Monetary Policy and Commercial Banks' Performance in Nigeria

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Abstracts

The study was carried out to examine the impact of monetary policy on commercial banks' performance in Nigeria in a micro-panel analysis. Interest rate and money supply were used as proxies for monetary policy, while profit before tax (PBT) was used to represent commercial banks' performance. Pooled regression, Fixed effect regression, and random effect regression were all carried out in the analysis. However, Hausman test revealed that fixed effect regression is the most appropriate. The results show that there is a positive relationship between banks' profits and monetary policies as proxied by money supply and interest rate. However, interest rate was not statistically significant at 1% and 5% levels. This study therefore recommends that interest rate policy should be looked into by the monetary authority in a way that is friendly to loan advancement in the country.

Key words: Monetary Policy, Fixed effect, Hausman test, Banks' Profits, Nigeria

1.1 BACKGROUND TO THE STUDY

The role of the banking sector in the economic development of a nation cannot be overstressed. It is the channels through which idle funds are made available to the productive sector, thereby facilitating the use of surpluses in the economy to generate employment and   promote economic welfare.   The banking sector provides strong confidence for depositors, thereby motivating and encouraging saving in the economy. A strong financial sector also helps to sustain an economy against external shock that may arise from fall in external capital flow. A strong and well-developed financial sector is needed to achieve a sustained growth (Aurangzeb, 2012). Also, Akomolafe (2014) opined that sustainable economic growth is often associated with countries with strong financial sector. The recent incidence of banking and financial crises in the world, and its aftermath on the world economies gives credence on the importance of the sector on the performances of an economy. More importantly, the banking sector also serves as the avenue through which the monetary policies of the government are carried out.

As a stabilization policy, monetary policy involves the use of monetary instruments to regulate or control the volume, cost, availability and the direction of money and credit in an economy to achieve some specific macro-economic policy objective. According to Onouorah et al. (2011), it is a deliberate attempt by the monetary authority (Central Bank) to control the money supply and credit condition in the economy so as to achieve certain economic objective. Some of the macroeconomic objectives include price stability, full employment, sustainable economic growth, balance of payment equilibrium. The monetary instruments include bank rate, open market operation, reserve requirements etc. Economic activities are not directly affected by monetary policy instruments; they work through their effects on the financial markets. It affects economic activities through its effects on available resources in the banking sector.

For instance, when the economy experiences inflationary pressure, the monetary authority can use contractionary monetary policy to stabilise the price level. This may be done by increasing the reserve ratio. This will then reduce the amount available to commercial banks for the purpose of credit facility. This will eventually reduce the pressure on prices in the economy through a reduction in the volume of money in circulation. On the other hand, if the objective is to increase the aggregate demand in the economy, the reserve ratio may be reduced. Hence, the monetary authorities use monetary instruments to keep inflation and deflation in check. Generally, Ahumada and Fuentes (2004) identified two important channels through which monetary policy affect the functioning of the banking sector: the traditional interest rate channel and the credit channel.

Market imperfections, such as asymmetric information, that induce a contraction of the quantity of credit when the central bank imposes a restrictive monetary policy.

The effectiveness of monetary policies in achieving its targeted objectives however depends on the level of compliance with the policy directives by the banks. This is because the policies sometimes go against their profit interests. The existence, growth and survival of a business organization mostly depend upon the profit which an organization is able to earn. Profitability increases the value of shareholders to a considerable extent. The term profitability refers to the ability of the business organization to maintain its profit year after year. The profitability of the organization will definitely contribute to the economic development of the nation by way of

providing additional employment and tax revenue to government. Moreover, it will contribute the income of the investors by having a higher dividend, and thereby improve the standard of living of the people. In order to make profit for instance, commercial banks invest customers' deposits in various short term and long term investment outlet, however core of such deposits are used for loans. Hence, the more loans and advances they extend to borrowers, the more the profit they make (Solomon, 2012). When government embarks on contractionary monetary policies, it reduces the available resources with the banks. This consequently reduces their ability to make profits. On the other hand, expansionary monetary policies would have an opposite effect. The purchase of treasury bills through open market operation by the monetary authority would increase the available resources, and consequently, the profits of the banks. Given the impacts of the financial sectors on the overall economic activities in the economy, it is therefore important to analyse the impacts of monetary policies have on the banking sectors' performance. Correctly identifying the effects of monetary policy is necessary for good policy making.

In Nigeria, the banking industry is dominated by the commercial banks. The central bank is responsible for the conduct of monetary policy to pursue the macroeconomic objectives of the government. Items in commercial banks balance sheet are influenced by the Central Bank of Nigeria (CBN) through the use of direct monetary policies. The CBN sets the interest and allocates credits in the economy according to the economic objectives and plans of the Government. The policies involves targeting monetary aggregates to monitoring and manipulating policy rates to direct the interbank rate in the desired direction which in turn determines the direction of other market rates. Today, the targeting of inflation and control of interest rate among other policies are the core policies needing the attention of the CBN. Various monetary policies have been instituted by the Central Bank of Nigeria to control, regulate and develop the financial system. These have sometimes resulted in distortions in the economy. Over the years, the effects of monetary policies on the performance on banks have been a subject of concerns. The removal of the maximum lending rate ceiling in 1993 saw interest rates rising to unprecedented levels in sympathy with rising inflation rate which rendered banks' high lending rates negative in real terms. In 1994, direct interest rate controls were restored. As these and other controls introduced in 1994 and 1995 had negative economic effects, total deregulation of interest rates was again adopted in October, 1996. In 2004, the CBN directed that commercial banks in the country must have a minimum capital base of N25billion. In 2006, Monetary Policy Rate (MPR) was adopted by the Monetary Policy Committee as a replacement for the Minimum Rediscount Rate (MRR) (Ajayi &Atanda, 2012). This reason for this was to influence direction of interest rate in line with the monetary policy condition. The MPR has remained the operating instrument for the direction of interest rate since then. The volatility in the monetary policy formulation has no doubt affected the performance of the banking sector in Nigeria. Okoye, and Eze (2013) studied the impact of monetary policy on the performance of commercial banks in Nigeria and found out that monetary policy rate has positively affected the performance of commercial banks. However, Enyioko (2012) showed that monetary policy has not improved the overall performances of banks significantly. Given the place of the banking industry in the growth of an economy (Alper and Anbar, 2011), it is important to analyze the impact of monetary policies on the performance of the banking sector. This is the focus of this study. This paper is structured into a five sections. The general introduction is covered in section one, section two will review some related literatures. In section three, the methods that will be used in achieving the objectives of this work will be discussed. In section four, the data analysis results will be presented and discussed. Section five is meant for the conclusion, and recommendation.

## 2.1 Review of Previous Literature

Various works have been done on the relationship between monetary policy and banks' profitability in the literature. Using Ordinary Least Squares (OLS) technique, Imoisi, Olatunji, and Ekpenyong (2013) analysed the relationship between monetary policy and Balance of Payments in Nigeria. The study covered a period of 1980 to 2010. The result indicates that monetary policy instruments have positive relationship with balance of payment position of the country. In the same vein, the study by Ajayi and Atanda, (2012) on the impact of monetary policy on banks performance in Nigeria show that monetary policy instruments are not effective to stimulate credit in the long-run, and that bank rate, inflation rate and exchange rate are positively related to banks credit, but liquidity ratio and cash reserves ratio are negatively related to total credit of the banks. The study was carried out between the periods 1978 and 2008, and Engle-granger two-step co-integration approach was employed.

Amassoma, Wosa and Olaiya (2011) also analysed the impact of monetary policy on macroeconomic variables in Nigeria for the period 1986 to 2009. Using the simplified Ordinary Least Squared technique conducted with the unit root and co-integration tests, they found that monetary policy has a significant effect on exchange rate, but it was insignificant in its effect on price instability. They concluded with a recommendation that there is a need to align fiscal policy with monetary policy so as to maximise the growth potential of monetary policies. In the same manner, Okoro (2013) examined the impact of monetary policy on Nigerian economic growth from
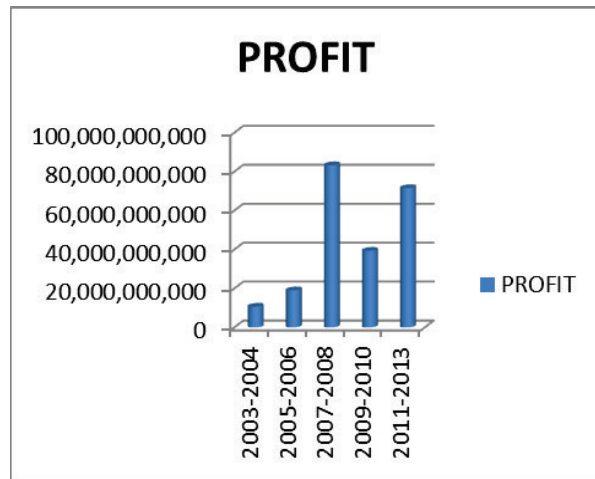
1970 to 2010. Co-integration test and Error Correction Model employed show that there exists a long-run equilibrium relationship between monetary policy instruments and economic growth in Nigeria.
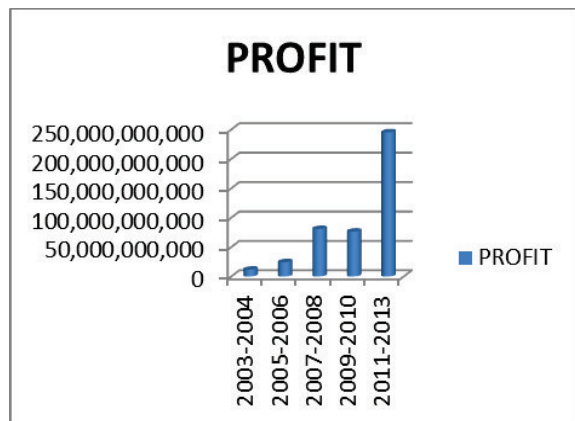
2.2 Profit Before Tax for some selected Banks

The figure 2.1 below show the movement of the banks under investigation during between 2003 and 2013.
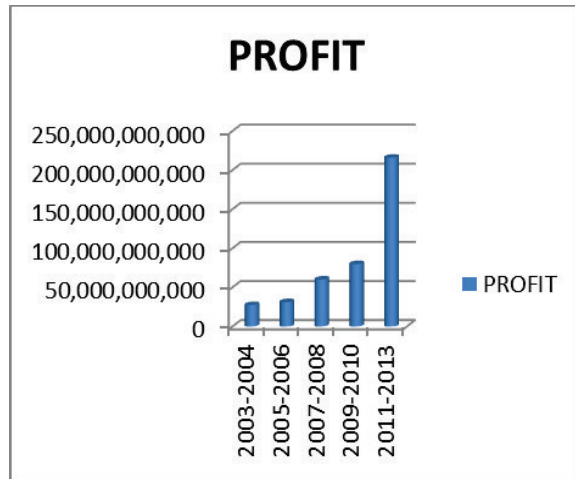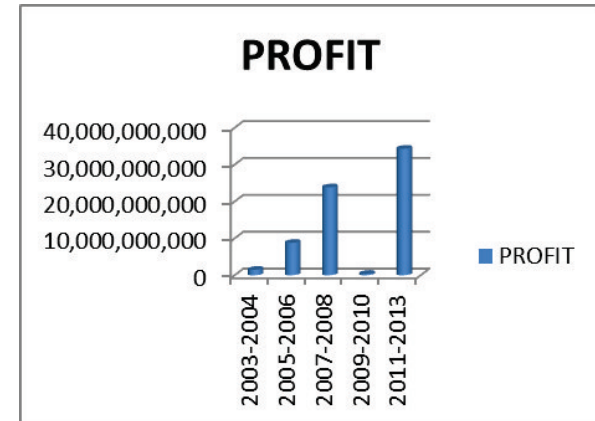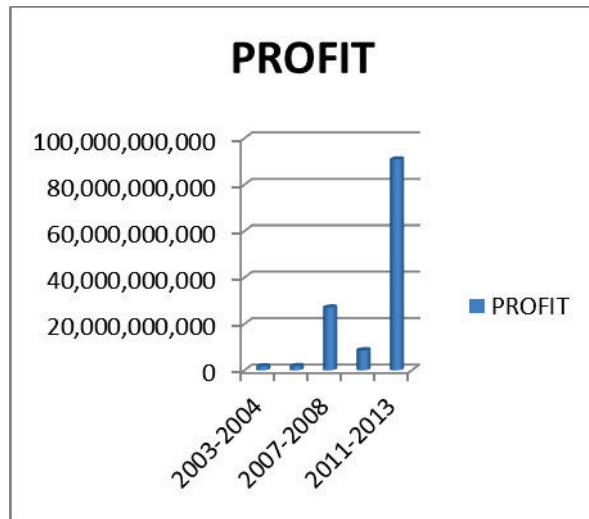

First Bank

UBA

Zenith

Diamond

Access

Figure 2.1: Profit structure of some selected banks in Nigeria

3.0 METHODOLOGY

3.1 DATA TYPE AND SOURCES

The data set consists of panel dataset from 2003 - 2013 for five banks namely; First Bank, Zenith Bank, UBA, Diamond Bank, and Access Bank. The required data set on the performance of the banks will be sourced from the annual statement of accounts of each bank, while the data on monetary policy instruments will be sourced from CBN Statistical Bulletin (2014).

3.2 Model Specification

The model that will be used is in line with that of Adeusi et. al. (2014), but modified in line with the objectives of this work. The empirical model is presented below:

$$LPRO_{it} = \alpha + \beta_1 INT_t + \beta_2 LMS_t + \beta_4 LCA_{it} + \beta_5 LME_{it} + u_{it} \qquad (3.1)$$

Where LPRO is the log of the banking profitability index, INT is the interest rate, LMS is the log of money supply, LCA is the log of capital adequacy, and LME is the log of management Efficiency. Commercial banks' profit before tax is used as the proxy for bank performance; interest rate and money supply are used as proxies for monetary policy. Capital adequacy ratio is used as a measure of the financial strength of each bank. The ratio is computed by dividing the total capital to total assets of each bank. If it is negative, it means the banks do not efficiently utilize their capital, and the reverse is the case if it is positive; Management efficiency is a measure of how banks' managements have utilized resources at their disposal. It is calculated as interest income divided by interest expenses. It shows how banks are able to manage their cost in order to boost their profits. The subscripts i and t refer to the cross-sectional dimension and time series dimension respectively. $\beta's$ are the coefficients, u_{it} is the composite error term which can be decomposed further into unobservable individual specific effect, the unobserved time specific effects, and remainder disturbance term:

$$u_{it} = \mu_i + \omega_{it} \qquad (3.2)$$

$$u_{it} = \theta_i + \omega_{it} \qquad (3.3)$$

Where μ_i denote the unobserved individual specific effects, ϑ_i the unobserved time specific effects and ω_{it} is the remainder disturbance term

4.0 Presentation and Discussion of Results

4.1 Pooled Regression

The pooled regression method is based on the assumptions that the heterogeneous characteristics across individual or group being analyzed average out, and is thus not significant in the analysis. If the assumption holds, the relationship can be estimated using the OLS estimation method. The result is presented in table 4.1

Table 4.1 Pooled OLS Result

Variable		Dependent Variable: Profit		
		Coefficient	T-statistics	P-value
MS		1.2429*	9.2285	0.0000
CA		0.3565	0.7918	0.4325
ME		1.1414*	3.8145	0.0004
INT		0.0129**	1.9923	0.0523
R-squared	0.7208			
Adjusted R-squared	0.6966			
F-statistic	29.70084 *			
Prob(F-statistic)	0.000000			
Durbin-Watson stat	0.6565			

*denotes significance at 1%, ** denotes significance at 5%

The result of the pooled regression shows that there is a positive relationship between banks' profit and money supply. The results show that the profits of the five banks have positive relationship with money supply. A 1% increase in money supply will increase the profits of the banks 1.24%. Also, there is a positive relationship between capital adequacy and the banks' profits. A 1% increase in capital adequacy of the banks will increase the banks 'profits by 0.35%. Also, there is a positive relationship between management efficiency and the banks' profits. A 1% increase in management efficiency of the banks will increase the banks' profits by 1.14%. Also, there is a positive relationship between interest rate and banks' profit; a 1% increase in interest rate will lead to 1.2% increase in the banks' profits. However, only money supply and management efficiency are statistically significant in explaining variation in the banks' profits at 1% level of significance. Interest rate is statistically significant in explaining variation in the banks' profits at 10% level of significance. However, capital adequacy is not statically significant. The R-square shows that about 72% of the variations in the dependent variables are explained by the explanatory variables in the model. The Durbin-Watson statistics shows the presence of positive autocorrelation. Also, F-statistics shows the explanatory variables are jointly significant.

4.2 Fixed Effect Regression
The fixed effect regression is based on the assumption that there is the existence of heterogeneous characteristics. Also, the method assumes that the mean of these characteristics over time for an individual is observable; and can be separated from the actual. The result is presented in table 4.2

Table 4.2 Fixed Effect Result

Variable		Dependent Variable: Profit		
		Coefficient	T-statistics	P-value
MS		1.253722	13.55717	0.0000
LCA		-0.308034	-0.767865	0.4469
LME		0.588753	2.405837	0.0206
INT		0.008629	2.003513	0.0516
R-squared	0.890222			
Adjusted R-squared	0.869311			
F-statistic	42.57359			
Prob(F-statistic)	0.000000			
Durbin-Watson stat	1.189672			
No of cross sectional units	5			
Sample Period	2003- 2013			
No of Observation	55			
Redundant fixed effect test				
Effects Test	Statistic	d.f.	Prob	
Cross-section	16.197087*	(4,42)	0.0000	
Cross-section Chi-square	47.592139*	4	0.0000	

*denotes significance at 1%

4.3 THE RANDOM EFFECT METHOD

This method assumes that the mean of heterogeneous characteristic across individuals/groups is observable and common for each individual/group. The unobserved component of the heterogeneous (i.e. its deviation from the mean) is also assumed not to be correlated with the other explanatory variables; and hence can be housed in the equation error term. The result is presented below

Table 4.3 Cross-Section Random Effect Result

Variable		Dependent Variable: Profit		
		Coefficient	T-statistics	P-value
MS		1.242940	14.06095	0.0000
CA		0.356562	1.206518	0.2338
ME		1.141491	5.812031	0.0000
INT		0.012908	3.035554	0.0039
R-squared	0.720880			
Adjusted R-squared	0.696608			
F-statistic	29.70084			
Prob(F-statistic)	0.000000			
Durbin-Watson stat	0.656524			
No of cross sectional units	5			
Sample Period	2003-2013			
No of Observation	55			

*denotes significance at 1%, **denotes significance at 5%

4.4 HAUSMAN TEST

The choice of the appropriate model depends on the rejection or acceptance of the null hypothesis. For the cross-section random effect result, we perform the Hausman Test to determine the viability of the model. If correlated (H0 is rejected), a random effect model produces biased estimators, so a fixed effect model is preferred. The null hypothesis underlying the Hausman test is that the FEM and REM estimators do not differ substantially. The test has a chi-square distribution if the null hypothesis is rejected, the conclusion is that REM is not appropriate and FEM is better. The result is presented below

Table 4.3b: Hausman Test

Test Summary	Chi-Sq Statistics	Chi-Sq D.F	Prob
Cross- Section Random	64.788346*	4	0.0000

*denotes significance at 1%

The starting point is the Hausman specification test. The Hausman diagnostic test shows that the null hypothesis can be rejected at 1% significant level. Thus, there is no significant correlated random effect in the model. Hence we conclude that the fixed effect model significantly perform well than the random effect. In view of this, we adopt the results from the fixed effect model as basis to interpret the relationship between the dependent variable and independent variables in our model.

4.5 Interpretation of the Fixed Effect(FE) Regression

The result of the FE shows that there is a positive relationship between banks' profit and money supply. A 1% increase in money supply will increase the profits of the banks 1.25%. Also, there is a positive relationship between management efficiency and the banks' profits. A 1% increase in management efficiency of the banks will increase the banks 'profits by 0.58%. Also, there is a positive relationship between interest rate and banks' profit; a 1% increase in interest rate will lead to 0.8% increase in the banks' profits. However, there is a negative relationship between capital adequacy and the banks' profits. This shows that the banks have not efficiently utilized or managed their capital. In terms of statistical significance, only money supply is statistically significant in explaining variation in the banks' profits at 1% level of significance. Management efficiency is statistically significant in explaining variation in the banks' profits at 5% level of significance, while interest rate is significant only at 10% level. Capital adequacy is not statically significant. The R-square shows that about 89% of the variations in the dependent variables are explained by the explanatory variables in the model. The Durbin-Watson statistics shows the presence of positive autocorrelation. Also, F-statistics shows the explanatory variables are jointly significant.

4.6 Diagnostic Checks

In order for our results to be reliable for policy purposes, the assumption of the model must be validated. This is done through Jarque-Bera's normality test. The result is shown in Table 4.4 below;

Table 4.4 Diagnostics Checks

TEST	Null Hypothesis	t-Statistic	Probability
Jarque-Bera	There is normal distribution	1.2395	0.5380

The null hypothesis of the Jacque-bera is that the error term is normally distributed. The P-value shows that the null hypothesis cannot be rejected. Hence we can conclude that the residuals are normally distributed.

5.0 Summary, Conclusion, and Policy Recommendation

5.1 Summary and Conclusion

The study examined the impact of monetary policy on commercial banks' performance in Nigeria from 2003-2013. Monetary policy was proxied with interest rate and money supply. Profit before tax (PBT) was used to represent commercial banks' performance. Capital adequacy   and Management efficiency were used to capture the banks' individual characteristics. Pooled regression, Fixed effect regression, and random effect regression were all carried out in the analysis. However, Hausman test revealed that Fixed effect regression is the most appropriate.

The results show that there is a positive relationship between the dependent variable (bank profit) and money supply, interest rate, and management efficiency).However, capital adequacy exerts a negative effect on banks' profits.

5.2 Policy Implication Recommendations

Given the findings of this work, interest rate has not been very significant in promoting banks' profits in Nigeria. This is reflected in the fact that interest rate in Nigeria has not made loan advancement significant in the country. Also, the negative effect of capital adequacy is also a concern/ It shows that the banks in Nigeria do not efficiently utilize or manage their capital. This study therefore recommends interest rate policy should be looked into by the monetary authority in a way that is friendly to loan advancement. This will eventually translate to significant profit for the banks. Also, the banks management should ensure that capital are properly channelled in the right direction.

References

Adeusi, S.O. ,Kolapo, F.T. and Aluko, A.O. (2014). Determinants of commercial banks' profitability panel evidence from Nigeria. International Journal of Economics, Commerce and Management,2(12).1-18

Ahumada L. A. and Fuentes J R. (2004) "Banking industry and monetary policy".

Central Banking, Analysis, and Economic Policies Book Series Vol 7 (1) pp 001-026

Ajayi, F. O. and Atanda, A. A. (2012), "Monetary Policy and Bank Performance in Nigeria: A Two-Step Cointegration Approach". African Journal of Scientific Research Vol. 9, No. 1: 463-476.

Akomolafe, K. .J (2014)" Financial Deepenning and Economic Growth: Evidence from Nigeria" International Journal of Economics, Commerce and Management. Vol. II, Issue 11, Nov 2014

Alper, D., & Anbar, A. (2011). Bank specific and macroeconomic determinants of commercial bank profitability: empirical evidence from Turkey. Business and Economics Research Journal, 2(2), 139-152.

Amassoma, D., Wosa P. I and Olaiya, S. A (2011), An Appraisal of Monetary Policy and Its Effect on Macro Economic Stabilization in Nigeria", Journal of Emerging Trends in Economics and Management Sciences (JETEMS) 2 (3): 232-237.

Aurangzeb, C. (2012). "Contribution of Banking Sector in Growth of Pakistan". Economics and fiannce review. Vol.2(6). Pg 45-54

Enyioko N. (2012) Impact of interest rate policy and performance of deposit money banks in Nigeria. Global journal of management and business research. Vol. 12 (21)

Imoisi, A. I., Olatunji, L.M and Ekpenyong, B.I. (2013), "Monetary Policy and Its Implications for Balance of Payments Stability in Nigeria: 1980-2010", International Journal of Economics and Finance, Vol. 5, No. 3; 196-204.

Okoro, A. S. (2013), "Impact of Monetary Policy on Nigerian Economic Growth", Prime Journal   of Social Science (PJSS) ISSN: 2315-5051. Vol. 2(2), pp. 195-199

Okoye, V. and Eze, R.O. (2013), effect of bank lending rate on the performance of Nigerian   deposit money banks, International Journal of Business and Management Review, Vol. 1,   No. 1, March 2013, pp.34-43.

Onouorah C. A., Shaib I. O., Oyathelemi E. and Friday, O. I. (2011), "The Impact of Monetary Policy on Micro-Economy and Private Investment in Nigeria", Research Journal of Finance and Accounting, Vol. 2, No. 6: 65 -75.

Solomon, O. (2012), "Credit Risk Management as a tool For Bank Survival" www.independent.academia.edu/kingsooloo

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