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Development financial institutions and capital formation: Experience from Nigeria

Daniel Ikezam Nwonodi[a]*

Abstract

This study examines the effect of development financial institutions on capital formation in Nigeria. Using time series data from 1990 and 2023, the study employs autoregressive distributed lag (ARDL) bounds testing approach proposed by Pesaran et al., (2001) to estimate the long run and short run effect of development financial institutions on capital formation in Nigeria. The result from cointegration test showed presence of long run relationship between dependent and all explanatory variables. The R-squared found that about 96.9 percent of variations in capital formation are explained by all the included independent variables. The F-statistic value of the long-run model is also significant and implies that all the independents variables include in the model are jointly significant. The Durbin Watson test statistic shows an absence of autocorrelation in the model. The long-run result shows that the variables in the past have negative and no significant effect on the dependent variable (capital formation). The implication of this finding is that the Nigerian capital formation has been hindered by poor performance of the development financial institutions. The study suggest the need for the management and participants in the financial market to increase the size of the markets in Nigeria by increasing the number of development financial institutions available to increase operational efficiency and market discipline that can add positively to capital formation.

Keywords: Development Financial Institutions, Capital Formation, Export-Import Bank, Bank of Industry.

Author Affiliation: [a] Department of Finance, Rivers State University, Port Harcourt, Rivers State, Nigeria, West Africa.
Corresponding Author: Daniel Ikezam Nwonodi. Department of Finance, Rivers State University, Port Harcourt, Rivers State, Nigeria, West Africa.
Email: lucky.anyike@yahoo.com

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1. INTRODUCTION

The importance of capital formation has long been emphased by the classical, neoclassical, Keynesian and the post Keynesians economists. Theoretically some scholars such as Nurkse, 1953; Becker, 1964, Romer, 1986) have argued that taking cognizance of physical stocks alone underestimate the true value and importance of capital formation in economic growth. In other words, capital formation is not limited to the accumulation of physical capital stock, but it encompasses human capital. Romer (1986) broadened the concept of capital to include human capital. He argued that the law of diminishing returns might not hold as demonstrated in the case for the East Asian economies. The theory holds that if a firm or economies invest in capital (physical) also employs educated, skilled and healthy workers, then the labour will be productive, as the labour force will utilise capital and technology, more effectively. Human capital formation, therefore, entails the process of acquiring and increasing the number of people who have the skills, education and experience critical for the country's growth and development. The formation of human capital is thus, connected with investment in man and his development as a creative and productive resource. Chani, Hassan and Shahid (2012) have argued that since the classical era, the formation of human capital has been relevant for economic growth and development, just as physical capital. The growth and development of an economy are not dependent on physical stocks.

Capital accumulation leads to an increase in national income, employment, improved standard of living and enhanced outputs. Capital formation is the proportion of present income saved and invested in order to supplement output and income for posterity. More so, it is the acquisition of new factory along with machinery, equipment and all productive capital goods (Bakare, 2011). From the forgoing, the needs for a better understanding of factors that determine capital formation become importance for policy formation. Capital formation deficiency has been established over time as one of the major challenges to the development process of Less Developed countries (Adenuga, 2006; Eigbiremolen & Anaduaka, 2014). This necessitated

nations into pursuing a capital accumulated led growth. In Nigeria, for instance, in order to encourage capital formation through savings and private domestic investment, the Structural Adjustment Programme (SAP) was pursued to facilitate economic development in 1986 which lead to various reforms most especially the Nigerian financial system.

The Nigerian financial system comprises of several financial institutions, instrument and operators. The financial system regulators include the Central Bank of Nigeria (CBN), the Federal Ministry of Finance (FMF) and the Securities and Exchange Commission (SEC), these are the major regulating agencies in Nigeria. Others are Commercial Banks, Development Banks, such as Federal Mortgage Bank of Nigeria (FMBN), the Nigeria Bank of Industry (BOI), the Nigeria Agriculture and Co-operative Bank (NACB), the Nigeria Industrial Development Bank (NIDB) and specialized banks. Other institutions and funds include the National Pension Commission (PENCOM), insurance companies, the National Economic Reconstruction Fund (NERFUN) finance houses, Bureau De Change and the Nigeria Deposit Insurance Corporation (NDIC). This in terms of number and variety, the Nigeria financial system is quite robust (Imegi & Isiodu, 2017).

Development financial institutions have a general mandate to provide finance to the private sector for investments that promote economic growth and development. The purpose of Development financial institutions is to ensure investment in areas where otherwise, the market fails to invest sufficiently i.e. areas where private sectors are discouraged to investment as a result of long-gestation periods and low return on investment. Development financial institutions aim to be catalysts, helping companies implement investment plans and especially seek to engage in countries where there is restricted access to domestic and foreign capital markets and provide risk mitigation that enables investors to proceed with plans they might otherwise abandon. Development financial institutions specialise in loans with longer maturities and other financial products. Development financial institutions have a unique advantage in providing finance that is related to the design and implementation of reforms and capacity-building programmes adopted by governments. While the effect of development finance on economic growth has well been documented, the effect of development finance on capital formation is lacking in literature, therefore this study examined the effect of development finance on capital formation in Nigeria.

LITERATURE REVIEW

Finance Growth Theory

One of the most prominent writers in the finance growth nexus is Hugh Patrick. In his seminar paper, Patrick (1966) asked a critical question, which sector, financial or real, leads in the dynamic process of economic development? Patrick made a theoretical contribution which identified two possible patterns in the causal relationship between financial development and economic growth. In the first, growth induces an expansion of the financial system. According to this view, which in his words he termed as demand-following the lack of financial growth is a manifestation of the lack of demand for financial services by the real sector. Hence, he asserted that the creation of modern financial institutions, their financial assets and liabilities, and related financial services is in response to the demand for these services by investors and savers in the real economy. In this case, the evolutionary development of the financial system witnessed in developed countries is a continuing consequence of the pervasive, sweeping process of economic development. As the real side of the economy develops, its demands for various new financial services materialize, and these are met from the financial side.

Supply Leading Hypothesis of Financial Deepening

This theory was authored by Schumpeter (1911) and later adopted by scholars such as McKinnon (1973); Shaw (1973); Gupta (1984); Fry (1988); Greenwood and Jovanovich (1990) and Bencivenga and Smith (1991). This theory postulates that financial development in any country causes economic growth. In an economy with no friction in the transaction, information and monitoring costs, no financial intermediaries are needed. According to the theory, if transaction, information and monitoring costs are sufficiently high, then, no exchange among economic agents is necessary. These desires led to the emergence of financial institutions and markets that make up the financial sector. According to this theory, a well-developed financial sector will ensure reduced transaction, information and monitoring costs thereby increasing the efficiency of intermediation. The theory postulates that a well-developed financial intermediary facilitates the development of the economy through mobilization of savings, facilitation of trading and the diversification of risks among others. These important services lead to efficient allocation of resources; a more rapid accumulation of physical and human capital; and a faster technological innovation which eventually leads to a faster and long-term economic growth (Schumpeter, 1911). This theory fits this study since it provides one of the possible explanations of how development in the financial sector affects economic growth.

Demand Following Hypothesis of Financial Deepening

Moving away from the neo-classical state equilibrium analysis, to a highly developed financial system, consisting of financial intermediaries, leads to

a demand following phenomena (Patrick, 1960). Under this, in response to the demand from real economy, there are the development of modern financial institutions, their financial assets and liabilities, and related financial services. This model postulates that the developments of the real economy will in itself induce increase in demand for financial services. The increase demand for financial services will spontaneously generate or lead to the introduction of new financial institutions and markets which will satisfy that increased demand for financial services.

This Theory is important to this study as it provides a different view that the developments in financial deepening does not necessarily lead to economic growth. It also provides an alternative explanation suggesting that economic growth drives deepening of the financial sector. The evolutionary development of the financial system is a continuous result of the pervasive, widespread process of economic development. The financial system is influenced by economic environment, institutional framework and also by individual motivations, attitudes, tastes and preferences. The demand for financial services is a function of growth of real output, commercialization, monetization of agriculture and other traditional subsistence sectors. The faster the growth in real national income, the greater will be the demand for external funds by enterprises. According to this theory, financial intermediation therefore plays a vital role, as internal funds generated are not sufficient for firms to finance expansion. The theory is thus applicable in this study since it postulates that finance intermediaries are important but only as a passive and permissive to growth process.

Development Financial Institutions

Development finance institution is generic term used to refer to a range of alternative financial institutions including microfinance institutions, community development financial institution and revolving loan funds. Development finance institution is defined as an institution promoted or assisted by Government mainly to provide development finance to one or more sectors or sub-sectors of the economy. The institution distinguishes itself by a judicious balance as between commercial norms of operation, as adopted by any private financial institution, and developmental obligations; it emphasizes the project approach meaning the viability of the project to be financed against the collateral approach apart from provision of long-term loans, equity capital, guarantees and underwriting functions, a development bank normally is also expected to upgrade the managerial and the other operational pre-requisites of the assisted projects. Its insurance against default is the integrity, competence and resourcefulness of the management, the commercial and technical viability of the project and above all the speed of implementation and efficiency of operations of the assisted projects. Its relationship with its clients is of a continuing nature and of being a "partner" in the project than that of a mere financier (Scharf & Shetty, 1972).

These institutions play a crucial role in providing credit in the form of higher risk loans, equity positions and risk guarantee instruments in support of private sector investments in developing countries for infrastructure and real sectors development. Development finance institutions have substantial resources backed by guarantees and capital endowments from government in developed countries. The principal components of development finance institutions consist of both regional and multilateral Development finance institution. The national DFIs included the Nigerian Industrial Development Bank (NIDB), Nigerian Bank for Commerce and Industry (NBCI), Nigerian Agricultural and Cooperative Bank (NACB) and Federal Mortgage Bank of Nigeria (FMBN). Each institution was given the responsibility of promoting the development of a specific sector or sub-sector (CBN, 2000).

The NIDB was established in 1964, from the restructuring of an existing Investment Corporation of Nigeria (ICON), and given the mandate of developing new industrial enterprises and expanding existing ones through the provision of medium and long term loans and equity participation. A decade later in 1973, the NBCI was established to provide funding to small and medium scale enterprises. Of more relevance to micro enterprises, the NACB was also established in 1973 to promote the development of the agricultural sector in which most of the operators are micro enterprises. Also the FMBN, which took over the assets and liabilities of the Nigerian Building Society (NBS) was established in 1977, with the mandate to provide funding for residential and other housing needs of individuals and 10 corporate organizations. Two other DFIs, the Urban Development Bank and Education Bank, were established in 1992 and 1993, respectively, to cater for these two important sectors. These DFIs made varying contributions to their various sectors of responsibility. They funded various projects and enterprises, many of which are in operation today.

However, with the drastic reduction in government subventions to them in the 1990s, their operations reduced drastically and by late 1990, they all ceased operating, as all of them depended mainly on government funding. Pervasive incidence of non-performing loans and generalized distress in the financial services sector constrained reliance on internally generated funds. Other militating factors included political instability and build-up of external debt which reduced both the country's credit worthiness

abroad and the associated off-shore funding. There was also the deregulation of the financial sector and lifting of control on credit allocation by banks, which stopped channelling of penalty funds to the DFIs. Also, the global financial meltdown that started in August 2007 as result of the U.S mortgage subprime crisis which engulfed the activities and operations of most of the DFIs in SubSahara Africa (including Nigeria) have deterred adequate channelling of resource funds to the real sectors of the Nigerian economy as result of tight liquidity and high risk characterizing the financial market up still date. The poor performance of the DFIs notwithstanding, the need to channel financial resources to the productive sectors has remained a major challenge to the government and the monetary authorities. Attempts have therefore been made to restructure the DFIs, give them commercial orientation and make sustainability the guiding principle.

Capital Formation

Capital formation is defined as the process of building investable assets of value, the increase in wealth or the creation of further wealth. Capital formation is not savings though savings may be a process of capital accumulation because accumulation deals with the increase in stock of real investments and not all savings are necessarily invested. The increase in investment through non-financial assets has been held to increase value to the economy and the increase in the gross domestic product through further increase in employment (Adekunle & Aderemi 2012). The Central Bank of Nigeria (2007) defines capital formation as the total change in the value of fixed assets in the economy in addition to fixed assets either for replacing or adding to the stocks, it refers to the increase in the fixed capital stocks of the capital formed.

Empirical Review

Omiete (2023) investigated the influence of financial sector development on the economic growth of Nigeria. It examines how financial access, financial depth, financial stability, and financial efficiency affect Nigeria's gross domestic product using annual series data from 1986 to 2021, and sourced from the Central Bank of Nigeria data bank. The descriptive, unit root, co-integration and Parsimonious error correction as well as the Granger Causality test were adopted at the 95% confidence level. From the analysis, all variables are integrated at order one; and presented of long run cointegration. The Parsimonious error correction model confirmed that financial access and its depth are both positive and significant to gross domestic product, whereas financial stability and efficiency are both positive but insignificant to gross domestic product. The Granger causality test demonstrated a one-way movement from to gross domestic product to financial access, and a two-way causality between financial depth and gross domestic product only. In conclusion, the expansion of Nigeria's financial industry has a substantial impact on the growth of her economy. The study thus suggests that financial institutions should continue to allocate more funds to the private sector in the form of credit in order to stimulate more growth prospects in the economy. In addition, interest rates paid to depositors should be improved to attract more deposits; while simultaneously cutting back the rate charged on business loans and advances in order to encourage investors to borrow funds and invest in profitable ventures that will quicken growth.

Nkamnebe Oladipo and Ezenwobi (2023) investigated the impact of financial development on economic growth in Nigeria utilising annual data from 1985 to 2022 sourced from the Central Bank of Nigeria Statistical Bulletins and World Bank indicators. The variables used in this study were real gross domestic product (RGDP), a proxy for economic growth as the dependent variable while credit to the private sector, a proxy for financial deepening, all share index (ASI), nominal exchange rate (ER), gross savings (GS), remittances (REM) and financial technology (Fin-Tech_dum) were all used as financial development indicators which are the independent variables. The method of analysis employed was the Auto-regressive Distributed Lag (ARDL) and the pairwise granger casualty test. The ARDL long run results show that all share index, exchange rate and financial technology positively and significantly affects economic growth; credit to the private sector and gross savings positively but insignificantly impacts on economic growth. However, remittances reveal a negative and insignificant impact on economic growth in Nigeria. The Pairwise causality test shows that there are three unidirectional causality which runs from economic growth to credit to private sector, financial technology and gross savings in Nigeria. In conclusion, the findings of the study validate the demand-following theory in Nigeria. The policy recommendation suggests that the Central Bank of Nigeria should promote the adoption of advanced financial technologies and implement cautious expansionary monetary policies in specific sectors to encourage investment and economic growth. Overall, these measures would boost investment and economic growth in the country.

Yirdaw (2019) analyzed the effect of banking and insurance sector on economic growth in Ethiopia from 1980 to 2018 using VECM technique and found that banking and insurance sector positively influence growth in Ethiopia both in the long run and the short-run. However, the study concluded that the financial sector is still poorly developed. Bist (2018) analyzed the long-run effect of financial development on economic growth on 16 low-income countries from 1995 to 2014. Using fully modified OLS and a Pedroni panel

cointegration analyses, the result showed that financial development has a positive effect on economic growth. Ibrahim and Alagidede (2018) examined the growth effect that will result in a country experiences growth in its financial and real sector using data of 29 sub-Saharan African countries, and the system generalized methods of moments (GMM). From the analysis, financial development support growth but this depends on the real-time growth from both the real and financial sectors. Fagbemi and Ajibike (2018) analyzed the short and long-run effect of institutional quality on financial development in Nigeria from 1984 to 2015 using the ARDL approach. The result showed that institutional quality does not affect financial development both in the short and long run. Prowd (2018) studied the relationship between financial development and economic growth in Liberia from 1960 to 2016 using ARDL and ECM techniques. The result indicated that financial development affects growth in the long-run but it is insignificant in the short-run. Kacho and Dahmardeh (2017) studied the effect of financial development and institutional quality on economic growth within the OECD Countries from 2002 to 2014, using GMM. The result showed that financial development positively affects growth. The interaction between institutions and financial development is also significant.

Victor, Chinyelu, Chibueze, Chukwubuzo, and Adewale (2021) analysed the adjustment of money market and retail interest rates in Nigeria, specifically in reaction to alterations made to the discount corridor of the country's monetary policy. Monthly data from June 2007 to December 2019 were utilised with a vector error correction model to conduct this analysis. To enhance dependability on policy, consideration is also given to the structural 685 deficiencies in the data collection. Despite the modest movement of the alteration parameters, they were considered significant. The present study demonstrates that the discount corridor employed in transmitting Nigeria's monetary policy needs to be revised. Furthermore, the results suggest that retail prices did not exhibit asymmetric adjustments towards long-term equilibrium. Ultimately, the study revealed that alterations in the standing lending facility exhibit a contrasting impact on deposit rates. The findings indicate that various writers have employed diverse methodologies to examine monetary policy. However, including empirical evidence derived from structural vector autoregressive (SVAR) modelling is necessary. Moreover, the results suggest that raising the standing borrowing capacity cannot enhance bank deposit rates.

Lucky and Uzah (2016) examined factors that determine Nigerian capital formation. The objective was to test Jhingan's propositions for sources of capital formation in Nigeria. Time series data were sourced from Central Bank of Nigeria (CBN) Statistical Bulletin. Nigerian Gross Fixed Capital Formation (GFCG/GDP) was modeled as the function of Broad Supply (M2/GDP), Credit to Private Sector (CPS/GDP), Gross National Savings (GNS/GDP), Commercial Banks Lending Rate, Exchange Rate (EXR), Inflation Rate (INFR), External Debt (EXTD/GDP), Public Expenditure (PEX/GDP), Government Revenue (GR/GDP), Terms of trade (TT/GDP) and Operating Surplus (OPS/GDP). Cointegration Test, Augmented Dickey Fuller Unit Root Test, Granger Causality Test and Vector Error Correction Model were used to test the dynamic relationship between the variables. Findings proved that M2/GDP, GNS/GDP, EXR, EXTD/GDP, TT/GDP have negative and insignificant effect on capital formation while CPS/GDP, LR, INFR, PEX/GDP, GR/GDP and OPS/GDP have positive and insignificant effect. The model summary revealed 86.0% explained variation and f-statistics 12.38458 probability of 0.000004. The study concludes that the variables have significant impact on Nigerian Gross Fixed Capital Formation and confirm the Jhingan's proposition. It was recommended that the financial sector should be deepened, policies should be directed to discourage capital flight and government expenditure should be directed towards infrastructural development as against consumable goods to enhance capital formation in Nigeria.

Chinedu, Magaji, and Musa (2021) employed the ARDL Bound Testing Approach to analyse the influence of money market instruments on Nigeria's economic growth from 1994-2018. The outcomes disclosed the presence of long-term association among different money market instruments. Furthermore, this analysis illustrates that money market variables significantly negatively influence short- and long-term economic growth. Commercial bank papers' influence on economic growth is relatively positive. This paper posits that the Central Bank should prioritise Treasury Certificates due to their significant impact on economic growth. Nevertheless, this analysis concludes in 2018 and does not encompass the subsequent timeframe leading up to 2022.

Literature Gap

It well known that capital formation is a prerequisite for economic growth. However, the paucity of capital remains a hindrance to investment plans in Nigeria especially in this period of economic recession. A research of this kind will further expose the extent at which the insurance companies have played their roles in capital formation, followed by recommendations to add to the wealth of literature already in existence. While many of the literature have concentrated on economic growth, the present study examined the effect of development financial institutions on capital formation in Nigeria.

METHODOLOGY

This study empirically investigates the relationship between financial sector development and capital formation in Nigeria. The relevant data were sourced from Central Bank of Nigerian Statistical Bulletin. Time series data were used and econometric method of data analyses which involves Ordinary Least Square (OLS) were employed. The multiple regressions formulated were based on financial sector development and capital formation.

GFCF=f(MB, DBN, EIB, BOI, ACDB) (1)

Transforming equation 1 above to econometric method, we have:

$$GFCF = \alpha + \alpha_1 MB + \alpha_2 DBN + \alpha_3 EIB + \alpha_4 BOI + \alpha_5 ACDB + \mu_i \quad (2)$$

Where:

GFCF = Gross fixed capital formation as percentage of gross domestic product

MB = Total assets of mortgage bank as percentage of gross domestic product

DBN = Total assets of development bank of Nigeria as percentage of gross domestic product

EIB = Total assets of export-import bank as percentage of gross domestic product

BOI = Total assets of bank of industry as percentage of gross domestic product

ACDB = Total assets of agricultural credit development as percentage of gross domestic product

μ = Error Term

$\beta_1 - \beta_4$ = Coefficient of Independent Variables to the Dependent Variable

β_0 = Regression Intercept

A-priori, b,> 0, b_3> 0, b_3<>0, b_4>0 3.5

The above equation shows that development finance is expected to have a positive effect on gross fixed capital formation in Nigeria.

Estimation Techniques

Stationarity Test:

Time series data are assumed to be non-stationary and this implies that the result obtained from Ordinary Least Square (OLS) may be misleading (Suleyman, 2014). It is therefore necessary to test the stationarity of the variables using the Augmented Dickey Fuller 1979 to test both level and first difference. The ADF test constructs a parameter correction for higher order correlation by assuming the times series follows an auto regressive process. Mathematically expressed as

$$\Delta y_t = c + \beta_t + \alpha y_{t-1} + \sum_{t-i}^{k} \gamma_j \Delta y_{t-j} + \varepsilon_t \quad (3)$$

$$\Delta y_t = c + \alpha y_{t-1} + \sum_{t-i}^{k} \gamma_j \Delta y_{t-j} + \varepsilon_t \quad (4)$$

Equation 5 is used to test for the null hypotheses of non-stationarity of unit root against trend stationarity alternative in Yt where y refers to the examined time series. Equation 6 tests the null hypotheses of a unit root against a mean stationarity alternative.

Johansen Cointegration Test

The cointegration test established whether a long run equilibrium relationship exist among the variables. It is generally accepted that to establish a cointegration, the likelihood ratio must be greater than the Mackinnon critical values. The model can be stated as

$$\Delta X_t = \mu + \Psi_1 \Delta X_{t-1} + \Psi_2 \Delta X_{t2} + \ldots + \Psi_{p-1} \Delta X_t - p + 1 \quad (5)$$

Where μ is a constant term.

ΔX_t Represents the first cointegrating differences

Granger Causality

To determine the direction of causality between the variables, the study employed the standard Granger causality test (Granger, 1969). The test is based on Vector Error Correction Model (VECM) which suggests that while the past can cause or predict the future cannot predict or cause the past. Thus, according to Granger (1969) X Granger cause Y if past value of X can be used to the past value of Y, the test is based on the following regression model.

$$GFCF = \alpha_{2i} + \sum_{j=1}^{k} \phi_{2j} MB_{t-j} + \sum_{j=1}^{k} \beta_{2j} DBN_{t-j} + \sum_{j=1}^{k} \lambda_{2j} EIB_{t-j} + \sum_{j=1}^{k} \theta_{2j} BOI_{t-j} + \sum_{j=1}^{k} \theta_{2j} ACDB_{t-j} \sum_{j=1}^{k} + \mu \quad (6)$$

Vector Error Correction Model

Co-integration is a prerequisite for the error correction mechanism. Since co-integration has been established, it is pertinent to proceed to the error correction model. The VECM is of this form

$$\Delta y_t = \alpha \beta y_{t-1} + \sum_{i=1}^{j=1} \Gamma_j \Delta y_{t-1} + \pi + \varsigma_t, t = 1, \ldots\ldots, T \quad (11)$$

Where Y_t is a vector of indigenous variables in the model, α is the parameter which measures the speed of adjustment through which the variables adjust to the long run values and the β is the vectors which estimates the long run cointegrating relationship among the variables in the model. π is the draft parameter and is the matrix of the parameters associated with the exogenous variables and the stochastic error term.

RESULTS AND DISCUSSION OF FINDINGS

The tables below give details on the effect of development financial institutions and gross fixed capital formation in Nigeria.

Table 1: Unit root tests

Variable	ADF Statistics	Mackinnon			Prob.	Order of Intr.
		1%	5%	10%		
GFCF	-0.003915	-3.646342	-2.954021	-2.615817	0.4119	1(0)
MB	-1.698397	-3.646342	-2.954021	-2.615817	0.2942	1(0)
DBN	-9.453074	-3.670170	-2.963972	-2.621007	0.0000	1(1)
EIB	-6.704994	-3.646342	-2.954021	-2.615817	0.0000	1(1)
BOI	-7.814678	-3.646342	-2.954021	-2.615817	0.0000	1(1)
ACDB	-5.405401	-3.653730	-2.957110	-2.617434	0.0001	1(1)

Source: E-View 12.0

The ADF unit root tests results for the variables are reported in Table 1. In the results, all variables are integrated of I (0) and 1(I) based on and Augmented Dickey Fuller test for development financial institutions and capital formation of which are stationary at first difference and level. These results, thereby, justify the use of ARDL method.

Table 2: Bounds tests for cointegration

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	9.969620	10%	2.08	3
k	5	5%	2.39	3.38
		2.5%	2.7	3.73
		1%	3.06	4.15

Source: E-View 12.0

The results of bounds testing approach for co-integration long run relationship is presented in table 2. The calculated F-statistic of the model is statistically significant, implying that the null hypothesis of no co-integration cannot be accepted and, thus, it is concluded that there is indeed a cointegration relationship among the variables used.

Table 3: Estimated Long Run Coefficients Using the ARDL Approach

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
GFCF(-1)	2.348550	2.232476	1.051993	0.3120
GFCF (-2)	-1.328741	1.224864	-1.084808	0.2977
GFCF (-3)	0.865280	0.814498	1.062348	0.3074
MB	-0.007940	0.014756	-0.538072	0.5996
MB (-1)	-0.014315	0.022950	-0.623771	0.5436
MB (-2)	-0.140717	0.133817	-1.051566	0.3122
MB (-3)	-0.038123	0.038881	-0.980513	0.3447
MB (-4)	-0.058755	0.055000	-1.068268	0.3048
DBN	5.021347	4.899799	1.024807	0.3241
DBN (-1)	-11.63807	11.03891	-1.054277	0.3110
DBN (-2)	12.64771	12.24942	1.032515	0.3207
DBN (-3)	-4.264902	4.417280	-0.965504	0.3519
DBN (-4)	4.843927	4.512480	1.073451	0.3026
EIB	-0.060809	0.057932	-1.049657	0.3130
EIB (-1)	0.071928	0.071816	1.001556	0.3348
EIB (-2)	-0.040372	0.039492	-1.022286	0.3253
BOI	-0.419614	0.488081	-0.859722	0.4055
BOI (-1)	-0.496706	0.520210	-0.954819	0.3571

BOI (-2)	-0.900759	0.871187	-1.033944	0.3200
BOI (-3)	-0.068524	0.214050	-0.320133	0.7540
BOI (-4)	-1.362642	1.280540	-1.064114	0.3066
ACDB	-1.628081	1.588681	-1.024800	0.3241
ACDB (-1)	1.794244	1.732291	1.035764	0.3192
C	-35.72537	37.95146	-0.941344	0.3637
R-squared	0.989432	Mean dependent var		8.445557
Adjusted R-squared	0.969921	S.D. dependent var		0.984074
S.E. of regression	0.170671	Akaike info criterion		-0.455010
Sum squared resid	0.378670	Schwarz criterion		0.622349
Log likelihood	33.64519	Hannan-Quinn criter.		-0.071694
F-statistic	50.71237	Durbin-Watson stat		2.390027
Prob(F-statistic)	0.000000			

Source: E-View 12.0

Having found the existence of long run relationship between development financial institutions and capital formation, the ARDL method was applied to estimate the long run parameters of equation. Table 3 presents the estimated long-run coefficients of equation. The lag length of long run model was selected on basis of Akaike Info Criteria (AIC). The R-squared and adjusted R squared of the model are about 0.989, signifying that about 98.9 percent of variations in capital formation is explained by all the included independent variables. The F-statistic value of the long-run model is also significant and implies that all the independents variables include in the model are jointly significant. The Durbin Watson test statistic shows an absence of autocorrelation in the model. The long-run result shows that the variables in the past have negative and no significant effect on the dependent variable (capital formation). The implication of this finding is that the Nigerian capital formation has been hindered by poor performance of the development financial institutions. This is expected since the country's financial system is still underdeveloped relatively to the world standard. Total assets of some of the development finance as percentage of gross domestic product is not impressive most the periods under review which indicates that poor management and policy implementation of the development financial institutions.

Table 4: Short Run Result for the Selected ARDL Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
GFCF (-1)	4.774553	1.302071	3.666891	0.0012
GFCF (-2)	-0.822994	0.281500	-2.923599	0.0072
GFCF (-3)	1.096560	0.329620	3.326737	0.0027
MB	-0.081186	0.024145	-3.362445	0.0025
MB (-1)	0.138547	0.038781	3.572503	0.0015
DBN	-0.003697	0.020032	-0.184561	0.8551
DBN (-1)	-0.259522	0.073222	-3.544319	0.0016
EIB	-0.013098	0.004628	-2.830255	0.0090
EIB (-1)	-0.023110	0.007578	-3.049795	0.0054
BOI	0.005197	0.003878	1.340210	0.1922
BOI (-1)	0.037247	0.010427	3.572214	0.0015
ACDB	-0.125109	0.164830	-0.759015	0.4549
CointEq(-1)*	-16.74542	5.644557	-2.966650	0.0065
R-squared	0.979140	Mean dependent var		8.390569
Adjusted R-squared	0.968293	S.D. dependent var		1.029971
S.E. of regression	0.183400	Akaike info criterion		-0.281032

Sum squared resid	0.840889	Schwarz criterion	0.316144
Log likelihood	19.48013	Hannan-Quinn criter.	-0.066770
F-statistic	90.26856	Durbin-Watson stat	2.500426
Prob(F-statistic)	0.000000		

Source: E-View 12.0

The results of the short-run coefficients of the relationships between development financial institutions and capital formation are given in Table 4. As in the long-run model, the lag length of short run model is selected on basis of Akaike Info Criteria (AIC). The signs of the short-run estimates are similar to that of long run model, except bank of industry and mortgage bank which has a positive sign and is insignificant at 5 percent critical level

The result shows that there is no significant positive relationship between development financial institutions and capital formation in short-run. This result is not consistent with that of the negative and non-significant effect of the variables is not in line with various reforms in the financial sector over years. The negative and no significant effect of the variables contradict the findings of Okodua and Eweten (2013) that there exist a long run relationship between dependent and independent variables, Oluwantunsi et al, (2013) that market capitalization and number of listed companies have a positive impact, Osho (2014) that the stock market capitalization and the total value of traded ratio are negatively affecting gross domestic product, Yadirichukwu and Chigbu (2014) that there is an inverse relationship between the stock market capitalization ratio and long-run economic growth. This is statistically significant. Nwaolisa et al (2013) that while total market capitalization and All-share indexes exert positive impact on the GDP growth rate, the value of the stock has a negative effect on the GDP and not is significant, the findings of Owolabi and Ajaji (2013) that there is a positive relationship between economic growth and stock market variables in the analysis, Tarhom (2014) and Babatunde (2013), Nathanael (2014) that the value of equities (a measure of stock prices) is statistical significant and have a positive linear association with the economic growth in Nigeria this is in line with new economic growth theory, Osamwanyi and Kasimu (2013) that there is no causal relationship between stock market development and economic growth in Nigeria this findings does not support new growth theory which shows that the stock market development lead to economic growth and the findings of Okonkwo (2014) that there is unidirectional causality from listed securities to real GDP.

The error correction parameter is statistically significant at 5 percent critical level. This indicates the existence of stable long run relationship. Also, the coefficient of determination (R-squared) of the model is 97.9 percent, indicating the about 98 percent of the variations in capital formation is explained by variations in all the independent variables. The F-statistic value of the long run model is also significant and implies that all the independents variables include in the model are jointly significant. The Durbin Watson test statistic shows an absence of autocorrelation in the model.

Conclusion

This study examines the effect of development financial institutions and capital formation in Nigeria between 1990 and 2023. Development financial institution measured as total assets of mortgage bank as percentage of gross domestic product, total assets of development bank of Nigeria as percentage of gross domestic product, total assets of export-import bank as percentage of gross domestic product, total assets of bank of industry as percentage of gross domestic product and total assets of agricultural credit development as percentage of gross domestic product. The sign of coefficient of development financial institutions, however, raised concern. Operation of the development financial institutions ordinarily would have led to improvement in the capital formation increased financial intermediation and funds, enhanced financial infrastructure and capital inflows. However, the situation in Nigeria might be different due to underdeveloped and imperfect nature of her financial market.

Recommendations

i. There is a need for the management and participants in the financial market to increase the size of the markets in Nigeria by increasing the number of development financial institutions available to increase operational efficiency and market discipline that can add positively to capital formation.

ii. Stringent measures should be taken to enhance the effects of the development financial institutions of the economy in order to foster its role in promoting and sustaining growth in the economy and government should improve the market participants so as to have a positive effect on capital formation in Nigeria.

iii. The Central Bank of Nigeria policies should directed toward effective financial intermediation of the development financial institutions. Policies such as increase funding should be enforced in the, public

sensitization on the relevant of development financial institutions should be carried out and there is need to increase number of the institution.

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References

1. Adekunle K.A and A.K Aderemi (2012). Domestic investment, capital formation and population growth in Nigeria. Developing Country Studies; 2(7), 111-135
2. Bakare, A.S. (2011). A theoretical analysis of capital formation and growth in Nigeria. Far East Journal of Psychology and Business, 3(1), 10-25.
3. Becker, N. E. (2015). Inflation volatility and economic growth: A disaggregated analysis (pp. 1–40). North Carolina: Duke University.
4. Bist, J.P., 2018, 'Financial development and economic growth: Evidence from a panel of 16 African and non-African low-income countries'. Cogent Economics & Finance 6(1), 1–17.
5. Chani, M. I., Hassan, M. U & Shahid, M. (2015). Human capital formation and economic growth in Pakistan: An Empirical Analysis. Journal of Resources Development and Management 11, 22-31.
6. Chinedu, C. J., Magaji, S. & Musa, I. (2021) Empirical Analysis of the Role of Monetary Market Instruments on Economic Growth in Nigeria. Lapai Journal of Economics, 5(2), 24-37
7. Fagbemi, F., & Ajibike, J. O. (2018). Institutional quality and financial sector development: Empirical evidence from Nigeria. American Journal of Business and Management, 7(1), 1-13.
8. Fry, M. J. (1988). Money, interest and banking in economic development, (1st Ed.) Baltimore, MD: Johns Hopkins University Press.
9. Nurkse, R. (1953). Problems of capital formation in underdeveloped countries. New York: Cambridge University Press
10. Patrick, H. T. (1966). Financial development and economic growth in underdeveloped countries. Economic Development and Cultural Change, 14(2), 174-189.
11. Prowd, R. S. (2018). Financial development and economic growth: Evidence for Liberia. Journal of Economic Development, 2, 1-16.
12. Romer, P. M. (1986). Increasing Returns and Long Run Growth. Journal of Political Economy, 94, 1002–37.
13. Scharf, S. (1972). Dictionary of development banking, Elsevier Publishing Company, New York).
14. Schumpter, J. (1911). The theory of economic development, Cambridge, MA:Harvard University Press.
15. Shaw, E. (1973). Financial Deeping in economic development. Oxford University press, London
16. Yirdaw, M. (2019). Banking and insurance sectors development in Ethiopia and its effect on economic growth. Resources Policy, 75, 102476