

The Relationship between Real GDP and Non-performing Loans: Evidence from Nigeria (1995 – 2009)

Inekwe, Murumba

Department of Accountancy, Federal Polytechnic, Idah, Kogi State, Nigeria
Email: inekwemurumba@yahoo.com, Phone: +2348057221755

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Abstract

As part of the continuous effort to stem the tide of bank distress in the Nigerian Banking industry, this paper examines the relationship between real GDP and Non-performing loans in Nigeria during the period 1995-2009. Based on the Pearson Product- Moment Correlation Coefficient, the time series analysis revealed that there is a significant and positive relationship between real GDP and Non-performing loans in the Nigerian banking industry. This is contrary to the findings in previous studies. It is therefore recommended that government should implement policies that will provide the enabling environment for desired improvement in real GDP, and ensure through its regulatory agencies that due process and principles of good lending are strictly adhered to by banks and other financial institutions.

Keywords: Non-Performing Loans, Real GDP, Nominal GDP, Credit Risk.

Introduction

The issue of high Non-Performing Loans (NPLs) has gained increasing attentions in the last few decades and more recently because of its negative effect on the banking sector and the economy. According to Hou and Dickinson (2007), many researches on the causes of bank failures find that asset quality is a statistically significant predictor of insolvency, and that failing bank institutions always have high level of NPLs prior to failure. Over the years, the Nigerian government and its regulatory agencies have come up with a number of measures and /or reforms to minimize the level of NPLs but they seem unsuccessful (Inekwe, 2010). A number of studies suggest that the macroeconomic environment has an important effect on NPLs (Dash & Kabra, 2010; Mabvure et al., 2012; and Vogiazas & Nikolaidu, 2011).

This paper examines the relationship between real GDP and NPLs with a view to determining whether the fluctuations in the real GDP impact on the level of NPLs in the Nigerian banking industry at any point in time. It is a fifteen- year longitudinal study covering the period 1995-2009.

Literature Review

The Concept of Non-Performing Loans

Non-Performing loans arises from the extension of credit facilities to customer (Inekwe, 2010). This exposes banks constantly to credit risk due to the possibility that the borrower will default. Usually banks try to avoid or minimize credit risk in their portfolio. There are various ways of evaluating the credit worthiness of a borrower, one of which is the 5Cs of credit, i.e Character, Capacity, Capacity, Condition and Collateral. To Onyia and Oleka (2000), they are also known as the Canons of good lending. In the same vein, Mather as cited in Aremu, Suberu and Oke (2010) described three basic principles of evaluating credit as Safety, Suitability and profitability. First, they maintained that the safety of any advance or loan is of utmost



importance. Under this principle, the character, amount generated from cashflow and acceptable securities were equally emphasized. Secondly, they contended that the purpose of the loan must be legal and not conflicting with the economic and monetary policies of the government, Central Bank of Nigeria (CBN) guidelines and Banks and Other Financial Institutions Act (BOFIA). Finally, that profitability is a guiding force to any operation of the bank. They argue that as profit oriented institutions, banks usually expect their facilities to yield certain level of profit. That was why Panday (as cited in Ayodele, 2010), believed that bad debts are familiar words to bankers; and people wonder occasionally why bad debts occur despite all the rules and regulations guiding banks. Yet the best way to avoid bad debt is to make zero lending, but banks cannot afford zero lending since greater proportion of their earnings come from interest earned on loan and advances.

Despite the above methods of evaluating credit in the banking industry in Nigeria a lot of its advance and loans end up as NPLs. As Nwite and Okoye (2012), rightly observed there is no global standard to define non-performing loans at the practical level. However, Hou and Dickinson (2007) definition do summarize the elements of NPLs as defined in many jurisdictions including Nigeria. He defined NPLs as a loan that is not earning income and:

- i. Full payment of principal and interest is no longer anticipated,
- ii. Principal or interest is 90 days or more delinquent, or
- iii. The maturity date has passed and payment in full has not been made.

Okpara as cited in Inekwe 2010 puts NPLs in Nigeria banking system in 1989 at 2.9 billion while as at August 2009 before the intervention of CBN it stood at 2.508 trillion (Anumihe, 2009). This continuous rise in NPLs with its associated consequences is unhealthy for the country's banking industry. For instance high and consistent NPL will erode a bank capital adequacy, reduce its profitability and ultimately affects its intermediation function. Thus, the role of banks as agents of economic growth and development is hampered.

The Concept of Real GDP

The real GDP is the sum of the value added in the economy during a given period or the sum of incomes in the economy during a given period adjusted for the effect of increasing prices (Daferighe & Aje, 2009). Nominal GDP is the determination of GDP without taking into account other factors or variables such as inflation (BusinessDictionary, 2013). Nominal GDP increases overtime for two reasons (Daferighe & Aje, 2009). The first is that the production of most goods increases overtime. The second is that the naira price of most goods increases overtime. For instance, in a study by Ugbede, Otache and Umar (2012) on the impact of Commercial Banks Credit on Nigeria's GDP they discovered that Commercial banks credit has a high positive impact on the nation's GDP meaning the higher the volume of Commercial banks credit made available, the higher the corresponding GDP. This conclusion fails to take into cognizance the effect of inflation which is a great consequence. For example, their study revealed that there was an outrageous increase in GDP between 1980 (₦31,547m) and 1981(₦205,213m). Within this period, the CBN Report (2007) has it that inflation rate rose from 9.9 percent to 20.9 percent which is an increase of about 111percent. Therefore the increment in GDP to some extent is accountable by rise in price (inflation) In order to measure production and its change overtime, the effect of increasing prices need to be eliminated. The



foregoing presupposes that in the determination of GDP growth from one year to another, real GDP give a more accurate view of the economy. Hence, this study focuses on real GDP rather than the nominal GDP in this study.

Empirical Evidence

There are empirical studies on the relationship between NPLs and macroeconomic factors. However, the results of studies from most economies of the World of shows a high and negative relationship between NPLs and GDP or real GDP as the case may be. For instance, in a study on the determinants of non-performing loans in the Guyanese banking sector for 1994-2004 by Khemraj and Pasha (as cited in Adebola, Yusoff and Dahalan ,2011), the findings reveal among others evidence of significant inverse and instantaneous relationship between GDP and non-performing loans, which is interpreted to mean that strong performance in the real economy results in lower non-performing loans. Also, Jimenez and Saurina (as cited in Mabvure et al., 2012) examine the Spanish banking sector from 1984 to 2003 and provide evidence that non-performing loans are determined by GDP growth, high real interest rates and lenient credit terms.

In a study by Dash and Kabra (2010) of Indian commercial banks, using correlation analysis, it was revealed among other findings, that there is a strong negative relationship between NPLs and growth in real GDP. In the same vein, Louzis, Vouldis and Metaxas (as cited in Roland, Petr & Anamaria, 2013) examine the determinants of NPLs in the Greek banking sector and find that credit quality among Greek banks can be explained mainly by macroeconomic fundamentals, among which is GDP. Their economic analysis equally suggests that real GDP growth was the main driver of NPL ratios during the past decade. Therefore, they maintained that a drop in global economic activity remains the most important risk for bank asset quality. However, they were quick to add that economic activity is not able to fully explain the evolution of NPLs across countries and over time.

Methodology

This study is a descriptive/diagnostic study based on secondary data. The major purpose of descriptive research as the term implies, is to describe characteristics of a population or phenomenon (Zikmund, 2000). Diagnostic research studies, on the other hand, determine the frequency with which something occurs or its association with something else (Kothari, 2012). The study made use of 15 years time series data (1995- 2009) on real GDP and NPLs. The Pearson Moment Correlation Coefficient (r) is used in the analysis. The formula as given by Nwabuoeki (1986) is as follows:

$$r = \sqrt{\frac{n\sum XY - \sum X\sum Y}{[n\sum X^2 - (\sum X)^2][n\sum y^2 - (\sum y)^2]}}$$

Excel Package is used in determining the correlation coefficient. However to determine the variation in NPLs attributable to changes in real GDP, the Coefficient of determination (r^2) is

used. In order to test the significance of the relationship between the variables the value of “r” is converted to “t” score. Adefila (as cited in Inekwe, 2010) gave the formula for the conversion thus:

$$t = r \sqrt{\frac{n-2}{1-r^2}}$$

The decision rule is that if the ‘t’ score value calculated is less than the critical value in a two-tailed test at 5% level of significance, the null hypothesis is accepted otherwise it is rejected.

Hypotheses for Testing

The hypotheses tested in this study are:

H₀ There is no significant relationship between real GDP and non-performing loans in the Nigerian banking industry.

H₁ There is a significant relationship between real GDP and non-performing loans in the Nigerian banking industry.

Results and Discussion

The data needed for the analysis were extracted from the CBN and NDIC annual reports for fifteen years ending 2009 and are presented in the table below.

Table : NPLs and Real GDP

Year	NPLs (₦B)	Real GDP ₦000,000
1995	57.8	218,407.4
1996	72.4	293,745.4
1997	75.0	302,022.5
1998	63.3	310,890.1
1999	94.8	312,183.5
2000	111.59	329,178.7
2001	135.74	356,994.3
2002	196.05	433,203.5
2003	260.19	477,533.0
2004	350.83	527,576.0
2005	368.76	561,931.4
2006	225.08	595,821.6
2007	387.99	634,251.1
2008	2,508.00	674,889.0
2009	2,922.80	722,131.0

Source: CBN Annual Report & Statement of Accounts Various, NDIC (2008)

2009 was chosen as the end period for the analysis because it presents the most current year with consistent data on NPLs. This is due to the fact that the Asset Management Corporation of Nigeria (AMCON) started taking off bad debts from banks balance sheet in 2010. Thus, NPLs revealed in the Nigerian banking industry as from 2010 may not reflect the actual amounts of NPLs because of the activities of AMCON. In this analysis, non-performing loans is the dependent variable while real GDP is the independent variable.

The result of the Excel computation from the table above reveals a Coefficient of Correlation (r) between NPLs and real GDP of 0.717 while the coefficient of determination (r^2) is 0.51. This shows that there is a high and positive relationship between NPLs and Changes Real GDP, and that 51% of the variance in NPLs is explained by this predictor variable.

However, the t-test to determine the significance of this relationship is shown as follows:

$$\begin{aligned} t &= r \sqrt{\frac{n-2}{1-r^2}} \\ &= 0.717 \sqrt{\frac{15-2}{1-0.51}} \\ &= 0.717 \sqrt{\frac{13}{0.49}} \\ &= 0.717 \sqrt{26.5} \\ &= 3.69 \end{aligned}$$

For 13 degree of freedom, at 5% level of significance and in a two-tailed test, the critical value of $t = 2.16$. Thus, since the calculated t (3.69) is greater than the tabulated value (2.16), H_0 which says that there is no significant relationship between real GDP and non-performing loans in the Nigerian banking industry is rejected while H_1 is accepted. We therefore conclude that there is a significant relationship between Real GDP and the level of NPLs in the Nigerian banking industry

The Real GDP correlation with NPLs is statistically significant. In strength, this finding is consistent with Dash and Kabra (2010) but not in direction. In direction they found a negative relationship between a growth in GDP and NPLs. Also, Khemraj and Pasha (2009) and, Adebola et al (2011), find evidence of significant inverse and instantaneous relationship between GDP and NPLs. Although these studies consider real GDP, the direction is meaningful. The finding of inverse relationship is interpreted to mean that an improvement in the real economy is likely to see an instantaneous reduction in the NPLs. The findings of this study in the light of the above have a number of implications. For instance, it may be argued that the improvement in our real economy, within the period under consideration was not substantial to lead to a reduction in the NPLs. This may be due to the fact that credit facilities obtained from the banks were not properly utilized in productive activities or it may be due to customers operating in a harsh economic environment. Therefore, an increase in Real GDP is accompanied by increase in NPLs in Nigeria for the period 1995 – 2009.

Conclusion

This paper has shown that in Nigeria, like other economies of the World, there is a significant relationship between real GDP and NPLs. However, contrary to other countries there is a positive relationship between real GDP and NPLs. The findings in this paper equally suggest that real GDP is one of the most important variables influencing NPLs in Nigeria.

In other to reduce or minimize the level of NPLs in Nigeria banking industry, government should implement policies that will create an enabling environment to improve the country's real GDP. This includes improved infrastructural development, moderate interest rate, and aligned exchange rate among others. It equally involves improved regulatory role by relevant agencies to ensure that due process and principles of good lending are strictly adhere to. It also includes ensuring that loan advances for productive purposes are used as such. This may be achieved through bank Customer Relationship Management of "Know your Customer" (KYC).

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