Investigative Analysis of the Impact of Corporate Governance on Bank Failure: A Case Study of Central Bank of Nigeria

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Abstract

Where good corporate governance exists there is absence of bank failure. This study is a conceptual analysis of the role of Central Bank of Nigeria (CBN) in the prevention of bank failure with emphasis on the preventive measures adopted by CBN in regulating and supervising the banking sector in Nigeria. Predicting the potential of failure in the banking sector becomes essential if banks are to be rightly guided in their decision making because the impact of financial ill health in the banking sector affects the government, the regulatory authorities, the bankers as well as the general public. The objective of this study is to ascertain the role and steps taking by the Central Bank of Nigeria in curbing bank failure. To achieve this objective, ordinary least squares regression (OLS) was employed using data from 1986-2010. The result showed that the preventive measures adopted by CBN have been effective and there is a positive relationship between prevention of bank failure and the role of CBN. We thus recommend the enforcement of effective monitoring of bank operations, regular routine examination on banks and establishment of a committee of banking supervisory authorities. Also, banking institutions should be subjected to rigorous _regulation_ laid down by CBN and sufficient measures should be put in place to control all the identified critical factors such as undue interference from board members, political crises, undercapitalization and fraudulent practices of the insiders that causes bank failure.

1. Introduction

There is no doubt that there is a linkage between corporate governance, Central Bank of Nigeria and Failure of banks in Nigeria.

Corporate Governance**:** According to the World Bank (2004), governance is the process and institutions by which authority in a country is exercised. On the other hand, Babawale (2007) sees good governance as the exercise of political power to promote the public good and welfare. On his part, Ekpe (2008) argues that the purpose of good governance in any society should include: accountability, transparency in government procedures, high expectation of rational decisions, predictability in government behavior, openness in government transaction

The Central Bank of Nigeria being the apex bank of Nigeria was established by the CBN Act of 1958 and commenced operations on July 1, 1959. The major regulatory objectives of the bank as stated in the CBN act of 1958 are to issue legal tender, maintain the external reserves of the country, promote monetary stability and a sound financial environment, to act as a banker of last resort and financial adviser to the federal government. The central bank's role as lender of last resort and adviser to the federal government has sometimes pushed it to bail out insolvent banks.

Bank Failure occurs when a bank is not able to meet its obligation to its depositors or other creditors because it has become insolvent or too illiquid to meet its liabilities. More specifically, a bank usually fails economically when the market value of its assets declines to a value that is less than the market value of its liabilities. As such, the bank is unable to fulfill the demands of all of its depositors on time. Also, a bank may be taken over by the regulating government agency if Shareholders Equity is below the regulatory minimum. The failure of a bank is generally considered to be of more concern than the failure of other types of business firms because of the interconnectedness of banking institutions. It is often feared that the effects of a failure of one bank can quickly spread throughout the economy and possibly result in the failure of other banks, whether or not those banks were solvent at that time.

As a result, banking institutions are usually subjected to thorough regulation, and bank failures are of major public policy concern in countries across the world (Encyclopedia, 2011). Olaniyi (2007) opined that the banking sector serves as the nerve center of any modern economy, being the depository of people's wealth and supplier of credits which lubricates the engine of growth of the entire economic system. Ogunleye (2002) classified the causes of bank failure into Institutional, Economic and Political factors, regulatory and Supervisory inadequacies while Ebhodaghe (1995) attributed bank failure to economic downturn, inhibitive policy environment and management problems. Llwellyn (1988) opined that regulation is a body of specific rules or agreed behaviour either imposed by government or other external agencies within the industry that limits the activities and business operations of banks. Banking crisis usually starts with inability of the bank to meet its financial obligations to its stakeholders due to absence of transparency and accountability.

The main objective of this study is to ascertain the causes of bank failure, the effects and steps taking by the Central Bank of Nigeria in curbing bank failure. The following questions would be answered in the course of this paper: To what extent has the CBN regulatory function been effective? How effective and valid is the role of CBN in curbing bank failure in Nigeria? How has banking sector reforms in Nigeria been able to deepen the financial sector and reposition the Nigeria economy for growth? How has the recapitalization in the banking system being relevant? The research includes the banks that have experienced bank distress before becoming stabilized through regulatory support and consolidation and other deposit money banks that are financially stable. The study is significant as it will add to the existing body of knowledge, create depth for the banking industry, help the investors to appreciate the strength of the banks and to be guided in their investment, and also to help the employees perform their roles properly so as to avoid bank distress.

This study will also help depositors of funds in financial institutions to fully understand the mechanism of bank supervision as one of the roles of CBN and the provisions of the law as it relates to the deposit insurance scheme. It also provides a platform for the regulatory authorities to appreciate the impact of their activities in the banking industry and underscores areas for improvement. The remaining part of this paper is divided into four sections. Section two and three dwells on literature review and methodology. Section four explains data collection, analysis and interpretation while Section five ends the paper with conclusion and recommendations.

2. Literature Review

In the literature of finance there are evidences to show about the failure of deposit money banks in Nigeria. Ikpefan and Ojeka (2013) opined that excessive concentration, directed lending, lending to connected parties, poor credit policy, poor oversight by boards of the managing banks, absence of good corporate governance all of which reflect poor basic risk management failures are responsible for distress and failure of Nigerian banks. There were 45 failed banks which were closed as at 2009 (NDIC Report, 2009). The banking licenses of fourteen (14) banks were revoked on 16th January, 2006 by the Central Bank of Nigeria (CBN). The parameter that enabled this categorization is called (CAMEL): Capital Adequacy, Asset Quality, Management Competence, Earning Strength and Liquidity. Factors Affecting bank performance in Nigeria: The collaborative study of the CBN/NDIC (1995) submitted that most of the financial institutions surveyed attributed the distressed conditions to institutional factors. The result of their study further showed that the major institutional factors that contributed to distress in the banking industry are bad loans & advances, fraudulent practices, under capitalization, rapid changes in government policies, bad management, lack of adequate supervision and undue reliance on foreign exchange.

The general institutional factors that led to the identified factors in the banking system can be attributed to insiders' abuse, weak corporate governance, weak risk asset management and inadequacy of capital. Economic and political factors as well as regulatory and supervisory measures had also affected bank performance. Analysis of financial institutions assessment of factors responsible for their being severely distressed (percentage) are economic depression, political crisis, bad debt, under interference from board members. Ogunleye (2002) noted that the proportion of non-performing loans in the distressed banks had during the period 1989-2000, been consistently high, reaching about 80 percent of their loan portfolio and Okpara (2009) found that this ratio had significantly exceeded the prudential maximum ratio of 20 percent and a number of banks had poor credit policies because loans were granted without securities and the borrowers were not willing to pay back. Odejimi (1992) and Ajani (1992) noted that the major factors responsible for the precarious financial condition of the banks were huge uncollectible loans and advances.

Roles and Functions of Central Banks

Central Banks exist in most countries for the purpose of acting as banker to other banks thereby ensuring a smooth operation of the banking system. They also act as banker to the government. The central bank controls money supply, funding of the government's business and the implementation of monetary policy of the government (Begg et al, 1991). In Nigeria, the CBN also plays specific roles in consumer protection (in this case, users of banking products and services) to ensure that "bank charges are reasonable and consistent with both the profit motive of the individual banks and the interest of the system" (Sanusi, 2009).

Bench (1993) asserts that effective supervision of banks leads to a healthy banking industry. Dimitri (1990) also believes that good regulation and supervision will minimize the negative impact of moral hazard and price shocks in the banking system, thereby leading to a reduction in bank failures and banking system distress. Iyade (2006) opined that reforms are essential because the prudential system has proved ineffective in ensuring sound bank management, as the scale of financial distress

among the state government and local banks indicates poor performance. However, according to CBN annual report (2010), "the effects of the global financial crisis", which lingered up till 2010, passed enormous challenges to the operations and performance of banks.

The objectives of banking regulation and supervision were advanced by Giddy (1984) to include amongst others: monetary policy, i.e. the ability of banks to create money through the extension of credit; credit allocation function of banks; the need to ensure competition and innovation by the prevention of cartels; and because banks are depositories of public savings and managers of payments mechanism, they are very vulnerable to collapse. On his part, Sheng (1990) stated the objectives of supervision as: promotion and development of sound and wide range of financial services to meet the needs of the economy; ensuring efficiency, security and responsiveness of banks to the needs and complaints of customers; ensuring compliance with laid-down rules and regulations which are germane to ensuring high standards of banking activities; and to achieve important developmental and social goals through their compliance with monetary and credit allocation policies.

Sinkey (1989) and Dale (1986) enunciated the goals of regulation as: the protection of depositors; the protection of the economy from the vagaries of the banking system; and the protection of banks' customers from the monopolistic power of banks. As a result of this, the World Bank (1989) noted that banks in these economies have to be regulated to ensure that they play their proper role in economic development. In a nutshell, the rationale for bank regulation and supervision can be summarized as Efficiency, Diversity of choice, Competition, Stability of banking system, Macroeconomic stability, and Developmental and social objectives.

3.　Methodology

The conceptual framework adopted for this study was analyzed by an econometrics approach using regression analysis. Time series data collected over a period of eleven (11) years was used to estimate the specified equation using the Ordinary Least Square (OLS) estimation technique making use of E-view 5.1 software. The general representation of the model is given in the equation below:

$$Y_t = C + \beta_1 X_{1t} + \beta_{2t} X_{2t} + \ldots\ldots\ldots + \beta i_t X i_t + U i \tag{1}$$

Where: Y_t = dependent variable represented by Investment to Total Assets (ITAR), C = intercept; β_t = slope of the independent X_t = independent variables U_t = error term

3.1 Model Specification

To successfully examine the role of Central Bank of Nigeria (CBN) in the prevention of bank failure in Nigeria, Investment to Total Assets is represented as a function of Liquidity ratio, Maximum Lending rate, Loans to Deposit ratio and Money supply growth rate of deposit money banks (formerly known as commercial banks). The Ordinary Least Square (OLS) method of multiple regression analysis shall be used to estimate the model to be specified. For the purpose of this analysis, we shall use the model stated below:

$$Y = \beta_0 + \beta X_1 + \mu \tag{2}$$

Where,

Y = Bank Failure (Dependent variables), X = Role of Central Bank of Nigeria (CBN) - (Independent variables), β = Slope Co-efficient or Constant term, μ = Error Term or disturbance factor, Explicitly, equation 2 can be defined as:

$$\text{Bank failure} = f \text{ (Role of Central Bank of Nigeria)} + e \text{ (2)} \tag{3}$$

The relationship existing between the constructs are:

$$\text{Bank failure (ITAR)} = f \text{ (LR, MLR, LTDR, M2GR)} \tag{4}$$

Relationship between investment to total assets, liquidity ratio, maximum lending rate, loans to deposit ratio and money supply growth rate which can be written in linear form:

$$\text{ITAR} = \beta_0 + \beta_1 LR_{it} + \beta_2 MLR_{it} + \beta_3 LTDR_{it} + \beta_4 M_2 GR_{it} + \mu_{it}(3) \tag{5}$$

Where:

Bank Failure is represented by investment to total assets (ITAR),BFLURE= ITAR (investment to total assets),LR   = Liquidity ratio, MLR = Maximum lending rate, LTDR = Loans to deposit ratio

M_2GR= Money growth rate

$\beta_0, \beta_1, \beta_2,$ and β_3 are the unknown parameters. On a priori specification, all results are positive i.e.

$\beta_0 > 0, \beta_1 > 0, \beta_2 > 0, \beta_3 > 0, \beta_4 > 0$

Our a prior expectation about the relationship between the role of CBN and bank failure is that the CBN has been effective in their regulatory function in the prevention and curbing of bank failure in Nigeria.

4. Data Presentation, Analysis and Interpretation

To estimate the model specified in this study, several data are required. Specifically, the data are time series data collected from Central Bank of Nigeria: Statistical bulletin. The data set is from 1986 – 2010 (25yrs). The data used in the estimation of the model is presented in the table below using the Ordinary Least Square (OLS) method in analyzing and interpreting the data.

$$ITAR = \beta_0 + \beta_1 LTDR + \beta_2 MLR + \beta_3 LR + \beta_4 M2GR \tag{6}$$
$$ITAR = \beta_0 + \beta_1 LTDR + \beta_2 MLR + \beta_3 LR + \beta_4 M_2GR \tag{7}$$

Using the coefficient figures:

$$-7.391471 + 0.083543 LTDR + 0.087221 MLR + 0.020131 LR + 0.010759 M_2GR \tag{8}$$
$$ITAR = -7.391471 + 0.083543 LTDR + 0.087221 MLR + 0.020131 LR + 0.010759 M_2GR \tag{9}$$

Standard Error and the T-Stat under the coefficient

$$ITAR = -7.391471 + 0.083543 LTDR + 0.087221 MLR + 0.020131 LR + 0.010759 M_2GR \tag{10}$$
$$S.E = \quad (3.056226) \quad (0.023373) \quad (0.040469) \quad (0.030352) \quad (0.012199) \tag{11}$$
$$t \quad = \quad [-2.418496] \quad [3.574346] \quad [2.155225] \quad [0.663259] \quad [0.881996] \tag{12}$$

4.1 Testing of Hypothesis

Here, the testing of hypotheses is to establish if there are significant relationships between the prevention of bank failure and the role of CBN. In testing the hypotheses, F stat is used in order to accept or reject the null hypothesis.

Decision Rule: if $F_{Cal} > F_{Tab}$ – rejects H_0 and accepts H_1

$F_{Cal} < F_{Tab}$ – accept H_0 and reject H_1

$F_{Cal} = 5.296631$

$F_{tab} = (20, 3) = 4.94$ at 1% level of significance

Recall: Null Hypothesis 1:H_0: The Central Bank of Nigeria has not been effective in their regulatory function.

There is a positive relationship between regulatory function and the CBN. A unit change in loans to deposits ratio of a bank will bring about a 0.083543 increase in real investment to return on assets of a bank which indicates that the CBN has been effective in their regulatory function.

Decision

Since the $F_{Cal} > F_{Tab}$, we reject the null hypothesis and accept the alternative hypothesis that the Central Bank of Nigeria has been effective in their regulatory function.

Recall: Null Hypothesis 2: H_0: The Central bank is not effective in the curbing of bank failure in Nigeria

There is a positive relationship between the CBN and the curbing of bank failure. A unit change in maximum lending rate of a bank will bring about a 0.083543 increase in the prevention of bank failure.

Decision: Since the $F_{Cal} > F_{Tab}$, we reject the null hypothesis and accept the alternative hypothesis that the Central Bank of Nigeria has been effective in the curbing of bank failure in Nigeria.

4.2 Empirical Analysis

4.2.1 Unit Root Data Pre-Test

In a bid to establish the characteristic tendencies associated with the study variables, we therefore deemed it necessary to test for the existence of unit root for the series. To effectively carry out this test, Phillip Perron (1988) unit root testing procedure has been employed in this respect. This approach employs MacKinnon (1996) one-sided p-values and Phillip Perron (PP) test statistics in determination of the stationarity of the variables at levels.

Table 1:   Phillips-Perron (PP) Unit Root Test Result

Variables	PP Statistic		5% Critical value		Remark
	Level	1st Difference	Level	1st Difference	(1st Differencing)
ITAR	-2.656692***	-6.324803*	-2.991878	-2.998064	I(1)
LR	-2.304913	-5.634251*	-2.991878	-2.998064	I(1)
MLR	-3.984366*	-11.58069*	-2.991878	-2.998064	I(1)
LTDR	-3.186526*	-4.414107*	-2.991878	-2.998064	I(1)
M2GR	-3.700594	-6.084630*	-2.991878	-2.998064	I(1)

Source; Researcher's computation 2015

The test for the stationarity of the variables as revealed in table 1 shows that the unit root null hypothesis cannot be rejected for the variables ITAR, LR and M2GR at their levels. The non-stationarity of these variables at level implies the differencing of the data series at first difference to achieve a trend stationary series for all the series. Using first difference data, the computed PP test indicates that the null hypothesis of unit root could no longer be accepted for the individual series at 1 percent level of significance. We thus conclude that the series were stationary at first differencing which indicates there were integration of order 1 (i.e. I (1)) process.

The study having ascertained the order of integration of the variables proceeded further to determine whether there exist any co integrated vector among the model series. The Johansen (1988) co integration technique was utilized in carrying out this test as shown in table 2 below.

4.3.2 Co Integration Test Result on the Variables

Table 2:   Series ITAR LR MLR LTDR M2GR
                  Lags interval (in first differences): 1 to 1
                  Unrestricted Co integration Rank Test (Trace)

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.772792	74.55522	69.81889	0.0199
At most 1	0.527954	40.47175	47.85613	0.2061
At most 2	0.412549	23.20615	29.79707	0.2361
At most 3	0.274405	10.97101	15.49471	0.2133
At most 4	0.144644	3.593458	3.841466	0.0580
Trace test indicates 1 co integrating eqn(s) at the 0.05 level				
Unrestricted Co integration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.772792	34.08347	33.87687	0.0472
At most 1	0.527954	17.26560	27.58434	0.5572
At most 2	0.412549	12.23514	21.13162	0.5246
At most 3	0.274405	7.377553	14.26460	0.4455
At most 4	0.144644	3.593458	3.841466	0.0580
Max-eigenvalue test indicates 1 co integrating eqn(s) at the 0.05 level				

Source; Researcher's Computation, 2015

In examining the existence of a common/similarity among the variables over a long period the trace and Max-Eigen value statistics were employed at 5 percent level of significance. The presence of a co- integration is determined by the evidence of greater trace and maximum Eigen value statistic considering the critical values in line with MacKinnon-Haug-Michelis (1999) p-values. The evidence from the study supports the existence of one co integrated vector for both the Trace and Maximum Eigen value statistics at 5 percent significance levels. The presence of a co integrated vector series confirms the co integrated level series for the previous unit root test conducted earlier in the study. This implies long run common trend or long run co existing relationship among the variables over time. With the establishment of a long run relationship among the bank failure equal variables, the nature and magnitude effects of the exogenous variables on investment ratio of the deposit money bank is evaluated. This is executed by estimating a multiple linear regression model of the above relationship following the normalized bank failure equation in the co integrated vector. The result of the estimated linear equation is presented and discussed in the section below;

Table 3:   Regression Output
              Dependent Variable: ITAR
              Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LR	0.020131	0.030352	0.663259	0.5156
MLR	0.087221	0.040469	2.155225	0.0449
LTDR	0.083543	0.023373	3.574346	0.0022
M2GR	0.010759	0.012199	0.881996	0.3894
C	-7.391471	3.056226	-2.418496	0.0264
AR(1)	0.627119	0.205819	3.046943	0.0069
R-squared	0.595352			
Adjusted R-squared	0.482950			
F-statistic	5.296631			
Prob(F-statistic)	0.003642			
Durbin-Watson stat	2.134440			
Inverted AR Roots	.63			

Source; Researcher's Computation, 2015

The empirical evidence from the study shows a direct relationship between liquidity ratio and investment to asset ratio though not significant at 5 percent level. The analysis of the estimated co efficient indicates that liquidity ratio of the banks could positively influence bank investment ratio when better managed. Thus it becomes highly imperative that adequate monetary policies focusing on improved bank liquidity management be put in place to forestall incidence of bank failure traceable to poor bank liquidity management as evidenced from the present study.

Maximum lending rate has proven to be one of the significant determinants of bank failure in Nigeria considering the scope covered by the study. This could be explained by the significant evidence of a direct relationship between lending rate and deposit money banks investment ratio. A critical observation of empirical result suggests that a 100 percent increase in bank lending rate will be favorable for the banks by increasing their investment ratio by 8.72 percent all things being equal, thereby significantly reducing the chances of bank failure due to high bank investment venture .

A well managed loan to total deposit ratio of banks also appears to be a veritable bank instrument of prudential management that significantly and positively influence bank investment outlays. The parameter estimate for the loan deposit ratio of banks indicates a significant impact on banks capacity of increasing their investment portfolio in relation to its assets. This study provides enough statistical proofs in support of this evidence, further indicating that a percentage upward adjustment in loan-deposit ratio of bank within the financial constraint of bank will no doubt result to enormous increase in bank investment asset ratio. A further analysis of bank liquidity management reveals that a percentage increase in loan deposit ratio management of the Nigerian banks could

directly and most significantly improve strategic management of bank failure and raising bank investment potentials by 0.84 percent holding other variables constant.

Though money supply growth rate as monetary policy indicator suggests a direct relationship with bank investment to asset ratio, its statistical significance could not be ascertained by the present study. It therefore suggests that monetary policy growth rate appears not to have been sufficiently efficient in support of bank investment strategies in a bid to proactively control bank failures. It however, implies that money supply growth rate could be used as a veritable monetary policy instrument in achieving bank objectives when effectively utilized in the nearest future.

The diagnostic statistical test of the fitness of the model equation provides sufficient evidence of the model to accurately fit the data as supported by the F-statistics result (5.30) significant at 1 percent level. It thus implies that our estimated empirical model for this study is regarded to be statistically not equal to zero as implied by the null hypothesis. The variables as captured by the functional model jointly account for 60 percent of the total variation in bank investment ratio while the remaining 40 percent is attributed to other exogenous factors not accounted for by the model estimates. The incidence of auto-correlation bias of the parameter estimation is confirmed absent by the result of the Durbin Watson statistics (2.1) of the study. Hence the empirical model is free from estimation bias and spurious result, making the model result statistically fit for effective policy recommendations and suggestions.

5.0 Recommendations and Conclusion
5.1 Conclusion

From the explanation given so far and having reviewed various literatures, it can be said that the regulatory/supervisory efforts of the central banks in conjunction with the Nigerian deposit insurance corporation (NDIC) should be articulated more on the undue interference from board members, political crises, undercapitalization and fraudulent practices of the insiders. These factors are the most critical factors deterring efficient performance of the Nigerian financial institutions particularly the banking sector and where they can be simultaneously prevented; the problem of bank failure will be put to a stop. The twenty five (N25) billion recapitalization exercise of the central bank was a necessary but not a sufficient measure in the right direction. The sufficient measure must be one that controls all the identified critical factors at the same time.

5.2 Recommendations

From the findings of this study, the researchers would like to make the following recommendations:
1. Bank loans have associated risk which if not properly managed and structured can turn to non-performing loan which can lead to the bank failure.
2. Strict supervision and enforcement of effective monitoring of bank operations and returns. Efficient performance by banks increases the bank's assets and deposit base which in turn restore customers' confidence.
3. Regular routine examination should be carried out by CBN to determine the performance level of the banks so as to easily identify and immediately tackle any symptom of bank distress.
4. Loan policy of banks should be properly structured and an acceptable policy for lending should be put in place in order to ensure repayment of loans and prevent loan defaults.
5. Sufficient measures serving as CBN role in the prevention of bank failure must be one that controls all the identified critical factors of the causes of bank failure and not the recapitalization measure directed to a particular cause.
6. Enforcement of stringent minimum standards for the ownership and management of banking institutions.
7. CBN also should continuously train their staff on issues pertaining to corporate governance.

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Appendix

Table 4-1: Data Used in the Regression Test

YEAR	ITAR	LTDR	LR	MLR	M_2GR
1986	2.02	83.2	36.4	12	4.23
1987	2.29	72.9	46.5	19.2	22.92
1988	0.44	66.9	45	17.6	34.99
1989	1.53	80.4	40.3	24.6	3.54
1990	1.66	66.5	44.3	27.7	45.92
1991	0.54	59.8	38.6	20.8	27.43
1992	0.77	55.2	29.1	31.2	47.53
1993	0.73	42.9	42.2	36.09	53.76
1994	0.52	60.9	48.5	21	34.5
1995	0.56	73.3	33.1	20.79	19.41
1996	0.55	72.9	43.1	20.86	16.18
1997	0.59	76.6	40.2	23.32	16.04
1998	0.6	74.4	46.8	21.34	22.32
1999	0.49	54.6	61	27.19	33.12
2000	0.51	51	64.1	21.55	48.07
2001	0.71	65.6	52.9	21.34	27.0
2002	1.28	62.8	52.5	30.19	21.55
2003	2.06	61.9	50.9	22.88	24.11
2004	1.94	68.6	50.5	20.82	14.02
2005	1.96	70.8	50.2	19.49	24.35
2006	1.97	63.6	55.7	18.7	43.09
2007	2.66	70.8	48.8	18.36	44.24
2008	3.02	80.9	44.3	18.7	57.78
2009	5.08	85.7	30.7	22.9	17.46
2010	1.03	60.6	31.7	22.51	2.48

Sources: Central Bank Statistical Bulletin (2010)

Where:
ITAR = Investment to Total Assets
LTDR = Loans to Deposits ratio
MLR   = Maximum Lending rate
LR   = Liquidity ratio
M_2GR = Money Supply Growth rate
$ITAR = \beta_0 + \beta_1 LTDR + \beta_2 MLR + \beta_3 LR + \beta_4 M2GR$ (6)

Table 4-3: Summary of Regression Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LTDR	0.083543	0.023373	3.574346	0.0022***
MLR	0.087221	0.040469	2.155225	0.0449**
LR	0.020131	0.030352	0.663259	0.5156
M_2GR	0.010759	0.012199	0.881996	0.3894
C	-7.391471	3.056226	-2.418496	0.0264**
AR(1)	0.627119	0.205819	3.046943	0.0069***
R-squared	0.595352			
Adjusted R^2	0.482950			
F-statistic	5.296631			
Prob(F-statistic)	0.003642***			
Durbin-Watson stat	2.134440			

Source: compiled from E-view Application

Table 4-2: Regression Result Using Ordinary Least Square Estimation Method
(Regression result using OLS with AR (1) Converged)

Dependent Variable: ITAR				
Method: Least Squares				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LR	0.020131	0.030352	0.663259	0.5156
MLR	0.087221	0.040469	2.155225	0.0449
LTDR	0.083543	0.023373	3.574346	0.0022
M2GR	0.010759	0.012199	0.881996	0.3894
C	-7.391471	3.056226	-2.418496	0.0264
AR(1)	0.627119	0.205819	3.046943	0.0069
R-squared	0.595352	Mean dependent var		1.395417
Adjusted R-squared	0.482950	S.D. dependent var		1.108257
S.E. of regression	0.796905	Akaike info criterion		2.596157
Sum squared resid	11.43105	Schwarz criterion		2.890670
Log likelihood	-25.15388	Hannan-Quinn criter.		2.674291
F-statistic	5.296631	Durbin-Watson stat		2.134440
Prob(F-statistic)	0.003642			
Inverted AR Roots	.63			

Source; Researcher's Computation, 2015