Capital Ratios as Predictors of Distress: A Case Study of The Nigerian Banking System

By Amachukwu C. Okezie

Ogun State University

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Keywords: *Capital Ratio, Risk-weighted, Leverage, Gross Revenue Ratio, Early Warning Systems.*

I. Introduction and Background To the Study

Between 2008 and 2009, a large number of financial institutions failed all over the world, with devastating economic, social and political consequences. Banks are still failing globally and in Nigeria, almost half of the banks have one form of distress or the other. This may be a pointer to the fact that Early Warning Systems (EWS) Models, with the aim of identifying weaknesses and vulnerabilities among financial institutions have either failed or have been wrongly applied. These financial crises are not confined to individual economies but spread contagiously to other markets as well. There is therefore the need to sharpen the monitoring of the performance of the banks continually. One of the ways of doing this is by being able to notice problems in banks at the early stage before the bank slides into distress (Doguwa; 1996).

Desirable as an early problem bank identification system is for Nigeria, there is no evidence that it has received adequate attention and it is not in use by either the bank regulators or any of the banks. The earliest recorded attempt was made by Jimoh (1993), followed by Nyong (1994) and Doguwa (1996). Any attempt to fill this gap would, therefore, be worthwhile. In Nigeria, the regulatory authorities, (the Central Bank of Nigeria (CBN) and Nigeria Deposit Insurance Corporation (NDIC)) use the risk weighted capital ratio, as proposed by the Basel Committee to measure banks' level of capitalisation. This method attaches weights to different risk assets of a bank. The weights attached are uniform for all the 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 method is more costly to run than simple capital ratio methods and even a well-designed risk-weighting scheme may soon become obsolete as a result of the dynamic nature of the financial sector, (Estrella, Park and Peristiani; 2000). Regulatory capital arbitrage could even develop under risk-based capital ratio and produce harmful economic effects. For instance, since lending to risky borrowers belongs to the highest risk-weight category, the incentive to economize capital might induce banks to reduce lending to those borrowers that do not have alternative financing sources. Economic activity may contract as a result, as argued by Stiglitz and Weiss, (1981); Bernanke, (1986), Bernanke and Gertler, (1989) and Mishkin (1997), in their explanation of the 'market failure theory'. Micro-finance banks are established in Nigeria to overcome this problem. Many parts of the country, however, do not have micro-finance banks and are not likely to have in the near future. In addition, the licences of 103 out of the 986 microfinance banks in Nigeria have been revoked because of poor management.

It is therefore useful to see if other simpler ratios that do not use risk weights predict bank distress in a manner not significantly different from the risk weighted ratio and can therefore be used in place of it. Another challenge is that some studies, including Gunther and Moore (2002), show that capital ratios may not have significant relationship with bank distress and should not be used to predict it.

The objective of this paper is, therefore, to examine the relationship between capital ratios and

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bank distress. It also compares the performance of three capital ratios – risk-weighted, leverage and gross revenue ratios, in the prediction of bank distress, and comments on the appropriate use of the ratios.

The paper, therefore finds answers to the following questions:

1. What is the causal relationship between capital ratios and bank distress?

2. Is performance of the risk-weighted capital ratio in distress prediction significantly different from the performance of the other capital ratios?

To answer the questions, the following null hypotheses are tested:

1.   *Capital ratio does not predict bank distress*

2.   *Risk weighted capital ratio predicts banks distress significantly differently from the other capital ratios.*

    The result of this study would prove useful for banking regulation. It would particularly be useful to bank supervisors, as it will enhance their effectiveness and supervisory efficiency. In particular, it will help bank regulators and even bank directors and management, detect potential problem banks early and thereby enhance their monitoring and control. Other researchers would also find the study useful, as a basis for further studies.

In this paper, the risk–weighted capital ratio (RWAR) is defined as in equation (1), while the leverage ratio (LR) and the gross revenue ratio (GRR) are defined in equations (2) and (3) respectively.

$$RWAR = \frac{S}{\sum x_i r_i} \qquad \ldots (1)$$

$$LR = \frac{S}{\sum t_i} \qquad \ldots (2)$$

$$GRR = \frac{S}{\sum y_i + \sum z_i} \qquad \ldots (3)$$

Where;

S = Shareholders' funds unimpaired by losses

x_i = i^{th} asset of the bank

r_i = risk weight attached to the ith asset of the bank

t_i = i^{th} tangible asset of the bank

y_i = i^{th} interest income

z_i = i^{th} non-interest income

    the ratio of the banks' shareholders' funds unimpaired by losses to total risk weighted assets; while the leverage ratio is the banks shareholders' funds unimpaired by losses divided by total tangible assets of the bank. The gross revenue ratio is the ratio of the banks shareholders' funds unimpaired by losses to total interest and non-interest income before the deduction of any expenses.

    The paper is divided into five sections. Section one is this introduction which contains elements like the objectives, scope and significance of the study. Section two deals with the theoretical framework and review of literature while the methodology is discussed in section three. Section four gives the result of data analysis and discussion. The last section of the paper contains the summary, conclusion and recommendation.

II. THEORETICAL FRAMEWORK AND LITERATURE REVIEW.

2.1   Theoretical Framework

2.1.1   Theories of Bank Distress

2.1.2.1 Micro Theories:

    At the microeconomic level, mismanagement plays a major role in bank insolvency, (Soyibo and Odusola; 2002). This approach sees mismanagement as an evil that destabilizes a bank or a whole banking system, especially, where there is ineffective banking supervision (Popiel, 1988; de Juan, 1987 and 1993; Odusola, 2001). Mismanagement is classified into four categories: technical mismanagement, cosmetic mismanagement, desperate mismanagement and fraud. Other micro causes of banks' unsoundness relate to moral hazards in domestic finance and lack of transparency or market discipline in corporate governance.

    Weak regulation and supervision act as interface between micro and macro causes of bank distress and any financial system with this characteristic is bound to experience deep crises whenever, there are shocks within the system, (Soyibo and Odusola, 2002).

2.1.2.2 Macro Theories

    This perspective sees microeconomic causes as secondary and attributes bank distress mainly to macroeconomic developments and can be categorized into five groups. The first is the monetary model of financial crises, as pioneered by Friedman and Schwartz (1963) and further extended by Brunner and Meltzer (1988), which emphasizes the central role of the growth of money stock and its variability in making banks unsound. This framework posits that banking and debt crises are endogenous events, conditioned by economic policy and the banking structure, and not by independent or exogenous shocks, (Soyobo and Odusola, 2002).

    The business cycle theory is the second approach and postulates that the financial environment responds endogenously to the state of the business cycle or to some displacement such as financial sector liberalization, which opens up opportunities for profit

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making. An example of this is the deregulation of the Nigerian financial sector, under SAP, which made the number of commercial and merchant banks increase from 29 and 12 in 1986 to 66 and 54 in 1991, respectively, (Ogwuma; 1996). The number of community banks also rose from one in 1990 to about 1000 in 1994, in addition to the emergence of finance companies, mortgage institutions and other financial intermediaries. This approach argues that as a result of the expanded activities in the financial sector, lending velocity may increase temporarily, but will later decline as non-performing loans build up. The situation in Nigeria was similar as banks loans and advances rose from ₦18.47 billion in 1986 to ₦56.52 billion at the end of 1993, (Ogwuma; 1996). These developments weaken the strength of the financial system and hence make it more vulnerable to shocks (Odusola, 2001).

The third approach is based on the market failure theory and propagated by Stiglitz and Weiss, (1981); Bernanke, (1986), Bernanke and Gertler, (1989) and Mishkin (1997), who use the framework of information asymmetry in the credit market to explain financial crises. They argue that conflicts 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 activities, which further raises the probability of default among borrowers. Some researchers argue that the use of risk-weighted capital ratio could lead to similar effect. The establishment of micro finance banks in Nigeria is aimed at tackling this problem. The fourth approach is the credit market approach and integrates the business cycle approach with the market failure approach. This approach posits that an interruption of the supply of credit triggers a business cycle downturn, which increases distress in the financial sector, hampers development in the real sector of the economy and therefore weakens the banks.

Finally, the financial deregulation model is another approach that has received considerable attention in literature. Soyibo and Odusola (2002), explains this approach by stating that 'deregulation of the domestic financial market, before an adequate regulatory framework and appropriate prudential guidelines were put in place, creates a wide latitude for risk-taking and eventual collapse of many financial institutions'. Empirical studies in Nigeria, by Soyibo, Alashi and Ahmad (1997) and Soyibo (2002), suggest that this is one of the likely causes of the unsoundness of the financial system.

2.1.2   Prediction of Bank Distress

Of the large number of early bank distress prediction studies that has been done, most have employed discriminant analysis or probit/logit techniques to construct the model, (Whalen; 1991). These models are designed to generate the probability that a bank with a given set of characteristics will fall into one of two or more classes, most often distress/non-distress. The predicted probabilities are of distress and non distress at some unspecified point in time over an interval implied by the study design.

The general logit model to predict the probability, P_D is given by:

$$P_D = F(Z) = F(\sigma + \beta_i X_i) = \frac{1}{1 + e^{-z}} \quad \dots (4)$$

where, σ is a constant, e is the base of natural logarithms, which is approximately 2.718, Z, a linear combination of factors that influence the probability of a bank not being healthy, X_i (usually ratios), the ith explanatory variable and β_i is the ith coefficient estimate, (Doguwa; 1996).

Proportional Hazards Model (PHM), can also be used as in Lane, Looney and Wansley (1986) and Whalen (1991), to generate estimates of the probability of bank distress or alternatively of survival. The dependent variable in a PHM is time T, until distress and the survivor function which represents the probability of surviving longer than t periods, has the following general form:

$$S(t) = Prob(T > t) = 1 - F(t) \dots (5)$$

where F(t) is the cumulative distribution function for the random variable, time to distress. The general form of the hazard function therefore, becomes:

$$h(t) = \lim_{dt \to 0} \frac{Prob(t < T < t + dt \mid T > t)}{dt} \dots (6)$$

2.2   *Literature Review*

The findings of other researchers on early warning systems and indicators of bank distress are reviewed in this section.

2.2.1.   Early Warning Systems (EWS)

Some empirical studies have been done on EWS. One of the earliest is West (1985), which used a total of 19 variables to describe the level of soundness of banks in line with CAMEL. Though the West paper does not present a full blown monitoring system, it introduces the technique of factor analysis, which reduces a large number of variables to a smaller number of 'factors'. The paper posits that; capital adequacy, asset quality, earnings and liquidity are important variables, in the determination of banks' distress and the results suggest that classical factor analysis combined with multivariate logit estimation, using factor scores as inputs, holds a good deal of promise as a basis for any early warning system. West's study is similar to those of Espanhbodi (1991), Jimoh

(1993), Nyong (1994), and Doguwa (1996). Logan (2001) concludes that a number of measures of bank weakness – low loan growth, poor profitability and illiquidity are good short term predictors of unsoundness, as are high dependence on interest income and low leverage. He posits that the best long term leading indicator of future unsoundness is rapid loan growth.

2.2.2 Indicators of Banks' Distress

Understanding the indicators of banks' distress is vital for proactive steps to be taken to prevent banks' crises. Mishkin (1994) lists, 'decline in stock prices, increase in interest rates, corporate indebtedness and unanticipated decline in inflation' as signals for poor banks' performance. Hausmann and Gavin (1995) note that loan delinquencies are lagging indicators, and focus instead on macroeconomic shocks to asset quality and bank funding and the role of credit booms in fostering financial fragility. Kaminsky and Reinhart (1996) focus on the links between balance of payment and banking unsoundness and conclude that financial liberalization may lead to banks' poor performance across a range of countries. Fischer and Gueyie (1995) use a combination of bank balance sheet, macroeconomic, and policy variables to explain changes in the probability that a bank would be unsound, using option pricing model. Vaithilingam, Nair and Samudram (2006), examined the impact of Information and Communication Technology (ICT) Infrastructure, Intellectual Capital, Institutions, Integrity (Governance), Interaction (Strategic Partnership) and Innovation on the soundness of banks in developed, developing and under-developed countries. The study concluded that; well developed institutions, good integrity system and high innovative capacity contributed to the soundness of banks positively. Donze (2006), on the other hand measures the effect of the independence of bank supervisory agencies on banking system soundness. He found that 'independence of supervisory agencies, impacted positively on banks soundness.

The CBN (2003) reports that banks' unsoundness could be traced to, economic recession, policy-induced shock, poor asset quality, mismatch of assets and liability, overtrading, bad management and insider abuses.

Basel Committee and its pronouncements have been well suited to the task of grappling with the problems raised with the internationalization of banking. However, Capiro and Honohan (2005) and Rojas-Suarez (2005) assert that capital adequacy as propounded by Basel II cannot improve bank soundness in developing countries. They conclude that 'for the Basel II capital requirement to work, it should reflect the 'true risk' of banks' portfolios, which will be possible only in a deep capital market, which is often non-existent in developing countries. There is therefore, the need to see whether capital ratios that do not incorporate risk assets can be used to monitor banks, as is done in this study.

III. METHODOLOGY DATA

The data used in this study consist of bank distress rates and capital ratios calculated for commercial banks operating in Nigeria from 1991 to 2004. The data set started from 1991 because that was the year when minimum capital ratio requirement became operational in Nigeria. It also ends in 2004 because the banking landscape changed with the announcement of the requirement to shore up banks shareholder's fund to ₦25 billion.

3.1 Data Analysis Techniques

1. Causality Between Capital Ratios and Bank Failure

If the use of capital ratios to monitor bank distress is effective, then both variables should be strongly negatively correlated, (Estrella, Park and Peristiani; 2000). The implication is that if capital ratio (CR), increases, then bank failure (BD) should decrease and;

$$d(BD)/d(CR) < 0 \ldots(7)$$

This is tested in this study using the ordinary least square analysis, autoregression and the Granger (1969) and Sims (1972) causality test.

a. *Ordinary Least Squares*

The idea expressed in (4) above can be represented by:

$$BD = \beta_0 + \beta_i\, CR + \varepsilon \ldots (8)$$

Where

$$\beta_i < 0 \ldots(9)$$
$$i = 1,2, 3; \beta_0 \text{ and } \beta_i$$

are constants and ε the error term. The specification in (8) is tested using the hypotheses;

$$H_0 : \beta_i = 0$$
$$H_1 : \beta_i < 0$$

b. *Autoregressive Model*

Gujarati (2006), posits that time series data are likely to be dynamic and not contemporaneous. This implies that bank distress BD, may be dependent on its past values and past values of the capital ratios. Using lag 1, the situation for the different capital ratios can be expressed as:

Risk-weighted ratio:

$$BD = \beta_0 + \beta_1\, CR1 + \beta_2\, CR1_{-1} + \beta_3 BD_{-1} + \varepsilon \ldots (10)$$

Leverage ratio:

$$BD = \beta_0 + \beta_1\, CR2 + \beta_2\, CR2_{-1} + \beta_3 BD_{-1} + \varepsilon \ldots (11)$$

Gross Revenue ratio:

$$BD = \beta_0 + \beta_1 CR3 + \beta_2 CR3_{-1} + \beta_3 BD_{-1} + \varepsilon \ldots (12)$$

Where is CR1, is the risk-weighted capital ratio and CR2 and CR3 are the capital ratios for leverage and gross revenue respectively.

c.   Granger and Sim's Causality Test

This is done in two stages. First by testing whether CR is caused by BD and then testing if the BD is caused by CR. If the tests show that CR causes BD, but that CR is not caused by BD, then we assert that capital ratio, CR causes bank distress, BD. To test whether 'capital ratio causes bank distress', we test the null hypothesis that 'capital ratio does not cause bank distress'. This is done, deriving from Granger (1988), by running the following two regressions:

$$BD = \alpha_0 + \alpha_1 BD_{-1} + \ldots + \alpha_\ell BD_{t-\ell} + \beta_1 CR + \ldots + \beta_\ell CR_{t-\ell} + \varepsilon \ldots (13a);$$

and

$$BD = \alpha_0 + \alpha_1 BD_{-1} + \ldots + \alpha_\ell BD_{t-\ell} + \varepsilon \ldots (13b)$$

Equation 13a is the unrestricted form while 13b is the restricted form.

To test whether 'bank failure causes capital ratio', we also test the null hypothesis 'bank failure does not cause credit ratio', by running the unrestricted regression;

$$CR = \alpha_0 + \alpha_1 CR_{-1} + \ldots + \alpha_\ell CR_{t-\ell} + \beta_1 BD + \ldots + \beta_\ell BD_{t-\ell} + \varepsilon \ldots (14a)$$

And the restricted form;

$$CR = \alpha_0 + \alpha_1 CR_{-1} + \ldots + \alpha_\ell CR_{t-\ell} + \varepsilon \ldots (14b)$$

Test for Stationarity

To ensure that the series are stationary and avoid the consequences of autocorrelation, the data are tested for unit roots, using the Dickey-Fuller (DF) test.
Test for lag dependence

The data used for Granger causality test, are tested for consistency, using lags 1, 2, and 3 as in Jacobi, Leamer and Ward (1979).

2. Comparison of Prediction of Bank Distress by the Different Capital Ratios

As in Korobow and Stuhr (1985), weighted efficiencies (WE), of each of the capital ratios in detecting bank distress is found, such that;

$$WE = [(BWF)^2 .(CC)]/[(VB).(TWF)] \ldots (15)$$

Where; CC = percentage of banks classified correctly (the standard measure)

BWF = Unsound banks correctly identified by the model

VB = Banks failing a 'hurdle' test, i.e. banks called unsound by the model.

TWF = Total number of unsound (or failed) banks in the sample.

A test of difference of means is then done to see if the level of efficiencies or rates at which the different capital ratios detected bank distress differed significantly. Assuming that the distribution is at least approximately normal and that the variances of the populations are unknown but are equal, then the test statistic is:

$$t = \frac{(\mu_1 - \mu_i)}{\sqrt{\frac{(N_1 S_1^2 + N_2 S_i^2)}{(N_1 + N_2 -2)} \frac{(N_1 + N_2)}{N_1 N_2}}} \ldots (16)$$

where   i = 1,2; μ_1 is the mean of the risk weighted capital ratio and μ_i the mean of the other capital ratios. S_1 and S_i are their standard deviations respectively. N_1 and N_2 are the sample sizes of the ratios. The degrees of freedom for the test, is given by $N_1 + N_2 -2$ and the following hypothesis is tested: H_0: $\mu_1 \neq \mu_i$ against H_1: $\mu_1 = \mu_i$ {i = 1,2}. If H_0 is accepted then we say that the risk-weighted capital ratio performs significantly differently from the other capital ratios. If however, H_0 is rejected, we cannot say that the risk-weighted capital ratio performs significantly differently from the other capital ratios in detecting distress in banks.

A confidence interval of μ - $t_{n-2}\sigma\sqrt{n}$ is used to determine banks classified as distressed by the different capital ratios, where μ is the mean of the ratio, σ, the standard deviation and n, the sample size

IV.   RESULT OF DATA ANALYSIS AND DISCUSSION

a.   Test for Stationarity

The Augmented Dickey-Fuller Unit Root test result is shown below:

Capital Ratio	Augment Dickey-Fuller Test Statistic	Test Critical Value (5%)	Comment
Risk-weighted	-1.84672	-1.53462	Stationary
Leverage	-2.0134	-1.9347	Stationary
Gross Revenue	-1.9876	-1.7193	Stationary

The results show that the data are stationary and can be analysed using OLS and autoregression methods, (Charemza and Deadman; 1992)

b.   Test for Lag Dependence

The results obtained using lags 1, 2, and 3 were generally consistent implying that the data are not lag dependent and amenable to Granger causality test.

c.   *The Causality Test*

i.   Ordinary Least Squares

Below are the results of the OLS regression between bank distress, BD and each of the capital ratios Risk-weighted capital ratio:

$$BD = 1.84 - 3.634CR1 \dots (17)$$
$$(3.12)$$

Leverage capital ratio:

$$BD = 2.08 - 1.421CR2 \dots (18)$$
$$(2.814)$$

Gross revenue capital ratio:

$$BD = 1.63 - 1.139CR3 \dots (19)$$
$$(2.976)$$

Each of the three capital ratios show significant relationship with bank distress. This is in agreement with expectation and in line with Goudie (1987) and Doguwa (1996).

ii.   Autoregression Model

The autoregression model gave the following estimates:

Risk-weighted ratio:

$$BD = -0.8246 - 2.143CR1 - 1.632\,CR1_{-1} + 8.409BD_{-1} \dots (20)$$
$$(3.8352) \quad (6.1824) \quad (4.2961)$$

Leverage ratio:

$$BD = 0.1942 - 3.052\,CR1 - 2.828CR1_{-1} + 3.621BD_{-1} \dots (21)$$
$$(2.7136) \quad (4.0351) \quad (1.9842)$$

Gross Revenue ratio:

$$BD = -0.6145 - 3.869CR1 - 3.105\,CR1_{-1} + 4.738BD_{-1} \dots (22)$$
$$(3.0274) \quad (2.4739) \quad (3.2518)$$

The results of the autoregression show that bank distress, BD, depends on the present values of the three capital ratios, their values for the previous period and on the value of bank distress for the immediate past period. This again is in consonance with expectation, and supports the OLS results.

iii.   Granger Causality

The results of he Granger causality tests are shown below

Capital Ratio and Lag	Theoretical F-Values (5%)		Null Hypotheses and Calculated F-values		Decision
Risk wt. cap. ratio			Bank distress Does not cause Credit Ratio	Credit Ratio Does not cause Bank distress	
1	$F_{1,11}$	4.84	2.86	4.94	Capital ratio predicts distress
2	$F_{2,9}$	4.26	2.04	5.27	Capital ratio predicts distress
3	$F_{3,7}$	4.35	1.38	5.06	Capital ratio predicts distress
Leverage cap. ratio					
1	$F_{1,11}$	4.84	3.42	5.18	Capital ratio predicts distress
2	$F_{2,9}$	4.26	1.98	4.75	Capital ratio predicts distress
3	$F_{3,7}$	4.35	4.62	4.02	Bank distress predicts capital ratio
Gross rev. cap. ratio					
1	$F_{1,11}$	4.84	3.07	4.96	Capital ratio predicts distress
2	$F_{2,9}$	4.26	2.86	4.73	Capital ratio predicts distress
3	$F_{3,7}$	4.35	3.94	4.58	Capital ratio predicts distress

Except for the leverage capital ratio when the lag is three, capital ratio causes bank distress in all other cases. We can therefore, assert that changes in capital ratio causes changes in bank distress, which is in line with expectation and with the findings of Estrella et al; (2000).

d. Comparison of Efficiency of the Different Capital Ratios

The efficiency of the three capital ratios are shown in the appendix. The means are 0.778, 0.761 and 0.759   respectively for the risk-weighted capital ratio, leverage capital ratio and gross revenue capital ratio; while the standard deviations are, 0.057, 0.052 and 0.057 respectively. The value of the calculated t-statistic in comparing the efficiency of the risk-weighted capital ratio and the leverage capital ratio is 0.7729, while that obtained in comparing the efficiency of the risk weighted capital ratio with the gross revenue capital ratio is 0.853.

Comparing these with the theoretical t-value of 2.056 at 5 per cent level of significance and 26 degrees of freedom, we reject the null hypothesis that the risk-weighted capital ratio performs differently from the simpler leverage capital ratio and the gross revenue ratio.

V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The study examined the relationship between capital ratios and bank distress. It also compared the efficiency of three capital ratios – risk-weighted, leverage and gross revenue ratios, in the prediction of bank distress, using the OLS, autoregression and the Granger causality test. The data used in the study are bank distress data obtained from CBN and NDIC annual reports and bank returns to the CBN and covered a period of 1991 to 2004. The study showed that the three capital ratios affected bank distress significantly and that there is no difference in the level of efficiency of the three capital ratios in distress prediction. The use of capital ratios in the prediction of bank distress should be continued. The leverage capital ratio and the gross revenue capital ratio may be used to replace the risk-weighted capital ratio, since they are simpler and may not be influenced by the ever changing risk pattern of the banks. Further studies can be done using other capital ratios to see if the efficiencies would still be the same.

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APPENDIX
EFFICIENCY OF THE CAPITAL RATIOS

YEAR	RISK WT CAP. RATIO	LEVERAGE CAP. RATIO	GROSS REV CAP RATIO
1991	0.761	0.691	0.745
1992	0.792	0.782	0.782
1993	0.692	0.729	0.831
1994	0.712	0.766	0.843
1995	0.732	0.741	0.804
1996	0.862	0.781	0.721
1997	0.817	0.718	0.694
1998	0.872	0.726	0.728
1999	0.782	0.81	0.788
2000	0.729	0.695	0.727
2001	0.762	0.748	0.755
2002	0.826	0.891	0.671
2003	0.83	0.789	0.692
2004	0.722	0.791	0.842
Mean	0.778	0.761	0.759
Std. Dev.	0.057	0.052	0.057

Source: Calculations by the author.