

EFFECT OF FINANCIAL LIBERALIZATION ON ECONOMIC GROWTH IN DEVELOPING COUNTRIES: The Nigerian Experience

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ABSTRACT

Mckinnon-Shaw hypothesis asserts that financial liberalization is essential for economic growth. In view of this, the study critically investigates the effect of financial liberalization on the economic growth in developing nations with its assessment focusing on Nigeria. In an attempt to determine this effect, the study employs a model which proxy Gross Domestic Product as the dependent variable and the following macroeconomic variables; lending rate, exchange rate, inflation rate, financial deepening (M_2/GDP) and degree of openness as its financial liberalization indices. Annual time series data on these variables were largely obtained from the Central Bank of Nigeria Statistical bulletin from 1987 to 2009. The empirical investigation is done using the Johansen Co-integration test and the Error Correction Mechanism (ECM). The results obtained from the Co-integration test reveals the existence of a long-run equilibrium relationship among the variables and co-integrating equations at 5% significance level. Also, the Error Correction Mechanism shows a very high coefficient of multiple determination (R^2) in both the Over-parameterized Model (95%) and the Parsimonious Model (91%). The study therefore concludes that financial liberalization has a growth-stimulating effect on Nigeria. It recommends that economic stability should either be maintained or pursued before implementing any form of financial liberalization measures and the regulatory and supervisory framework for the financial sector should be strengthened.

Keywords: *Financial Liberalization, Economic Growth, Developing Countries, Augmented Dickey-Fuller (ADF) Unit Root Test, Co-integration test, Error Correction Mechanism (ECM).*

1. INTRODUCTION

Prior to financial liberalization, the government of developing countries practiced financial repression thereby subjecting the administrative framework of the financial system to its whims and caprices, such that financial policies formulated and implemented suit its desires. Their developmental strategies were designed such that the government or its agencies were vested with the responsibility to make decisions regarding the allocation of resources thereby giving the market forces a less important role to play in economic development.

Due to the widely spread benefits attainable from financial liberalization; many developing countries in order to achieve economic buoyancy have experienced the gradual but apparent liberalization of its financial sector. The state-dominated development paradigm has shifted towards a more market-determined strategy of development in the recent years due to the relatively low growth rate of incomes, industrial output and recurring balance of payment crises in the state-dominated paradigm and also influenced by the astonishing success of Japan and East Asian countries in accelerating growth through the market-determined strategy of development (Nair, 2004).

In the financial liberalization theory, Shaw (1973) and Mckinnon (1973) claimed that financial liberalization policies would increase savings which consequently spurs investment and induce economic growth. They argued that higher interest rates brought about by liberalization leads to a more efficient allocation of resources, higher level of investment and economic growth. The focus of liberalization has been to replace the severely constrained “command and control” system with a relatively liberalized regime with prices reflecting economic costs, along with a greater reliance on the private sector as the engine of growth (Bhaduri, 2005).

Financial liberalization has become an important economic policy package in both advanced and advancing countries. For more than a decade now, financial liberalization in developing countries has been cited as a necessary and significant part of an economic policy package promoted by what used to be called the “Washington Consensus” (Ghosh, 2005). The developing countries in order to revamp their economy implemented the economy recovery programme famously called “Structural Adjustment Programme” introduced by the Bretton Woods Institutions (World Bank and International Monetary Fund) aimed at liberalizing prices in distress and melt-down economies. The adoption of this programme signals the phasing out of financial repressive policies in the economy.

Financial liberalization serves as a panacea to financial constraints in a financially repressed economy. Under the financial repression regime, the monetary authorities impose high reserve requirements, bank-specific credit ceilings and selective credit allocation, mandatory holding of treasury bills and bonds issued by the government, and finally a non-competitive and segmented financial system (Achy, 2003). Theories of financial repression associated especially with Mckinnon and Shaw postulated that administrative control of financial markets by the government distorts interest rate thereby lowering it. The resultant effect of this is that savings is discouraged, consumption is encouraged and the quantity of investment is crippled.

Following the globalization trend, Nigeria embraced the Structural Adjustment Programme (SAP) in 1986 as a corrective measure to the deteriorating economic situation. The real GDP growth rate averaged only 1.5% per annum during the period 1973 to 1985 thereby registering negative growth rate in 6 years during the period (Adebisi, 2001). The SAP was proposed as an economic package to rapidly and effectively transform the Nigerian economy. The basic thrust of the economic reforms embodied in SAP is deregulation, particularly financial deregulation (Okpara, 2010).

It is strongly argued that financial liberalization can have strong positive effects on economic performance. However, after the prescribed financial liberalization, the domestic economy has failed to experience impressive performance such as attraction of foreign investment or halt capital flight (Akpan, 2004). Financial liberalization generates tremendous financial booms and busts in the short-run, but these booms and busts have not intensified in the long-run. The debate over the macroeconomic effect of financial liberalization on developing economies remains a controversial issue.

Therefore, the objective of this study is to evaluate the effect of financial liberalization on economic growth in developing countries, taking the Nigerian case from 1987-2009. The study will be of utmost importance because it would provide policy recommendations to the various stakeholders in emerging nations i.e. countries taking adequate measures in their economy for rapid growth and industrialization, using the findings from the Nigerian experience as a benchmark to conclude on the efficacy of financial liberalization in developing economies and make recommendations. The rest of the paper is outlined as follows- section two reviews various related literatures, section three discusses the methodology, section four presents the data analysis and interpretation of findings and section five provides conclusion, and recommendations.

2. LITERATURE REVIEW

The concept financial liberalization and financial openness are used interchangeably in finance literature. Financial openness/liberalization has been dubbed as one of the growth ingredients in developing countries (Adam, 2011). The financial liberalization that took place in developing countries in the late 1970s up to the early 1990s was part of government plans to give their markets an important part to play in the economic development process.

From the layman’s perspective, financial liberalization is the removal or loosening of restrictions imposed by the government on the domestic financial market. This view seems to be narrow in explaining the concept of

financial liberalization. Kaminsky and Schmukler (2003) provide a broader concept. They opined that financial liberalization consists of the deregulation of the foreign sector capital account, domestic financial sector, and the stock market sector viewed separately from the domestic financial sector. From this definition, they put forward that full financial liberalization occurs when at least two of the three sectors are fully liberalized and the third one is partially liberalized.

Johnston and Sundararajan (1999) viewed financial liberalization as a set of operational reforms and policy measures designed to deregulate and transform the financial system and its structure with the view to achieving a liberalized market-oriented system within an appropriate regulatory framework.

Financial liberalization refers to measures directed at diluting or dismantling regulatory control over the institutional structures, instruments and activities of agents in different segments of the financial sector. These measures can relate to internal or external regulations (Chandrasekhar, 2004).

From the above definitions, it is obvious that financial liberalization focuses on abolishing controls that restrict financial activities and allowing the market forces (interplay of the forces of demand and supply) to serve as the price mechanism for financial services. Financial liberalization can be termed to mean the deregulation of the financial system.

Various empirical studies have been conducted to validate whether financial liberalization has a favourable impact or otherwise. Evidences from various researchers are thoroughly reviewed in this sub-chapter in order to get an adequate and better knowledge of the effect of financial liberalization in some emerging economies.

Akpan (2004) conducted a study to theoretically and empirically explore the effect of financial liberalization in the form of an increase in real interest rates and financial deepening (M_2/GDP ratio) on the rate of economic growth in Nigeria using the endogenous growth model. The study used time series annual data covering the period from 1970 – 2002. The Error Correction Model (ECM) was used to capture both the short and long run impact of the variables in the model. The finding shows a low coefficient of the real deposit rate which implies that interest rate liberalization alone is unlikely to expedite economic growth. Overall, the results show a positive impact on the economy of Nigeria. Kasekende and Atingi-Ego (2003) in the case of Uganda examined the impact of financial liberalization on the conduct of banking business and its effect on the real sector. Quarterly data from 1987Q1 to 1995Q3 for the following variables: Gross Domestic Product, Commercial Bank Credit to the Industrial Sector, Premium on Official Exchange Rate, Lending Rate, and Inflation Rate were analyzed using the Vector Autoregressive (VAR) methodology. Their findings shows that financial liberalization has promoted efficiency gains in the banking industry and consequently, the increased growth of credit to the private sector following financial liberalization leads to economic growth. The study provides evidence of a positive impact and supports the Mckinnon-Shaw Hypothesis.

Abu-Bader and Abu-Qarn (2005) in an attempt to examine the relationship between financial development and economic growth in Egypt, analyzed time series annual data from 1960 to 2001 using VAR methodology on four variables namely: Gross Domestic Product to measure economic growth and ratio of money stock to nominal GDP, ratio of bank credit to the private sector to nominal GDP, ratio of credit issued to non-financial private firms to total domestic credit, representing proxies for financial development. Their findings show that the rise in private investment was facilitated by the financial liberalization in 1990 which led to the rebound in economic performance of Egypt in the 1990s. Their results infer that there is a direct linkage between financial development and financial liberalization. Tokat (2005) evaluated the impact of financial liberalization on some macroeconomic variables in two emerging countries (Turkey and India) from the period spanning 1980 to 2003. The changing dynamics of domestic industrial production index, domestic interest rate, and trade-weighted average foreign industrial production index was analyzed by conducting Multivariate Granger-causality test. The findings suggest that there is an increased interdependency among the variables following the financial liberalization process. The study provides evidence on the increasing impact of foreign economies on both countries macroeconomic variables which implies that financial liberalization has been beneficial to both countries.

Okpara (2010) also investigated the effect of financial liberalization on some macroeconomic variables in Nigeria. Real GDP, financial deepening, gross national savings, foreign direct investment and inflation rate were selected and given pre/post liberalization comparative analysis using the discriminant analysis technique. The pre-liberalization period covers 1965 – 1986 while the post-liberalization period continued from 1987 to 2008. The findings show that the variable that impacts most on the economy owing to financial liberalization is the

real GDP which recorded positively the highest contribution. This implies that financial liberalization positively increases the growth of the economy. The study of Banam (2010) analyzed the impact of financial liberalization on economic growth in Iran through Johansen Co-integration test using time series data from 1965 to 2005 while also investigating the determinants of economic growth. The financial liberalization index was represented by the financial restraints index which includes interest rate controls, reserve requirements and directed credit multiplied by -1. The results suggest that financial liberalization has positive and statistically significant impact on economic growth measured by the gross domestic product in Iran. The findings provide support to Mckinnon (1973) and Shaw (1973), who argued that financial liberalization can promote economic growth by increasing investment and productivity.

Bashar and Khan (2007) in their econometric study of Bangladesh evaluated the impact of liberalization on the country's economic growth by analyzing quarterly data from 1974Q1 – 2002Q2 using Co-integration and Error Correction Method. The variables used was per capital GDP, gross investment as a share of GDP, labour force as a share of population, secondary enrolment ration, trade openness indicator, real rate of interest and net capital inflows. The empirical results show that the coefficient of the financial liberalization policy variable (real interest rate) is negative and significant, implying that financial liberalization has had negative effect of Bangladesh's economic growth. The study discards the fact that financial liberalization foster economic growth as asserted by Mckinnon and Shaw. Faria, Paula, Pires, and Meyer (2009) examined the relationship among capital account liberalization, economic performance and macroeconomic stability in Brazil using the VAR methodology. Two models were constructed: one with a de-jure index of financial liberalization which includes GDP, Nominal Exchange Rate, Country Risk and Interest Rate and another with a de-facto index of financial integration including GDP, Nominal Exchange Rate, Inflation Rate and Interest Rate. The study database spans from 1994Q2 to 2007Q4. Their results offer no evidence that financial liberalization has generated positive effects on inflation and economic growth. Apart from raising the rate of inflation, it has an adverse effect on exchange rate. The research supports the criticism of financial liberalization that its destabilizing effects supercede its potential beneficial effects.

Munir, Awan, and Hussain (2010) in Pakistan examined the short and long run relationship among investment, savings, real interest rate on bank deposits and bank credit to the private sector, accompanied with the impact of financial liberalization on key macroeconomic variables for the period 1973 to 2007 using Co-integration test and Error Correction Method to analyze the annual time series data. Financial liberalization was proxied by a dummy variable, taking value 1 for the years of liberalization i.e. 1990 – 2007 and zero for non-liberalization years (1973 – 1989). Their findings show that financial liberalization has no positive effect on private credit and private investment because interest rate has been negative for some years due to high inflationary situation in Pakistan. The study recommended more need for the deregulation of interest rate so that savings could be mobilized to promote capital formation which leads to economic growth. Evidence showed that financial liberalization made no significant impact; nevertheless, their results strongly favour the Mckinnon-Shaw hypothesis. Achy (2003) conducted a cross-country regression analysis to examine the effect of financial liberalization on savings, investment and economic growth in sample of five MENA countries (Egypt, Jordan, Morocco, Tunisia and Turkey) over the period 1970 – 1998. To examine its effect on growth, the estimated growth equation relates real GDP to a set of financial depth measures, real interest rate, private investment rate, external debt/GDP ratio, annual change of terms of trade and real exchange rate overvaluation, all proxied for financial liberalization. The study employed the Fixed-Effects Estimation which allows each country to have its own intercept. The findings suggest that financial liberalization has led to further distortion of credit allocation in favour of consumption at the expense of productive activities because the financial depth indicators fail to explain growth experience in these countries. The study shows that financial liberalization is in line with the Keynesian view and inimical to financial development.

Ozdemir and Erbril (2008) empirically investigated the impact of financial liberalization on economic growth in 10 new European Union countries and Turkey between 1995 and 2007. They constructed different financial openness indicators using panel data for different types of financial flows such as foreign direct investment, other investments, portfolio investments, trade openness index as well as other control variables. Employing the Ordinary Least Square (OLS) method, their static robust and dynamic panel data estimates indicates clear evidence between the long-run growth and a number of financial liberalization indicators which confirms the anticipations of the 'new growth theory'. Their findings take cognizance of financial liberalization as a policy tool because of its possibility to promote economic growth. Fowowe (2004) used panel data to assess the effects of financial liberalization policies in the growth of 19 countries in Sub-Sahara Africa for the period 1978-2000. Two indexes and a dummy variable for financial liberalization (assigning value of zero prior to liberalization

and 1 after liberalization) were constructed. The control variables were initial income per capital, investment, life expectancy, degree of openness, and the debt service ratio. The study employed both the Fixed Effects and Dynamic Panel Estimator and also Ordinary Least Square Method and Random Effects estimations to assess the sensitivity of the results. The estimates show a significant positive relationship between economic growth and financial liberalization policies. The study provides evidence to validate the growth-stimulating effect of financial liberalization.

Asamoah (2008) assessed financial liberalization and its impact on savings, investment and the growth of GDP in Ghana. The data used included monthly savings and interest rates and also yearly and seasonal dummy variables instead of post and pre-liberalization as the dummies. The empirical estimation of 42 observations i.e. January 2000 to June 2003 was evaluated using the Ordinary Least Square (OLS) regression analysis. The results show that the rise in interest rate over the years after liberalization of the financial sector has led to a corresponding increase in savings which has a positive impact on the growth of GDP. The findings showed that financial liberalization has increased the rate of capital accumulation and improved efficiency in capital utilization which is both essential for economic growth. Adam (2011) investigated the impact of Ghana's financial openness induced growth on poverty using the Johansen Co-integration test and Granger-Causality tests. The study was limited to the period from 1970 to 2007. Annual Standard of Living Index (SLI) was proxied for poverty and the financial liberalization index was constructed using Principal Component Analysis (PCA). The results showed that there is a positive relationship between growth and standard of living, though it is disproportionate. Also, it provides evidence that there exist a positive long-run relationship between growth and financial liberalization. This means that Ghana's financial liberalization has contributed positively towards its economic growth.

Nair (2004) examined the impact of financial sector liberalization measures on household sector saving rate in India by constructing a continuous time series financial liberalization index which includes total credit to household sector by bank and other financial institutions, foreign investment, market capitalization ratio and real effective exchange rate. The study covered the period 1970/1971 to 1999/2000. The financial liberalization index along with other determinants of household savings was estimated using the VAR methodology. It can be deduced from the findings that the financial liberalization index has a negative impact on household saving rate due to the fact that the increased credit availability as a result of financial liberalization lead to increase in consumption rather than savings. Evidence from this study provide argument to nullify the Mckinnon-Shaw complementarity hypothesis which asserts that financial liberalization is capable of increasing savings and economic growth and financial repression will do otherwise.

3. METHODOLOGY

The study adopts an econometric model in determining the effect of financial liberalization on economic growth in developing countries, taking the Nigerian case in both the short and long run deterministic equilibrium. The study gathered time series annual data for the period covering 1987 to 2009 from the Central Bank of Nigeria Statistical bulletin and National Bureau of Statistics. The methodology allows for a short and long run equilibrium relationship to be established. The methodology involves econometric techniques such as; Ordinary Least Square (OLS) method, Augmented Dickey-Fuller (ADF) Unit Root test, Johansen Co-integration test and Error Correction Mechanism (ECM). The study hypothesized that financial liberalization does not have a significant effect on economic growth of Nigeria.

3.1 Model Specification

The model employed in this study is built based on the modification of the models in Kasekende and Atingi-Ego (2003), Faria et al. (2009), and Akpan (2004). For the purpose of this study, Degree of Openness was included because it is seen as an important financial liberalization proxy. The model specifies the endogenous variable (Gross Domestic Product) as a function of Lending Rate, Exchange Rate, Inflation Rate, Financial Deepening, and Degree of Openness representing the exogenous variables. The model is specified as follows:

$$GDP = f(LR, EXR, INF, FD, DOP) \dots (1)$$

Where;

GDP = Gross Domestic Product

LR = Lending Rate

EXR = Exchange Rate

INF = Inflation Rate

FD = Financial Deepening

DOP = Degree of Openness

f = functional relationship

The econometric form of equation (1) is represented as:

$$GDP = B_0 + B_1LR + B_2EXR + B_3INF + B_4FD + B_5DOP + e \dots\dots (2)$$

Where:

B_0 = Intercept of relationship in the model/constant

B_1 - B_5 = Coefficients of each independent or explanatory variable

e = Stochastic or Error term

By loglinearizing, the model becomes;

$$\log GDP_t = B_0 + B_1 \log LR_t + B_2 \log EXR_t + B_3 \log INF_t + B_4 \log FD_t + B_5 \log DOP_t + e \dots\dots (3)$$

By specifying the error correction model (ECM) from equation (4), the model becomes:

$$\Delta \log GDP_t = B_0 + B_1 \sum_{i=0} \log LR_{t-1} + B_2 \sum_{i=0} \log EXR_{t-1} + B_3 \sum_{i=0} \log INF_{t-1} + B_4 \sum_{i=0} \log FD_{t-1} + B_5 \sum_{i=0} \log DOP_{t-1} + \sum_{i=0} ECM_{t-1} + \sum_{i=0} \dots\dots (4)$$

$\sum_{i=0} ECM$ = Error Correction term

$t - 1$ = variable lagged by one period

\sum_t = White noise residual

The ‘a priori’ expectations are determined by the principles of economic theory and refer to the expected relationship between the explained variable and the explanatory variable(s). It is expected that $B_1, B_2, B_3 < 0$ while $B_4, B_5 > 0$.

4. DATA ANALYSIS AND INTERPRETATION OF FINDINGS

The study investigates the quantitative effect of financial liberalization on economic growth in developing countries, with special preference given to the Nigerian economy. The data are analyzed following a methodological approach that allows for short and long run relationships existing between the dependent variable and independent variables to be revealed.

4.1 Presentation of Ordinary Least Square (OLS) Results: Short-Run Analysis

The table below presents the ordinary least square results conducted on the specified model. The OLS results reveal the short run relationship that exists between the dependent variable and each of the independent variable.

Table 4.1: Summary of OLS Results

Source: Author’s Computation

Dependent Variable	Independent Variables					Summary of Results				
	Constant	LR	EXR	INF	FD	DOP	R ²	Adj.R ²	F-Cal	DW-Stat
GDP	16.47310* (6.568368)	-1.631900* (-2.518468)	1.257630* (12.25188)	-0.008190 (-0.053349)	-0.416888 (-0.891857)	0.283469 (0.418083)	0.9317	0.9116	46.399*	1.1244

Note: - T-statistics are stated in parenthesis and * means significant at 5% significance level.

From the table above, the model can now be mathematically expressed in the short run as:

$$GDP = 16.47310 - 1.631900_{LR} + 1.257630_{EXR} - 0.008190_{INF} - 0.416888_{FD} + 0.283469_{DOP} + e$$

From the above OLS results, it could be inferred that the constant parameter is positively or directly related to GDP. The coefficient of the constant parameter (B_0) is +16.47310. This implies that if all the explanatory variables are held constant, GDP which is the explained variable will increase by 16.47310 units. The coefficient

of lending rate is -1.631900. This signifies that in the short run, lending rate (LR) is inversely related to GDP and this is in conformity with the a priori expectation. A unit increase in LR means that GDP will decrease by 1.631900 units. Also, the coefficient of exchange rate (EXR) is 1.257630 and this implies that a direct relationship exist between GDP and EXR in the short run. The short run equilibrium relationship existing between GDP and EXR does not conform to the a priori expectation. The relationship shows that a unit increase in EXR will cause GDP to rise by 1.257630 units.

The coefficient of INF is -0.008190. This means that a negative relationship subsists between GDP and INF and this is in consonance with the a priori expectation. GDP will decrease by 0.008190 units if the inflation rate increases by a unit. Also, the coefficient of financial deepening (FD) is -0.416888. This shows that FD is negatively related to GDP and this relationship discards that stated a priori expectation. A unit increase in the ratio of M_2 to GDP i.e. FD will consequently lead to GDP decreasing by 0.416888 units. The coefficient of DOP (trade dependency ratio) is +0.283469. This is in agreement with the a priori expectation because the value of the coefficient of DOP shows that in the short run, a direct relationship exists between GDP and DOP. A unit increase in DOP i.e. ratio of imports (M) and exports (X) to GDP will lead to increase in GDP by 0.283469 units.

The coefficient of multiple determination denoted as R^2 with a value of $0.9317 \approx 0.93$ shows that 93% of total variation in GDP can be explained by LR, EXR, INF, FD and DOP while the remaining 7% is being explained by the stochastic/error term in the model.

4.2 Unit Root Test

Time series data are often assumed to be non-stationary and thus, it is necessary to perform unit root test to ensure that there is stationary of data. The test would be employed to avoid the problem of spurious regression. In conducting this test, the Augmented Dickey-Fuller (ADF) unit root test would be employed to determine the stationarity of data.

The decision rule is that Augmented Dickey-Fuller (ADF) test statistics must be greater than Mackinnon Critical Value at 5% and at absolute term i.e. ignoring the negativity of both the ADF test statistics and Mackinnon critical value, before the variable can be adjudged to be stationary, otherwise we accept the null hypothesis (H_0) i.e. data is non-stationary and reject the alternative hypothesis (H_1) i.e. data is stationary.

The results of the ADF unit root test is reported in table 4.2 and 4.3

Table 4.2: Result of ADF Unit Root Test at Level

VARIABLES	ADF TEST STATISTICS VALUE	5% MACKINNON CRITICAL VALUE	DECISION RULE		REMARKS
			H_0	H_1	
GDP	-1.913463	-3.0114	Accept	Reject	Non-Stationary
LR	-2.651784	-3.0114	Accept	Reject	Non-Stationary
EXR	-1.685591	-3.0114	Accept	Reject	Non-Stationary
INF	-2.934427	-3.0114	Accept	Reject	Non-Stationary
FD	-2.257030	-3.0114	Accept	Reject	Non-Stationary
DOP	-3.315445	-3.0114	Reject	Accept	Stationary

Source: Author's Computation

From the table revealing the results of the test for stationarity of data at level i.e. before differencing, it could be deduced that all the variables except DOP have their ADF test statistics value lesser than the Mackinnon critical value (at absolute term) and at 5%. To ensure the stationarity of data for variables found to be non-stationary at level, there is need to proceed to test for stationarity at first difference. The first difference ADF unit root test is presented below:

Table 4.3: Result of ADF Unit Root Test at First Difference

VARIABLES	ADF TEST STATISTICS VALUE	MACKINNON CRITICAL VALUE AT 5%	DECISION RULE		REMARKS
			H ₀	H ₁	
GDP	-3.108845	-3.0199	Reject	Accept	Stationary
LR	-5.942922	-3.0199	Reject	Accept	Stationary
EXR	-3.211480	-3.0199	Reject	Accept	Stationary
INF	-5.363262	-3.0199	Reject	Accept	Stationary
FD	-3.414786	-3.0199	Reject	Accept	Stationary

Source: Author's Computation.

From the table 4.3, it could be revealed that all the variables (GDP, LR, EXR, INF, and FD) were stationary at first difference. This is because their respective ADF test statistics value is greater than Mackinnon critical value at 5% and at absolute term.

Summary of Order of Integration

Table 4.4: Summary of Order of Integration

Variables	Order of Integration
GDP	I (1)
LR	I (1)
EXR	I (1)
INF	I (1)
FD	I (1)
DOP	I (0)

Co-integration Test

The concept of co-integration is relevant to the problem of determination of long-run equilibrium relationship. Co-integration is the statistical implication of the existence of a long-run equilibrium relationship between variables. The condition for a long run co-integrating vector is that the trace statistics (likelihood ratio) must be greater than 5% critical value.

Table 4.5 Presentation of Johansen Co-integration Result

Eigen Value	Likelihood ratio	5% Critical value	1% Critical value	Hypothesized No. of CE(s)
0.947499	136.4822	94.15	103.18	None **
0.856503	74.59687	68.52	76.07	At most 1*
0.541178	33.82665	47.21	54.46	At most 2
0.403214	17.46569	29.68	35.65	At most 3
0.253931	6.625545	15.41	20.04	At most 4
0.022313	0.473870	3.76	6.65	At most 5

* (**) denotes rejection of the hypothesis 5% (1%) significance level.

L.R. test indicates 2 co-integrating equation(s) at 5% significance level

Source: Author's Computation.

From the table above, it could be inferred that long-run relationship or co-integration exists among gross domestic product (GDP), Lending rate (LR), Exchange rate (EXR), Inflation rate (INF), Financial deepening (FD) and Degree of Openness (DOP). This is because the critical value at 5% is less than the likelihood ratio in row 1 and 2. Therefore, the hypothesis of no co-integration has been rejected at 5% significance level.

The Long Run Model

The result of the Johansen co-integration shows the existence of long run relationship among the variables. The co-integrating equation will be chosen based on log likelihood ratio. If the log likelihood ratio is positively

signed, we chose the equation with the lowest log likelihood ratio and if negative signed, we chose the highest log likelihood ratio at absolute term.

From the Johansen co-integration result, all five log likelihood ratio of the respective co-integrating equations are positively signed. Therefore, the lowest log likelihood ratio is chosen. The lowest log likelihood ratio is 72.76462 and its corresponding co-integrating equation is stated below;

$$\text{GDP} = 6.235907_{\text{LR}^*} - 0.882132_{\text{EXR}^*} + 0.549840_{\text{INF}^*} - 3.667020_{\text{FD}^*} - 1.093489_{\text{DOP}^*} - 20.67370$$

$$(0.52950) \quad (0.05069) \quad (0.11099) \quad (0.59900) \quad (0.39821)$$

Note: The Standard Error Statistics are those stated in parenthesis and * denotes that the parameters are significant in the long-run.

From the equation, if all independent variables are held constant, GDP will reduce by 20.67370 units in the long run. The coefficient of LR is +6.235907, implying a positive relationship between LR and GDP on the long run. A unit increase in LR will cause a rise in GDP by 6.235907 units.

The coefficient of EXR is -0.882132. The coefficient is negatively signed showing that in the long run, EXR and GDP are inversely related. GDP will decrease in the long run by 0.882132 units if EXR increases by a unit. INF has a coefficient of +0.549840. It can be deduced that in the long run, if INF should increase by a unit; it will cause GDP to increase by 0.549840 units.

The coefficient of FD is -3.667020. The negatively signed coefficient signifies that FD and GDP have a negative long run relationship. A unit increase in FD (M_2/GDP) means that GDP will decline by 3.667020 units. DOP has inverse relationship with GDP in the long run because of the negative sign attached to its coefficient. The coefficient is -1.093489. This implies that as DOP increases by a unit, GDP will decrease by 1.093489 units.

Also, all the variables except EXR do not conform to the a priori expectation in the long run. Moreover, all variables except FD provided opposite relationship with GDP in the long run to what is obtainable in the regression equation providing the short run result.

Error Correction Mechanism (ECM)

The error correction mechanism is the speed or degree of adjustment i.e. the rate at which the dependent variable adjust to changes in the independent variables. Since a long run equilibrium relationship has been established, the next step is test for the speed of adjustment using the short run dynamism of error correction mechanism (ECM). The ECM involves specifying an over-parameterized model (ECM1) and afterwards, estimating a parsimonious model (ECM2).

An over-parameterized error correction model is estimated by setting the lag length long enough to ensure that the dynamics of the model have not been constrained by a too short lag length.

Table 4.6: Result of the Over-Parameterized Model (ECM1)

Dependent Variable = D (GDP, 2)

Variable	Co-efficient	Standard Error	T-Statistics	Probability Value
D(GDP(-1),2)	-0.461380	0.233150	-1.978894	0.0832
D(LR,2)	0.048880	0.115346	0.423771	0.6829
D(LR(-1),2)	0.163594	0.134529	1.216047	0.2586
D(EXR,2)	0.107939	0.085955	1.255770	0.2446
D(EXR(-1),2)	0.190022	0.060469	3.142479	0.0138
D(INF,2)	0.043340	0.032020	1.353525	0.2129
D(INF(-1),2)	0.016595	0.036262	0.457638	0.6594
D(FD,2)	-0.496747	0.136469	-3.639983	0.0066
D(FD(-1),2)	-0.206928	0.224689	-0.920953	0.3840
D(DOP,2)	0.119661	0.138381	0.864723	0.4124
D(DOP(-1),2)	0.127857	0.089642	1.426306	0.1916
ECM(-1)	-0.168135	0.0069618	-2.415116	0.0422

$$R^2 = 0.953116$$

Source: Author's Computation.

The over-parameterized ECM results above shows that the coefficient of the error correction term is significant with the negative sign i.e. the – sign justifies its significance. This means that it will be effective to correct any deviations from the long-run equilibrium. The coefficient of ECM is -0.168135, indicating that, the speed of adjustment to long run equilibrium is 16.8% when any past deviation will be corrected in the present period. This implies that the present value of GDP adjust slowly to changes in LR, EXR, INF, FD and DOP.

However, there is a need to simplify the model into a more interpretable and certainly more parsimonious model. The parsimonious model would be built by estimating the equations of only those variables found to be significant in the over-parameterized model.

Table 4.7: Result of Parsimonious Model (ECM2)
Dependent Variable = D (GDP, 2)

Variable	Co-efficient	Standard Error	T-Statistics	Probability Value
D(GDP(-1),2)	-0.271150	0.112631	-2.407477	0.0316
D(LR(-1),2)	0.248443*	0.077356	3.211701	0.0068
D(EXR(-1),2)	0.117339*	0.046763	2.509199	0.0261
D(INF,2)	0.035320	0.025723	1.373085	0.1929
D(FD,2)	-0.637834*	0.092524	-6.893745	0.0000
D(DOP(-1),2)	0.079957	0.057893	1.381110	0.1905
ECM (-1)	-0.126287	0.056988	-2.216031	0.0451

$R^2 = 0.908519$

Note: * denotes that the coefficients are significant at 95% confidence level.

Source: Author's Computation.

From the table above, it shows that the coefficient of ECM is -0.126287. The ECM is significant with the appropriate negative sign. The coefficient of ECM in the parsimonious model indicates that the speed of adjustment of any past deviation to long run equilibrium is 12.6%. This shows that present value of the dependent variable adjust more slowly to changes in the independent variables than what was obtained in the over-parameterized model.

The result of the parsimonious model also reveals that all variables except INF and the lagged value of DOP are significant. Their significance was determined taking into consideration their probability value. The corresponding probability value of each variable must be less than 10%. It can be concluded that changes affecting GDP are determined by LR, EXR, FD in the short run and INF and DOP in the long run.

The table reveals that the coefficient of FD is negative while the coefficients of INF, LR, EXR and DOP are positive. From the results, it could be deduced that LR has a direct relationship with GDP because of the positively signed coefficient i.e. +0.248443. This implies that a unit increase in LR will lead to increase in GDP by 0.248443 units. Also, the coefficient of EXR (+0.117339) suggests that a positive relationship subsists between EXR and GDP. The implication of a unit change in EXR is that GDP will consequently increase by 0.117339 units.

The results also indicate that INF and GDP are positively related. The INF coefficient is +0.035320. A unit increase in INF will only cause GDP to rise by 0.035320 units. However, FD and GDP are negatively related. FD has a coefficient of -0.637834. This means that if FD should increase by a unit, GDP will decrease by -0.637834 units. The DOP coefficient of +0.079957 shows that a direct relationship exists between DOP and GDP.

The coefficient of multiple determination (R^2) is $0.908519 \approx 0.91$ which indicates that 91% of total variations or changes in the present value of GDP is explained by changes of past value in the explanatory variables (LR, EXR, INF, FD and DOP) while the remaining 9% is explained by other variation outside the model i.e. the error term.

4.8 Implication of Findings

The hub of the study is to determine the effect of financial liberalization on economic growth in emerging economies, with special inclination given to the Nigerian economy. A vivid observation of the results shows that all the explanatory variables and their lagged variables are positively related to GDP except FD and its lagged

variable which has an inverse relationship with GDP. The implication of the negativity of FD which is not in consonance with the a priori expectation means that although financial liberalization can cause financial development but the instability of the financial system and the frequent implementation of financial sector reforms have caused FD not to positively impact on the economy.

In non-conformity with the a priori expectation, LR and its lagged value have a direct relationship with GDP. This implies that the deregulation of interest (lending rate) has been beneficial to the prospective investors and the economy at large. The movements in lending rate did not deter investors to seek funds from financial institutions for their various investment projects and through these investment projects, economic growth is boosted. Also, EXR and its lagged variable as against the a priori expectation have a positive relationship with GDP. The implication of this is that though the exchange rate of a key currency (U.S. dollar) to the Nigeria Naira might be on the high side, it has not in anyway adversely affected the economy; instead it has yielded positive results. This is to say that the deregulation of exchange rate has enabled Nigeria to effectively compete in the international market and this would boost her economic growth.

Surprisingly, INF and its lagged variable are positively related to GDP as against the a priori expectation. INF which cause price to rise has encouraged production instead of consumption. Producers invest more in anticipation of higher profit and this tends to raise the levels of employment, production and income and this consequently cause economic growth to be achieved in Nigeria. Therefore, the macro economic instability accompanied with financial liberalization is gainful to the Nigerian economy.

In line with the a priori expectation posited, DOP and GDP are directly related. This positive relationship shows the success of globalization in Nigeria as a result of the financial liberalization. The globalization has constituted a major factor for economic growth in Nigeria. The test of statistical significance of the parameters from the parsimonious model result implies that LR, EXR, and FD are statistically significant in explaining any changes that might occur in the economic growth of Nigeria. Also, the F-Calculated value obtained in the OLS result implies that the model is adequate enough to explain GDP; this means that the model sufficiently captures the effect of financial liberalization on economic growth.

5. CONCLUSION AND RECOMMENDATIONS

It can be adduced that financial liberalization is a prominent feature in both developed and developing nations. The core of the study has been to determine and examine the quantitative effect of financial liberalization on the economic growth of developing countries with particular inclination to the Nigeria experience. The study employed the Johansen Co-integration test and Error Correction Mechanism (ECM) in its analysis. The unit root test was carried out to establish that the time series data on all the variables are stationary, which is a prerequisite for the Johansen Co-integration test. The result of the co-integration test shows that there exists a long run equilibrium relationship among the variables. The error correction mechanism shows that the speed of adjustment in both the over parameterized and parsimonious model is significant because it is negatively signed.

The main finding emerging from this study indicates that financial liberalization in Nigeria has been significant on her economic growth; hence, it justifies the assertion of Mckinnon (1973) and Shaw (1973) on financial liberalization. Also, the study concludes that financial liberalization has not refrained investors from seeking funds from banks at the deregulated lending rate. The lending rate also allowed for the effective and efficient intermediation of funds to the users of funds to participate in productive activities that contribute to economic growth. The determination of the exchange rate by international market forces of demand and supply has not been detrimental to the economy of Nigeria instead it has been significant to boost economic growth. The macroeconomic instability perceived with financial liberalization does not have a negative influence on the overall output of the economy, hence, it is concluded that the macroeconomic instability cannot be attributed to financial liberalization. Though, financial development is significant for economic growth, financial liberalization has not really increased the depth of the financial system which would consequentially impact on the economy positively. The degree of openness or trade dependency ratio is an important aspect of globalization which shows that the trade relation of Nigeria with the rest of world has contributed significantly towards economic growth.

In light of the findings of this study, it is of cognizance to recommend policy measures to further enhance the effect of financial liberalization on economic growth. The following recommendations were made;

- i. The stability of the economy should first be taken into consideration before implementing financial liberalization measures. Strong macroeconomic policies should be pursued to maintain and stabilize the economy.
- ii. The regulatory and supervisory framework for the financial sector should be strengthened. One way to achieve this is by laying down strict prudential rules and regulations to stabilize and strengthen the banking industry.
- iii. The policy towards interest rate should be made such that savings would be stimulated thereby placing more funds in the hands of banks to intermediate to investors seeking funds. Also, lending rate should be reasonable so as not to deter investors to borrow to embark on viable investment projects.
- iv. Government should avoid depreciation in the value of the nation's currency (Naira) and also maintain stability in the exchange rate.
- v. Government should create a conducive business environment to encourage both local and foreign participation in investment thereby engendering economic growth.
- vi. Proper integration of the financial sector should be ensured by the government so that financial units can be strategically positioned and adequately capable to intermediate funds, thereby promoting financial development.
- vii. The monetary authority (CBN) should implement policies that increase the flow of investible funds and improves the capacity of banks to extend credit to the economy.
- viii. The CBN should promote healthy competition in the banking industry so as to improve the efficiency of banks in rendering financial services to the public.

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