Innovations

A Study of Capital Adequacy Ratio of Commercial Banks in India

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Abstract
Banking Industry has changed over a period and face different types of risks. The risk of failure of banks creates a pressure on the government to safeguard the funds of depositors and therefore Capital to Risk Weighted Assets Ratio (CRAR) or Capital Adequacy ratio (CAR)as prescribed by Basel Committee for Banking Supervision (BCBS) has been implemented by RBI in India for commercial banks. These Basel norms for capital regulation covered the journey from Basel I to Basel III in India from 1992 to till now. This paper analyses the status of CRAR of three Bank Groups, namely, Public Sector banks, Indian PrivateBanks and Foreign Banks. The results suggest CRAR of Public Sector and Indian Private Banks differ significantly. Also, CRAR of Public Sector Banks and Foreign Banks differ significantly. But the CRAR of Indian Private Banks and Foreign Banks do not differ significantly. Thus,all commercial banks particularly, Public Sector Banks have to maintain CRAR at an appropriate high level to absorb unexpected losses.

1. Introduction

Banks plays a significant role in the development of the economy. Banks come across risks like credit risk, market risk, liquidity risk and operational risk. Safety and soundness of the banks is of prime importance. Therefore, to reduce the risk of failures of the banks, a certain percentage of Capital to Risk weighted Assets Ratio (CRAR), also called Capital Adequacy ratio is to be maintained by banks as recommended by Basel Committee for Banking Supervision (BCBS) from time to time. RBI accepted the recommendation and issued guidelines to apply the Basel I Norms in India from 1992. As per Basel norms, banks in India were required to maintain the CRAR of 8% to follow international standards. Banks in India with branches outside India were given the time till 31.3.1995 to achieve the norm of 8% CRAR up to year 31.3.1999. With effect from 31.3.2000 , banks were required to maintain a CRAR of 9% on an ongoing basis. Basel I accord focused on credit risk only and Basel II considered market risk and operational risk besides the credit risk. Basel II guidelines were implemented in phases w.e.f 31.3.2009 and Basel III capital regulation norms has been implemented in India from April 1, 2013, and was to fully be implemented till March 31, 2019, but due covid -19 lockdown, the date has been postponed to April 1, 2023.The level of CRAR was different in Basel II and Basel III time period in Indian banks. The requirements of maintaining higher CRAR is needed now due to introduction of capital conservation buffer in Basel III period and increasing level of NPAs in banks. The credit growth is also affected due to higher level of CRAR requirements in Basel III. The present study compares the CRAR of three major bank groups' viz. public, private and foreign banks during a period of 25 years, from 1997 to 2021 which covers the journey of capital regulation from Basel I to Basel III. Banks with sufficient capital ratios will be

able to improve the efficiency of the financial system by reducing the risk of failure of banks (Irawan and Anggono, 2015).

This paper is organized as follows. Section 2 presents the literature survey. Section 3 describes the methodology of the study. Section 4 discusses the interpretation of results. Section 5 gives the conclusion of the study.

2. Literature Survey

Singh and Vyas (2009) studied the capital adequacy status of commercial banks in India during 1996-97 to 2006-07 and it was found that theCRAR differed significantly of SBI Group and foreign banks with nationalised banks, the benchmark category.But CRAR of Indian Private banks with nationalised banks was not differed significantly. In another study of Fatima (2014), the CRAR of 10 scheduled commercial banks trend was studied and it was found that in private bank category, ICICI bank has the highest CRAR while in public bank category, Bank of India has the lowest CRAR during the period of 2008-09 to 2012-13. In a study of Jadhav et al. (2021), a relationship of CAR with profits was analysed for private sector banks during the period 2017-18 to 2019-20 and it was found that higher capital ratio increases the profitability, but it is not the only factor for contributing the profitability. This study also focuses that CAR should be regularly monitored by private banks. Kaur and Kapoor (2014) in the study found that private sector banks shown the significant growth in CRAR during the period of 2001-2013 while in public sector banks growth in CRAR was less when compared to the private sector banks during the same period. Barua (2019) explained that there are various factors like GDP, inflation rate, return on assets, NPA, Risk weighted assets to Loan ratio has an impact on CRAR. Navas et al. (2021) studied the relationship of CRAR and CAMELS framework to find whether CRAR can be used as a measure of financial safety and soundness of banks and found that CRAR has a significant positive relationship with financial ratios under CAMELS framework like management quality, capital adequacy and profitability of banks and negative relationship with asset quality, liquidity, and sensitivity to market. In anotherstudy of Srivastava and Saxena,2020 showed that Urban cooperative banks with higher capital adequacy ratio do not perform better than other banks.

3. Methodology

3.1 Objectives:

- To study the capital adequacy ratio of three major bank groups public, private and foreign banks.
- To compare capital adequacy ratio bank-group wise.

3.2 Hypothesis

H_0: Capital adequacy ratio of bank groups namely public, Indian private and foreign banks do not differ significantly.

3.3 Source of Data

Data has been taken from “Statistical Tables Relating to Banks in India” published by Reserve bank in India for the years from 1997 to 2021, “Report on Trends and Progress of banking in India” for the years from 1997 to 2021.

3.4 Scope of the Study

Indian Commercial Banks have been classified as:

- Public Sector Banks
- Indian Private Banks
- Foreign Banks

3.5 Capital Adequacy Ratio

It is also called Capital to Risk Weighted Assets Ratio and popularly known as CRAR. The minimum CRAR which is mandatory for Indian banks is 9% (other capital conservation buffer).It is calculated as under:

$$\text{CAR}=\frac{\text{CapitalFund(Tier 1+Tier 2)}}{\text{Risk WeightedAssets (RWAs)}}$$

Minimum Common Equity Tier 1 ratio = 5.5% of RWAs
Capital conservation buffer (comprised of Common Equity) = 2.5% of RWAs
Minimum Common Equity Tier 1 ratio plus conservation buffer= 8% of Risk Weighted Assets (RWAs)
Additional Tier 1 Capital =1.5% of RWAs
Minimum Tier 1 Capital ratio = 7% of RWAs
Tier 2 Capital = 2% of RWAs
Minimum Total Capital Ratio= 9% of RWAs
Minimum Total Capital Ratio plus conservation buffer= 11.5% of RWAs

4 Interpretation of Results

Table 1: Descriptive Statistics

CRAR

Bank Group	Mean	Standard Deviation
Public Sector Banks	12.3044	0.87084
Private Sector Banks	14.4580	2.19208
Foreign Banks	15.5288	2.77330

From the above Table 1, it is found that foreign banks have the highest CRAR mean value and public sector banks have the minimum CRAR mean value.
To test the hypothesis, first to be check whether data is normally distributed or not, therefore, **Shapiro-Wilk test** is used and results are given below for each group:

Table 2: Shapiro Wilk Test to Test Normality

Capital to Risk Weighted Assets ratio (CRAR)	Bank Group	Statistic	d.f.	p-value
	Public Sector Banks	0.982	25	0.916
	Private Sector Banks	0.858	25	0.002
	Foreign Banks	0.935	25	0.113

Table 2 shows that the p-value of private sector banks is less than .05, hence the data is not normal and we have to either transform all the data to make it normal or use non parametric test (Kruskal Wallis H test) for comparing the CRAR group wise to find whether there is significant difference or not.

Table 3: Summary

Null Hypothesis	**Test**	**Sig.**	**Decision**
No significant difference in CRAR among all Bank Groups.	Independent-Samples Kruskal-Wallis Test	.000	Null hypothesis rejected.

The significance level is .050.

Table 4: Summary of Independent-Samples Kruskal-Wallis Test	
Observations	75
Test Statistic	19.361
D.f.	2
Sig.	.000

From the Table 3 and 4, findings suggest that capital adequacy ratio of public, private and foreign banks differ significantly. Now Post-Hoc Test can be used for Pair-wise comparison.

Table 5: Bank Groups (Pair-wise Comparisons)					
Sample 1-Sample 2	Test-Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.
Public Sector Banks-Private Sector Banks	16.860	6.162	2.736	.006	.019
Public Sector Banks-Foreign Banks	26.820	6.162	4.352	.000	.000
Private Sector Banks-Foreign Banks	9.960	6.162	1.616	.106	.318

The significance level is .05.

Table 5 shows that the CRAR of public sector banks and Indian private banks differ significantly since significance level is .019. Similarly, findings also suggest that CRAR of public sector banks and foreign banks differ significantly since the significance level is .000. However, itis found that CRAR of Indian private sector banks and foreign banks do not differ significantly since the significance level is .318.

5 Conclusion

Capital Adequacy ratio is a significant benchmark for the solvency of banks and all commercial banks have to maintain it as per Basel norms prescribed from time to time and presently as per RBI it is 9% for banks. This ratio helps to absorb unexpected losses and banks with higher level of CRAR can with stand in the economic downturn. The period under study shows that foreign banks have the highest level of CRAR while public sector banks have lowest CRAR. When compared pairwise it was found CRAR of public sector and private sector banks differ significantly. Also, CRAR of foreign banksand public sector banks differ significantly.Thus, banks with higher level of capital adequacy can absorb unexpected losses easily. The increasing level of NPAs of banks in Covid-19 period is also responsible for decreasing the CRAR and reducing the profitability of banks. The credit growth is also affected due to higher level requirements of CRAR. Thus banks have to be focusedon maintaining the CRAR either internally by improving profits and/or raisingfunds through public issues to fulfil the increased requirements of Basel III. The risk management system also requires revisit to improve the asset quality of banks.

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