

## Bank Capitalization and Economic Crisis: What Lessons can Nigeria Learn?

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### Abstract

This study examines the adequacy of bank capitalization in Nigeria. This, is hoped will lead to an insight into the sector so as to provide appropriate guidance for the system. The banks in Europe and U.S are currently going through some forms of financial turbulence, and so many of them have had their credit ratings downgraded by rating institutions. Central to their problems is capital inadequacy. These banking crises are negatively impacting the economies and could more seriously impact economies like Nigeria's because we do not have as strong institutions as do these more organized economies. The study uses secondary data to analyze capital adequacy in Nigerian banks. The results of the study show that the covering of depositors in the banks by equity capital is grossly inadequate suggesting that in the event of a major banking crisis, the banks will not be able to survive, which is ominous for the overall economy. It is therefore recommended that: the capitalization standards be raised for the banks; that capitalization be made a function of levels of activities; and that regulators should insist on higher standards of corporate governance in the banks particularly those principles touching on transparency and accountability.

**Key words:** bank capitalization, liquidity, credit crisis, economic crisis, risk management

### 1 Introduction

Since the global financial crisis that started in the U.S in 2008, financial institutions in most of the industrialized capitalist economies have had to grapple with the problem of adequate capitalization. Some of the financial institutions had to be bailed out by huge injection of public capital, others had to be nationalized. In the Eurozone banks are now required to meet new capitalization rules which are stricter than had hitherto been. Now banks in the European Union could face fines of up to 10% of turnover if they fail to comply with tougher capital and liquidity rules (Merriman 2011).

Recently, the leaders of the top 20 economies (G20) approved Basel III Accord which sets minimum core equity capital ratio equivalent to 7% of banks' riskier assets. As remarked by the Executive Managing Director of the Association of German Public Sector Banks (VOEB), Karl-Heinz Boos, notes that: This agreement has struck the right balance. We are learning the lesson of the crisis in requiring better capitalization for our banks and larger liquidity cushions. (Lawson & Richardson 2011)

Capitalization is the cushion for bank risks from the depositors' point of view. Banks are constantly exposed to financial risks and can only adequately absorb the shocks of bad assets if they are adequately capitalized. According to Carniado & Garibian (2011), "The global financial crisis underscored the importance of seeking an accurate assessment of how well capitalized financial institutions are." The toxic assets in the U.S financial system spread risks to the banks in Europe, Asia, Latin America and other parts of the world. Banks in Europe quickly developed symptoms of crisis in the aftermath of the problems in U.S financial system. These problems were so pronounced because of the close ties between the European banks and the U.S financial system. They also revealed the weak capitalization problems in the European banks.

Nigeria is left out in the bid to ensure adequate capitalization for banks, on July 6, 2004 the Central Bank of Nigeria (CBN) set a December 31, 2005 deadline for the banks operating in Nigeria to recapitalize to the tune of a minimum of ₦25 billion (twenty-five billion Naira) in a major regime of reforms aimed at strengthening Nigerian banks to be able to take their rightful place in the West African sub-region and the wider African region. The reforms were designed by the need to deepen the financial sector and reposition

the Nigerian economy for growth and integration into the global financial structure. Central in the reform agenda was shoring up of bank capitalization (Ajayi 2005 and Adegbaaju & Olokoyo 2008).

The key elements of the 13-point banking reforms agenda are:

- ❖ Minimum capital base of ₦25 billion with a deadline of 31<sup>st</sup> December 2005
- ❖ Consolidation of banking institutions through mergers and acquisitions
- ❖ Phased withdrawal of public sector funds from banks, beginning from July 2004
- ❖ Adoption of a risk-focused and rule-based regulatory framework
- ❖ Zero tolerance for weak corporate governance, misconduct and lack of transparency
- ❖ Accelerated completion of the Electronic Financial Analysis Surveillance Systems (e-FASS)
- ❖ The establishment of an Asset Management Company
- ❖ Promoting of the enforcement of dormant laws
- ❖ Revision and updating of relevant laws
- ❖ Closer collaboration with the Economic and Financial Crime Commission (EFCC) and the establishment of the Financial Intelligence Unit.

The result of this programme saw the number of Nigerian banks plummeting from eighty-nine (89) deposit-monetary banks that existed before the programme to only twenty-five (25) banks that emerged having been able to meet the ₦25 billion minimum capitalization requirement through various schemes of mergers and acquisitions (Adeyemi, 2006). This number has since gone down to 20 due to factors bordering on capital inadequacy and illiquidity.

The major phases of the reform agenda have now been completed, “Mega Banks” were created out of the predominately “fringe banks” that existed before 2005. However, many of the banks have since shown some signs of weakness and the CBN had to intervene to bailout the banks. Coupled with the signals coming out of the European banking systems, it is indicative that a more aggressive approach needs be adopted in assessing the capital adequacy of Nigerian banks as a means of preventing economic crisis, and fostering growth and stability.

The objective of this study is therefore to assess the capitalization of Nigerian banks and the issues and challenges posed by the threat of banking crisis vis-à-vis the preparedness of the sector to weather any such crisis in Nigeria, or the ripple spill-over effects from the global economy. To do this the paper is divided into five sections. Following this introduction, Section 2 embraces the literature review on bank capitalization and crisis management. Section 3 is on the methodology used to collect and analyze data. Section 4 provides a presentation and discussion of results, and Section 5 provides the conclusion and recommendations of the study.

## 2 Review of Relevant Literature

### 2.1 Recapitalization History

After the first banking ordinance of 1952, the colonial government in 1958 raised the capital requirement for the foreign commercial banks from £200,000 to £400,000. This trend has been replicated so many times thereafter both in Nigeria and elsewhere around the world. In 1969, bank capitalization was raised to ₦1.5 million for foreign commercial banks while it was made ₦600,000 for indigenous commercial banks. When in 1979 merchant banks came into Nigeria, their capitalization was put at ₦2 million.

In 1988, following the deregulation that was an integral part of the Structural Adjustment Programme (SAP), there was a further need to recapitalize the banks. In February 1988, the capital base for commercial banks was raised to ₦5 million and ₦3 million for merchant banks. Because of the dynamic and volatile nature of the economic environment at the time, by October the same year the capital base was further pushed up to ₦10 million for commercial banks and ₦6 million for merchant banks. In 1989, the capital bases were doubled, to ₦20 million for commercial banks and ₦12 million for merchant banks. A year after that, the capital bases became ₦50 million and ₦40 million respectively. The rapid increases in bank capitalization requirements forced some banks into liquidation. In 1998, 26 (twenty-six) commercial and merchant banks were liquidated when unable to recapitalize.

In 1997 the minimum paid up capital requirement of the commercial and merchant banks was harmonized to a uniform level at ₦500 million and by December 1998, all existing banks were thus recapitalized. Thus

continued the upwards trends in bank recapitalization. In 2001, the capital base was increased to ₦1 billion for existing banks and ₦2 billion for new banks with the advent of the adoption of universal banking in principles. By July 2004, the CBN directed that all banks in Nigerian be recapitalized to the tune of ₦25 billion minimum by December 2005 (Adegaju & Olokoye 2008). This represents an increase in capitalization of 1250%. The process culminated in the 89 banks consolidating into just 25 banks through various schemes of mergers and acquisitions.

It should be noted that the CBN brought into practice the risk-weighted measure of capital adequacy as recommended by Basel II Accord of the Bank for International Settlements in 1990. This had hitherto been measured by the ratio of adjusted capital to total outstanding loans and advances.

### *2.2 Banking/Credit Crisis*

A very prominent fallout of the global financial crisis that manifested in 2008 is the banking/credit crisis that came to be witnessed in many countries of the world. It should be pointed out that the global crises were triggered off by both the failures of the mortgage market and the burst of the credit bubbles in the U.S (Otu 2009). At that time the Icelandic banking system completely collapsed and the Northern Rock had to be nationalized by the UK to prevent it for going the way of others like Lehman Brothers, Goldman Sachs, J.P Morgan Chase, Fannie Mae and Freddie Mac, amongst many others.

Many countries in Europe experienced much the same fate as U.S. There was credit squeeze, following the fall in business confidence in those economies. According to Anao (2009), the crisis of 2008 manifested in many fronts among which are:

- ❖ Bank illiquidity led to drastic curtailment of credit to business firms and households
- ❖ The stock market crash engendered general loss of confidence in the economy
- ❖ Tight credit coupled with the massive capital losses reduced purchasing power and consumption capacity
- ❖ Tight business credit and reduced consumption levels led to static business inventories followed by production cut backs.

Nigeria, like all the Western capitalistic economies, was not spared of the woes of the crisis. The toxic assets syndrome that was pervading U.S and Western European banks was also with us. There was illiquidity and many of the banks actually carried huge bad assets which began to limit the flow of credit even at very high interest rates. The banks were said to be over-laden with huge non-performing loans which reflected what was happening in Western Europe. In consonance with the bailout strategies by governments of major economies at the time, the CBN pledged to inject \$2.6 billion into five troubled banks, this notwithstanding the recent consolidation and recapitalization of those banks.

The banking/credit crisis thus culminated in vicious circles of troubled assets, lack of confidence in the economy, illiquidity, credit squeeze and high interest rates, and inter bank lending was greatly impaired (Connors 2009 and Sotola & Olowookere 2009).

### *2.3 Bank Capital vs. Expertise*

The banking business of modern times is done in an atmosphere of intense competition, and it has often been argued that a key to banking survival is bank capitalization (Bernake & Gertler 1987 and Diamond & Rajan 2000). However, Almazan (2002) has argued that bank expertise also plays a key role in the survival of banks. He developed a model on the rebalancing of the optimal capital-expertise balance for banks so as to provide an answer about the effects of deregulation. The model shows that highly capitalized banks benefit when competing with poorly capitalized banks after regulatory shocks that decreases capital requirements or otherwise cause the capital at low- and high-capital banks to increase proportionally, increase the riskless interest rate or eliminate geographic restrictions. It also shows that low-capital banks have stronger incentive for financial specialization than banks with more financial strength. Previous research has extensively analyzed the role of banks capital and identified four such roles: bank capital can reduce an excessive tendency by banks to take risks, bank capital can serve as a cushion against insolvency problems; bank capital can signal the risk preferences of a bank and bank capital can act as a tool that allows a bank to offer lower rates without affecting its incentives to monitor. A central intuition to be captured in the model is that banks have different kinds of expertise and that the cost of monitoring a

project is reduced if a bank has strong expertise in the line of business of a product. Almazan (2002) concludes his study by noting that:

*The joint consideration of capital and expertise leads to some novel conclusion about efficiency. The banking industry will be more efficient the more important expertise is relative to capital. In addition, this analysis has provided several comparative static results that can be translated into testable empirical implications. Specifically, highly capitalized banks should benefit when competing with those that are poorly capitalized after (I) a decrease in capital requirements or some other regulatory shocks that cause both banks capital to increase proportionally (ii) technological improvements that reduce monitoring costs by intermediaries (iii) an increase in the interest rate due to a tightening of monetary policy, and (iv) a lifting of geographical restrictions.*

#### 2.4 Capital and Risk Management

Risk management is not just an exercise in managing the quantum of risk in a business such that expected profits are sufficient to compensate that risk but more about making decisions to ameliorate the chances or effects of downward scenarios and/or enhance the probability or effects of upward scenarios. It is simply more about maximizing shareholder value by managing the direct impact of risk on profits themselves. Nowhere is this postulate more relevant than the banking industry.

Kennedy & Johnston (2004) identify the benefits of economic capital as: maintaining solvency; creating accountability for risk; and the advancement of quantitative analysis. They however note that economic capital has some potential distortions by the existence of a disconnect between risk and capital and required return, and a disconnect between market and book values of capital and the link to share price. They note that we are used to distinguishing between expected and unexpected losses in credit management, when a change in expected losses (defined as the mean of the loss distribution) has a direct profit-and-loss implication through the loan loss provision. This, when applied at the enterprise level implies a triangular relationship between risk, capital and profit. In this analysis, risk is said to give rise to the need for capital which in turn creates the need for profit. This is the economic capital view which ties risk and required profit together through capital.

As credit risk management decisions can influence expected credit losses (and hence the profitability of loan stock), so risk management decisions generally can influence expected profits at the enterprise level. Their contention is that: "...the risk management profession's heavy emphasis on developing a close identity and robust quantitative link between risk and capital (and hence required profit) may have come at the expense of not developing a similarly robust quantitative link between risk and expected profit." They therefore conclude that: "... whilst we are broadly in favour of economic capital, we do not yet regard it as a comprehensive matured system for managing risk, capital and value in financial service firms. Key areas for development include greater sophistication in the treatment of interrelated value drivers (risk being but one)."

It should however be noted that in banks, capital adequacy is measured as a percentage of a bank's risk weighted exposure. Also known as "capital to risk-weighted assets ratio (CRAR)", CAR is calculated as;

$$\text{CAR} = \frac{\text{Tier One capital} + \text{Tier Two Capital}}{\text{Risk Weighted Assets}}$$

CAR is used to protect depositors and promote the stability and efficiency of banking systems. The formula essentially ties two types of capital to risk to show the link between capital and risk management. The two capital types are tier one capital (this can absorb losses without requiring the bank to cease operations), and tier two capital (this can absorb losses in the course of winding-up), it provides lesser cushion against risk (investopedia 2010).

Still linking bank capital with risk management, Elliot (2011) notes that:

*The government has embarked on "stress tests" of the financial health of the 19 largest banks to determine whether they have adequate capital to withstand an even worse recession than is expected. The testing, along with the recent events at Citigroup, has spurred an extended discussion of what "capital" is and how much banks need to have.*

The whole ideas of the stress tests is summed up in drawing a link between bank capital and their ability to withstand various forms of stress conditions which a recession can induce in the form of defaults. Elliot's (2011) contribution is that:

*It is right to insist that banks temporarily carry additional capital sufficient to handle this stress case since a large audience needs reassurance that the banking system can handle the worst. It is right to focus primarily on raising this cushion through additional Tier 1 capital which includes a fairly wide range of capital instrument.*

The findings of Carniado & Garibian (2011) tend to support this, they observe that:

*Latin American financial systems endured the financial crisis reasonably well. One significant factor is that most of the banks in each Latin American country entered the crisis with higher capitalization measures than their peers in Europe or the U.S. The average RAC ratio for the world's largest 75 banks was 6.7% and 7.9% as of June 2009 and June 2010, and the weighted average for the largest 60 U.S banks was 5.8% and 7.4% as of June 2009 and June 2010... the Latin American banks' RAC reflected on average a similar RAC ratio as of June 2010 of 8%.*

It is suggestive therefore that the higher the capitalization of a bank the greater its ability to absorb risk and be able to endure any crisis.

### 2.5 The Basel Accords.

The Basel Committee published Basel I Capital Accord in 1988; this was the first major attempt at international convergence of supervisory regulations on capital adequacy. The objectives were to promote soundness and stability of the international banking system and provide a level playing field for internationally active banks. This was to be achieved through the imposition of minimum capital requirements for credit risks, amongst others. The basic problems that beset Basel 1 Accord were:

- ❖ Lack of sufficient risk differentiation for individual loans
- ❖ No recognition of diversification benefit
- ❖ Inappropriate treatment of sovereign risk, and
- ❖ Few incentives for better overall risk measurement and management.

These shortcomings highlighted the inappropriateness of capital adequacy measurement under the framework. The Basel Committee therefore came out with Basel II Accord in 2004. The Basel II framework consists of a broad set of supervisory standards to improve risk management practices. These were provided along three mutually reinforcing pillars:

- ❖ Pillar 1: this addresses minimum requirements for credit and operational risks;
- ❖ Pillar 2: this provides guidelines on the supervisory oversight process;
- ❖ Pillar 3: this requires banks to be more transparent about their risk profile and capitalization as a means of promoting market discipline.

Basel II represents an important improvement (though incomplete) in the analysis of risk sensitivity of capital, and its risk weights are classified to provide the banks with incentives in terms of capital reduction to migrate towards more advanced risk management approaches. The major challenges of Basel II include:

- ❖ Cost of implementation
- ❖ Inadequate supervisory capacity
- ❖ Impact on domestic banking system is not fully understood
- ❖ Home-host supervisory co-ordination
- ❖ Ineffective Pillar 3
- ❖ Considerable and perhaps excessive supervisory discretion
- ❖ Little experience with ECAIs (external credit assessment institutions)
- ❖ Unavailability of required risk data in easily accessible or comprehensive format
- ❖ Potentially excessive capital requirement due to inappropriate calibration

(Stephanou & Mendoza 2005)

The Basel III Accord which was approved by leaders of the world top 20 economies (G 20) in November 2010 will force banks to set aside far more capital to withstand market shocks in future in a bid to lessen the need for bailouts by governments. Under Basel III Agreement, minimum core equity capital ratio will be equivalent to 7% of a bank's riskier assets. The Basel III Accord which will come into effect in 2013 will force banks to hold more and better quality capital in a bid to keep taxpayer off the need to bailout banks in future financial crisis. Basel I and II overlooked the importance of liquidity. This is addressed by Basel III. Under the Accord, banks are required to comply with tougher capital and liquidity rules. Following the Basel III proposal several positive reactions have trailed the recommended adoption of the



accord. Such reactions as were compiled by Lawson & Richardson (2011) are: Jen-Claude Trichet (President of European Central Bank) notes that: "The agreements certainly reduced the probability of failure for systematically important banks." Josef Akermann, CEO of Deutsche Bank maintains that: "it is a work in progress. It is a major decision, we have the issue of liquidity ratio and we have to work actively on this matter." Timothy Geithner, the U.S Treasury Secretary remarks that: "we wanted an improvement in the quality and quantity of capital over a period of time that would allow growth and the financing of growth. This is excellent progress."

### 2.6 Under-capitalization

Under-capitalization means a situation in which the business cannot acquire the funds needed for operations. Usually such organizations will not be able to afford the current operational expenses due to lack of capital. This situation will usually induce bankruptcy, and this will usually be due to improper financial planning or artificial constraints imposed by economic downturn and regulatory barriers. The different causes may include:

- ❖ Financing growth through short-term capital, rather than long-term permanent capital
- ❖ Failing to secure adequate loan at a critical time
- ❖ Failure to obtain adequate insurance against predictable business risks
- ❖ Adverse macroeconomic conditions

The capital sources available to an organization include the following: reinvestment of earnings, assuming debt or through selling equity, establishing a line of credit, and borrowing against it. The following must be understood in capital formation:

- ❖ The least expensive ways to raise capital are to finance from cash flow
- ❖ Debt is more expensive
- ❖ Equity financing in is most expensive

In the banking industry, a bank is said to be undercapitalized when it is having inadequate capital to cover foreseeable risk. The Federal Deposit Insurance Corporation (FDIC) of the U.S categorizes banks according to their risk-based capital ratio, thus:

- ❖ Well capitalized: 10% or higher
- ❖ Adequately capitalized: 8% or higher
- ❖ Undercapitalized: less than 8%
- ❖ Significantly undercapitalized: less than 6%
- ❖ Critically undercapitalized; less than 2%

The FDIC is usually concerned when the bank is undercapitalized at which point the FDIC issues a warning to the bank. When the ratio drops to below 6% the FDIC may change the management of the bank and force it to adjust. When the ratio further drops to less than 2% (critically undercapitalized), the bank is declared insolvent (wikipedia 2011).

### 2.7 Predicting Inadequate Capitalization

Central in regulatory oversight of safety and soundness in banking system is capital adequacy. Inadequate capital leads to bank failure. The ability of regulators to predict capital inadequacy would go a long way to enhancing the supervisory efficiency and timely intervention that could prevent financial distress/crisis.

A lot of studies have been done on capital adequacy (Jagtini, Kolari, Lemieux, & Shin, 2000). Jagtini, et al (2000) attempted to develop an early warning system (EWS) to predict inadequate capitalization in banks using both the logit analysis and trait recognition analysis (TRA), a neural network-like method and classifying banks as capital adequate and capital inadequate. There are two approaches to analyzing bank distress: multinomial choice and survival time approaches. An example of multinomial choice analysis is to classify the firms as non-bankrupt, financially weak, and bankrupt firms; another classification is financial stability, omitting or reducing dividend payments, default on loan payments, protection from Chapter X or XI of the Bankruptcy Act, and bankruptcy and liquidation. In general, studies based on this analysis found that accounting information can detect incipient financial distress of non-financial firms.

The survival time research predicts the probable time to failure using financial, economic, managerial and regulatory factors (Yanaguchi 1991 and Lane, Loonery & Wansley 1986). The empirical results of these studies supported the notion that financial distress is a dynamic process and this can be predicted using

financial, economic and other explanatory variables. One significant variable in all the studies predicting savings and loan institutions failure is equity capital ratio.

Commonly used model of prediction is:  $\text{Log} (P_i/(1-P_i)) = a + b_1 X_{i1} + b_{i2} + \dots b_n X_{in}$

Where:  $P_i$  = the probability of bank i's failure

$b = (b_1, \dots b_n)$  is a vector of regression coefficients for the explanatory variables.

$X$ , ( $X=1 \dots n$ ) = explanatory variables (Jagtiani et al 2000).

The explanatory variables used by Jagtiani et al (2000) for predicting banks that will become capital inadequate are profitability, loan risk, operational risk, liquidity risk, interest rate gap, bank size, derivatives exposure, loan commitments, years in the banking business and changes in loan compositions, amongst others - these are a wide variety of on- and off-balance sheet bank risks. Jagtiani et al (2000) note that:

*Generally speaking, capital deficient banks tended to have lower profitability, higher risk, and higher levels of expenses than other banks. These results suggest that banks pending capital deficiency have financial profiles that substantially differ from well-organized banks.*

*... The numerous significant differences between capital-adequate versus capital- inadequate banks suggest that it would be appropriate for our variables to be used as predictors of capital deficiency in EWS models.*

Jagtiani et al (2000) also note that banks that expanded their consumer lending rapidly tended to significantly add risk to their portfolio and this subsequently resulted in losses and deterioration in the capital ratio. In contrast, a significant expansion of commercial and industrial loans (rather than consumer loans) tended to lead to profitability and reduced the likelihood of the capital ratio falling below the threshold limit. This is particularly note- worthy for Nigerian banks where most of the effort is concentrated on household/ individual consumption. Their findings also indicate that banks with higher proportions of assets invested in investment securities had a greater cushion against bad lending decisions and are therefore less likely to encounter financial distress, also more efficient banks with greater net income to non-interest expenses ratio tended to have lower probability of financial distress in the near future. However, considering the variables in the model in isolation does not provide a complete picture of the early stages of financial distress in banking institutions.

The results of their study therefore show that capital deficient banks are much different from other banks in terms of their financial health; capital adequacy is a broad concept that requires review of a wide array of different kinds of financial and economic variables, and that trait recognition analysis results show the importance of complex interaction variables in identifying banks with deficient capital.

### 3 Data and Methodology

This study uses the survey design in organizing the study subjects for data collection for the study. The study uses secondary data obtained from the published annual reports and accounts of the banks. Of the total population of 20 banks in Nigeria, the study uses a sample of 14 banks (70% of the population) to study the Nigerian banking system.

The study uses basic analysis procedures: relevant ratios are computed and the mean, range and standard deviation of these are calculated (shown in Table1).

#### 3.1 Variables Definition

The variables examined in this study are principally capital and risk covering for the banks. This is to show the extent to which the banks are prepared to be able to handle problems that may evolve during a banking crisis.

In this study capital is first defined as share capital, which is ordinary share capital since none of the banks has preference shares. In this definition, other components of equity funds are excluded because they are amenable to earnings management, negative creative accounting or window dressing which can distort financial information. This is the stricter definition of capital. The second definition of capital is equity funds capital. This expands capital to include reserves but excludes long-term debts because long-term debts represent obligations of the banks to outsiders and not true capital that owners can use as cushions to protect liabilities to others.

The risk of banks is measured in terms of the default that may arise from the amount of loans and advances given to customers. This is the most basic measure of risk. It is further measured by the possibility of default on risky assets (made up of loans and advances, advances under finance lease, investment securities and amounts due from other banks). Another measure of risk used in the study is the protection given by equity funds capital to the customers' deposits. This is seen as some form of insurance coverage for depositors.

#### 4 Empirical Results

The descriptive statistics of all the variables used in this study are presented in Table 1 below. The table shows a mixed pattern of relationships as indicated by the ratios. The ratios show some measures of riskiness in the banks.

Table 1: Descriptive statistics on capital adequacy ratios

	n	Min	Max	Range	Mean	Std. Dev
Share capital to loans & Advance ratio	14	1.4	18.2	16.8	4.9	4.65
Share capital to Risky Assets Ratio	14	0.5	6.8	6.3	2.3	1.99
Shareholders' funds to loans & Advances ratio	14	(159.1)	80.2	239.3	29.2	55.32
Shareholders' funds to Risky Assets Ratio	14	(48.8)	60.5	109.3	18.9	24.04
Shareholders' funds to customers deposits Ration	(48.0)	57.5	105.5	23.6	28.65	

Source: Computed from Various Annual Reports & Accounts, 2008, 2009

Table 1 above shows that there is a very high degree of variability among the banks in terms of the calculated ratios. For instance, while the mean share capital to loans and advances ratio is 4.9% its standard deviation is 4.65 and a range of 16.8%. For shareholders' funds to loans and advances ratio, mean is 29.2% with a standard deviation of 55.32 over a range of 239.3%. The story is the same for shareholders' funds to risky assets ratio and shareholders' funds to customers' deposits ratio.

As is seen for the share capital to loans and advances ratio, it is suggestive that there is a gross inadequacy in the capitalization of the banks in terms of the ability of the banks to use capital to cover the risk created by probable default in recovering loans and advances. A mean ratio of 4.9% means that only 4.9% of the loans and advances are covered by capital. It is more worrisome for banks with a ratio as low as 1.4%. When extended to cover all the risky assets of the banks the situation appears even more worrisome, share capital in the banks is only offering a covering of an average of 2.3% of the assets. If these assets become toxic, coverage offered by share capital looks grossly inadequate.

When expanded to include all the constituents of equity funds, the covering is still not very promising. In terms of covering loans and advances, only 29.2% of coverage is offered, if the assets to be covered are all the risky assets, it means that only 18.9% of such assets are covered by the banks equity funds.

When we also look at the covering offered to customers whose deposits are only covered by be banks' shareholders funds to the tune of only 23.6% there seem to be capital inadequacy. The situation is even more pathetic for the bank whose ratio in this regards is negative because it has negative shareholders funds. The maximum covering offered by equity funds in any of the banks is 57.5% and as low a minimum as -48%. Long-term indebtedness was not considered a part of this coverage because it would suggest that we are talking of using one form of liabilities to cover other liabilities.

#### 5 Conclusion and Recommendations



It is obvious from the above analysis that there is a great disparity among the banks in terms of their capital adequacy, they have different capitalization. The volume of the activities of the various banks is different from bank to bank and they need different capital base for their activities.

Also the capitalization of the banks in Nigeria appears to be inadequate and therefore it is indicative of the need for recapitalization. The supporting capital for the operations of the banks appears to be inadequate.

The above scenario suggests that if there is a major crisis in the financial sector, the banks are not well positioned to withstand the resulting stress. If there is any major run on the banking system, the system may be plunged into instability.

To ensure stability and growth of the banking system, there is the need to demand higher recapitalization from the banks.

Also very important is the quality of capital. Regulators should ensure that only quality capital is recognized in assessing the capital adequacy of banks.

Similarly, the banks should not be given blanket minimum capitalization requirements. The capitalization expected of each bank should be a function of some measure of the volume of activities by the bank. Such activity levels could be average outstanding customers' deposits, loans and advances or risky assets. This would mean that bank capitalization would not be static but based on some dynamics within the banks.

To make the above effective, the regulatory authorities should demand higher standard of corporate governance from the banks. Among the requirements, the banks must practice higher transparency and minimize window dressing and unethical creative accounting. The above requires of the regulator to be more committed, and thorough in their monitoring and demand for best practices from the banks.

#### References

Adegaju, A. A. & Olokoyo, F.O. (2008). Recapitalization and banks performance: A case study of Nigerian banks. *African Economic and Business Review* 6(1)

Adeyemi, K. S. (2006). Banking sector consolidation in Nigeria: Issues and challenges. A paper by an Executive Director, Union Bank of Nigeria Plc

Ajayi, M. (2006). Banking sector reforms and bank consolidation: Conceptual framework. *Bullion* 29 (2)

Almazan, A. (2002). A model of competition in banking: Bank capital vs. expertise. *Journal of Financial Intermediation* 11, 87-121

Anao, A. R. (2009). The implications of the global economic crisis on developing economies: The case of Nigeria. A paper presented at a conference organized by the accounting department of Benson Idahosa University, Benin City. October 29-30, 2009

Bernanke, B & Gertler, M (1987). Banking and microeconomic equilibrium in "New approaches to monetary economics" (Barnett, W and Singleton, K, ed.) 89-111 New York, Cambridge University Press

Carniado, S. & Garibian, S. (2011). S & P: Comparison shows Latin American large banks' risk-adjusted capital is adequate in general and a neutral to positive for ratings. Available at [www.standardpoors.com](http://www.standardpoors.com), Accessed October 7, 2011

Connors, W. (2009). Nigeria Plans \$2.6 billion banks bailout, ousts top executives. *The Wall Street Journal*, [Wsj.com](http://Wsj.com). Accessed October 9, 2009

Desmond, D. & Rajan, R. (2000). A theory of bank capital. *Journal of Finance* 55, 2431- 2465

Elliott, D.J. (2011). Banks and the stress tests

Investopedia (2010) Capital adequacy ratio - CAR. Available at [investopedia.com](http://investopedia.com), Accessed October 15, 2011

Jagtiani, J.A, Kolari, Lemieux, C. M. & Shin, C. H. (2000). Predicting inadequate capitalization: Early warning system for bank supervision. Federal Reserve Bank of Chicago, Policy Studies (S & R – 2000 - 10R)

Kennedy, M. & Johnston, M. (2004). Risk, capital and economic profit - Are we seeing the full picture. *Pricewaterhousecorpors. The Journal. Special risk management Edition*

Lane, W.R., Looney, S.W. & Wansley, J.W. (1986). An application of the Cox. Proportional hazards model to bank failure. *Journal of Banking and finance* 10: 511- 531

Lawson, H. & Richardson, A. (2011). Fact box: Reactions to Basel III bank (capital rules). Available at [reuters.com/.../us-basel-banks-fb-idus](http://reuters.com/.../us-basel-banks-fb-idus). Accessed October 12, 2011

Merriman, J. (2011). European banks unable to raise adequate capital could be fined 10 percent of annual turnover (Ed), Thomson Reuter.

Otu, M.F. (2009). The need for fiscal stimulus for national economic recovery and stability in Nigeria. A paper presented at the conference organized by the accounting department, Benson Idahosa University, Benin City, October, 29 -30, 2009

Sotola, O. & Olowookere, K. (2009). Govt. intervention in Nigerian banks: A misguided economic folly. Available at [enafrik.com/article\\_15292.html](http://enafrik.com/article_15292.html). Accessed October 10, 2009.

Stephanou, C. & Mendoza, C. (2005). Credit risk measurement under Basel II: An overview and implementation issues for developing countries. World Bank policy research working paper 3556

Wikipedia (2011). Undercapitalization. Available at <http://en.wikipedia.org/wiki/w/index.php>. Accessed on October 12, 2011

Yamaguchi, K. (1991). *Event history analysis*. Newbury Park, Sage Publications.

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