Interest Rate Liberalization, Financial Development and Economic Growth in Nigeria (1970-2008)

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Abstract

This paper presents a framework of analysis for examining the impact of changes in interest rate policy and financial reforms on economic growth. Using annual dataset for Nigeria for the period covering 1970 to 2008, our results are three-folds. Firstly, deposit rate of interest has a positive effect on financial depth. Secondly, the multivariate granger causality tests reveal that there is only one-way causality between financial depth and economic growth; the flow running from financial depth to economic growth. Finally, interest rate liberalization tends to granger cause financial depth and economic growth. This enquiry therefore suggests that a departure from rigidly fixed deposit rate of interest will enhance financial depth and improve the country's rate of economic growth. The current financial reforms should be directed at achieving a more liberal deposit rate of interest.

Keywords: Interest rate, Financial depth, Economic growth, Nigeria, Granger causality

1. Introduction

The linkage between financial development and the growth rate of an economy has long been a subject of intense scrutiny. In contrast to the sheer volume of previous studies on this subject, however, there has been no clear theoretical consensus on this topic. One view is that the relationship should be unidirectional running from financial development to economic growth. This notion traces its origins to Schumpeter (1912), and subsequently through variety of scholarly literatures triggered by Mckinnon (1973) and Shaw (1973) on the debate on financial intermediation and economic growth. They contend that financial deepening and savings, increase investment and therefore impact positively on economic growth. In another view, Robinson (1962) and Stiglitz (1994) have questioned the role of the financial system in promoting economic development. They argue that economic growth creates the demand for additional financial services, which in turn bring about more developed financial sectors. The third group hypothesizes a bidirectional causation between financial development and economic growth (see for instance, Demetriades and Hussein (1996), Neusser and Kugler (1996). The lack of theoretical consensus inevitably renders the question an empirical one.

However, what is worth noting is that the financial sector plays its role through interest rate. McKinnon (1973) and Shaw (1973) hypothesized that liberal interest rate regime motivates savers to convert some of their savings from unproductive real assets to financial assets and by so doing increase the supply of credit in the economy. Feyzioğlu, Porter, and Takáts (2009) confirmed that interest rate liberalization raise the cost of capital, increase the return on savings and allow smaller, more efficient banks to increase their role in intermediation. Thus efficiency of investment is increased. However, most developing countries in Africa have operated under quite repressive regimes. Most of these countries have embarked on several measures under the canopy of financial sector reforms to reposition the financial sector for economic growth. For some countries, there is evidence that the financial sector reforms have yielded fruits. For instance, empirical study for Zambia by Odhiambo (2009)

reveals that interest rate liberalization enhances financial deepening and hence economic growth. There is no a priori reason, however, to believe that this is the case with Nigeria.

This paper sets off with the aim of providing robust empirical evidence on the interest rate liberalization-growth relation in Nigeria. Our estimation results reconfirm the findings of earlier studies including Odhiambo (2009) that interest rate liberalization impact positively on financial deepening, which in turn brings about increase in economic growth. Our results have some bearing on financial sector reforms in Nigeria. Financial Policy should be directed at eliminating all manner of distortions to interest rate in order to encourage deposit and efficient resource mobilization by the financial institutions.

The paper is organized as follows. Section 2 reviews the existing literature on the link between interest rate liberalization and economic growth. Section 3 presents background information and stylized facts on financial depth, economic growth and deposit rate of interest in Nigeria. Section 4 sheds light on the methodology and data used for the empirical analysis. Section 5 reports the estimation results while section 6 concludes.

2. Literature Survey

McKinnon (1973) and Shaw (1973) revisited the financial liberalization hypothesis and triggered off the debate on financial liberalization, interest rate and economic growth relationship. Since then, the potency of interest rate liberalization has been on debate from the theoretical and empirical frontiers. McKinnon (1973) and Shaw (1973) hypothesized that liberal interest rate regime motivates savers to convert some of their savings from unproductive real assets to financial assets and by so doing increase the supply of credit in the economy. The contention is that this will affect financial deepening and savings, increase investment and thereby impact positively on economic growth. Ndebbio (2004) and Abiad, Oomes and Ueda (2004) in their work supports this view. Also, Feyzioğlu, Porter, and Takáts(2009) confirmed that interest rate liberalization raise the cost of capital, increase the return on savings, and allow smaller, more efficient banks to increase their role in intermediation. Thus efficiency of investment is increased. Ngugi and Kabubo (1998) explored the sequencing and actions taken in the liberalization process in Kenya. They focused on interest rate levels, spreads and determining factors, as an indicator of financial sector response to the reform process and found that the financial system was characterized by repression factors including negative real interest rates, inefficiency in financial intermediation and underdeveloped financial markets. They concluded that the economy was facing secondary financial repression and therefore needs to introduce policy measures that will lead to significant positive effects of financial liberalization.

More than before, arguments against the influence of interest rate liberalization through savings and investment have increased. There is the strong argument that it may not affect level of savings and where it does, its effect will be negative as it may reduce volume of savings. The reason found in literature is primarily that the income effect of increased interest rate may well counter the positive substitution effect found between savings and consumption. Giovannini (1983); Arrieta (1988); Cho and Khatkhate (1990); Warman and Thirwall (1994) and Bandiera et al (1999) are among the critics of the interest rate liberalization hypothesis. They maintain that high interest rate leads to increase in opportunity cost of consumption; households will substitute part of their consumption for savings, hence savings will increase. In the same vein, increase in wealth due to increase in interest rate will increase consumption. The ambiguous situation so created by rise in interest rate will produce counter effects and eventually lead to a negative overall effect on savings. In the same vein, Omole and Falokun (1999) believe that interest rate liberalization will adversely affect industrial operations and therefore economic development, hence they called for complementary policies that will accommodate industrial incentives such as tax reliefs, reduction in tariffs and provision of basic infrastructural facilities.

Another argument against interest rate liberalization is based on the interest rate elasticity of savings. It is expected that increase in real interest rate will reallocate only the available volume of savings to financial savings but total savings will remain unchanged. This is because high rate of interest attracts financial savings; in the sense that it becomes more rewarding to switch savings from other types to financial savings. However, it is known that investment in other assets like pension funds, mutual funds, shares and postal savings will produce same effect if they are made more attractive. But Gupta (1984) and Mahambare and Balasubramanyam (2000) have argued that such reallocation will not affect the volume of total savings. There is yet a third point against the interest rate liberalization hypothesis stemming from the position that at low levels of income, interest rate may not induce savings. This, they argue, is because economic agents tend to consume all income and may not save. This tends to persist even at a sustained high deposit rate until income rises above consumption level. The works of Japelli and Pagano (1989, 1994) and that of Hall (1978) clearly specify that even at relatively high levels of income financial reforms aimed at easing borrowing tend to induce consumption more than savings.

Experiences from empirical results left us with conflicting results in the investigation of effect of interest rate liberalization on Economic growth. World Bank (1989) working with data from 33 developing countries for the period 1965 – 1985 and Fry (1980) in his work with 7 Asian countries concluded that there is positive effect of real interest rate on economic growth. Other works that found positive relationship between interest rate or financial liberalization with growth include Roubini and Sala-i-Martin (1992). Gibsonal Tsakalotos (1994) had argued however, that Roubini and Sala-i-Martin work suffered from omitted variable bias. On the contrary, Khatkhate (1988) and Gupta (1984) found that the relationship is negative.

Similar to the relationship between interest rate liberalization and growth is that of financial deepening and economic growth. The results here have also been as ambiguous. Four possible relationship stands out in the literature concerning financial depth and economic growth. One of them is as observed by Graff (1999) that the two are not causally related at all; each of them charts its course and any empirical relationship observed is purely historical. The other is that financial depth follow growth in response to the demand follow hypothesis. The converse of this has been considered a possibility (FitzGerald, 2006). That is that, growth follows financial development in response to supply follow hypothesis. The fourth obvious case is that financial development and economic growth Granger cause one another.

Nonetheless, the studies of Odhiambo (2007, 2008) show that the relationship between financial development and growth may be country specific and time bound as well as dependent on the measure of financial development used. Guryay, Safakli and Tuzel (2007) examined the relationship between financial development and economic growth in Northern Cyprus using Ordinary least Squares Estimation Method (OLS) and found that there is a negligible positive effect of financial development on economic growth. However, the Granger causality test showed that financial development does not cause economic growth, rather, the evidence supports causality from economic growth to the development of financial intermediaries.

Abdul and Ying (2008), used bound test method (ARDL) to cointegration with deposit liability ratio (DLR) and credit to private sector (CPS) as proxies to financial development. They found that DLR and CPS have significant influence on economic development in Pakistan but in China DLR is positive and significant while CPS is positive but insignificant.

3. Trends in Interest rate, Financial Development and Economic Growth in Nigeria

In the last four decades, Nigeria has adopted various interest rate regimes. Figure 1 graphically highlights the trend of deposit rate in Nigeria between 1970 and 2008. Deposit rate fell very slowly between 1970 and 1977 when it began a steady upward increase until 1987 when it reached an unprecedented height of 15.6%. There was a sharp fall in 1988 to 13.7% followed by a sharp rise in 1989 to 20.3%. In 1991 it fell to 16.1% and began another upward rise to 23.3% in 1993. It again erratically fell to 13.8 in the next year and gradually sustained a decline to 10.5% in 2001. However, it rose sharply in the next year to about 17% and thereafter declined to 9.47% in 2007. The year 2008 witnessed another rise in interest rate to 12.86. These periods can be classified into pre-SAP, SAP and post-SAP or privatization regimes that are characterized with different interest rate repression and liberalization regimes.

The trend of financial deepening is depicted in Figure 2. As can be observed from the figure; financial depth exhibited the same pattern as deposit rate of interest. We witness again a gradual decent in financial deepening (measured herein by M2/GDP) between 1970 and 1974 and a steady rise from 1975 to 1988. The troughs after 1974 are experienced in 1989, 1996 and 2005 while the peaks occurred in 1984, 1993, 2003 and 2008. Accordingly, these are pointers to some form of close association between interest rate and financial deepening.

In Figure 3, we can see a slow but steady rise in per capita GDP from 1970 to 1980 and a phase of stagnation thereafter from 1981 to 2000. The year 2001 marks another phase of sharp and steady rise in per capita GDP in Nigeria. These three phases can without any loss of information be attributed to the three different regimes of financial and therefore interest rate regime that Nigeria has witnessed.

4. Methodology and Sources of Data

4.1 Financial Deepening Model

In pursuance of the primary objective of this study, this section begins with the formal specification of the relationship between interest rate liberalization and financial deepening. Following Odhiambo (2009a), we regressed the financial depth variable on real income, deposit rate, expected inflation and the lagged value of financial depth. The key motive behind this specification is to verify whether real interest rates positively or negatively affect financial depth. The model can be expressed as follows:

$$\log(FINDEP)_t = \alpha_0 + \alpha_1 \log(RGDP)_t + \alpha_2 \log(DEPRAT) + \alpha_3 \log(P^e) + \alpha_4 \log(FINDEP)_{t-1} + \varepsilon_t$$

where FINDEP is the financial depth variable proxied by M2/GDP; RGDP is real income; DEPRAT is the nominal deposit rate; P^e is expected inflation; and $FINDEP_{t-1}$ is financial depth lagged once.

The inclusion of the various variables is based on sound theoretical and empirical foundation. Deposit rate is expected to capture the impact of interest rate liberalization on financial deepening. The coefficient of deposit rate in the financial deepening model is expected to be positive based on the financial intermediation thesis that higher deposit rate encourage surplus households to save more thereby making more funds/finance available for investment and economic growth. The inclusion of real GDP is supported by the life cycle hypothesis and the coefficient of the variable is expected to be positive and statistically significant. The inclusion of inflation rate is meant to capture the impact of inflation on the various components of money. There has been an argument that inflation adversely affects the holding of all classes of financial assets and not just a narrow class. In addition, it has been argued that inflation tends to encourage the holding of currency and discourage the holding of quasi-money (Odhiambo, 2009b; Ikhide, 1992). According to English (1999) cited in Odhiambo (2009a), a higher inflation rate encourages households to substitute purchased transaction services for money balances, thereby boosting the financial sector. Hence, we expect the coefficient of expected inflation to be positive and statistically significant.

4.2 Granger Causality Model

A multivariate model of causality has been used in this study because previous studies based on bivariate framework have been found to be very unreliable (Odhiambo (2009a). Introduction of a third variable in the causality model can change both the causal inference and the magnitude of the estimates (see Caporale and Pittis, 1997; Caporale, Howell, and Soliman, 2004; Odhiambo, 2008; Odhiambo, 2009a). Borrowing from the model of financial depth specified above, interest rate was added as the third variable in the trivariate causality model. The trivariate Granger Causality test based on the error correction model is expressed as follows:

$$RGDPPC_t = \lambda_0 + \sum_{i=1}^{n} \lambda_{1i} RGDPPC_{t-i} + \sum_{i=0}^{n} \lambda_{2i} FINDEP_{t-i} + \sum_{i=0}^{n} \lambda_{3i} DEPRAT_{t-i} + \lambda_4 ECT_{t-1} + \mu_t$$

$$FINDEP_t = \lambda_0 + \sum_{i=0}^{n} \lambda_{1i} RGDPPC_{t-i} + \sum_{i=1}^{n} \lambda_{2i} FINDEP_{t-i} + \sum_{i=0}^{n} \lambda_{3i} DEPRAT_{t-i} + \lambda_4 ECT_{t-1} + \upsilon_t$$

$$DEPRAT_t = \lambda_0 + \sum_{i=0}^{n} \lambda_{1i} RGDPPC_{t-i} + \sum_{i=0}^{n} \lambda_{2i} FINDEP_{t-i} + \sum_{i=1}^{n} \lambda_{3i} DEPRAT_{t-i} + \lambda_4 ECT_{t-1} + \nu_t$$

where ECT_{t-1} is the error correction term lagged one period; RGDPPC is the real GDP per capita; FINDEP is financial depth variable (M2/GDP); DEPRAT is the nominal deposit rate; μ, ν and υ are mutually uncorrelated white noise residuals.

It should be noted that in the error correction based causality test, the short-run causal impact is measured through the F-statistics and the significance of the independent variables, while the long-run causal impact is measured through the error correction term (see Odhiambo, 2009a).

4.3 Data Source and Definition of variables

4.3.1 Data Source

Annual time series data, from 1970 to 2008 period, are used in this study. The data are obtained from different sources, including various issues of the Central Bank of Nigeria *Statistical Bulletins*, International Financial Statistics, (IFS) Yearbooks published by the International Monetary Fund and *National Bureau of Statistics Abstract of Statistics* published by the Nigerian National Bureau of Statistics.

4.3.2 Definition of variables

Financial depth variable is defined in this study as the broad money stock (M2) divided by the gross domestic product (GDP). Nominal deposit rate is taken to be interest rate on 6 months deposit in commercial banks. Expected inflation (P^e) is an unobserved. However, it is generated from the annual actual inflation rate using the adaptive expectations theory. This theory states that expectations about next period situation are formed on the basis of actual situation in the present period. Hence, on the average, current expected inflation can be measured by previous period actual inflation. Real GDP per capita is measured as gross domestic product divided by the total population.

5. Empirical Results

5.1 Stationarity test

The results of the stationarity tests in levels and first difference presented in Table 1 show that all the variables are integration of order one, with the exception of expected inflation that is stationary. This implies that the variables were all stationary after differencing them once. Expected inflation, though stationary, does not pose a problem because it is also a first difference of price level.

5.2 Cointegration test

Upon confirmation of the stationarity condition of the variables included in both the financial deepening and multivariate causality models, we proceeded to test for the possibility of cointegrating relations among the variables used. The Johansen cointegration test was employed for this exercise and the test results are presented in Table 2. The maximum eigenvalue and the likelihood ratio tests indicate that there is a unique cointegrating relation between the variables included in both the financial deepening model and the Granger causality model. The Likelihood ratios reject the null hypotheses of none cointegrating vector in both models in favour of the alternative hypotheses one cointegrating vector. It is therefore concluded that there is at least one cointegration relation in both models.

5.3 Discussion of empirical findings

5.3.1 Financial Deepening Model

The results of the over-parameterized error correction model are reported in Table 3 while Table 4 presents the preferred or parsimonious dynamic error correction model. Although, it might prove difficult to make policy implications from the over-parameterized model it is clear that the model is statistically significant. The F-statistics is significant at 10 percent level and the Durbin Watson statistics is satisfactory. However, the coefficients of a number of variables have wrong signs and some important variables are not statistically significant. In addition, the adjusted R-squared is below acceptable range. The coefficient of error correction term, though significant and with the expected negative sign, is greater than one. This appears irrational.

The results for the parsimonious error correction model reported in Table 5 show that there is a positive and statistically significant relationship between deposit rate of interest and the level of financial deepening in Nigeria. As shown in the table, the coefficient of lagged deposit rate is positive and statistically significant at 5 percent level. This is in accordance with the apriori expectation. The coefficient of the error correction term is equally statistically significant at 5 percent level. Furthermore, the sign of the coefficient of the error correction term complies with theoretical expectation. The value of the coefficient of the error correction term also lies between zero and one. Specifically, the coefficient of the error correction term indicates that about 88 percent of the discrepancy between actual and equilibrium values of the financial depth in Nigeria is corrected each period. The coefficient of the real GDP has a positive sign but not statistically significant at 5 percent level. The coefficient of expected inflation has a negative sign contrary to apriori expectation, but it is not statistically significant. Finally, the coefficient of lagged financial depth has a positive sign and is statistically significant.

Due to the generally poor level of the adjusted R-squared and the F-statistics, further diagnostic tests were conducted to verify the adequacy of this model. The results of the diagnostic tests are also presented in Table 4. The AR test for serial correlation indicates that there is no serial correlation while the other tests, namely normality and ARCH LM tests are within tolerable range. Lastly, the cumulative sum of squares plotted in Figure 4 shows that the model is stable and wrongly specified.

5.3.2 Causality Analysis

The empirical results of the causality model reported in Table 5 show that for the causality between financial depth and economic growth, there is a long run causal flow from financial development to economic growth as is evident in the lagged value of the error correction term, which is negative and statistically significant. However, the F-statistics fails to support a short run causal flow from financial depth to economic growth. Moreover, the lagged values of the financial depth variable are not statistically significant in the economic growth equation. Both the short and long run causal flows from economic growth to financial depth are supported by neither the error correction term nor the F-statistics in the financial depth equation. The results reported in table further reveal that deposit rate of interest cause financial depth and economic growth. The coefficient of the lagged deposit rate is significant in both the financial depth and economic growth equations. Finally, evidence from the deposit rate equation reveals that economic growth and deposit rate granger cause each other.

However, to further verify our findings, we conducted a pairwise Granger causality tests on the three variables. The results presented in Table 6 do not significantly depart from the findings above. There is a unidirectional causality running from financial depth to economic growth. In addition, deposit rate also granger cause financial development, though not vice-versa. Surprisingly, there is no granger causality between deposit rate and economic growth.

6. Conclusion and Policy Recommendations

This paper presents a framework of analysis for examining the impact of changes in interest rate policy and financial reforms on economic growth. We set out with analysis of the rich literature on the finance-growth nexus. This provided vital insight into the modeling of the relationship between interest rate liberalization, financial deepening and economic growth in Nigeria. The underpinning premise of this research is that policy directed at interest rate liberalization is relevant for financial depth, and financial depth in turn affects economic growth, through its effects on investment. Using annual dataset for Nigeria for the period covering 1970 to 2008, our results are three-holds. Firstly, deposit rate of interest has a positive effect on financial depth. Secondly, the multivariate granger causality tests reveal that there is only one-way causality between financial depth and economic growth; the flow running from financial depth to economic growth. Finally, interest rate liberalization tends to granger cause financial depth and economic growth. The policy implication of this study is therefore straightforward; a departure from rigidly fixed deposit rate of interest will enhance financial depth and improve the country's rate of economic growth. The current financial reforms should be directed at achieving a more deregulated deposit rate of interest.

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Table 1. Phillips Perron stationarity tests of variables

variable	No trend	Trend	No trend	Trend	lag	Stationarity status
Log(FINDEP)	-2.0520	-1.9035	-5.4034	-5.4738	3	I(1)
Log(P^e)	-3.4911**	-3.4993	-6.3787	-6.2422	2	I(0)
Log(RGDP)	0.4125	-0.8164	-5.6887	-6.0267	1	I(1)
Log(RGDPPC)	-0.5452	-0.7984	-5.6529	-5.9899	1	I(1)

Table 2. Johansen Cointegration Test

Financial Deepening Model:

Eigenvalue	Likelihood Ratio	5 Percent Critical Value	1 Percent Critical Value	Hypothesized No. of CE(s)
0.546516	51.17372	47.21	54.46	None *
0.360242	25.07750	29.68	35.65	At most 1
0.260865	10.33756	15.41	20.04	At most 2
0.010924	0.362485	3.76	6.65	At most 3

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

L.R. test indicates 1 cointegrating equation(s) at 5% significance level

Causality Model:

Eigenvalue	Likelihood Ratio	5 Percent Critical Value	1 Percent Critical Value	Hypothesized No. of CE(s)
0.410965	31.13440	29.68	35.65	None *
0.313618	13.66850	15.41	20.04	At most 1
0.037168	1.249910	3.76	6.65	At most 2

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

L.R. test indicates 1 cointegrating equation(s) at 5% significance level

Table 3. Overparameterized model

Dependent Variable: D(LFINDEP):

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.018473	0.035128	-0.525880	0.6051
D(LRGDP)	-0.034572	0.152551	-0.226627	0.8231
D(LRGDP(-1))	0.013932	0.158999	0.087621	0.9311
D(LRGDP(-2))	0.174864	0.149596	1.168909	0.2569
D(LDEPRAT)	0.261418	0.177642	1.471602	0.1575
D(LDEPRAT(-1))	0.331558	0.187960	1.763979	0.0938
D(LDEPRAT(-2))	0.184056	0.165438	1.112536	0.2798
D(LPE(-1))	-0.111796	0.046742	-2.391751	0.0273
D(LPE(-2))	0.091333	0.047767	1.912033	0.0711
D(LPE(-3))	-0.047938	0.054432	-0.880699	0.3895
D(FINDEP(-1))	6.247363	2.262972	2.760690	0.0124
D(FINDEP(-2))	0.791807	1.054425	0.750937	0.4619
ECM(-1)	-1.602013	0.577619	-2.773479	0.0121

R-squared	0.557630	Mean dependent var	0.010553
Adjusted R-squared	0.278239	S.D. dependent var	0.201517
S.E. of regression	0.171201	Akaike info criterion	-0.400748
Sum squared resid	0.556889	Schwarz criterion	0.194707
Log likelihood	19.41198	F-statistic	1.995875
Durbin-Watson stat	2.001024	Prob(F-statistic)	0.086168

Table 4. Preferred model – financial deepening model

Dependent Variable: D(LFINDEP)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.022944	0.035417	-0.647841	0.5226
D(LRGDP(-2))	0.228572	0.150187	1.521914	0.1397
D(LDEPRAT(-1))	0.335593	0.149465	2.245304	0.0331
D(LPE(-1))	-0.036913	0.040362	-0.914538	0.3685
D(FINDEP(-1))	3.549835	1.768971	2.006724	0.0549
ECM(-1)	-0.880926	0.416046	-2.117377	0.0436
R-squared	0.260332	Mean dependent var		0.003430
Adjusted R-squared	0.123357	S.D. dependent var		0.202519
S.E. of regression	0.189617	Akaike info criterion		-0.324652
Sum squared resid	0.970778	Schwarz criterion		-0.052560
Log likelihood	11.35676	F-statistic		1.900576
Durbin-Watson stat	1.729341	Prob(F-statistic)		0.127325

Diagnostic Tests: Breusch-Godfrey Serial Correlation test χ^2 =10.449 (0.1645); ARCH LM test χ^2=0.4463 (0.7999); Normality Jarque Bera χ^2= 4.4169 (0.1096).

Table 5. Granger Causality Analysis

	Dependent Variables		
Variables in the equation:	D(LRGDPPC)	D(LFINDEP)	D(LDEPRAT)
ECM(-1)	-0.596996	-0.029060	-0.531830
	(0.18418)	(0.15512)	(0.18420)
	(-3.24137)	(-0.18735)	(-2.88723)
D(LRGDPPC(-1))	0.500910	0.000772	0.245808
	(0.24487)	(0.20623)	(0.24489)
	(2.04564)	(0.00375)	(1.00373)
D(LRGDPPC(-2))	0.210773	0.291982	0.381607
	(0.22736)	(0.19148)	(0.22739)
	(0.92703)	(1.52483)	(1.67821)
D(LRGDPPC(-3))	0.513273	-0.239103	0.080412
	(0.24030)	(0.20238)	(0.24033)
	(2.13593)	(-1.18144)	(0.33459)
D(LFINDEP(-1))	-0.383755	0.155149	-0.074056
	(0.23627)	(0.19898)	(0.23630)
	(-1.62423)	(0.77970)	(-0.31340)
D(LFINDEP(-2))	0.268988	-0.171135	0.308270
	(0.23363)	(0.19676)	(0.23366)
	(1.15135)	(-0.86976)	(1.31934)
D(LFINDEP(-3))	0.200387	-0.144140	0.300129
	(0.24793)	(0.20880)	(0.24796)
	(0.80824)	(-0.69031)	(1.21041)
D(LR6M(-1))	0.037354	0.337095	-0.073016
	(0.20904)	(0.17605)	(0.20906)
	(0.17869)	(1.91474)	(-0.34925)
D(LR6M(-2))	0.524954	-0.070736	0.213797
	(0.23478)	(0.19773)	(0.23481)

	(2.23592)	(-0.35774)	(0.91051)
D(LR6M(-3))	0.106436	-0.245492	0.456656
	(0.19783)	(0.16662)	(0.19786)
	(0.53801)	(-1.47341)	(2.30801)
C	-0.042176	0.105610	0.169919
	(0.10781)	(0.09080)	(0.10782)
	(-0.39121)	(1.16315)	(1.57593)
@TREND(70)	-0.000122	-0.004672	-0.010342
	(0.00557)	(0.00469)	(0.00557)
	(-0.02181)	(-0.99521)	(-1.85524)
R-squared	0.458448	0.484509	0.521373
Adj. R-squared	0.160594	0.200989	0.258127
F-statistic	1.539171	1.708908	1.980560

Table 6. Pairwise Granger Causality tests

| Null Hypothesis:	Obs	F-Statistic	Probability
LFINDEP does not Granger Cause LRGDP	32	3.79719	0.01160
LRGDP does not Granger Cause LFINDEP		1.57528	0.20936
LDEPRAT does not Granger Cause LRGDP	32	0.41358	0.88070
LRGDP does not Granger Cause LDEPRAT		1.12902	0.39065
LDEPRAT does not Granger Cause LFINDEP	32	2.24246	0.08240
LFINDEP does not Granger Cause LDEPRAT		0.64673	0.71233
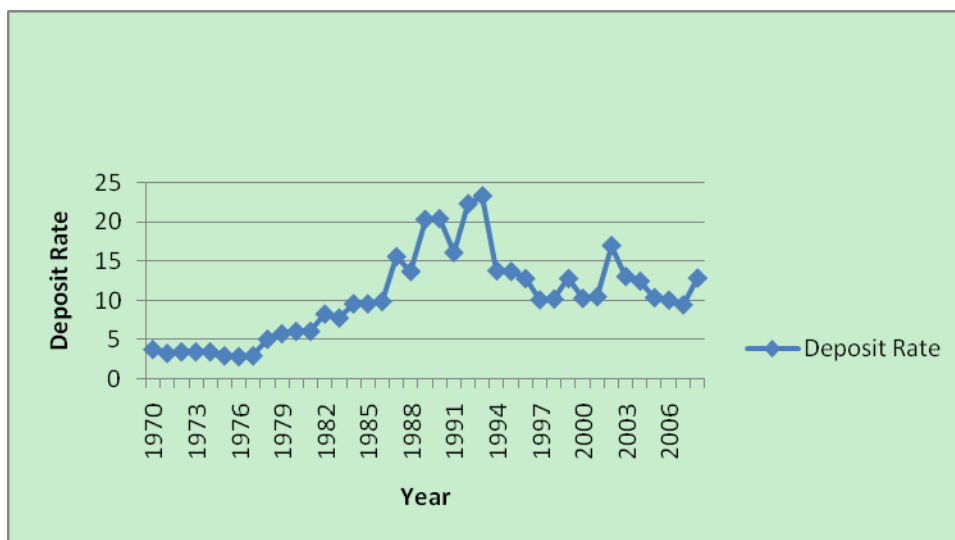
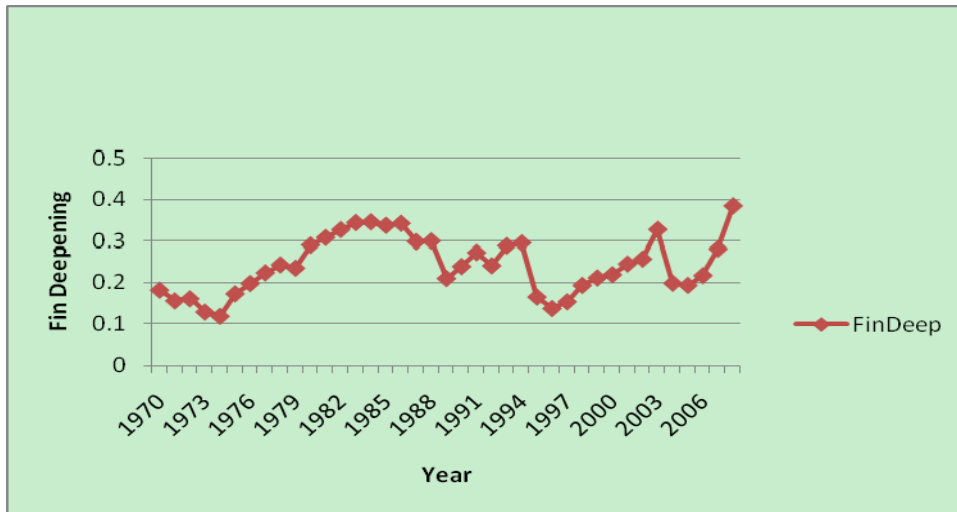Figure 1. Trends of Deposite Rate in Nigeria (1970-2008)

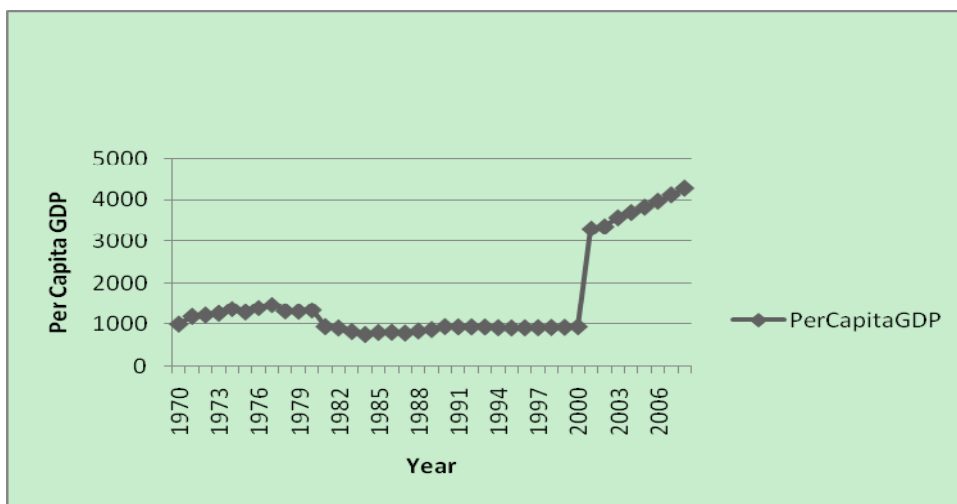Figure 2. Trends of Financial Deepening in Nigeria (1970-2008)
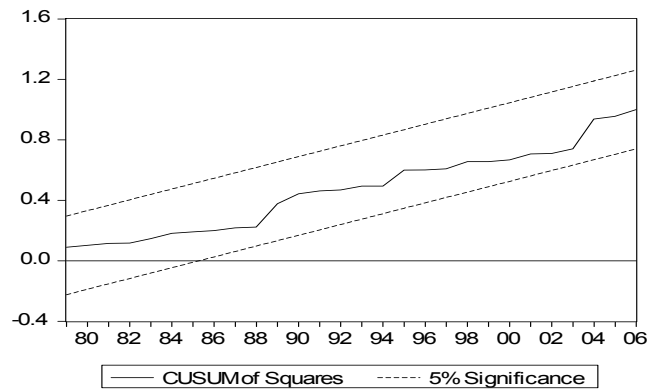

Figure 3. Trends of Per Capita GDP in Nigeria (1970-2008)

Figure 4. Plot of Cumulative Sum of Squares