AN EMPIRICAL ANALYSIS OF CAPITAL ADEQUACY AND FINANCIAL PERFORMANCE OF SELECTED BANKS IN INDIA

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ABSTRACT

Capital is an important factor of production in business for effective operation of an institution or organization. Banks is one of these institutions whose capital adequacy is important for its fund requirement and needs. Every banks and financial organization must keep balance between capital and available risk in its assets in order to guarantee its stability. The profit earning capacity of banks depends on the prudent combination of assets and liabilities to meet the solvency and liquidity. This study is to analyze the impact of capital adequacy and its combination on banks financial performance. The regression models are applied to test the significance and for analysis the result, data are use from 2012-13 to 2016-17. This paper we find out private sector banks performance is perfectly correlated with capital adequacy, its significant impact on banks performance. In other hand public sector banks performance is moderate correlated with capital adequacy but its impact on banks performance not effective.

Keywords: Capital Adequacy, Basel norms, Total capital, Risk weighted assets, TCTA.

Introduction

Capital is the corner stone of bank's strength. Capital has been used as the best parameter for measuring bank's performance and the amount of capital a bank has in its balance sheet determines the reliability and healthiness of the bank and it provides the opportunity and in most cases, acts as a buffer against unanticipated losses, uncertainty. Banks capital sufficiency or adequacy is measure by capital adequacy ratio. Capital adequacy means the idea of rearranging banks existing capital structures in order to organize differently the banking industry against widespread risk, crisis and distress. The effect of capital adequacy on bank's performance cannot be under-estimated since adequate capital directly and automatically influences the amount of funds available for loans and daily needs, which invariably affects the level and degree of risk absorption.

Conceptual framework about capital adequacy

The Narasimhan committee endorsed the international accepted norms for capital adequacy standards, developed by the Basel Committee on Banks Supervision (BCBS). BCBS initiated Basel I norm in 1988, considered to be the first move toward risk weighted capital adequacy norms. In 1996 BCBS amended the Basel I norms. In 1999 it initiated a completed revision of the Basel I framework, to be known as base II. In pursuance of the Narasimhan committee recommendations India adopted Basel I norms for commercial bank in 1992, the market risk amendment of Basel I in 1996 and the revised norms of Basel II from March 2008. Basel III released in December, 2010 which lay more focus on quality, consistency and transparency of the capital base. Basel III capital regulation has been implemented in India form April, 2013in phases and will be fully implemented as on March 31, 2018.

Basel I

Basel I is a framework for calculation "Capital to Risk-Weighted Assets Ratio (CRAR)". It defines a bank's capital as two types:

Core (or tier I)- The elements of tier1 capital includes paid-up capital (ordinary shares), statutory reserves, perpetual Non-Cumulative preference shares eligible for inclusion as tier-I capital, subject to laws in force from time to time. Innovative perpetual debt instruments and capital

reserves representing surplus arising out of sale proceed of assets. It is generally referred as the core capital which absorbs losses without a bank required to ease trading and thus provides more of protection to its depositors under Basel I at least 50 percent of a bank's capital base should consist of core capital.

Supplementary (or tier-II) capital- The elements tier II capital include undisclosed reserves, revaluations reserves, hybrid capital instrument, general provisions and loss reserves, subordinated debt and investment reserve account. It is the supplementary capital which absorbs losses in the event of winding up and thus provides lesser degree of protection to its depositors. Tier II items qualify as regulatory capital to the extent that they absorb losses arising from bank activities. In order to calculate CRAR the bank's assets should be weighted by five categories of credit risk 0, 10, 20, 50 and 100 percent.

Basel II

On June 26, 2004, The Basel Committee on Banking Supervision released "International Convergence of Capital Measurement and Capital Standards: A revised Framework", which is commonly known as Basel II Accord. Basel 1 initially had Credit Risk and afterwards included Market Risk. In Basel II, apart from Credit & Market Risk; *Operational Risk* was considered in Capital Adequacy Ratio calculation.

The Basel II Accord focuses on three aspects:

1. Minimum Capital Requirement- Revised and extensive framework for capital adequacy standards, where CARA is calculated by incorporation credit, market and operational risks.

2. Supervisory Review- Provides key principles for supervisory review, risk management guidance and supervisory transparency and accountability.

3. Market Discipline – Encourages market discipline by developing a set of disclosure requirements that will allow market participants to assess key pieces of information on risk exposure, risk assessment process and capital adequacy of a bank.

Basel III

Basel III guidelines were released in December 2010. The financial crisis of 2008 was the main reason behind the introduction of these norms. A need was felt to further strengthen the system as banks in the developed economies were under-capitalized, over-leveraged and had a greater reliance on short term funding. Also the quantity and quality of capital under Basel II were deemed insufficient to contain any further risk. These norms aim at making most banking activities such as their trading book activities more capital intensive. The purpose is to promote a more resilient banking system by focusing on four vital banking parameters viz. Capital, Leverage, Funding and Liquidity.

The Basel III capital requirement would be a positive impact for banks as it raises the minimum core capital stipulation, introduce counter- cyclical measures, and enhances bank's ability to conserve core capital in the event of stress thought a conservation capital buffer. The prescribed liquidity requirements, on the other hand, would bring in uniformity in the liquidity standard followed by the banks globally. This liquidity standard requirement, would benefit the Indian banks manage pressure on liquidity in a stress scenario more effectively. Working out the most cost- effective model for implementation of Basel III will be a critical issue for Indian banking.

Literature Review

MalgorzataBialas and Adrian Solek(2010), made a study on evolution of capital adequacy ratio, they focus on their paper Polish and Ukrainian banking sector had to implement new method of risk measurement capital adequacy ratio might have contributed to significant decrease of its, value which was confirmed by date from the polish banking sector. Banks decided to raise core capital in order to prevent negative consequence of the decline in CAR. Both in Polish and Ukrainian the average value of the ratio for the banking sector is at an appropriate level, will above the minimum.

JhonEmekaEzike and OKE M.O (2013), made a study on capital adequacy standards, Basel accord and bank performance. The Nigerien experience (A case study of selected banks in Nigeria). They use the data for analysis, from 2003 to 2007 and ordinary least variables

technique used for examine the hypothesis. They found the result capital adequacy standards; exert a major influence on bank performance. They recommend the CBN should not rely soly on the capitalization of banks as a determination of bank performance.

AsikhiaOlalekan and SokefunAdeyinka (2013), made a study on capital adequacy and banks profitability an empirical evidence from Nigeria. They examine the effect of capital adequacy on Profitability of deposit taking banks in Nigeria. It seeks to assess the effect of capital adequacy of both foreign and domestic bank in Nigeria and their profitability. They primary data collected by questionnaires involving a sample of 76 percent and secondary data collected from banks statements (2006-2010). They found primary data analysis revealed on non-significant relationship but the secondary data analysis showed a positive and significant relationship between capital adequacy and profitability of bank. This implies that for deposit-taking banks in Nigeria, capital adequacy plays a key role in the determination of profitability.

Nikhat Fatima (2014), made a study capital adequacy: a financial soundness indication for banks. Researcher highlights the various components of regulatory capital and outlines the basics of Basel's norm in respect to minimum capital requirements for banks. Moreover, the study analyzed the trend in CAR values for top 10 scheduled commercial banks in India. Researcher found out the ICICI bank maintained the highest CAR while Bank of India accounted the least position.

Agbeja, adelakun and olufemi (2015), made a study capital adequacy ratio and bank profitability, in Nigeria: A linear Approach. Researcher examined whether or not capital adequacy ratio affects banks profitability, it also analyzes the effect of loans and advances on bank profitability as well as the impact of capital adequacy on bank's exposure to credit risk. They use secondary data for analysis form 2010-14 and regression analysis. The positive and significant relationship between capital adequacy and bank's profitability suggests that banks with more equity capital are perceived to have more safety and such advantage can be translated into higher profitability minimum capital requirement of deposit money banks in Nigeria to the optimal level and Nigeria banks should be capitalized to enable them enjoy assess to cheaper sources of funds with subsequent improvements in profit levels.

Torbir, LezaasiLenee and Zaagha, Alexander Sulaiman (2016), made a study on capital adequacy measures and bank financial performance in Nigeria a co-integration analysis. Researcher revealed the existence of significant long run relationship between bank financial performance variable and capital adequacy indicator in the Nigerian banking industry. The granger causality test results reveal that there is unidirectional causality flowing from the ratio of shareholder fund to bank total assets. Causality also trickles from the ratio shareholders fund to return n assets in Nigerian banks. These suggest that capital adequacy strongly and actively stimulate and improve the financial performance of banks in Nigera.

Objective

1. To examined the various aspect of regulatory capital in Indian Banks.
2. To analyze the trend of CAR values in selected banks as per Basel norms.
3. To examined the impact of capital adequacy on financial performance of banks.

Hypothesis

Thus, researcher claims these hypotheses for testing:

H_O: There is no significant impact of capital adequacy on financial performance of bank.

H_1: There is significant impact of capital adequacy on financial performance of bank.

Research Methodology

Population

Banking industry is taken for the study, where aggregate data related to capital adequacy for Public sector Banks, Private Sector Banks and Foreign Banks is used. At present scheduled public & private sector banks in India are 20 (19+1) & 23 respectively.

Sample Size

In this study, researcher has selected following banks for study:

Public sector banks- Punjab National Bank,

Private sector banks- ICICI Bank

Data collection

Secondary sources of data have been used for this study. Data was collected from various published reports of banks.

Period of study

The present study is carried out for a period of five financial year from 2012-13 to 2016-17.

Unit of Analysis

In this study independent variable are TCTA, CAR, Debt Equity ratios

1. $TCTA = \frac{Total\ capital\ \times 100}{Total\ assets}$ Measure growth of total capital (tier I +II capital).
2. *CAR = (Tier I+II capital) ÷ (Risk weighted assets)* measure capital adequacy.
3. Debt/Equity ratio measure leverage.

Dependent variable in this study financial performance is measure ROE (Return on Equity)

Data Analysis

This paper test the linearity and normality of time series data used in study regression models present below was used to test on the relationship between the variables of study

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Y = ROE (Dependent)

β_0 = Intercept (constant) $\qquad\qquad\qquad$ $\beta_1, \beta_2, \beta_3$ = effect of Independent variable

X_1= TCTA, $\qquad\qquad$ X_2= CAR, $\qquad\qquad$ X_3= Debt Equity ratio $\qquad$ ε = Error term

The confidence level for the present study has been taken as 95%.

R shows the correlation between independent and dependent variable. R square show the variation and we can predict the variation in profit. Adjusted R square to closely reflect the goodness of fit of the model. The higher R square is better for the model. T test used to test the individual sig. of the predictor variables use to the study.
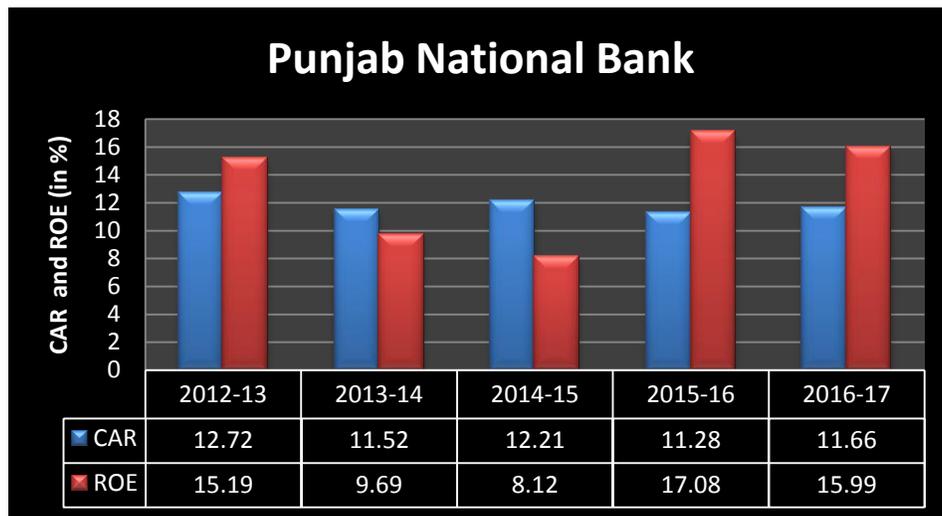
Fig. 1: Source: Punjab National Bank annual reports (2012-13 to 2016-17)

Table 1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.559[a]	.312	-1.751	6.68513

a. Predictors: (Constant), TOTAL CAPITAL/ TOTAL ASSETS, CAPITAL ADEQUACY, DEBT/EQUITY

This table R shows the moderate correlation between Independent and Dependent variable but this relation is positive (0.559). R square show the Independent variable predicts 31.2% variation in dependent variable in public sector banks.

Table 2: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	20.289	3	6.763	.151	.918[b]
	Residual	44.691	1	44.691		
	Total	64.980	4			

a. Dependent Variable: RETURN ON EQUITY

b. Predictors: (Constant), TOTAL CAPITAL/ TOTAL ASSETS, CAPITAL ADEQUACY, DEBT/EQUITY

The regression result shows the significant level (p value) of F statistics. Show that Influence of Independent variable on dependent variable in public sector banks. The result of ANOVA is 0.151 at 1/3 degree of freedom and 5% Level of significant reveling that Independent variable Influence dependent variable in public sector Banks. The table indicates the regression models predict dependent variable significantly because P value 0.918 is greater than 0.05. So our Null Hypothesis accepted and alternate Hypothesis rejected.

Table 3: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	46.436	80.621		.576	.667
	CAPITAL ADEQUACY	2.332	7.310	.329	.319	.803
	DEBT/EQUITY	2.230	4.845	.918	.460	.725
	TOTAL CAPITAL/ TOTAL ASSETS	-11.915	19.103	-1.367	-.624	.645

a. Dependent Variable: RETURN ON EQUITY

The coefficient table provides the necessary information to predict dependent variable from Independent variable, as well as determine whether Independent variable contribute statistically significantly to the model.

ROE = 46.436+2.332 (Capital adequacy) +2.230 (Debit/Equity) − 0.215 (Total capital/Total assets) + ε

The beta coefficients in the regression show that Independent variable(capital adequacy and debt equity) has positive relationship with dependent variable in this public sector banks provided by coefficient value respectively 0.329 and 0.918 but Independent variable(total capital/ total assets) has negative relationship with dependent variable in this public sector banks provided by coefficient value of -1.367. The findings show Independent variable is statistically significant with p-value less than 0.05.
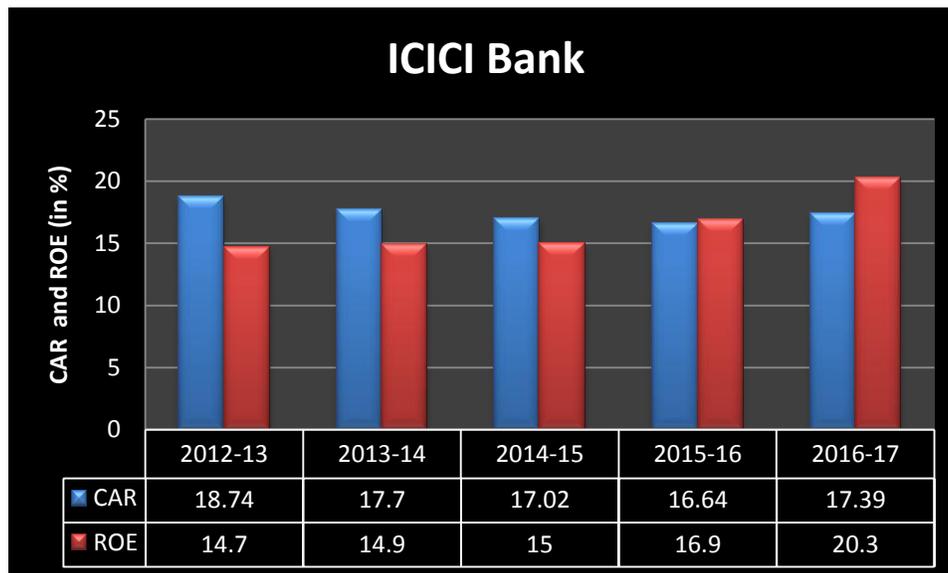
Fig. 2: Source: ICICI Bank annual reports (2012-13 to 2016-17)

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	1.000[a]	1.000	1.000	.02766

a. Predictors: (Constant), DEBT/ EQUITY, CAPITAL ADEQUACY RATIO, TOTAL CAPITAL/TOTAL ASSETS

This table R shows the perfect correlation between Independent and Dependent variable but this relation is positive. R square show the Independent variable predicts 100% variation in dependent variable in public sector banks.

Table 5: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21.627	3	7.209	9421.998	.008[b]
	Residual	.001	1	.001		
	Total	21.628	4			

a. Dependent Variable: RETURN ON EQUITY
b. Predictors: (Constant), DEBT/ EQUITY, CAPITAL ADEQUACY RATIO, TOTAL CAPITAL/TOTAL ASSETS

The regression result shows the significant level (p value) of F statistics. Show that Influence of Independent variable on dependent variable in public sector banks. The result of ANOVA is 9421.998 at 1/3 degree of freedom and 5% Level of significant reveling that Independent variable Influence dependent variable in public sector Banks. The table indicates the regression models predict dependent variable significantly because P value 0.008 is less than 0.05. So our Null Hypothesis rejected and alternate Hypothesis accepted.

Table 6: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-22.111	2.738		-8.074	.078
	CAPITAL ADEQUACY RATIO	3.867	.105	1.330	36.909	.017
	TOTAL CAPITAL/TOTAL ASSETS	-55.691	1.929	-1.390	-28.872	.022
	DEBT/ EQUITY	7.670	.254	.592	30.254	.021

a. Dependent Variable: RETURN ON EQUITY

The coefficient table provides the necessary information to predict dependent variable from Independent variable, as well as determine whether Independent variable contribute statistically significantly to the model.

ROE = -22.111+3.867 (Capital adequacy) +7.670 (Debit/Equity) − 55.691 (Total capital/Total assets) + ε

The beta coefficients in the regression show that Independent variable(capital adequacy and debt equity) has positive relationship with dependent variable in this public sector banks provided by coefficient value respectively 1.330 and 0.592 but Independent variable(total capital/ total assets) has negative relationship with dependent variable in this public sector banks provided by coefficient value of -1.390. The findings show Independent variable is statistically significant with p-value less than 0.05.

Conclusion

In this paper we find out private sector banks performance is perfectly correlated with capital adequacy, its significant impact on banks performance. In other hand public sector banks performance is moderate correlated with capital adequacy but its impact on banks performance not effective because public sector banks CAR tier (I+II) capital is higher than private sector banks but credit & market risk also higher in public sector banks, because these banks are use more debt capital. If we see only capital adequacy impact on financial performance both sector banks we found capital adequacy is not significant impact of banks performance because other factors like management of assets, liquidity, employees and operation risk also affect the banks performance. But we see capital adequacy, TCTA, Debt Equity combined effect on banks performance, found a significant impact on private sector banks performance.

Limitation of study

1. For the purpose of the study only 5 financial year (2012-13 to 2016-17) data has been taken.
2. For testing the hypothesis we use one public sector bank (PNB) and one private sector bank.
3. The data which is used for this study is based on annual report of the banks, RBI and IBA bulletin published from time to time.
4. This study based on Basel III capital adequacy norms.

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