

## **The Role of Capital Ratios in Predicting Bank Distress: Evidence from the Nigerian Banks**

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### **Abstract**

The study examines the relationship between capital ratios and bank distress in so doing the efficiency of different capital ratios (risk weighted, and non-risk weighted) have been compared in predicting bank distress. Secondary data was collected from the Central Bank of Nigeria statistical bulletin for fifteen years (1995-2000). The data was analyzed through the use of Ordinary Least Squares method (OLS), Granger causality test and T-Test respectively. The results from the study show that the two capital ratios (risk-weighted and liquidity ratios) predict distress significantly while the other ratio (equity ratio) proved to be ineffective in predicting bank distress. The result also shows significant difference in the level of efficiency of the three capital ratios in distress prediction. Therefore, the continued use of risk weighted ratio in the prediction of bank distress is suggested, while liquidity ratio is recommended to supplement it. However, liquidity ratio and equity ratio should not be used to replace risk weighted capital ratio as each one of them has its unique importance.

**Key Words:** Capital ratio, Risk weighted ratio, Bank distress, Nigerian Banks.

### **INTRODUCTION**

An efficient financial system is widely accepted as a necessary condition for effective functioning of the nations' economy. Therefore, the banking system plays a very important role in promoting economic growth and development through the process of financial intermediation, so that growth in the banking sector of any economy, if transmitted well, could result in growth of the real sector while opposite will be the case, if the financial sector is repressed and inefficient (Sanusi, 2011; Cameroon, 1972). However, the credit and liquidity crises had brought into question one prevailing view that: capital in the banking sector is very crucial for the survival and continuity of the system. Capital adequacy serves as live wire to protect depositors and promote the stability and efficiency of the financial system. Onaolapo (2012) once argued that the importance of capital adequacy to banks cannot be over emphasized because it can serve as a cushion on loaned funds and absorb losses that may likely occur, in addition, it can serve the function for the acquisition of physical assets. Banking crisis usually starts with inability of the bank to meet its financial obligations to its customers. This, in most cases, precipitates runs on banks, the banks will be engaged in massive credit recalls and their customers will be involved in massive withdrawals which sometimes

necessitate central bank liquidity support to the affected banks. Also some terminal intervention mechanisms may occur in the form of consolidation (mergers and acquisitions), recapitalization, use of bridge banks, establishment of asset management companies to assume control and recovery of distressed bank assets, and on the extreme outright liquidation of non redeemable banks.

Despite the importance of early bank problem identification system in Nigeria, there is no evidence that it has received adequate attention and it is not in use by either bank regulators or any of the banks (Okozie, 2011). The earliest recorded attempt was made by Jimoh (1993), Nyong (1994), Doguwa (1996) and Okozie (2011). An attempt to fill this gap would therefore be worthwhile. Nigerian banking reform was informed, among other things, by the economy's willingness to comply with the international capitalization standard as enshrined by Basel committee, which was conceived to boost the efficiency and soundness of Nigeria's banking sector. The regulatory authorities in Nigeria, (the Central Bank of Nigeria (CBN) and Nigerian Deposit Insurance Corporation (NDIC)) used the risk weights capital ratio as proposed by the Basel committee to measure bank's level of capitalization. This method attaches weights to different risk assets of a bank. The weights attached are uniform for all banks. The truth however is that the risk inherent in these assets cannot be the same for all banks. They would depend on the unique characteristics of the bank and the manner in which the underlying transactions are entered into. In addition, the risk weighted methods is more costly to run than simple capital ratio method and even a well-designed risk- weighting scheme may soon become obsolete as a result of the changing nature of the banking and other financial sector participants. The global economy had witnessed distress in the banking sector between 2008 and 2009 with devastating economic and social consequences. Banks are still failing world-wide and in Nigeria specifically, between 2009 and 2010 almost half of the banks exhibited one form of distress or the other. This may be a pointer to the fact that early warning system models (EWSs) geared toward identifying weaknesses and vulnerabilities among financial institutions have failed or have been wrongly applied.

In line with these problems, various banking regulation have been promulgated, these regulations through proper monitoring of banks are mutually reinforcing and are designed to finally identify and diagnose emerging problems of individual banks with a view to providing most efficient solution directed towards retaining public confidence. The major objective of this paper therefore, is to examine the relationship between capital ratios and Bank distress, as well as to compare the efficiency of different capital ratios in predicting Bank distress. In order to achieve this objective the paper is divided into five parts. Part one is this introduction, part two is the literature review, part three is the methodology and part four contains results and discussion while part five is the conclusion and recommendation.

## **LITERATURE REVIEW**

This section reviewed both theoretical and empirical literature to provide a solid ground for our discussion. The theoretical literature reviewed is simply the theory of market failure as it relates to the functioning of financial market.

### **Theoretical literature (Market Failure Theory)**

The theory describes a situation where the allocation of goods and services by free market is not efficient. Beg et al, (2005) opined that market failure describe the circumstances in which distortions prevent the invisible hand from allocating resources efficiently, thereby causing distress in the banking system. The theory was developed by a large number of economist,

including Pigou, Keynes and Baumol, (Daboub, 2009). The theory concludes that free market do not produce economically efficient or socially just solution to all instance. It explains that the market fail to produce the required result, in which case, economic and social welfare can be improved only by the government intervention.

Basher, (1997) explain market failure as divergence between social private calculations which makes the market unreliable source for achieving socially set goals. He further said that market failure occurs when:

- There are no enough markets,
- By acting secretively, consumers and producers conceal information, and
- Resource allocation is insufficient.

Daboub, (2009) identified sources of market failure to include: imperfect information, market power (monopoly) and presence of negative externalities. Lack of adequate information or ignorance on the part of the Seller or Buyer can result in misrepresentation and hence negates the benefit of competitive markets.

Allen, (1959) stated that the second source of market failure is market power (monopoly). This is further supported by Baumol (1977) who explain that the conditions required for pareto optimal distribution of goods and services are not met when there is oligopoly or monopoly power. Market failure results from externalities, is when cost of production become internal to the company producing the goods and therefore, are not paid by the producer. In effect, the company receives productive inputs without paying for them.

This is explained in Stiglitz and Weiss (1981) in their study which used the theory to argue that conflict between lenders and borrowers arising from moral hazards imply that lenders may decide that they would rather not make loans available to their customers, thereby creating sub-optimal investment levels and a sharp contraction in economic activity, which further raises the probability of default among borrowers.

Market failure theory is also related, since it has brought about the justification of government intervention to fill in the gap left by market oriented system. This is supported by words of Estrella et' al (2011) who argued that regulators and policy makers worldwide have proposed raising minimum capital requirement and limiting leverage of financial institutions in response to the 2007-2009 banking crisis.

### **Empirical Literature**

After the East Asian crisis, most of the empirical studies trying to identify the nature and origins of systemic banking crisis have focused mainly on macroeconomic factors and institutional variables. At the micro-level, the majority of empirical studies on banking failures have focus mainly on the U.S. commercial banking industry. Among the recent contributions in the last decades includes, Thomson (1991), Whalen (1991), Cole and Gunther (1995) and Gonzalez-Hermosillo (1999) Cited in Duffo (2004) develop empirical analyses of the contribution of bank fundamentals, systemic and macroeconomic factors in different episodes of banking system problems in the U.S. Southwest (1986-1992), Northeast (1991-1992), and California (1992-1993)]. The common methodology used by these authors has been the use of multivariate logit analysis and proportional hazard models, and their main findings are that measures of bank solvency and risk by CAMEL rating variables, explain the incidence of bank failures after controlling for aggregate factors.

Calomiris and Mason (2000) provide the first comprehensive econometric analysis of the causes of bank distress during the Great Depression in the U.S. The authors constructed a

model of survival duration and investigate the adequacy of bank fundamental (training programme used by financial institutions in training their personal, to enable them understand key decisions made by bank management) for the period of 1930-1933 after controlling the effect of country, state, and national level economic characteristics. They found that bank fundamentals explain most of the incidence of banks failure and argue that 'contagion' or liquidity crises are relatively unimportant influence on the bank failure prior to 1933.

To date, there is little cross country empirical evidence that documents the relative contribution of micro-level bank fundamentals in the contest of the recent systematic banking crises in the nineties Gonzalez-Hermosillo (1999) analysed the contribution of bank level fundamentals and macro economic factors for the Mexican banking crisis for 1994-1995. The author found that all ex-post measures of risk, and the loan to assets ratio are associated with the probability and timing of failure. Rojas Suarez (2001) evaluates an alternative set of indicators based on market that work rather than just relying in accounting figures (CAMEL types variables) in order to identify in advance, impending banking problems using bank levels data of six countries (Korea, Malaysia, Thailand Colombia, Mexico and Venezuela) and applying the signal to noise approach methodology. The author found that the capital to assets ratio has performed poorly as an indicator of banking problem in Latin America and East Asia. On the other hand, interest rates on deposits and spreads have proven to be strong performers.

Okozie (2011) used data on bank distress in Nigeria from 1991 to 2004 using OLS Regression, Autoregression and Granger Causality test. The study found that these capital ratios predict bank distress significantly and that there is no significant difference in the level of efficiency of the three capital ratios in distress prediction. West (1985) uses a total of 19 variables to describe the level of soundness of banks in line with CAMEL, the study posits that capital adequacy, assets quality, earning and liquidity are important variables, in the determination of banks distress.

The study of Babalola (2009) examined the influence of perceived financial distress and customers attitude towards banking. The result of the study showed that perceived financial distress and bank customers had significant effect on attitude towards banking. The study conclude that perceived bank distress has significant negative influence on attitude towards banking. "Bank failures during banking crises can either result from unwarranted depositor withdrawals during events characterised by contagion or panic, or as a result of fundamental bank insolvency (Calomiris, 2007). The study emphasise that panics or contagion played a small role in bank failure, during or before the Great- depression. Solodu (2003) however observes that banks unsoundness could be traced to economic recession, policy induced shock, poor asset quality, mismatch of assets and liability, over trading, bad management and insider abuses.

Bongini et al (2001) investigated the occurrence of bank distress and closure decisions in five East Asian countries (Indonesia, , Korea ,Malaysia, Philipines and Thailand) in order to assess the role of both bank connections with industrial group or influential families and banks micro weaknesses in causing and resolving bank failures. Among the main findings; CAMEL (capital adequacy, assets quality, management competency, earnings and liquidity) types variables, the ratios of lost loan, reserves to capital and net interest income to total income, help predict subsequent distress, and "connections" increase the probability of distress and make closure more likely.

## METHODOLOGY

This study makes use of secondary data, which was obtained from the Central Bank of Nigeria (CBN) and the National Deposit Insurance Corporation (NDIC), for a period of fifteen (15) years. The data collected was analysed by the use of Ordinary Least Square (OLS) and Granger causality test. Also, T-test was used to compare the efficiency of different Capital ratios in predicting bank distress, following the work of Okozie (2011).

In order to achieve the objectives of this study, data of Bank distress and other capital ratios of Deposit Money Banks in Nigeria from 1995 to 2009 were obtained from CBN, NDIC and basically the Internet. Three different capital ratios (Risk weighted ratio, Liquidity ratio and Equity ratio) were used. The ratios are classified into two, namely Risk weighted and Non-risk weighted ratios. The risk weighted is represented by Risk weighted ratio (CR1) while Non-risk weighted includes liquidity ratio (CR2) and equity ratio (CR3).

### Model specification

The relationship between Bank distress and capital ratios will be investigated using OLS as below:

$$BD = \beta_0 + \beta_i CR + \xi$$

Where:

BD = Bank Distress

$\beta_0$  and  $\beta_i$  = constant parameters

CR = Capital Ratios

$i = 1,2,3$  where:

1 = Risk weighted ratio

2 = Liquidity ratio

3 = Equity ratio

$\xi$  = error term

The Specification will be tested using the alternative hypotheses

$$H_0 : \beta_i = 0$$

$$H_1 : \beta_i < 0$$

### Granger Causality Test

This will be done using two stages. First by testing whether CR is caused by BD and then testing if BD is caused by CR. If the test shows that CR caused BD, but that CR is not caused by BD then we assert that Capital Ratios (CR) caused Bank Distress. To test whether capital ratios causes bank distress, we will Test the null hypothesis that capital ratios do not cause bank distress.

### Test for stationarity:

To ensure that the series are stationary and avoid the consequences of autocorrelation the data was tested for unit roots, using the Dickey-Fuller test. The data used for Granger causality test was also tested for consistency to see if data are not lag dependent and amenable to Granger causality test.

### Comparison of prediction of bank Distress by the different capital ratios

A test of difference of means was done to see if the level of efficiencies at which the different capital ratios detect Bank distress differed significantly. The T-Test statistics was used through the following formula adopted from (Okezie, 2011):

$$T = \frac{\mu_1 - \mu_i}{\sqrt{\frac{(N_1 S_1^2 + N_2 S_i^2) N_i + N_2}{(N_1 + N_2 - 2) N_1 N_2}}}$$

$\mu_1$  = Mean of the Risk weighted ratio

$\mu_i$  = Mean of other capital ratios

$S_1$  and  $S_i$  = Standard deviation of the ratios

$N_1$  and  $N_2$  = Sample sizes of the ratios

$i = 1, 2$  (other capital ratios i.e Liquidity and Equity ratio)

$N_1 + N_2 - 2$  = Degree of freedom for the Test.

The following Hypotheses was Tested:

$H_0: \mu_1 \neq \mu_i$

$H_1: \mu_1 = \mu_i$

If  $H_0$  is accepted then we say the Risk weighted capital ratio performs significantly different from other capital ratios.

If however  $H_0$  is rejected we cannot say that the Risk weighted ratio performs significantly different from other capital ratios in detecting Bank Distress.

### RESULTS AND DISCUSSION

This section presents the analysis of the data and the discussion of the work results. First is the result relating to OLS, the second component relates to Granger causality while the third and the last component is the T-test which compared the efficiency of different capital ratios.

**TABLE: 1 Dickey-Fuller test for Unit Root**

VARIABLES	T. STATISTICS	CRITICAL VALUE	REMARKS
BD (0)	-3.3311	-3.000**	Stationary
CR1 I(1)	-3.820	-3.750***	Stationary
CR2 I(1)	-3.757	-3.750*	Stationary
CR3 I(1)	-5.551	-3.750***	Stationary

Notes: \*\*\* = 1%, \*\* = 5%, \* = 10%

Source: computed by Author using STATA.

Form the result in table one above, BD (Dependent variable) is stationary at the level value T. Statistics is greater than critical value at 5% level. The CR1 is stationary at the first difference, at 1% level where statistics is greater than critical value. For CR1 the result shows that it is stationary at first difference with 5% level of significance. The result for CR3 is stationary at

1% level of significance at first difference. Therefore, the result shows that all the variables are stationary and they are suitable for OLS.

**Table: 2 Regression Result for BD and CR1**

Dependent Variable.	Co-effecient and t. ratio
Indep. Var.	
CR <sub>1</sub>	-5.577192 (-0.95)*
Constant	0.6914824 (1.34)
R	0.0647
F	0.90

Note:\*\*\* = 1%, \*\* = 5%, \* = 10%

**Source: computed by the author using STATA**

From the table 2 above, the relationship between dependent variable (BD) and the independent variable (CR1) could be seen. The table revealed that CR1 has a negative relationship with the BD, significant at 10% level. This negative relationship shows that as CR1 increases, BD decreases. And it also shows that there is 6% degree of association between the two variables. We shall therefore, accept the alternative hypothesis which says: Capital ratios predict bank distress. And reject the null hypothesis that says Capital ratios do not predict bank distress.

**Table: 3 Regression Result for BD and CR2**

Dependent variable	Co-effecient and t. ratio
Independent Variable	
CR2	-07324531 (-1.65)**
Constant	0.5404905 (2.59)
R <sup>2</sup>	0.1726
F	2.71

Notes:\*\*\* = 1%, \*\* = 5%, \* = 10% level

**Source: computed by the Author using STATA.**

The table 3 also depicts relationship between BD and CR2, it revealed that there is negative relationship between BD and CR2, while significant at 5% level and therefore, as BD increases the CR2 will decrease, at the 17% degree of association. We therefore, reject the null hypothesis that Capital ratios do not predict bank distress and accept the alternative hypothesis which says: Capital ratios predict bank distress.

**Table: 4 Regression Result for BD and CR3**

Dependant Variable.	Co-eff. and t. Ratio
Independent variable	
CR3	0.4850646 (0.99)*
Constant	0.1200869 (1.77)
R <sup>2</sup>	0.1959
F	3.17

Note: \* 10% , \*\*5% , \*\*\* =1% level

**Source: computed by the Author using STATA.**

The table 4 above shows that there is positive relationship between BD and CR3 at 10% level of significance, as the co-efficient of CR3 is 0.4850646. Therefore, as CR3 increases the BD will also increase. This makes us to accept the null hypothesis which says: Capital ratios do not predict bank distress and reject the alternative hypothesis that says: capital ratios predict bank distress.

**Table: 5 Granger Causality Test for BD and CR1**

Dep. Var	Co-eff. and t- ratio	Ind. Var	Coeff. and t. ratio	Remarks
BD lag	0.147513 (0.53)	CR1 Lag	.4211301 (0.06)*	Unidirectional causality running from CR1 to BD
CR1 Lag	0.9151492 (6.61)***	BD Lag	-.0071624 (-1.22)	

**Notes: \*\*\* = 1% , \*\* = 5% \* = 10% Levels**

**Source: computed by the Author using STATA.**

The table 5 above presents the causal relationship between dependent variable (BD) and independent variable (CR1). The table shows that the coefficient of BD (0.147513) is less than coefficient of CR1 (0.4211301) (while checking for causal relationship from BD to CR1). The T-ratio of BD is 0.53 and it is not significant (going by the value of  $P > |t| = 0.604$ ). The T-ratio of CR1 is (0.06)\* which is significant at 10% level. This shows that there is no causality running



from BD to CR1. While investigating for causal relationship running from CR1 to BD, the table reveals that the coefficient of CR1 (0.4211301) is greater than that of BD (-0.0071624). The t-ratio of CR1 is (6.61) significant at 1% level, while that of BD is (-1.22) and it is not significant. This however indicate that causality was running from CR1 to BD. The result from the table explain that there is Unidirectional causality running from CR1 to BD. Meaning that changes in CR1 causes changes in bank distress. This is in line with the expectation and with the findings of Estrella et'al (2000).

**Table: 6: Granger Causality Test Results for BD and CR2**

Dep. Var	Coeff. and t- ratio	Ind. Var	Coeff. and t. ratio	Remarks
BD Lag	-0.078722 (0.28)	CR2 Lag	-0.830656 (1.58)**	Unidirectional causality running from CR2 to BD
CR2 Lag	0.8876332 (4.06)***	BD Lag	.1322021 (1.13)	

Note: \*\*\* = 1%, \*\* = 5% ,\* = 10% Levels

**Source: computed by the Author using STATA.**

The table above represent the causal relationship between dependent variable (BD) and independent variable (CR2). The table shows that the coefficient of BD (-0.078722) is less than coefficient of CR1 (-0.830656) (while checking for causal relationship from BD to CR2). The t. ratio of BD is 0.28 and it is not significant (going by the value of  $P > |t| = 0.785$  as shown in the appendix). The t. ratio of CR2 is (-1.58) significant at 5% level. This shows that there is no causality running from BD to CR2. While looking for causal relationship from CR2 to BD, the table revealed that the coefficient of CR2 (.887632) is greater than that of BD (.1322021). The t. ratio of CR2 is (4.06) significant at 1% level, while that of BD is (1.13) and it is not significant. This indicates that causality was running from CR2 to BD. The result therefore implies that there is Unidirectional causality running from CR2 to BD. Meaning that changes in CR2 causes changes in bank distress, which is in line with the expectation, findings of OLS regression and Okozie (2011).

**Table: 7 Granger Causality Test Result for BD and CR3**

Dep. Var	Coeff. and t- ratio	Ind. Var	Coeff. and t. ratio	Remarks
BD lag	0.2847672 (0.92)	CR3 Lag	0.3563104 (-0.86)***	Bidirectional causality running between BD and CR3
CR3 Lag	0.4704753 (1.34)*	BD Lag	-0.2781303 (0.92)*	

Note: \*\*\* = 1%, \*\* = 5% ,\* = 10% Levels

**Source: computed by the Author using STATA.**

The table 7 above presents the causal relationship between the dependent variable (BD) and independent variable (CR3). The result in the table shows that the coefficient of BD (.2847672) is less than coefficient of CR3 (-.3063365), while checking for causal relationship from BD to CR1. On the other hand, the T-ratio of BD is 0.92 and it is not significant, going by the value of  $P > |t| = 0.376$ . The T-ratio of CR3 is (-0.86) which is significant at 1% level. This shows that there is causality running from CR3 to BD not from BD to CR3. However, while investigating for causal relationship running from CR3 to BD, the table revealed the coefficient of CR3 (.4704753) is greater than the coefficient of BD (-.2781303). The T-ratio of CR3 is (1.34) and not significant, while that of BD is (-0.92) significant at 10% level. This indicate that causality was running from BD to CR3. The result therefore implies the existence of Bidirectional causality running from BD and CR3, and vice-versa. This suggests a positive relationship as in the OLS regression result, which contradict our a priori expectation and also the findings of Estrella et'al (2000) and Okozie (2011).

### Comparison of the Efficiency of the Different Capital Ratios

This section compare the efficiency of different capital ratios: the Risk weighted ratio (CR1) and Non risk weighted (liquidity ratio CR2 and equity ratio CR3), using T- Test. The first part compare Risk weighted ratio (CR1) and Non-risk weighted ratio CR2. And the second part, compare Risk weighted ratio (CR1) and Non-risk weighted ratio CR3.

**Table: 8 T- Test Result for CR1 and CR2**

Variables	Mean	Standard Deviation
CR1	0.087	0.0090238
CR2	0.4526	0.111334

Ha:  $\neq 0$  (0.000)\*\*\*

Note: \*\*\* = 1%, \*\* = 5% , \* = 10% Levels.

**Source: Authors computation using STATA.**

The table 8 above provides useful statistical information for the two capital ratios (CR1 and CR2) that are compared, including the Mean and Standard Deviation, as well as actual result from the paired T- Test. The Mean for CR1 is .087 with 0.0090238 as Standard deviation compared to CR2 Mean value of 0.4526 and Standard Deviation of 0.111334. The actual result as shown on the absolute value of the paired t-test  $p > |t| > |t|$  under Ha: mean(diff)  $\neq 0$  which is 0.0000. This indicates that the variables are not equal at 1% level. In other words there is significant difference between the two capital ratios. We therefore, accept the H0: which says: Risk weighted capital ratios predict banks distress significantly different from other Capital ratios (Liquidity Ratio).

**Table: 9 T-Test Results for CR1 and CR3**

<b>Variables</b>	<b>Mean</b>	<b>Standard Deviation</b>
CR1	0.087	0.0090238
CR2	0.177667	0.1805787

Ha: !=0 (0.0662)\*

Note: \*\*\* = 1%, \*\* = 5%, \* = 10% Levels

**Source: Authors computation using STATA.**

The table 9 above also provides useful statistical information for the two capital ratios (CR1 and CR3) that are compared, including the Mean and Standard Deviation, as well as actual result from the paired T- Test. The Mean for CR1 IS .087 with 0.0090238 as Standard deviation compared to CR3 Mean value of 0.1776667 and Standard Deviation of 0.1805787. The actual result as shown on the absolute value of the paired t-test pr  $|T| > |t|$  under Ha: mean(diff) !=0 which is 0.0662. This indicates that the variables are not equal at 10% level of significance. In other words there is significant difference between the two capital ratios. We therefore, accept the H0: which says Risk Weighted Capital ratios predicts banks distress significantly different from other Capital ratios (Equity Ratio).

- i. The study found that there is negative relationship between Risk weighted ratios and Bank distress, while there exists unidirectional causal relationship running from risk weighted ratio to Bank distress.
- ii. The study also found that there is negative relationship between Liquidity ratio (non-risk weighted ratio) and Bank distress and that there is unidirectional causal relationship running from Liquidity ratio to Bank distress.
- iii. On the contrary the study found positive relationship between Equity ratio (another non-risk weighted ratio) and Bank distress, though there is bidirectional causal relationship between Equity ratio and Bank distress.
- iv. The study found that Risk weighted ratio performs significantly different from Non-risk weighted ratio (Liquidity and Equity ratios) in predicting Bank distress.

### **CONCLUSIONS AND RECOMMENDATIONS**

The study examines the relationship between Bank distress and Capital ratios and also compares the effectiveness of different capital ratios in predicting Bank distress. The study found that risk weighted capital ratios predict Bank distress. Also found in the study is that Liquidity ratio (a non-risk weighted ratio) predict Bank distress. Therefore, the use of risk weighted ratio and liquidity ratio (non-risk weighted ratio) is important in predicting Bank distress. Contrary to this, Equity ratio (another non-risk weighted ratio) does not predict Bank distress and therefore, it is not useful in predicting distress.

The other part of the study shows that two non-risk weighted ratios (Liquidity and Equity ratios) cannot efficiently replace risk weighted ratio in predicting distress. For the policy to be effective, capital ratios should be accompanied by other means, like ensuring strict compliance with monetary and credit guidelines and ensuring corruption free banking environment to strengthen effectiveness and efficiency of the policy targeting sound Banking System.

Based on the above conclusions, the following recommendations were offered:

- i. The use of Risk Weighted Ratio in predicting Bank distress should be continued. This suggest the need to refocus on targeting capital ratios that are more loss absorbing and harder to arbitrage and on refining risk weightings so as to better align regulatory capital with underlying risk.
- ii. Liquidity is also important in prediction of Bank Distress and therefore, the findings recommend that Bank Regulators can use liquidity Ratio (since it has some vital information of Bank Distress) as supplementary or backstop even when more sophisticated measures are available for use.
- iii. The study also recommends that regulators should not use Equity ratio as a predictor of Bank Distress as it proved to have positive relationship with the Bank Distress.
- iv. The study found that risk weighted ratio predict bank distress differently from other two non- risk weighted ratio (liquidity and equity ratios), it is therefore recommended that non-risk weighted ratios should not replace Risk weighted ratio, however liquidity ratio can supplement it.

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