



Empirical Analysis of the Impact of Risk on the Bank Performance in Nigeria. Econometrics Approach

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ABSTRACT

This study is focused on the empirical analysis of risk on Banks performance in Nigeria using time series data for the period of 1990 to 2014. This study employed Dickey Fuller unit root test, Johansen cointegration test and Parsimonious method augmented with error correction model. The emphasis was to test the long run relationship between non-performing loan, Average Liquidity Risk and the Return on Assets. The result of the analysis are in various folds: First, it shows that the variables were trend stationary and exhibited a long run relationships with Return on Assets (bank performance). The specific findings of the study using error correction model is that non-performing loan has made significant negative impact on Return on Assets while Average Liquidity Ratio has not made significant impact on Return on Assets. Second, this finding confirm that non performing loans is the most critical of all risk components. This study has some important policy implication: The banking operators and regulatory bodies should as a matter of urgency tighten up the monetary apparatus to safeguard and stabilize the depositors money and the banking sector in Nigeria. Also, there should be adequate credit administration, measurement, monitoring processes and good control over credit, liquidity and other risk components.

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1.1 Introduction

Risk portends a chance that unfavorable event will occur. This conforms to the connotations put on the term by most investors. Experts normally talk about 'downside risk and 'upside potential phenomenon is simple, risk has to do with bad outcomes, potential with good ones. Hence, it is inherent in our everyday activities.

Meanwhile, risk, the possibility of loss, injury, damage or peril is inevitable in life. No aspect of human endeavor is devoid of, or can escape it. It is inherent in everyday life, and more so in the life of a banker. His business has been, and continues to be taking risks. This he does through maturity transformation-borrowing short and lending long. The foundation for doing this is the probability that he will not be called upon at any one time to redeem all his obligations, provided he manages his affairs prudently. This implies having adequate capital and earnings, and adequate liquidity to honor his obligations as they fall due. It also means avoiding excessive risk. He cannot avoid risks altogether. He will be out of business if he tries to do so. The risks he takes must be compatible with probability, liquidity and prudence. (Nwankwo, 1991).

Sanusi (2010) contends that, the probability that he will not be called upon at any one time to redeem all his obligations also depends on confidence. It is confidence that propels and keeps him in business. Thus, if probability is the foundation of banking, confidence is its cornerstone, he maintains. I confidence collapses or is shattered the whole edifice collapses and so the banker's business. Managing risks, like managing capital and liquidity is, therefore, the centerpiece of banking and this has been increasingly so since the beginning of the eighties.

The business of banking is associated with numerous risks. Generally, these risks affect all aspects of banking operations. It is important to note that a bank that is run on the principle of avoiding all risks or as many of them as are possible, will not be dynamic and may not adequately serve the credit needs of its customers and the demands of economic development. On the other hand, a bank that takes excessive risks would actively- run into crisis-liquidity and capital adequacy problem. Thus, the overall consideration of bank management is minimizing risks and maximizing returns, consistent with prudential constraints and regulations. Thus, risk management must be compatible with profitability, liquidity and prudential requirements (Nwankwo, 1991; Nzotta, 2004).

According to Ayodele and Alabi (2014), the effective management of business organizations and the occasional disasters associated with life itself, together with political and social disruptions, are examples of risks which a society is exposed to. It is not often possible to totally eliminate these risks, but the probability of a loss can be reduced by changing some of the circumstances relating to loss. They further stressed that, in applying this to financial institutions, it has become more important than ever for banks to manage effectively the various types of risks they confront, including market, credit, liquidity, operation and computer system risks. These changing circumstances often create new set of risks in which answers lie in better planning and well organized risk management techniques.

However, risk management in banking sector in Nigeria is in limelight especially after the global economic meltdown of 2007/2008 which seem to be quagmire that impacted the very existence of banking sector as a variable industry.

The journey of risk management started way back during medieval era, where the banks had recognized the significance of the role of risk management and had adapted the same by creating a risk function in their activities and organizations. Not only the banks, even the various government bodies have recognized the repercussions or impact of not managing the risks effectively in banks and accordingly enacted several regulations to control risks that arise in the banking business and operations.

Owojori, Akintoye and Adidu (2011), contend that banking crises in Nigeria have shown that not only do banks often take excessive risks but the risks differ across banks. Some banks engage in more risks than their capital could bear. Other banks are more prudent and would be able to contain a banking crisis, in a bid to strengthen the system, the Central Bank of Nigeria (CBN) on July 6, 2004, introduced measures to ensure that the entire banking system is safe, sound, stable environment that could sustain public confidence

Meanwhile, it is pertinent at this point, to emphasize that since the policy of consolidation, the industry players and other stakeholders have been faced with how best to manage the post-consolidation challenges, that confront the Nigeria banking industry and the economy. This according to Owojori et al, (2011) is compelling reason operators of the banking system in Nigeria are challenged to take more seriously the important issue of risk acceptance/rejection, which is often the point at which bankers fall into or escape the trap of greed.

Therefore, this study will focus mainly on analyzing the effect of risk on the performance of Deposit Money Banks (DMBs) in Nigeria. More emphasis will be made on credit risk and liquidity risk as a veritable gauge to bank performances. Also efforts will be made to giving an insight on how effectively risk management can be addressed in Nigeria banking industry in this post consolidation era. Besides, how various risks associated with Nigerian banks' performances can be minimized in a bid to guiding or insulating the enduring or perennial distress syndrome or cankerworm plaguing the Nigeria banks. The data for the analysis will be from Nigerian Deposit Insurance Corporation (NDIC) for various years.

2.1 Theoretical Review

2.1.1 The Concept of Risk Management

Risk management is seen as a condition sine qua non to bank operation and other business entity. This is because risk is inherent in everyday life, therefore, its management needs to inculcate as a management strategy to insuring the growth, survival, solvency, liquidity and profitability of a firm.

Therefore, Ebiringa (2008) defined risk management from three perspectives; firstly; risk management as a pure defensive play in which we sacrifice growth and hold on to whatever value we already have and perhaps transfer as much risk as possible through risk transfer mechanism such as insurance. Secondly, he viewed risk management as the balance between risk and reward. Lastly, and more technical approach at risk is to understand the difference between risk and uncertainty, in which the former is seen as expected loss (or cost) of which the probability can be statistically quantified, while the later represents unexpected loss (or costs). In other words, a variability that cannot be quantified.

Njogo (2012), risk management is the identification, assessment, and prioritization of risks followed by coordinated and economical application of resources to

minimize, and control the probability and/or impact of unfortunate events.

Risks can come from uncertainty in financial markets, project-failure, legal liabilities, credit risk, accidents, natural causes and disasters as well as deliberate attacks from an adversary. Risk management ensures that an organization identifies and understands the risks to which it is expected.

However, risk management is concerned with the application of professional management and control of personal and or corporate losses exposure in a business setting emphasis on a process frame work with the ultimate objectives being the protection of the assets, earning, persons and liabilities of the enterprises are minimum cost with maximum potential benefits.

2.1.2 Credit and Liquidity Risks

Credit Risk

This is also known as default risk. Credit risk is the risk of losses in on and off balance sheet position arising from movements in market prices. The risks subject to this requirements are the risks pertaining to interest rate-related instruments and equities in the trading book, and foreign exchange risk and commodities risk through the bank. NDIC(2014), see credit risk as the risk of loss attributable to counter-parties failing to honor their obligations to the corporation. It could manifest if an insured institution that receives financial assistance from the corporation in form of credit facilities or counterparty to financial instrument in which the corporation has invested fails to meet its financial obligation when it falls due. It is also the risk of loss due to a debtor's non- payment of loan or other of credit (either the principal or interest (Coupon) or both. This is the risk that the interest or principal on loans and exposures made to customers will not be repaid as agreed. That is, the potential that a bank borrower fails to meet the obligations on agreed terms. Credit risk is inherent to the business lending funds and to the operations linked closely to market risk variables.

Liquidity Risk

Liquidity risk in the words of Pandey (2004) is the probability that there will be a sudden call upon the resources of the bank that will strain its financial capacity. According to NDIC (2014), liquidity risk is the risk that sufficient funds will not be available to the corporation to honor its financial obligations to insured depositors, staff, contractors and other stakeholders as and when due. It is the type of risk which may arise from the fact that the firm may find it difficult to generate enough quantum of funds with which short-term financial obligation can be met. It is most often thought of as a sudden liability short fail that is associated with a deposit withdrawal or with a decline in borrowing capacity. It is a risk that arises when the bank finds itself unable to meet its commitments when due and to undertake a new transactions when desirables. This is due to financing mismatches in the tenor of assets and liabilities resulting in losses from liquefying assets or switching liabilities in adverse market conditions to meet liquidity claims.

2.2 Empirical Review

There have been a large number of studies published about risk management in general. But very few studies made empirical analysis on risk management. Most of them were mainly subjective or judgmental in nature.

Ayodele and Alabi (2014) in their study Risk management in Nigeria Banking Industry using ANOVA deduced that fraud and forgeries in banks constitute a risk

factor to banks' performance and is therefore playing an adverse role in its activities.

They also discovered that among the various types of risk confronting banks' performance, operation risk and credit risk are the commonest.

Okpara (2012) in his research on effects of risk on banking sector performance in Nigeria using descriptive statistics, opined that the effect of credit risk on performance of banks in banking sector is roughly dicey.

Pisillaki M. et al (2013), examined returns on investment and volatility rate in the Nigerian banking industry for a period of eighteen years covering 1992-2009, using GARCH-in-mean and EGARCH models and found out that volatility does affect return on investments made by the banks. They identified the effects of announcement or news (good or bad) on relationship between risks and returns as both have a contributory effect on the volatility-return on investments decision made by these banks.

Korapo, Ayeni, and Oke (2012), investigated credit risk and commercial bank's performance in Nigeria using panel data regression analysis of the effect of credit on bank performance measured by return on equity, they came out that the effect of credit risk on bank performance measured by Return on Assets is cross-sectional variant That is, nature and managerial pattern of individual firm do not determine the impact. This is revealed by the restricted F-test under the fixed, effect analysis. That loan and Advances ratio (LA) coefficient exerts most significant positive effect on the profitability across the baking firms.

Aremu et al (2011), focused on factors affecting risk management efficiency in banks, employing panel regression taking a stratum of time series of data and cross-sectional variants of macro and bank specific factor for period of 2003-2009. Results of panel regression indicate that risk management efficiency in Nigerian banks is not affected by bank-specific factors but also by macro-economic v en them.

Kargi (2011) , investigated the impact of risk on the profitability of Nigerian banks, Descriptive, correlation and regression techniques were used in the analysis. Then it revealed that credit risk management has significant impact on the profitability of Nigeria banks. Linbo (2004) examined efficiency versus risk *in* large domestic US banks. He discovered that profit efficiency is sensitive to credit risk and insolvency risk but not to liquidity risk or to the mix of loan products. Halim (2004) investigated empirically on interest rate and exchange rate exposures of banking institutions in pre-crisis Korea. The result showed that Korean commercial banks and merchant banking corporations had been significantly exposed to both interest rate and exchange rate risks, and that the subsequent profitability of commercial banks was significantly associated with the degree of pre-crisis exposure. The results also indicated that Korean case highlights the importance of up-grading financial supervision and risk as a pre-condition for successful financial liberalization. Empirical analyses and findings from sensual studies have revealed that risk management efficiency in banks is co-determined by macro economic factors which vary with cycles. These macroeconomic factors have not been well integrated into the Basel guide. Although credit rating have been suggested to qualify sovereign risk, the core macro-determinant of performance such as economic growth has been omitted. Besides, pro-cyclical risk process can be mitigated if monetary authorities at regular intervals examine

the risk position of banking firms to avert extreme losses, prioritizing future expectations over present profitability.

Niinimaki (2004) discovered that the magnitude of risk taking depends on the structure and size of bank's risk management in the market competition. Banks in this situation tend to take risks, although extreme risk taking is avoided, in contrast, introducing deposit insurance increases risk taking if banks are competing for deposits, in this case, deposit rates become excessively high thereby forcing banks to take extreme risks. Empure and Lafuente (2012), examined bank performance in the presence of risk for Costa-Rican banking industry during 1998-2007. The results unfolded that performance improvements follow regulatory changes and that risk explains differences in banks and non-performing loans *negatively* affect efficiency and return on assets while the capital adequacy ratio has a positive impact on the net interest margin. Chen and Pan (2012) examined the credit risk efficiency of 34 Taiwanese commercial banks over the period 2005-2008, Their study used financial ratio to assess the credit risk and was analyzed using Data Envelopment Analysis (DEA). The credit risk parameters were credit risk technical efficiency (CR-TE), credit risk allocative efficiency (CR-AE).the results indicated that only one bank is efficient in all types of efficiencies over the evaluated periods. Overall, the DEA results show relatively low average efficiency levels in CR-TE, CR-AE and CR-CE in 2008.

Al-khomi (2011) assessed the impact of banks' banking environment on the performance of 43 commercial banks operating in 6 of the Gulf cooperation council (GCC) countries over the period 1998-2008. Employing fixed effect regression analysis, results showed that credit risk, liquidity risk and capital risk are the major factors that affect bank performance when profitabi/ity is measured by return on assets while the only risk that affects profitability when measured by return on equity is liquidity risk.

3.1 Model Specification

This study adopted the econometric model in evaluating the effect of risk on bank performance in Nigeria. The econometric model used was to determine the relationship between Return on Assets (ROA) and Credit Risk (NPL) and Average Liquidity Ratio (LR). Based on this specification, a functional model was specified as follows:

$$ROA = f(NPL, LR,) \quad (1)$$

The econometrics model can written as thus

$$ROA_t = b_0 + b_1NPL + b_2LR + U_t \quad (2)$$

Where;

ROA =Return on Assets

NPL =Credit Risk (Non performing loans/total loans)

LR = Average Liquidity Ratio

U_t = Stochastic variable.

We expect the risk profile of bank to be negative on ROA Therefore, $b_1, b_2 < 0$

3.1.1 The methodology proceeds as follows:

1. Unit Root test(Stationarity test)

The first and foremost step is to transform all the data to logs and proceed with the testing and confirmation of the presence of unit roots in the series. This is vital for all empirical testing that follows afterwards and shall be carried out under the Augmented Dickey-Fuller (ADF) test. The ADF test is a modification of the Dickey-Fuller (1979) test and is used when the series is higher than an AR (1).

Applying this test, we determine the order of integration of all variables using unit root tests by testing for null hypothesis $H_0: \beta = 0$ (i.e β has a unit root), and the alternative hypothesis is $H_1: \beta < 0$. The objective is ensure that no variable is I(2) so as to avoid spurious results

The next stage involves the lag specification tests where the number of lags in the vector autoregression model (VAR) is determined by employing the the Akaike Information Criterion (AIC) procedures.

The third step involves the cointegration tests among the three series. This paper adopts the trace and maximum eigenvalue test statistics proposed by Johansen and Juselius (1990) to determine the number of cointegrating relationships amongst the three series. It represented as follows

2. Johansen and Juselius Co integration

The Johansen co-integration equation which starts with the dynamic vector autoregressive regression (VAR) of order p which is given by:

$$y_t = \mu + A_1 y_{t-1} + \dots + A_p y_{t-p} + \epsilon_t \quad (3)$$

Where y_t is a $(n \times 1)$ vector of variables under consideration in log form that are integrated at order one commonly denoted $I(1)$, $n=3$ A_p are the parameters to be estimated, ϵ_t are the random errors. This (VAR) can be rewritten as;

$$\Delta y_t = \mu + \Pi y_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta y_{t-i} + \epsilon_t \quad (4)$$

Where, $\Pi = \sum_{i=1}^p A_i - 1$ and

$$\Gamma_i = -\sum_{j=i+1}^p A_j \quad (5)$$

The above equation is a pure Johansen Co integration test. Gregory and Hansen (1996) noted that the Johansen test is a test for co-integration that allows for more than one co-integration relationship. If the coefficient matrix Π has reduced rank $r < n$, then there exist $n \times r$ matrices of α and β each with rank r such that

$$\Pi = \alpha \beta' \quad (6)$$

Where r is the number of co-integrating relationship, the element is α is known as the adjustment parameters in the vector error correction model and each column of β is a co integrating vector. It can be shown that, for a given r , the maximum likelihood estimator of β define the combination of y_{t-1} that yield the r largest canonical correlations of Δy with y_{t-1} after correcting for lagged differences and deterministic variables when present. The two different likelihood ratio test of significance of these canonical correlations are the trace test and maximum eigenvalue test, shown in equation 5 and 6 respectively below

$$\lambda_{trace}(r) = -T \sum_{i=r+1}^n \ln(1 - \hat{\lambda}_i) \quad (7)$$

and

$$\lambda_{max}(r, r + 1) = -T \ln(1 - \hat{\lambda}_{r+1}) \quad (8)$$

Here, T is the sample size and $\hat{\lambda}_i$ is the i^{th} ordered eigenvalue from the Π matrix in equation 3 or largest canonical correlation. The trace tests the null hypothesis that the number of r co-integrating vector against the alternative

hypothesis of n co-integrating vector where n the number of endogenous variables is. The maximum eigenvalue tests the null hypothesis that there are r co integrating vectors against an alternative of $r + 1$ (see Brooks 2002).

3. Error Correction Model (ECM)

The long run relationship between Return on Assets (ROA), Credit Risk (NPL) and Average Liquidity Ratio (LR) is also examined using the ECM technique developed by Johansen (1988, 1991). The existence of cointegration amongst Return on Assets (ROA), Credit Risk (NPL) and Average Liquidity Ratio (LR) invariably implies causes amongst the three different series. To carry out the causality test we model the three series within the ECM framework and augment the model with an error correction term lagged by one period. A statistically significant ECM_{t-1} term represents the long-run causality running from the explanatory variables to the dependent variable. For instance, if two variables are non-stationary, but become stationary after first differencing and are co integrated, the p th-order vector error correction model for the Granger causality test assumes the following equation:

$$\Delta \ln X_t = \alpha_{10} + \sum_{i=1}^{p11} \theta_{11i} \Delta \ln X_{t-1} + \sum_{i=1}^{p12} \theta_{12j} \Delta \ln Y_{t-j} + \delta_{13} ECM_{t-1} + u_{1t} \quad (9)$$

$$\Delta \ln Y_t = \alpha_{20} + \sum_{i=1}^{p21} \theta_{21i} \Delta \ln X_{t-1} + \sum_{i=1}^{p22} \theta_{22j} \Delta \ln Y_{t-j} + \delta_{23} ECM_{t-1} + u_{2t} \quad (10)$$

Where θ and δ are the regression coefficients, u_t is error term and p is lag order of x and y indicates that the optimal lag order based on the Akaike information criteria (AIC) is 2. The presence of short-run and long-run causality can be tested. If the estimated coefficients of y in Eq. 9 is statistically significant, then that indicates that the past information of y (e.g Return on Asset) has a statistically significant power to influence x (Bank Risk) suggesting that y causes x in the short-run. The long-run causality can be found by testing the significance of the estimated coefficient of ECM_{t-1} (δ_{23}). ECM_{t-1} is the error correction term obtained from the co integration model. The error coefficients δ_{23} indicate the rate at which the co integration model corrects its previous period's disequilibrium or speed of adjustment to restore the long run equilibrium relationship. A negative and significant ecm_{t-1} coefficient implies that any short run movement between the dependant and explanatory variables will converge back to the long run relationship. Indeed it recovers any long-run information that is partially lost in the system with differenced coefficient. So, that this terms are needed to gain model stability in the long run. Narayan and Smyths (2008)

3.2 Estimation of Model

We applied Vector Autoregression (VAR) for multivariate analysis of ROA risk components relationship and also to test the significance of the analysis of risk on the performance of DMBs in Nigeria. Unit root test procedure was used to find out the order of time series variable stationarity.

Table 1. Summary of Unit Root Test.

Variables	Lagged Length	Method	Test statistics	Critical values		Remarks
				1%	5%	
ROA	0	ADF	-7.566896	-3.752946	-2.998064	stationary@1%
NPL	0	ADF	-6302174	-3.752946	-2.998064	stationary @1%
LR	0	ADF	-4.476202	-3.752946	-2.998064	stationary @1%

Test of significance of parameter. Estimates (t-statistic) will be carried' out at 5% level. This will enable us compare the probability of computed t-statistic or f-statistic at various situations of empirical analysis with the critical value of 5% to establish significance. When the computed t-statistic probability associated with it is greater than the critical value of 5%, the parameter is statistically significant but otherwise is not significant.

The unit root test shows that ail the variables are stationary at 1%. Having established that the variables are stationary, we move on to verify the long run relationship using the Johansen Cointegration Test. The result from the test is presented in Table 2.

Table 2. Result of Johansen Co-integration Test.

Trend assumption: Linear deterministic trend				
Series: ROA, LR, NPL				
Lag interval (in first difference):2 to 2				
Unrestricted co-integration Rank Test (Trace)				
Hypothesized No of CE(s)	Elgen value	Trace Statistic	0.05 critical value	Prob.**
None*	0.607227	30.25511	29.79707	0.0443
At most 1	0.260013	9.695576	15.49471	0.3049
At most 2	0.130281	3.070867	3.841466	0.0797

Trace test indicates 1 cointegrating equation (s) at the 0.05 level.

From the above table, the result shows that only 1 of the trace statistic is greater than the critical values at 5% level and as such, indicates 1 co-integrating equation at the 5% level. This implies that there exist long run relationship between Return on Assets (ROA), Credit Risk (NPL), Average Liquidity Ratio (LR).

4.1 Analysis of Risk on Performance of Bank Performance

Having established a long run relationship between the ROA series and NPL and LR, the researcher employed the Error Correction Model (ECM) to determine the predictions of NPL and LR on ROA. The results of the analysis is presented in table 3 as follows:

$$ROA_t = -10.489448 - 2.294111NPL_{t-1} - 0.406975LR_{t-1} \dots \dots \dots \text{Eqn (4.1)}$$

Equation 4.1 implies that the bank performance in the year 2015 can be predicted using credit risk only in the year 2014. The result of the analysis shows that NPL at lag 3 is negative and significantly related to ROA.

While LR is positive and insignificantly related to ROA. In other words, CR exerts negative and impacts on ROA. The Error Correction Model is correctly signed though not significant. The Variables are fitted ($R^2 = 68,8\%$) and overall regression (F-statistic = 2.209252) and F-statistic is significant with no autocorrelation (Dw = 1.754250). The researcher therefore concludes that NPL is a good predictor for the bank performance (ROA).

5.0 Summary, Conclusions and Recommendations

5.1 Summary of Findings

However, based on the results of the analysis the following findings were made:

- A significant long run relationship exists between Return on Assets (ROA) and Credit Risk (NPL).
- Credit Risk (NPL) makes significant impact on the bank performance (ROA),
- Average Liquidity Ratio (LR) has not made significant impact on the bank performance (ROA).

5.2 Conclusion

Risk which seem to be inherent in the management of Deposit Money Banks (DMBs) in Nigeria is unavoidable hence should be traded with caution. Therefore, an effective management of banking risk requires a well-articulated risk management policies and strategies. This assists the bank managers to think through the totality of its operations and the risk associated with the operations, see the risk in totality as affecting the bank as a corporate entity rather than as individual risk affecting separate departments and units of the banks, assign responsibility and establish the machinery for implementation, appraisal and review.

Therefore, credit risk and liquidity risk and are seen to be critical to running of banks. Credit risk is the most risky component of the risk items in the banking sector. This can easily be adduced from the analysis conducted. However, credit risk which is very cancerous can seriously cripple the success and performances of banking sector

5.3 Recommendation

- In the light of the above findings and conclusions, the researcher recommends that the banking operators and regulatory bodies should as a matter of urgency tighten up monetary apparatus to safeguard and stabilize the depositors' money, and the banking sector and the economy in general.

Table 3. ECM for ROA and NPL and LR Series.

Dependent Variable: D(ROA)				
Method Least Squares				
Date: 09/07/016 Time: 01:26				
Sample (adjusted): 1996-2014				
Included observations: 19 after adjustment				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(ROA(-1))	-0.561787	0.563988	-0.996097	0.3452
D(ROA(-2))	-0.914519	0.526847	-1.735835	0.1166
D(LR(-4))	0.406976,	0.285805	1.423965	0.1882
D(NPL(-1))	-1.241623	1.007438	-1.232455	0.2490
D(NPL(-2))	-0.412601	0.841227	-0.490475	0.6355
D(NPL(-3))	-2.294111	0.949522	-2.416071	0.0389
D(NPL(-4))	-1.256391	0.740285	-1.697171	0.1239
D(NPL(-5))	-1.065064	0.764194	-1.393710	0.1969
ECT (-1)	-0.034712	0.704889	-0.049244	0.9618
C	-10.48948	7.072023	-1.483236	0.1722
R-squared	0.688401	Mean dependent var		0.115263
Adjusted R-squared	0.376802	S.D, dependent var		20.39806
S.E- of regression	16.10282	Akaike info criterion		8.701283
Sum squared resid	2333.707	Schwaiz criterion		9.198356
Log likelihood	-72.66219	Harman-Quinn enter.		8.785407
F-statistic	2.209252	Durbin-Watson stat		1.754250
Prob(F-Statistic)	0.026670			

• Also, adequate credit administration, measurement, monitoring processes and good control over credit, liquidity and other risk components must be followed.

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