A Study on the Impact of Capital Adequacy Ratio on Net Non-Performing Assets of Indian Public Sector Banks for the Preceding Five Financial Years

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ABSTRACT

Purpose: *The level of Capital Adequacy Ratio (CAR) indicates best the soundness of the banking sector of a nation. The purpose of this study is an effort to look into the impact of CAR on the Net NPAs of all Indian public sector banks across the five preceding financial years and among the banks.*

Methodology: *All the 12 public sector banks at present have been considered for the study. The analysis is based on secondary data collected from the Indian premier bank i.e., RBI website, money control, and other concerned websites. Karl Pearson's Coefficient of Correlation has been used as the sole statistical tool with its usual notation. Further, refinement of the result is done by categorising the derived Correlation Coefficients as 'High Degree Positive', 'High Degree Negative', and 'Moderate Degree Negative'.*

Design/Analysis: *The research is exploratory research and has employed secondary data for the purpose of analysis. The Population Size N=12(Total Number of Public Sector Banks at present) and sample size n=12 implies that 100% of the population is selected as samples.*

Results: *The research result highlighted that from 2020 to 2024 in a span of 5 financial years, pertaining to the individual banks are concerned, out of 12 public sector banks, only 2 banks i.e., Canara Bank and Bank of India have a high degree of Positive Correlation between CAR and Net NPAs over the preceding five financial years, the remaining 10 banks are having either high degree negative or moderate degree negative correlation between their respective CAR and Net NPAs. As far as the calculation of the Correlation Coefficient of all the 12 public sector banks put together is concerned it is having moderate degree of negative correlation for the preceding five financial years*

Originality/Value:

The research undertaken is thought-provoking as the study period follows the NPA management towards which by and large everyone is curious. There is no such previous study that has looked at the perspective of the Correlation between CAR and Net NPAs point of view.

Type of Paper: *The research article is exploratory where a serious effort is made to explore about the existing relationship between CAR and Net NPAs of public sector banks in India.*

Keywords: Capital Adequacy Ratio (CAR), Net Non-Performing Assets (NPAs), Indian Public Sector Banks, Correlation Analysis, Karl Pearson's Correlation Coefficient.

1. INTRODUCTION :

Capital Adequacy Ratio (hereafter CAR) is the ratio that assesses the bank's capacity to meet the time liabilities and other risks such as credit risk, operational risk, etc. (Uday Kumar, & Murthy Chodisetty. (2024) [1]) in other words, CAR is bank's "cushion" for potential NPAs and protects the bank's depositors and other lenders. Simply CAR is the ratio between the Capital of the Bank to its risk-weighted loss and hence, the banks, in order to protect themselves from becoming insolvent due to

the mounting up of Non-Performing Assets (hereafter NPAs) and other risk-weighted assets, adhere strictly to the CAR norms prescribed by Reserve Bank of India (Singh, K. (2024) [2]) In the light of this information, it is always essential to know some of the key features of CAR.

A) CAR is an admonishing tool to the banks which will caution the banks with regard to its risk-weighted loss and NPAs.
B) CAR quantifies the capital buffer as a proportion of its total risk-weighted losses.
C) CAR basically reveals the cushion i e a particular bank's ability to absorb the future loss that might arise due to probable NPAs.
D) CAR employs basically two variables in its calculation i.e., Capital employed by the bank and its risk-weighted assets, and hence CAR is also called as Capital to Risk Assets Ratio (CRAR).

In banking corporations CAR is quite important, as it ensures that banks have sufficient capital to cover up potential losses, mitigating the risk of insolvency and protecting depositors' funds. Regulators such as RBI etc impose minimum CAR requirements to ensure financial stability within the banking sector and CAR helps in decoding the level of risk a bank can sustain (Sharma, S., Bhardwaj, I., & Kishore, K. (2023) [3]), in the light of risk management strategies for credits. for some of the types of organizations in regulated Industries and services like banks, asset management companies, etc, maintaining a certain CAR is a regulatory and mandatory prerequisite, CAR provides insights into the company's financial health, particularly its solvency level and levels of leverage (Mehrotra, P., Vyas, V., & Naik, P. K. (2023) [4]). Monitoring CAR, helps regulators, investors, and bank management to assess a bank's financial stability and soundness and aids in identifying potential risks and weaknesses within a bank's capital structure, and facilitates decision-making to maintain enormous capital levels ensuring that the bank has sufficient capital reserves in relation to its risk exposure implementing practices to manage and mitigate risks effectively, thereby reducing the risk-weighted assets(Farhan N., Almaqatri F, Al-Ahdal W (2023). [5]).
The banks always would like to keep their CAR always high because a higher CAR always signals that a bank is in a safe zone against the probable NPAs that might pop up in the days to come (Kanta sethy, T., & Gahan, P. (2023). [6]) and a slight dip in CAR, immediately banks will become alert and start taking measures so that CAR is brought back to original figure and therefore it can be said that CAR is one admonishing tool(Singh, S., & Arora, M. (2023**)** [7]) to the banks which will alert the banks from not entering into the danger zone of NPAs. Off late RBI compels that CAR for commercial banks to be 9% and for the Indian public sector banks 12%, at present India's Average Capital Adequacy Ratio indicated 15.6 % in Dec 2023, compared with the previous update of 16.6 % in Sep 2023 and hence it can be taken as an alarming and eye-opening measure to the banking sector of India. Under Basel III norms (Pervez, A., Naveenan, R. V., Alyamoor, A. H., Bansal, R., Gupta, A., & Titus, T. J. (2023) [8]), entire banks across the world, are required to have a minimum Capital Adequacy Ratio of 8%. Since Tier 1 Capital is quite crucial, banks are also required to have a minimum amount of this type of capital. Under Basel III, Tier 1 Capital divided by Risk-Weighted Assets needs to be at least 6%. Net non-performing asset or Net NPA is a term that most commercial banks use to manifest less allowance for any uncertain or poor debts (Jaiswal, et al. (2023) [9]). In simple words, commercial banks offer an amount to cover their debts. Suppose one deducts provisions for unpaid loans, the overall sum will relate to a net non-performing asset. The net NPA is computed by subtracting the value of provisions from the total gross NPAs. Provisions are amounts that banks set aside to cover losses on NPAs and this is represented in CAR of the banks (Kishore, K. (2022) [10]) and hence it may be generalized and opined that a bank maintaining a higher CAR will have a lower Net NPA. It is important to testify to the relationship between CAR and Net NPAs as CAR is believed to influence Net NPAs.

2. RELEVENT EXPLANATIONS, FORMULAE AND HYPOTHESIS :

(1) CAR is mathematically expressed as:

$$CAR = \left[\frac{Tier1Capital + Tier2Capital}{RiskWeightedAssets} \right]$$

Tier 1 Capital is the capital of any banking company that can absorb losses without this a bank has to stop functioning. Tier 1 Capital = (Paid up capital + statutory reserves + disclosed free reserves) - (equity investments in subsidiary + intangible assets + current & brought-forward losses).

Tier 2 Capital is the capital that can absorb losses in the event of a winding-up and hence provides a lesser degree of protection to depositors. Tier2 Capital = Undisclosed Reserves + General Loss reserves + hybrid debt capital instruments and subordinated debts
Risk-Weighted Assets = the assets of the bank with the prefix of risk weights prescribed by RBI such as leased assets, credits to PSUs, advances covered by DICGC, etc.
(2) Net NPA is mathematically expressed as
Net NPA= [Gross NPA - Provision for the Unpaid debts created by banks] / Gross Advances
Gross NPAs are those advances which have become bad debts to the bank
Provision for unpaid debts: This is the provision created by individual banks out of their surplus, foreseeing some probable NPAs and this provision mainly is dependent on CAR i.e., if a bank has higher CAR, the provision created for NPAs could be more and obviously the Net NPA ratio will come down and on the other hand a bank with lesser CAR will have a lesser provision for NPAs and by virtue of it Net NPA ratio will increase indicating banks are prone to higher NPAs.

3. LITERATURE REVIEWS :

(1) Mr. B. Uday Kumar, et al. (2024): " USING ALTMAN Z-SCORE MODEL OF FINANCIAL SOUNDNESS OF BANKING INDUSTRY IN INDIA BY – A CASE STUDY ON SELECT PUBLIC SECTOR BANKS IN INDIA-AN EMPIRICAL EVIDENCE" undertook research with SBI as a sample to assess its financial soundness by incorporating Altman's Z score model wherein capital adequacy ratio was one of the variables in their study(2024) [1]) and opined that SBI is having sufficient capita adequacy ratio and hence its financial soundness is good.

(2) Singh K (2024): "Performance and returns volatility of banks in India: public versus private sector" undertook research with regard to indicators of financial performance of some specific public sector and private sector banks by employing specific financial variables and capital adequacy ratio is one among them. His research outcome stated that to calibrate several performance indicators are being employed (2024 [2]) by the public as well as private sector banks in the process of assessing performance and return volatility.

(3) Sharma S, Bharadwaj I and Kishore K. (2023): "Capturing the impact of accounting and regulatory variables on stock prices of banks – an empirical study of Indian banks in panel data modelling" undertook research to study the impact of Price Earnings Ratio, Capital Adequacy Ratio, Earnings Per Share, etc (2023 [3]) on the stock prices of the banks and opined that Price Earnings Ratio , Capital Adequacy Ratio and Earnings per Share are the key players in the determination of stock prices.

(4) Mehtorta, et al. (2023): "Behaviour of Capital and Risk Under Basel Regulations: A Simultaneous Equations Model Study of Indian Commercial Banks" undertook research regarding an unbalanced panel data of Indian commercial banks, comprising 27 public and 31 private sector banks, they were examined from 2002 to 2021and research scholars opined that the regulations have more impact on undercapitalized banks (2023 [4]) and the private sector banks have fared better than the public sector banks in sustaining higher Capital Adequacy Ratio.

(5) Farhan N, Almaqatri F, Al-Ahdal W (2023): "Directors' remuneration, banks' specifics and board characteristics: the case of Indian listed banks" undertook research about examining the impact of banks' specifics and board of directors' characteristics on directors' remuneration (REM) of 38 Indian listed banks from 2010 to 2019 using secondary data and opined that new evidence about the impact of banks' specifics and board of directors' characteristics on directors' REM in the Indian banking sector (2023 [5]). The findings suggest that firms' specifics are significant determinants of directors' remuneration.

(6) Kantha Sethy T, Gagan P (2023): "THE DETERMINANTS OF PROFITABILITY OF SCHEDULED COMMERCIAL BANKS IN INDIA: A TIME SERIES AND CROSS-SECTIONAL ANALYSIS" undertook research about examining the determinants of profitability of Indian scheduled commercial banks. The analysis is conducted over a period of 17 years in which the Indian banking sector has faced different challenges such as the implementation of Basel II (2008), Basel III (2013) (2023 [6]) accord, and issues related to the demonetization (2016) and research scholars opined that the most important determinants have positively and significantly affect the profitability of Indian commercial banks as measured by ROA as well as ROE and CAR.

(7) Singh S, Arora R (2023): "Examining and analysing the determinants of non-performing assets in public and private sector banks in India" undertook research examines the effect of various important variables on net NPAs including Capital adequacy ratio and Results and analysis of research scholars showed that capital adequacy tier I, net interest margin, burden ratio, and bank size have a negative and significant effect on NPA(2023 [7]), whereas intermediation cost showed a positive and significant effect on NPA.

(8) Pervez A., Naveenan R., Alayamoor A (2023): "Impact of Capital Adequacy and Risk on Bank Performance: An Empirical Study" undertook research examining the effect of impact of capital adequacy and risk on performance of Indian banks controlling for banks' specific factors, banks' ownership, banking regulations, financial events, and macroeconomic variables (2023 [8]) and opined that Capital adequacy ratio had a negative relationship with the performance of the banks. Net non-performing assets negatively impacted banks' profitability and productivity.

(9) Jaiswal P, Srivastava M, Banerjee D (2023): "Dynamics of Asset Liability Management in Indian Public Sector Banks: A Comprehensive Analysis of Deposit and Lending Practices" undertook research to unearth the complexities involved in Asset Liability Management (ALM) in SBI, PNB and BOB from 2012 to 2020 using loan deposit ratio, capital adequacy ratio and opined that these two ratios are instrumental (2023 [9]) in easing out the complexities involved in ALM process of sample banks undertaken in research.

(10) Kishore K (2022): "Interrelationship of deposits and borrowings with capital adequacy ratio empirical analysis of Indian banks" (2022 [10]) undertook research with regard to capital raising power of public sector banks, lending that as credits and capacity of the banks to mobilise deposits through empirical analysis and opined that there is a correlation between deposits and borrowings and the influencing factor is Capital Adequacy Ratio.

(11) Senan N, Belhaj –F, Ali-matari E (2022): "Capital adequacy determinants of Indian banks listed on the Bombay Stock Exchange" undertook research to study the influence corporate specific factors on the capital adequacy of the 37 listed banks at BSE. They used Capital Adequacy as a dependent variable in the study and found out that deposits, asset management and bank size has an important role in determining capital adequacy ratio.

(12) Butola P, Dube P., Jain V (2022): "A STUDY ON IMPACT OF CREDIT RISK MANAGEMENT ON THE PROFITABILITY OF INDIAN BANKS" undertook research to measure the impact of credit risk management on the profitability of 38 scheduled Indian Banks from 2005 to 2019 and found out that credit to deposit ratio, Capital adequacy ratio, and provision coverage ratio will play a crucial role in the determination of Net NPAs of the commercial banks.

(13) Bandopadhyay A (2022): "Bank Financial Performance and its Linkage with Capital: A Dynamic Panel Data Analysis of Public Sector Banks in India" undertook research to investigate the linkage of capital infusion in the Public Sector Banks (PSBs) in India with the capital adequacy, asset quality, profitability, operational efficiency and the market position of the banks. Utilizing a balanced panel data of a total of 21 PSBs over 9 years (2009 to 2017), and opined that a higher common equity tier 1 capital ratio leads to better market reputation and solvency position of the banks. The results of the study provide insight for bank management, regulators, and policymakers for improving bank performance and better utilisation of scarce capital and public money.

(14) Zaman M, Bhandari A. (2022): "Stressed assets, off-balance sheet business activities and performance of Indian banking sector: a DEA double bootstrap approach undertook research examines the technical efficiency of Indian commercial banks up to 2018 from 2011 using bootstrapped regression and found out that bootstrapped regression results show that increasing capital adequacy ratio is positively associated with bank efficiency. The popular belief that non-performing assets have a dampening effect on the performance of banks is validated.

(15) Anitha D, et al. (2022): "An Empirical analysis on factors influencing Financial Performance of selected commercial banks in India" undertook research to unearth the efficiency of Indian banks since systemic reforms began in the 1990s. by using data envelopment analysis on bank-specific data from 1997 to 2004, and found out that the foreign banks are the most efficient followed by new private banks. While the efficiency scores of all banks have increased over the reform period, using CAR as one of the determinants in their study.

3.1 RESEARCH GAP:

The research gap is very apparent from the nascent review of literature. The research pertaining to IMPACT OF CAR ON THE NET NPAS OF PUBLIC SECTOR BANKS OF INDIA is totally absent and hence this apparent research gap paves the path for undertaking the above-mentioned research.

3.2 STATEMENT PROBLEM:

As we are aware CAR is one of the key determinants that speaks about the capacity of the bank to withstand the future losses arising out of NPAs, it is always debatable whether CAR has any relevancy with Net NPAs of the banks and whether there is an acute need to find out whether CAR is directly proportional to Net NPAs or indirectly proportional or CAR is independent of Net NPAs.

4. OBJECTIVES & LIMITATIONS OF THE RESEARCH :

4.1 Objectives:

(1) To study the impact of CAR on the Net NPAs of Public Sector Banks in India
(2) To draw inferences on the basis of findings and subsequently give suggestions to banks if required
(3) To study the advantages, benefits, constraints, and disadvantages of Capital Adequacy Ratio on Net Non-Performing Assets of Indian Public Sector Banks using the ABCD framework.

4.2 Limitations of the Research:

The study is confined to examining the impact of only CAR on Net NPAs, leaving apart the other important indicators such as Return on Assets, Cash Reserve Ratio, etc.

5. RESEARCH DESIGN :

1) Research Type: Exploratory
2) Data Type: Secondary Data
3) Nature of Data: Quantitative
4) Population Size : 12
5) Sample Size : 12
6) Platforms of Data Analysis :Statistical
7) Variables used : CAR(Independent Variable) , Net NPAs(Dependent Variable)
8) Tools Used : Correlation Analysis
9) Methodology: The karlpearson's coefficient of Correlation between the CAR and Net NPA of the individual banks are computed, where CAR is taken as the independent variable and Net NPA is taken as a dependent variable using the formula

$r = \Sigma xy / \sqrt{\Sigma x^2 . \Sigma y^2}$

where r is Karl Pearson's correlation coefficient, x, and y are the two variables under study i.e., CAR and Net NPAs respectively

10) If derived from Karl Pearson's Correlation Coefficient r is close to +1, it is termed as 'High Degree Positive correlation', if r is close to -1, the result is termed as 'High Degree Negative correlation' and if r is less than -0.75 the results are termed as 'Moderate Degree Negative correlation'
11) Hypothesis 1:There would be a Positive Correlation between CAR and Net NPAs Hypothesis 2: There would be a Negative Correlation between CAR and Net NPAs

Hypothesis 3: There would be no Correlation between CAR and Net NPAs.

DATA SETS:

Table 1: Master Table showing the CAR and Net NPAs of all the public sector Banks of India for the preceding 5 financial years

Bank→	**Canara Bank**					**Union Bank of India**				
years→	2020	21	22	23	24	2020	21	22	23	24
CAR(%)	13.65	13.18	14.90	16.68	16.28	12.81	12.56	14.52	16.04	16.97
Net NPA(%)	1.27	1.73	2.65	3.82	4.22	5.49	4.62	3.68	1.70	1.03
Bank	State Bank of India					Punjab National Bank				
Years →	2020	21	22	23	24	2020	21	22	23	24
CAR(%)	13.13	13.74	13.85	14.68	14.28	14.14	14.32	14.50	15.50	15.97

Net NPA(%)	2.21	1.50	1.02	0.67	0.57	5.78	5.73	4.80	2.72	0.73
Bank	Bank of Maharashtra					Indian Overseas Bank				
years→	2020	21	22	23	24	2020	21	22	23	24
CAR(%)	13.52	14.49	16.48	18.14	17.38	10.72	15.32	13.83	16.10	17.28
Net NPA(%)	4.77	2.48	0.97	0.25	0.20	5.44	3.58	2.65	1.83	0.57
Bank	Bank Of India					Bank of Baroda				
Years →	2020	21	22	23	24	2020	21	22	23	24
CAR(%)	15.00	14.00	10.00	7.00	4.98	13.30	14.99	15.84	16.24	16.31
Net NPA(%)	3.88	3.35	2.34	1.66	1.22	3.13	3.09	1.72	0.89	0.68
Bank	Central Bank of India					Indian Bank				
Years→	2020	21	22	23	24	2020	21	22	23	24
CAR(%)	11.72	14.81	13.84	14.12	15.08	14.12	15.71	16.53	16.49	16.44
Net NPA(%)	7.63	5.77	3.97	1.77	1.23	3.13	3.37	2.27	0.90	0.43
Bank	UCO Bank					Punjab and Sind Bank				
years→	2020	21	22	23	24	2020	21	22	23	24
CAR(%)	11.70	13.74	13.74	16.51	16.98	12.09	17.06	18.54	17.10	17.16
Net NPA(%)	5.45	3.94	2.70	1.29	0.89	8.03	4.04	2.74	1.84	1.63

Source :www.moneycontrol.com

6. DATA ANALYSIS, INTERPRETATION AND FINDINGS :

Table 1A: Table showing the calculation of correlation (between CAR and Net NPAs) coefficients of the Public Sector Banks individually.

S. No.	Bank Name	Correlation Coefficient	Type of correlation
1	Canara Bank	**r** = 0.969088428	High Degree Positive
2	Union Bank of India	**r** = -0.972996696	High Degree Negative
3	State Bank of India	**r** = -0.930818909	High Degree Negative
4	Punjab National Bank	**r**= -0.989401608	High Degree Negative
5	Bank of Maharashtra	**r** = -0.952535866	High Degree Negative
6	Indian Overseas Bank	**r** = -0.914314556	High Degree Negative
7	Bank of India	**r** = 0.994687386	High Degree Positive
8	Bank of Baroda	**r** = -0.87119869	High Degree Negative
9	Central Bank of India	**r** = -0.706103674	Moderate Degree Negative
10	Indian Bank	**r** = -0.665124717	Moderate Degree Negative
11	UCO Bank	**r** = -0.967437821	High Degree Negative
12	Punjab and Sind Bank	**r** = -0.897096612	High Degree Negative

Source: Table No.1

From the above table for the preceding 5 financial years, it is found that only Canara Bank and Bank of India have a high degree of positive correlation between CAR and Net NPAs which is very close to +1 i.e., as CAR increased, Net NPAs have also increased with respect to only these two banks. That apart, the remaining 10 banks have a high to moderate degree of negative correlation between CAR and Net

NPAs that is, for these banks the correlation coefficients are close to -1. It implies that as CAR increased, Net NPAs have decreased for these banks.

Table 1B: Table showing the calculation of correlation (between CAR and Net NPAs) coefficients of the all Public Sector Banks put together

Bank	Correlation Coefficient	Type of Correlation
All the 12 banks put together	r = -0.317436087	Moderate Degree Negative Correlation

Source: Table No.1

From the above table, for the preceding 5 financial years, it is found that there is a moderate degree of negative correlation between CAR and Net NPAs when we consider all the public sector banks i.e., as CAR of all the banks are increasing the Net NPAs are decreasing at a moderate degree and Karlpearson's coefficient of correlation is negative figure -0.317436087.

7. IMPACT OF CAPITAL ADEQUACY RATIO ON NET NON-PERFORMING ASSETS OF INDIAN PUBLIC SECTOR BANKS :

Capital Adequacy Ratio (CAR) as discussed earlier is the ratio between the sum of Tier 1 capital, Tier 2 capital, and risk-weighted assets. Commercial banks always try to uplift and sustain their CAR because CAR is one of the main financial indicators of any bank and the higher the CAR is, the better would be its financial health in terms of its cushioning against foreseen and unforeseen Non-Performing Assets (NPAs). As CAR of any commercial bank is higher, it can absorb the probable loss arising out of irrecoverable Non-Performing Assets. Therefore, a bank with a higher CAR is believed to have a lower Net NPAs, as more provisioning could be created by these banks while calculating Net NPAs which obviously brings down Net NPAs, and any commercial bank with a lower Net NPA is believed to be doing well in terms of its NPA management. Therefore, it can be inferred that a higher CAR impacts on the Net NPAs in a positive way, and a higher CAR always works as an elixir to any commercial bank in bringing down the quantum of Net NPAs and a reduced Net NPAs are a good indicator of any commercial bank.

8. ABCD ANALYSISOF CAPITAL ADEQUACY RATIO ON NET NON-PERFORMING ASSETS :

The ABCD analysis for an issue involves examining the problem from four distinct perspectives: Advantages, Benefits, Constraints, and Disadvantages [18]. This framework helps in a comprehensive evaluation by highlighting the positive and negative aspects of the issue. The Advantages focus on the inherent strengths or potential opportunities the issue may bring, while the Benefits reflect the tangible and intangible gains that can arise from addressing it. Constraints identify the limitations or challenges that could hinder progress, such as resources, policies, or time. Finally, the Disadvantages point out the risks, losses, or adverse effects that may result from the issue or proposed solutions. By using this structured approach, decision-makers can develop a balanced understanding and devise more effective strategies to resolve the issue [19]. Here, the ABCD analysis framework is used to analyse the Capital Adequacy Ratio on Net Non-Performing Assets.

Advantages of Capital Adequacy Ratio on Net Non-Performing Assets:

(1) CAR is a fitness of good on Net NPAs
(2) CAR ensures a shielding against the occurrence of NPAs
(3) CAR ensures the reduction and sustainability of Net NPAs
(4) CAR ensures cushioning against Net NPAs

Benefits of Capital Adequacy Ratio on Net Non-Performing Assets:

(1) CAR provides shielding to depositors of the bank against probable loss due to NPAs.
(2) CAR improves the efficiency of any bank's financial system by being a catalyst between the bank's capital and Net NPAs.
(3) CAR acts as an admonishing tool by giving warning to banks about the augmentation in Net NPAs.
(4) CAR acts a regulatory tool by curtailing the mounting of Net NPAs from time to time.

Constraints of Capital Adequacy Ratio on Net Non-Performing Assets:

(1) In the calculation of Net NPAs, predominantly CAR considers Tier 1 capital as an important constraint, i.e., summation of Paid-up capital statutory reserves and disclosed free reserves.
(2) CAR also considers Tier2 capital as an important constraint that can impact over the calculation of Net NPAs i.e., summation of undisclosed Reserves, General Loss reserves and hybrid debt capital instruments, and subordinated debts.
(3) Risk-weighted assets are one more constraint in the calculation of Net NPAs, and risk-weighted assets play an important role in the computation and risk-weighted assets are nothing but the assets of the bank that are prone to be nonperforming in the near future.
(4) any commercial bank will ensure that their CAR will not fall below 9% under any circumstance, if it falls below 9% it will definitely impact the Net NPAs in a negative way and therefore it can be said that 9% is an important constraint of CAR on Net NPAs.

Disadvantages of Capital Adequacy Ratio on Net Non-Performing Assets:

(1) CAR doesn't take into account the expected and identifiable loss due to any upcoming financial crunch.
(2) The CAR calculation suffers from the limitation of constant thumb rules in identifying Risk Weighted Assets which is not changing according to changing banking circumstances.
(3) CAR is more of a strict regulatory tool which is glorified in the banking sector over the other regulatory tools which are not given so much weightage.
(4) CAR ignores Market Risk, operational risk, and liquidity risks in its calculation.

9. SUGGESTIONS :

(1) It is suggested that Canara Bank and Bank of India to strategize CAR in such a way that it can reduce Net NPAs in the years to come.
(2) It is suggested that the Central Bank of India and the Indian Bank to come under the category of 'High Degree Negative Correlation' from 'Moderate Degree Negative Correlation' as early as possible, by incorporating necessary changes so that their CAR increases in the years to come.
(3) It is suggested that the entire Indian Public Sector Bank industry to improve their correlation coefficient to a higher negative figure which is close to -1 i.e., 'High Degree Negative Correlation ', which at present falls under the category of 'Moderate Degree Negative Correlation' (at present r = -0.317436087) in the years to come.
(4) It is suggested that all the public sector banks to reduce the Net NPAs by proper strategizing so that the reduced Net NPAs can contribute to the Indian Economy.

10. CONCLUSIONS :

From the data analysis and findings, it can be concluded that except for two public sector banks ie Canara Bank and Bank of India which is shown a high degree of positive correlation for the preceding five financial years, the remaining 10 public sector banks in India show a high to moderate degree of negative correlation for the preceding five financial years. This implies that as the CAR of these banks is increasing, their respective Net NPAs are coming down. That apart it is very apparent from the data analysis that, when all the 12 public sector banks, for the preceding five financial years are taken Karl Pearson's coefficient of correlation is standing at r = -0.317436087 i.e., a moderate degree of negative correlation. Therefore, it can be overall inferred that there exists a negative correlation between CAR and Net NPAs of Indian public sector banks for the preceding five financial years and hence hypothesis 2 is proved. By proving hypothesis 2 it is so clear that CAR, one of the key determinants in exchequering Net NPAs is instrumental in bringing down the quantum of Net NPAs.

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