economic growth and the role of financial intermediation in the process of capital formation; the study employed auto regressive distributive lag technique on data gathered from 1991-2021. Financial institution indicators were market capitalization, credit to private sector and insurance sector investments. Results from the estimations showed that for the period under review there exists a long run relationship between the dependent and independent variable, also 94% of the variations in capital formation can be explained to be caused by the variations in the financial institution indicators used. One of the recommendations suggested after the findings was financial sector deepening; this would improve the activities in the financial institutions and thus boost capital formation in Nigeria

Keywords – Capital formation, Economic growth, Financial institution, Interest rate, Insurance sector investment and Market capitalization.

Introduction

The definition of financial institutions presents an establishment that facilitates and initiates monetary transactions. These transactions include deposits, loans, mortgage, insurances etc. It is a place where individuals can manage their funds. Financial institutions are intermediaries between consumers and the money or capital market through the provision of banking and investment services (Adeleye, 2018).

Funds provided by customers to financial institutions e.g through deposits are distributed to individuals and business entities that need them. This distribution is done through the offering of loans. Therefore, it is safe to conclude that the financial institutions form the connection between savers and borrowers to facilitate transactions in the financial markets. Apart from this connection, they help the customers to raise funds and invest their money (Near & Eze, 2017).

In other words, financial institutions are foremost known as financial intermediaries, setting a link between borrowers and savers; they therefore convert the savings of household/individuals to credit and make it available to borrowers/investors through loans (Akani & Tony-Obiosa, 2020).

Generally, the services that the financial institutions offer are the acceptance of deposits into deposit accounts, offer loans, investment services, insurance policies and foreign currency exchange. They are classified into two groups – banking financial institutions and the non-banking financial institutions.

The banking financial institutions is also called the depository financial institution and they are majorly involved in the collection of deposits and the payment of interests on these deposits; they are deposit focused, while on the other hand the non-banking financial institutions also called the non-depository financial institutions collect funds through the sale of their policies and give returns in form of profit payouts. Non-depository institutions include insurance companies and brokerage firms (Akani & Uzah, 2018).

Financial institutions play a vital and pivotal role in any economy. They are regulated by the federal government through the central bank and other regulatory bodies set up by the government. The roles they perform in the economy spans through the regulation of money supply, provision of banking services, provision of brokerage services to capital formation.

This study is particularly interested in the role of financial institution indicators in capital formation. In an attempt to define capital formation, it can be deduced as the transfer of savings from households and governments to the business sector resulting in increased output of these business and economic expansion. Gordon (2021) explained capital formation as the growth in the stock of actual capital in the economy over a given period of time, say one year. He further explained that it is simply the creation of certain things that enhance production and increase output in an economy, meaning that, it is the creation of capital which are things used to create wealth and growth in an economy.

From the study done by Atsanan and Onuigwe (2021), it is imperative to mention here that the process of capital formation cannot take place without the functionality of financial institutions (banking and non-banking financial institution). However, given the important role of financial institutions in capital formation, developing countries like Nigeria still fall short in economic growth, which is growth and expansion in production and output.

The prevailing problems that exist to mitigate the efficacy of financial institutions in performing their role in capital formation include the inconsistency and flux of monetary policies and even fiscal policies in the country. Political instability, the volatility of the inflation and exchange rate also overwhelms the financial institutions, added to these is the retrogression of economic activities, currency devaluation, low income rates that births the inability for individuals to save (Emeka, Idenyi & Nweze, 2017).

More also is the embezzlements, frauds and sharp practices being done by the operators in the financial institutions, this has consequently restrained the trust individuals have in these financial institutions. Interest rate precariousness is another plaguing constraint on the financial institutions, the savers and the borrowers (Akani & Tony-Obiosa, 2020).

The main objective of the study is to examine the extent to which financial institutions through their intermediation facilitates/contributes to capital formation in Nigeria. The specific objective is to investigate the impact of financial institution's performance indicators on Nigeria's economic growth through capital formation.

For a systematic and free flow of this study after the preceding parts which were the introduction, statement of problem and objectives of the study; the relevant literature will be discussed and reviewed. The methodology of the research will follow in the next part and the part four will be about the presentation and analysis of data. Conclusion and policy implications would make up part five.

Literature Review

Akani and Tony-Obiosa (2020) in their study on financial intermediation and capital formation submitted that there indeed exists a relationship between financial institutions and capital formation. Particularly, their results showed in positive and significant relationship between banking sector credit and gross capital formation in Nigeria. Omarkhanlen (2012) investigated the role of banks in capital formation and economic growth using Nigeria as his case study. The study concluded that commercial banks have a significant role to perform in capital formation. This he said implies that commercial banks have the potency to increase the nation's capital formation through their various activities.

A multivariate regression model was estimated and analysed by Torbira and Ogbulu (2014) when they empirically investigated the relationship between fund mobilization by insurance companies and gross fixed capital formation in Nigeria, particularly how gross fixed capital formation reacts to changes in the operations of the insurance companies, their results showed that in the long run, the fund mobilization by insurance companies positively and significantly have an impact on the growth of gross fixed capital formation.

Ojimadu, Aniebo and Ogu (2016) used gross fixed capital as the dependent variable and bank credit, interest rate, exchange rate, government expenditure and money supply as independent variables in their study on bank credit and capital formation in Nigeria. From the regression results they got, they deduced that bank credit has a positive result on capital formation; interest rate has a negative impact on capital formation which conformed to apriori expectations which predicts a shift away from borrowing when interest rate is high. Exchange rate showed a significant but negative impact on capital formation in Nigeria, while government expenditure and money supply also shared positive relationships with capital formation.

Ariwa and Ezendu (2017) in their research work established a firm connection between insurance companies' investments and capital formation in Nigeria. Using secondary data from

1996 – 2015 and statistical tools for analysis, their work concluded that the accumulation of total insurance companies investments can increase the rate of savings mobilization (funds mobilization), the channels through which insurance companies pass their investments includes stock and bonds which they found to be prominent in capital formation.

In another study by Okparaka (2018), a link between insurance companies and capital formation was created through the impact of insurance investments on Nigerian capital market using the Ex-post facto research design and ordinary least square regression analytical technique. His findings gave rise to the conclusion that the collective investments from the capital market have the capacity to make significant effect on market capitalization which further transcends to capital formation. Insurance companies from his work were presented as key institutional investors and important players in the financial system and markets; this summation is similar to the findings by Egbeonu (2016).

The impact of stock market indicators on capital formation was investigated by Babatunde, Abduemayeed, Mohammed and Shuabi (2020) using fully modified ordinary least squares and dynamic ordinary least square techniques. The findings of their study reveal that a long run relationship exists between stock market indicators and gross capital formation in Nigeria. The all share index and broad money supply had significant positive impact on gross capital formation in the period under study while the volume of trading and credit to the private sector had a significant negative impact on capital formation. Therefore their summation at the end of the study was that the determinants of gross fixed capital formation are all share index, trading volume, credit to private sector and broad money supply.

Methodology and Model Specification

This study employed the Auto Regressive Distributive Lag regression technique to investigate the extent financial institution indicators in Nigeria contribute to capital formation; this was done both for the long run and short run. Augmented Dickey-Fuller Test Equation was done on the dependent and independent variables. The data for this study are secondary data which was sourced from Central Bank of Nigerian statistical bulletin, stock exchange facts book and financial statement and annual reports of the quoted financial institutions. Based on the objectives of the study, the functional model is specified as follows

Gross fixed capital formation = f (credit to private sector, market capitalization, insurance sector investments, interest rate)

Where credit to private sector, market capitalization, and insurance sector investments and interest rate are proxies of financial institutions performance

Explicitly specified as

$$GFCF = b_0 + b_1 CPS + b_2 MCAP + b_3 INSIV + b_4 INTR + e_i$$

As the adopted estimation technique, the ARDL co-integration model as primarily hypothesized was to basically ascertain the long and short run connection with the efficacy of the Nigerian

financial institution in capital formation. The ARDL method has many benefits when compared with other co-integration techniques. ARDL technique can be used notwithstanding if the underlying variables are wholly 1(0), 1(1) or jointly co-integrated. ARDL has better estimated little sample features. This study designed the ARDL technique for appraisal as stated thus:

$$\Delta \text{LogGFCF}_t = \alpha_0 + \sum_{k=1}^n \alpha_1 \Delta \text{LogCPS}_t + \sum_{k=1}^n \alpha_2 \Delta \text{LogINSIV}_t + \sum_{k=1}^n \alpha_3 \Delta \text{LogMCAP}_t + \sum_{k=1}^n \alpha_4 \Delta \text{LogINTR}_t + \rho_1 \Delta \text{LogCPS}_{t-k} + \rho_2 \Delta \text{LogINSIV}_{t-k} + \rho_3 \Delta \text{LogMCAP}_{t-k} + \rho_4 \Delta \text{LogINTR}_{t-k} + e_t$$

Result of the Findings

Descriptive statistics

Table 1 presents the descriptive statistics on capital formation and proxies of financial performance in Nigeria captured in this study. The aim of the descriptive statistics was to reveal the trend behaviour of the dataset over the course of time of this study. As depicted in the Table 1, the mean values of the variables were: ₦8.70trillion for gross fixed capital formation (GFCF); ₦6.22trillion for commercial bank credit to private sector (CPS); ₦0.32trillion for insurance sector investment (INSIV); ₦8.54trillion for capital market capitalization (MCAP); and 18.38 percent for interest rate (INTR); these mean values show to us where the center value is located in the data set which can be used to represent the entire data set.

The standard deviation values of the variables were: ₦1.27trillion for gross fixed capital formation (GFCF); ₦6.63trillion for commercial bank credit to private sector (CPS); ₦0.39trillion for insurance sector investment (INSIV); ₦9.95 trillion for capital market capitalization (MCAP); and 3.24 percent for interest rate (INTR). This indicates that the values in the data set are clustered around to the mean values.

The maximum values of the variables were: ₦11.44trillion for gross fixed capital formation (GFCF); ₦19.81trillion for commercial bank credit to private sector (CPS); ₦1.42trillion for insurance sector investment (INSIV); ₦38.58 trillion for capital market capitalization (MCAP); and 29.80 percent for interest rate (INTR).

The minimum values of the variables were: ₦6.86trillion for gross fixed capital formation (GFCF); ₦0.06trillion for commercial bank credit to private sector (CPS); ₦0.006trillion for insurance sector investment (INSIV); ₦0.02 trillion for capital market capitalization (MCAP); and 12.32 percent for interest rate (INTR).

Table 1. Descriptive statistics test

| | GFCF | CPS | INSIV | INTR | MCAP |
|--------------|----------|----------|----------|----------|----------|
| Mean | 8.705933 | 6.229033 | 0.326867 | 18.38669 | 8.542700 |
| Median | 8.406000 | 2.300000 | 0.168500 | 17.96500 | 4.010000 |
| Maximum | 11.44600 | 19.81800 | 1.425000 | 29.80000 | 38.58900 |
| Minimum | 6.860000 | 0.067000 | 0.006000 | 12.32000 | 0.023000 |
| Std. Dev. | 1.273275 | 6.636226 | 0.391134 | 3.245557 | 9.958729 |
| Skewness | 0.486260 | 0.604455 | 1.261801 | 1.426731 | 1.144652 |
| Kurtosis | 2.095657 | 1.853947 | 3.780157 | 6.765437 | 3.814926 |
| Jarque-Bera | 2.204542 | 3.468626 | 8.721517 | 27.90096 | 7.381270 |
| Probability | 0.332116 | 0.176521 | 0.012769 | 0.000001 | 0.024956 |
| Sum | 261.1780 | 186.8710 | 9.806000 | 551.6008 | 256.2810 |
| Sum Sq. Dev. | 47.01565 | 1277.145 | 4.436599 | 305.4755 | 2876.112 |
| Observations | 30 | 30 | 30 | 30 | 30 |

Source: E-views 10.0 statistical software

The descriptive statistics analysis further indicated that the measurement of skewness showed that all the variables (GFCF, CPS, INSIV, MCAP and INTR) were rightly skewed (positively skewed). Further analysis of the descriptive statistics revealed that the coefficient of the kurtosis of the variables indicates that variables such as INSIV, INTR and MCAP were found to be peaked (3.00 and above) (Leptokurtic) relative to the normal distribution, while variables such as GFCF and CPS were flat (platykurtic or below 3.000) relative to normal distribution.

The Jarque-Bera (JB) test measures the difference of skewness and kurtosis of the series with those from the normal distribution. The JB values of 2.20 and 3.46 for variables such as GFCF and CPS respectively and their corresponding probability of greater than or equals to 0.05 percent confirms the normality of the series and suitability for generalization. It indicates the absence of outliers in the data.

Augmented Dickey-Fuller (ADF) unit root test

In order to determine if the time series is stationary, the ADF test statistic values must be greater than Mackinnon critical value at one percent, five percent and ten percent level of significance with comparison done at absolute (value) term. The outcome of the unit root test based on the Augmented Dickey-Fuller (ADF) test is reported in Table 2. The outcome of the tests revealed that only INTR variable was found to be stationary at level.

Table 2. Augmented Dickey-Fuller (ADF) test

| Variable | Level | p-val at levels | 1st Difference | p-values at 1 st Difference | Remarks |
|----------|---------|-----------------|----------------|--|---------|
| GFCF | -0.0456 | 0.9459 | -9.9764 | 0.0000*** | 1(1) |
| CPS | -2.0902 | 0.2497 | -3.8491 | 0.0044*** | 1(1) |
| MCAP | -2.0510 | 0.2648 | -4.0987 | 0.0037*** | 1(1) |
| INSIV | -0.4255 | 0.8915 | -3.0919 | 0.0388*** | 1(1) |
| INTR | -3.3587 | 0.0212*** | - | - | 1(0) |

TEST OF CRITICAL VALUES:
 1% = -3.6891
 5% = -2.9718***
 10% = -2.6251

Source: E-views 10.0 statistical software

This is because the augmented Dickey-Fuller (ADF) test statistics value calculated in absolute term was greater than its respective tabulated value at conventional five per cent level of significance.

However, the remaining variables of interest (GFCF, CPS, INSIV and MCAP) that were not stationary at level because their computed ADF test statistics values were less than the critical ADF statistics values at five per cent level of significance; became stationary after the performance of first difference operation on them. Thus, at first difference, the computed ADF test statistics values for all these variables (GFCF, CPS, INSIV and MCAP) were greater than the tabulated values at five per cent level of significance. Hence, all the variables were integrated of order “I(0)” and “I(1)” as the case may be.

ARDL bound testing approach

The ARDL approach to co-integration developed by Pesaran and Shin (1999) and Pesaran, Shin and Smith (2001) has been applied with the help of unrestricted vector error correction model. The ARDL technique has several advantages over the other co-integration methods. ARDL approach can be adopted irrespective of whether underlying variables are purely I(0), I(1) or mutually co-integrated. ARDL has estimated better small sample properties.

The bounds test approach of co-integration, as adopted by Pesaran *et al* (2001) was in order to determine if there is a long-run relationship between financial institutions’ options (CPS, INSIV and MCAP) controlled by interest rate (INTR) and gross fixed capital formation (GFCF) in Nigeria. The test is to estimate the ARDL model specified with the selected optimum lag length selection criterion as shown in Table 3.

Table 3. ARDL F-bounds Wald test analysis

| F-Bounds Test | | Null Hypothesis: No levels relationship | | |
|--------------------|----------|---|---------------------|-------|
| Test Statistic | Value | Signif. | I(0) | I(1) |
| | | | Asymptotic: n=1000 | |
| F-statistic | 9.389863 | 10% | 2.2 | 3.09 |
| K | 4 | 5% | 2.56 | 3.49 |
| | | 2.5% | 2.88 | 3.87 |
| | | 1% | 3.29 | 4.37 |
| Actual Sample Size | 26 | | Finite Sample: n=35 | |
| | | 10% | 2.46 | 3.46 |
| | | 5% | 2.947 | 4.088 |
| | | 1% | 4.093 | 5.532 |
| | | | Finite Sample: n=30 | |
| | | 10% | 2.525 | 3.56 |
| | | 5% | 3.058 | 4.223 |
| | | 1% | 4.28 | 5.84 |

Source: E-views 10.0 statistical software

Therefore, the F-test through the Wald test (bound test) is conducted to check how the joint significance of the coefficients specified in the model is. The Wald test is performed by imposing restrictions on the estimated long-run coefficients of financial institutions' options (CPS, INSIV and MCAP) controlled by interest rate (INTR) and gross fixed capital formation (GFCF) in Nigeria. From Table 3, ARDL bound test tabulated lower and upper bound are selected based on five per cent significance level. The result in the Table 3 revealed that the independent variables (CPS, INSIV and MCAP) controlled by INTR are jointly co-integrated with the dependent variable, gross fixed capital formation (GFCF) in Nigeria, hence, a long-run relationship exist. The calculated F-statistic is 9.38 was found to be greater than corresponding the ARDL lower (2.56) and upper (3.49) critical bound values. The value revealed that there is evidence of long-run co-integration between financial institutions' options (CPS, INSIV and MCAP) controlled by interest rate (INTR) and gross fixed capital formation (GFCF) in Nigeria.

ARDL co-integrating and long run form

With reference to the unit root test order of integrations ‘I(0) and I(1)’, this study seeks to confirm the assertion that there is a possibility of a long run co-integration between/among the variable of the same unique order of integrations. Based on the ARDL bound test result, it is concluded that there is a long run relationship among the variables in the model. Given the result in Table 3, there is a need to estimate the long run coefficients.

Table 4. ARDL long run form estimates

| Dependent Variable: D(LGFCF) | | | | |
|--|-------------|------------|-------------|--------|
| Selected Model: ARDL(1, 3, 4, 4, 4) | | | | |
| Levels Equation | | | | |
| Case 2: Restricted Constant and No Trend | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| LCPS | 0.744801 | 0.604276 | 1.232551 | 0.2725 |
| LMCAP | -0.911249 | 0.498725 | -1.827157 | 0.1272 |
| LINSIV | 0.316200 | 0.080681 | 3.919130 | 0.0112 |
| LINTR | -1.224785 | 0.533016 | -2.297839 | 0.0700 |
| C | 6.403287 | 1.374597 | 4.658300 | 0.0055 |

EC = LGFCF - (0.7448*LCPS -0.9112*LMCAP + 0.3162*LINSIV -1.2248
*LINTR + 6.4033)

Source: E-views 10.0 statistical software

The long run coefficient measures the long run effect of the independent variables on the dependent variable. From the ARDL co-integrating and long run form in Table 4, long run estimates showed that the independent variables (CPS, INSIV and MCAP) controlled by interest rate (INTR) have a joint significant negative effect on gross fixed capital formation (GFCF) in Nigeria in the long run. This means that the current trend of financial institutions’ options (CPS, INSIV and MCAP) controlled by INTR will have a significant negative effect on gross fixed capital formation (GFCF) in Nigeria in the long run. All things being equal, GFCF in Nigeria will decrease by 6.40 per cent as a result of the interaction within financial institutions’ options controlled by interest rate in the long run, ceteris paribus.

The ARDL long run estimates revealed that, all things being equal, a percentage increase in commercial bank credit to private sector (CPS) controlled by interest rate (INTR) will lead to a decrease in gross fixed capital formation (GFCF) in Nigeria by 0.74 per cent but was found to be statistically non-significant at five percent in the long run. Similarly, the ARDL long run

estimates revealed that, all things being equal, a percentage increase in insurance sector investment (INSIV) controlled by interest rate (INTR) will lead to a decrease in gross fixed capital formation (GFCF) in Nigeria by 0.31 per cent and was found to be statistically significant at five percent in the long run.

On the other hand, the ARDL long run estimates revealed that, all things being equal, a percentage increase in capital market capitalization (MCAP) controlled by interest rate (INTR) will lead to an increase in gross fixed capital formation (GFCF) in Nigeria by 0.91 per cent and was found to be statistically non-significant at five percent in the long run.

ARDL short run dynamics test

The ARDL short-run test shown in Table 5 revealed that the value of the intercept which is 5.60 revealed that gross fixed capital formation (GFCF) in Nigeria will increase by a 5.60 per cent when all the independent variables (CPS, INSIV and MCAP) controlled by interest rate (INTR) are held constant and was found to be statistically significant at five percent significance level. The analysis further revealed that the R^2 (R-squared) which measures the overall goodness of fit of the entire ARDL model has a very high good fit. This is represented with the R^2 value of 0.9886 (98.86 per cent), approximately 99 per cent. This indicates that the independent variables (CPS, INSIV and MCAP) controlled by INTR accounted for about 98.86 per cent variation in the independent variable (GFCF). Also, the adjusted R^2 is at 0.9432 = 94.32 percent. Adjusted R^2 measures the effect of the addition of irrelevant variables to the ARDL model and the effect on the prediction of the relationship of the variables. It's smarter than the R^2 as it does allow room for stochastic variables

In the same vein, the value of F-statistics (21.76) showed that the overall ARDL model is statistically significant. The overall significance of the ARDL short-run model implies the joint significance of all explanatory variables (CPS, INSIV and MCAP) controlled by INTR in explaining the short-run changes in gross fixed capital formation (GFCF) in Nigeria.

Table 5. ARDL short run dynamic result

Dependent Variable: LGFCF

Method: ARDL
 Model selection method: Akaike info criterion (AIC)
 Dynamic regressors (4 lags, automatic): LCPS LMCAP LINSIV LINTR
 Fixed regressors: C
 Selected Model: ARDL(1, 3, 4, 4, 4)

| Variable | Coefficient | Std. Error | t-Statistic | Prob.* |
|--------------------|-------------|-----------------------|-------------|-----------|
| LGFCF(-1) | 0.124143 | 0.236884 | 0.524068 | 0.6226 |
| LCPS | -0.207910 | 0.190398 | -1.091976 | 0.3246 |
| LCPS(-1) | 0.197862 | 0.257028 | 0.769808 | 0.4762 |
| LCPS(-2) | 0.343598 | 0.205027 | 1.675867 | 0.1546 |
| LCPS(-3) | 0.318788 | 0.119991 | 2.656764 | 0.0451 |
| LMCAP | -0.264129 | 0.111323 | -2.372646 | 0.0637 |
| LMCAP(-1) | -0.133942 | 0.069534 | -1.926272 | 0.1120 |
| LMCAP(-2) | -0.030619 | 0.081971 | -0.373541 | 0.7241 |
| LMCAP(-3) | -0.174941 | 0.084705 | -2.065291 | 0.0938 |
| LMCAP(-4) | -0.194491 | 0.059265 | -3.281723 | 0.0219 |
| LINSIV | 0.520500 | 0.171261 | 3.039230 | 0.0288 |
| LINSIV(-1) | -0.002266 | 0.197436 | -0.011477 | 0.9913 |
| LINSIV(-2) | 0.035055 | 0.288104 | 0.121674 | 0.9079 |
| LINSIV(-3) | -0.003516 | 0.191109 | -0.018396 | 0.9860 |
| LINSIV(-4) | -0.272828 | 0.148578 | -1.836260 | 0.1258 |
| LINTR | -0.345550 | 0.152988 | -2.258684 | 0.0735 |
| LINTR(-1) | -0.075193 | 0.118884 | -0.632489 | 0.5549 |
| LINTR(-2) | -0.494419 | 0.128711 | -3.841323 | 0.0121 |
| LINTR(-3) | -0.466679 | 0.127990 | -3.646222 | 0.0148 |
| LINTR(-4) | 0.309105 | 0.156105 | 1.980114 | 0.1046 |
| C | 5.608361 | 1.330597 | 4.214920 | 0.0084 |
| R-squared | 0.988644 | Mean dependent var | | 2.175540 |
| Adjusted R-squared | 0.943219 | S.D. dependent var | | 0.141554 |
| S.E. of regression | 0.033730 | Akaike info criterion | | -3.974109 |
| Sum squared resid | 0.005689 | Schwarz criterion | | -2.957954 |
| Log likelihood | 72.66342 | Hannan-Quinn criter. | | -3.681493 |
| F-statistic | 21.76457 | Durbin-Watson stat | | 2.102130 |
| Prob(F-statistic) | 0.001449 | | | |

*Note: p-values and any subsequent tests do not account for model selection.

Source: E-views 10.0 statistical software

Further examination of the ARDL short-run estimates revealed that changes in the current period of commercial bank credit to private sector (CPS) as controlled by interest rate (INTR) had a non-significant negative effect; while the previous lagged period and previous two lagged periods of commercial bank credit to private sector (CPS) as controlled by interest rate (INTR)

had a non-significant positive effect and the previous three lagged periods commercial bank credit to private sector (CPS) as controlled by interest rate (INTR) had a significant positive effect on gross fixed capital formation (GFCF) in Nigeria in the short run. The implication is that, a percentage increase/decrease in commercial bank credit to private sector controlled by interest rate will lead to a corresponding increase/decrease in gross fixed capital formation in Nigeria in the short run, *ceteris paribus*.

The ARDL short-run estimates further revealed that changes in the current period of capital market capitalization (MCAP), the previous lagged period of capital market capitalization (MCAP), previous two lagged periods of capital market capitalization (MCAP) and previous three lagged periods of capital market capitalization (MCAP) as controlled by interest rate (INTR) had a non-significant negative effect; while changes in the previous four lagged periods capital market capitalization (MCAP) as controlled by interest rate (INTR) had a significant negative effect on gross fixed capital formation (GFCF) in Nigeria in the short run. The implication is that, a percentage increase in capital market capitalization controlled by interest rate will lead to a corresponding decrease in gross fixed capital formation in Nigeria in the short run, *ceteris paribus*.

Lastly, the ARDL short-run estimates further revealed that changes in the current period of insurance sector investment (INSIV) controlled by interest rate (INTR) had a significant positive effect; while the previous two lagged period of insurance sector investment (INSIV) controlled by interest rate (INTR) had a non-significant positive effect; on the other hand, the previous lagged period of insurance sector investment (INSIV), the previous three lagged periods of insurance sector (INSIV) and previous four lagged periods of insurance sector investment (INSIV) as controlled by interest rate (INTR) had a non-significant negative effect on gross fixed capital formation (GFCF) in Nigeria in the short run. The implication is that, a percentage increase in insurance sector investment controlled by interest rate will lead to a corresponding decrease in gross fixed capital formation in Nigeria in the short run, *ceteris paribus*.

ARDL error correction test

There are several requirements for the validity, consistency and efficiency of the error correction model methodology. However, one of it holds that, the existence of a long run relationship among the variables of interest requires the coefficient of the error correction term (ECT) to be negative and not lower than -2 (lies between 0 and -2). The ECT shows the speed of adjustment to restore equilibrium in the dynamic model. The ECT coefficient shows how quickly variables converge to equilibrium and it should have a statistically significant coefficient with a negative sign. The ECT tells the speed with which our model returns to equilibrium following an exogenous shock. It should be negatively signed, indicating a move back towards equilibrium; a positive sign indicates movement away from equilibrium.

Table 6. ARDL short run error correction term (ECT) result

ARDL Error Correction Regression

Dependent Variable: D(LGFCF)
 Selected Model: ARDL(1, 3, 4, 4)
 ECM Regression
 Case 2: Restricted Constant and No Trend

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---------------|-------------|------------|-------------|--------|
| D(LCPS) | -0.207910 | 0.080585 | -2.580017 | 0.0494 |
| D(LCPS(-1)) | -0.662386 | 0.102489 | -6.462992 | 0.0013 |
| D(LCPS(-2)) | -0.318788 | 0.063415 | -5.026972 | 0.0040 |
| D(LMCAP) | -0.264129 | 0.034894 | -7.569388 | 0.0006 |
| D(LMCAP(-1)) | 0.400052 | 0.047088 | 8.495848 | 0.0004 |
| D(LMCAP(-2)) | 0.369433 | 0.029393 | 12.56865 | 0.0001 |
| D(LMCAP(-3)) | 0.194491 | 0.035560 | 5.469455 | 0.0028 |
| D(LINSIV) | 0.520500 | 0.055692 | 9.345986 | 0.0002 |
| D(LINSIV(-1)) | 0.241289 | 0.086932 | 2.775614 | 0.0391 |
| D(LINSIV(-2)) | 0.276343 | 0.079338 | 3.483115 | 0.0176 |
| D(LINSIV(-3)) | 0.272828 | 0.075598 | 3.608944 | 0.0154 |
| D(LINTR) | -0.345550 | 0.053525 | -6.455850 | 0.0013 |
| D(LINTR(-1)) | 0.651993 | 0.080686 | 8.080647 | 0.0005 |
| D(LINTR(-2)) | 0.157574 | 0.074927 | 2.103040 | 0.0894 |
| D(LINTR(-3)) | -0.309105 | 0.048575 | -6.363409 | 0.0014 |
| CointEq(-1)* | -0.875857 | 0.082511 | -10.61501 | 0.0001 |

Source: E-views 10.0 statistical software

Meanwhile, the error correction term factor has a negative sign and statistically significant as theoretically expected as shown in Table 6. The results of ECT indicate that there is both short- and long-run equilibrium in the system. The coefficient of one period lag residual coefficient is negative and significant which represents the long-run equilibrium. The coefficient (CointEq (-1)) is -0.87 meaning that the system corrects its previous period disequilibrium at a speed of 87 per cent annually. This is considered an extraordinarily high speed of adjustment.

CUSUM stability test

The essence of this is to determine the stability of the model using the CUSUM stability test analysis. The CUSUM stability test condition holds that, the middle line (trend) must not lie outside the set-region, bordered by two slant lines. From our analysis, the CUSUM stability test in Fig. 1 revealed that this condition has been met satisfactorily, hence, it is concluded that, the ARDL model is stable or has stability at five per cent level of significance.

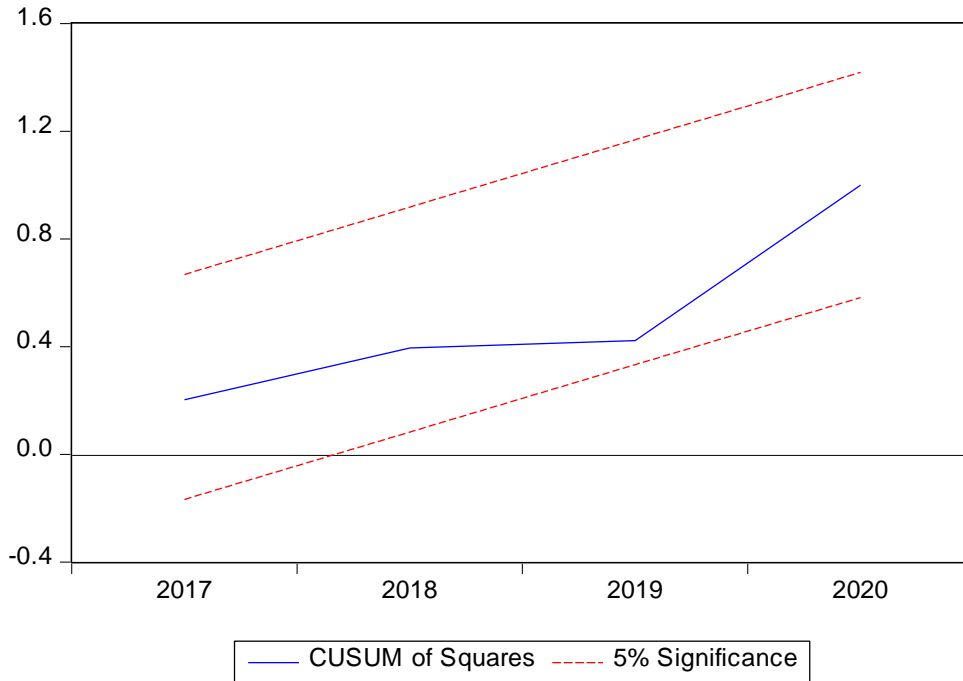


FIG. 1: CUSUM Stability test

Source: E-view 10.0 econometric software

Conclusions

This study was carried out to investigate the efficacy of the financial institution’s indicators in capital formation. Using indicators from the banking and non-banking institutions sector; econometric tools and techniques were used on data gathered from 1991 - 2021 and from the findings the study concludes that financial institutions play significant and vital role in the capital formation of Nigeria. The control and management of their activities influences the state of capital accumulation in a country.

Recommendations

Based on the findings of the study, the following recommendations were made;

- i. The study recommend that for better and more positive effects; monetary authorities in designing and planning growth policies should pay much more attention to interest /lending rates effectively as managing the maximum lending rates of banks will result to an increase in investment activities which will enhance capital formation.
- ii. Given that insurance companies portfolio investments are pivotal in capital formation, the implication here is that policies that focus on the diversification of these investments is highly recommended. This is to ensure that capital formation is enhanced and untapped potential areas like investments in the stock market through stocks and bonds is built up to increase capital accumulation.
- iii. Furthermore, the government through the central Bank should pursue an increased level of liquidity in the economy. The proactive development and implementation of policies set to improve and boost money and capital market activities will improve liquidity and increase capital formation.
- iv. Financial sector deepening is very much recommended after the investigation done in this study, polices should be geared towards this and creating a healthy financial sector.

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