Journal of Economics and Sustainable Development
ISSN 2222-1700 (Paper) ISSN 2222-2855 (Online)
Vol.4, No.17, 2013

Multivariate Analysis of the Impact of the Commercial Banks on the Economic Growth

A.O. Abam* O.C. Akeremale
Mathematics Department, Federal University Lafia, P.M.B.146, Lafia, Nigeria.
*E-mail: abamayeni@gmail.com

Abstract
There would be no meaningful growth and development in any economy until Commercial Banks are involved in the promotion and transformation of capital formulation and productivity. This article assesses and analyses the impact of commercial Banks on Economic Growth in the multivariate way using the Ordinary Least Square Method [OLS]. The t-statistic, F- Statistic and coefficient of determination [R-Square] were used to test the Statistical criterion, Economic criterion and Measurement of the goodness-of-fit of the estimated regression model.
The investigation and result of the time series data of the period of 1970-2009 in Nigeria shows that the Commercial Banks Deposit Liability [BDL] and Lending Rate [LR] had a positive relationship with the Gross Domestic Product [GDP]. While the Number of Banks [NBKS] had a negative but insignificant relationship with the Gross Domestic Product implying that, Commercial Banks Credits, Deposit Liability and Lending Rate help in achieving the Growth and Development of a country, say Nigeria. The study concludes that, Polices aimed at increasing the capital base of the Commercial Banks should be pursued vigorously in order to increase their Loanable funds and achieve sustainable economic growth and development.
Keywords: Auto- correlation, Coefficient of Determination, Deposit Liability, Econometrics, Entrepreneur, Estimated model, Growth/ Development, Impact, Multivariate, Nascent industries, Policies.

1 Introduction

According to Toyin [1991], the basic responsibility of the Banking industry in any economy is its contributions in the economic growth and development. Adewunmi [1996] and Mackinnon [1973] believe that, Commercial Banks serve as a catalyst for promotion of capital formulation,productivity through their dimensional activities in the saving investment processes, receiving and paying money to their customers using different types of accounting facilities such as the matching principle. Adekanye (1983) and Toyin (1991) revealed that, Commercial Banks enhances the process of using bank drafts, mail and telegraphic transfers in international exchange and payment. Iganiga et al (2006) advocated that Commercial Banks undertake collection of cheques and provision of traveler's cheques and foreign exchange, transmission of monetary policies, provision of loans like educational, agricultural, utility, subsidies, finished goods etc, financing for infrastructure, taking over bigger grant industries and financial monitoring operations, keeping of tight security control policy in deposits and securities, creating an organized money creation policy rule as well as sponsors big events to promote the countries tourism and culture.
Different financial theories and hypotheses on economic growth had been considered. A German Economist Gershenkron (1962) postulated that "the less developed an economy is, the greater the part played by special institutional factors designed to increase supply of capital to the nascent industries and in addition to provide them with the less decentralized and better entrepreneurial guidance". He identified three major types of economy at different stages of industrialization following the study earlier advocated by Schumpeter (1933; 1954). These include: (i) An Advanced Economy (English type of industrialization), (ii) A Moderately Backward Economy (German continental type) and (iii) Extremely Backward in the Advanced Economy.
Other theories include: (i) The Demand Following and Supply Leading financial theory (D-F and S-L). The D-F financial refers to a kind of financial development that reacts positively to economic activities, while the S-L finance is the establishment of financial institutions in some areas before the demand for their services is considerable. This theory noted that, the financial system may be simultaneously growth inducing and growth induced. The creation of the rural banking scheme arising from the Okigbo (1976) was a direct response to the study leading to the decongestion of the urban centres of banks and promotion of the development of banking habits, culture and services in rural areas.
(ii) The Financial Repression Hypothesis is concerned with the negative effect on economic development when the government discourages savings and distorts the flow of credits. Cameron (1973), Shaw et al (1973) and Mckinnon (1973) studies revealed that market forces and financial liberalization would bring about an optimum financial structure and development as well as the efficient mobilization of savings and allocation of credits.

1.1 Methodology

In analysing and assessing the impact of Commercial Banks on Economic Development in Nigeria, the Ordinary

Least Square (OLS) Economic technique was used to analyse the estimation model of the time series data for the period of 1970 – 2009. OLS was chosen as the Best Linear Unbiased Estimator (BLUE) since it has the minimum variance, mean square error as well as sufficiency when compared with other econometric estimator. In this paper, we assumed that Commercial Banks have significant impact on Economic development of the Nigerian Economy. Using a quantitative type of data from the Central Bank of Nigeria (CBN) Annual Report / Statement of Account and CBN Annual Statistical Bulletin, the following model was formulated.

1.2 Model Formulation

GDP = f (CBCR, BDL, LR, NBKS). Where

GDP = Gross Domestic Product at Fact cost which is the dependant variable while others are the independent variables. CBCR = Commercial Banks total credits.BDL = Commercial Banks Deposit Liabilities.LR = Lending Rates. NBKS = Number of Commercial Banks.

The model estimation for obtaining the numerical values (estimates) of the coefficient parameters is:

$GDP = a_0 + a_1 CBCR + a_2 BDL + a_3 LR + a_4 NBKS + \varepsilon$- - -(1)

Where: $a_0, a_1, a_2, a_4>0$, $a_3<0$ are model parameters and ε = error term

Taking the logarithm of equation (1) above we have

$\log GDP = \log a_0 + a_1 \log CBCR + a_2 \log BDL + a_3 \log LR + a_4 \log NBKS + \log \varepsilon$

$= a_0 + a_1 \log CBCR + a_2 \log BDL + a_3 \log LR + a_4 \log NBKS + \varepsilon$ - -- - - (2)

1.3 Criteria for Analysis

According to Everitt (2002) and Glantz et al (1990), the criteria for analysis of the above model are as follows:-

(1) Economic apriori: Is the prior expectation of the coefficient of the parameters that the model conforms to relevant economic theory. CBCR >0, ∂BDL > 0, ∂LR > 0, ∂NBKS < 0 and ∂ = derivative.

(2) Statistical Criterion: Is the first order test to ascertain the predictor power of the model, if the parameters used are in line with the t – statistical (if $a_0 + a_4>0$).

(3) Economic Criterion: Is the second order test estimation of the model and discussion criteria of its acceptability of the parameters and satisfying a prior restriction imposed by the theory using the F-statistic.

(4) Durbin- Watson (DW) statistic or test: Is used to test for the absence of auto- correlation of many variables in the model.

(5) Coefficient of Determination (R-Square) or Adjusted R-square: Is used to measure the goodness- of – fit of the estimated regression model. It measures the proportion of total variation in the dependent variable (that is explained by variation in the explanatory variable).

1.4 Results

From table 1, the following results were obtained.

Adjusted R- Square = 0.908 F – Statistic =95.21

P (Value) (F- Statistic) =0.000 Durbin –Watson=1.924

1.5 Discussion

Economic apriori criterion: The result reveals that CBCR, BDL, LR with positive coefficient conforms to a priori economic criteria. This confirms that there exist a positive significant relationship between the dependent variables (GDP) and the independent variables (CBCR, BDL and LR). An increase in the independent variables will cause an increase in the GDP. A one percent increase in CBCR will lead to 0.840 percent increase in GDP. However, lending rates estimates coefficient indicates negative. This suggests that large number of banks with low capital base impedes negatively to economic growth. The theory postulate that, commercial banks encourages savings, investments, provides capital needed for development, provides direct loans to the government and individuals for investment purposes. Hence, creating job opportunities to young school leavers, providing managerial advice to small scale industrialists thus avoiding bankruptcy which promotes economic growth.

Statistical criterion: This evaluates the reliability of the estimates of the model parameters. It uses the correlation coefficient and the standard error of the estimates. Using the t-statistic, CBCR is statistically significant at 5% level but may not be significant at 1% level. However, BDL and NBKS are significant at 5% level. The coefficient of determination adjusted R- Square is equal to 0.908 and this shows that 91% of the total variation in the GDP is explained by the independent variables leaving about 9% unexplained.

Economic criterion: This uses Durbin- Watson and t- statistic to test the overall significance of the research parameters. From table 1 above, the F-ratio is equal to 95.21 indicating that it is statistically significant, meaning, the Commercial Banks impacts Economic growth while the Durbin- Watson which is equal to 1.92 shows that, there is no auto-correlation between the variables.

1.6 Conclusion

The research reveals that there is a significant relationship between Commercial Banks and Economic Growth in Nigeria. That, an Economy depends on the determinant factors such as CBCR, BDL, and LR.

An increase in Commercial Banks' activities would have positive impact on economic growth. The study also shows that the interest rates of loans do not significantly explain economic growth and development. Hence, government should initiate measures in reducing the Lending Rates to encourage private small scale entrepreneurs and create jobs as well as improve economic performance.

Re- appraisal of policies, good political and economic atmosphere that will prompt the regular occurrence of bank liquidation will positively help to reduce the tension created in saver and their Lack of trust and confidence in the banking industry.

1.7 References

1. Adekanye, E.F. (1983; 2005). "The element of Banking in Nigeria" , F and A Publishers.
2. Adewunmi, W. (1996). "Mobilizing Domestic Resources for Economic Development: The Role of CBN and other Financial Institutions in CBN Economics and Financial Review". Vol. 34, No.4, July/ September.
3. Anyanwu, J. C. (1993; 2006). "Monetary Economics, Theory, Polices and Institutions", Onitsha, Hybrid Publishers Ltd.
4. Bertheday, J. C. et al (1996). Economic Growth, Convergence Clubs and the role of Financial Development". Oxford Papers, Vol.48, 300- 328.
5. Cameron, R. et al, (1976; 1998), "Banking in Early stages of Industrializations". New York, Oxford University Press. 18770-1914.
6. Gershenkron, A. (1962). "Economic Bank wardens in Historical Perspective". A book of Essays: Cambridge Massachusettes, Harvard University Press.
7. Gueley, J. G. And Shaw, E. (1967). "Financial Structure in Developing Economics". Fiscal and Monetary problems in Developing states (ed) Kwive, D. New York, Prayer Publishers.
8. Iganiga, B.O. and Obafemi, F. N. (2006). "The dynamics of the Nigeria Financial System Structure, Products and Reforms", Nigeria, Amfitop Prints and Computers.
9. Mckinnon, R. (1973; 2002). "Money and Capital in Economic Development", Washington D.C. The Broking Institute.
10. Nwankwo, G. O. (1975; 1984). "Banking Lending in a Developing Economy, the Nigerian Experience", in Africana Law, Vol. 19, Nos. 1 / 2, Spring.
11.Oloyede, E. O. (1975). "The Banking Customer and Banking Laws in Nigeria", Journal of African Law, Vol.19, No.1, Spring.
12. Toyin, P. (1991; 2003), "The Role of Banking System in the Management of the Economy", in CBN Bulletin, Vol. 15, No. 2, April/June.

Table 1 DATA ANALYSIS

Variable	Coefficient	Standard Error	t-statistic	P(value)
log CBCR	0.840208	0.180332	4.659229	0.0000
log BDL	0.027051	0.214145	0.126322	0.9002
log LR	0.053865	0.024085	2.236480	0.0320
Log NBKS	-0.068947	0.178267	-0.386764	0.7013
C	2.923732	0.882145	3.314343	0.0022

Table 2 DATA USED

YEAR	GDP	CBCR	BDL	LR	NBKS
1970	5205.1	351.4	624.8	7.00	273
1971	6570.7	502.0	657.1	7.00	318
1972	7208.3	619.5	793.7	7.00	367
1973	10997.7	735.5	1013.0	7.00	385
1974	18298.3	938.1	1693.9	7.00	403
1975	20957.0	1537.3	2839.2	6.00	436
1976	26626.3	2122.6	4164.4	6.00	463
1977	31520.3	3074.7	5235.2	6.00	492
1978	34501.1	4109.8	5302.6	7.00	614
1979	41977.7	4618.7	6967.8	7.50	672
1980	49632.3	6379.2	10009.1	7.50	740
1981	50456.1	8604.8	10676.9	7.25	869
1982	51653.4	10277.0	12018.9	10.25	991
1983	56312.9	11000.0	13938.5	10.00	1108
1984	62474.2	11503.4	15734.8	12.50	1249
1985	70633.2	12170.3	17597.1	9.25	1297
1986	71859.0	15701.5	18137.6	10.50	1367
1987	10813.0	17531.9	23089.9	17.50	1483
1988	142618.0	20044.9	29065.1	16.50	1665
1989	220200.0	22221.2	29164.9	26.80	1855
1990	271908.0	26083.9	38777.3	25.50	1939
1991	316670.0	31762.4	52208.9	20.01	2023
1992	536305.1	41810.0	75047.7	29.80	2275
1993	688136.6	48056.0	110453.6	36.09	2358
1994	904004.7	92624.0	142537.5	21.0	2403
1995	1934831.0	141146.0	178962.1	20.18	2368
1996	2703809.0	169242.0	214359.8	19.74	2407
1997	2801972.6	230600.0	280028.6	13.54	2407
1998	2721784.4	272895.5	314303.5	18.29	2185
1999	3313563.1	353081.1	476350.9	21.32	2185
2000	472522.6	508302.2	702104.5	17.98	2193
2001	5374334.8	796148.0	47198.4	18.29	2193
2002	6232243.6	954628.8	1209747.3	24.40	3010
2003	6061700.0	1210033.1	1417060.0	20.48	3247
2004	11411066.9	1519242.7	1778713.0	19.15	3492
2005	1561881.5	1991146.4	1160246.5	17.85	3492
2006	18564594.7	238543.4	2805572.0	17.26	3004
2007	23842170.7	11675012.2	3701309.2	16.94	3686
2008	23842170.7	6871302.7	7960167.0	15.94	3686
2009	23842172.5	6943521.8	7989258.4	15.84	3686

Source: CBN Annual Report and Statement of Account. C BN Annual Statistical Bulletin.

Acknowledgement:
Elder (Doctor) Lionel Effiom of the Department of Economics, Faculty of Social Sciences, University of Calabar, Calabar is acknowledged for his scholarly thesis supervision, econometric knowledge and advice given to us that has helped us in making this article a researchable material.