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Impact Of Institution Variables On The Non-Performing Assets Of Scheduled Commercial Banks In India

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Abstract

The present paper is to determine relationship between institution variables and Gross NPAs Ratio and Net NPAs Ratio of scheduled commercial banks in India during 2001-01 to 2019-20. Here the institutional variables are Cash Reserve Ratio, Repo Rate, Reverse Repo Rate, Bank Rate and Statutory Liquidity Ratio considered for this study. The present study carried out on the basis of secondary data. For analyzing data, multiple regression analysis and correlation done using SPSS 20.0. The study found that, there is a significant relationship between Cash Reserve Ratio, Repo Rate, Bank Rate, Statutory Liquidity Ratio and Gross NPAs and Net NPAs of scheduled commercial banks in India. Based on the results it is concluded that institutional variables related to Reserve Bank of India also impacting on the Non-Performing Assets in India. Hence these variables are also considered as determining factors for the Non-Performing Assets in India.

Key words: *Non-Performing Assets, Institution Variables, Multiple Regression, Scheduled Commercial Banks, Repo rate.*

1. Introduction

The Non-Performing Assets (NPAs) of banks are considered as a significant problem in India for the past few decades. In the recent past few years the amount of NPAs was tremendously rose in Indian banking sector, particularly scheduled commercial banks. It leads to ill-health of the banking sector and the Indian economy i.e. growth will be low or come down. More over banks' depositors will not have confidence on the banks to get back their deposits with interest at the time of maturity. So it leads to decrease the volume of

business of the banking sector and disturb the financial system. It may be the alarm for crisis and also slowdown of gross domestic product in the country.

The profitability of banks depends upon their efficiency i.e. mobilization of deposits from the public, lending loans to eligible concern and collection of loan (installments) amounts with interest from the borrowers on due date. Loan or advance is a major component of earning income for banks. If the banks' timely collect installments from the borrowers, then there will be no NPAs. So the profitability of banks will be higher, if the banks have no or less NPAs and vice-versa.

Banking industry is one of the important sectors across the globe for the development of any country, particularly in fast developing countries like India. It should be strong and work efficiently to meet the requirements of its customers. However, in the past few years scheduled commercial banks are facing continuous losses due to increase in NPAs and losing its reputation among its customers. Approximately 86 per cent of the Gross NPAs of scheduled commercial banks is with the Public Sector Banks (PSBs). So the NPAs have the capacity to choke the flow of finance in the system

The Reserve Bank of India, RBI in its Financial Stability Report July 2020 has said that gross non-performing asset (GNPA) ratio of Scheduled Commercial Banks (SCBs) has declined to 8.5% in March 2020 as compared to 9.3% in September 2019. RBI's report mentions, 'The banking stability indicator shows that, among the five dimensions considered for assessing the changes in underlying conditions and risk factors, SCBs have recorded deterioration in soundness, liquidity and efficiency in March 2020 as compared with the September 2019 position, whereas asset quality and profitability showed marginal improvement.'

The abrupt increase in stressed assets has negatively impacted the profitability of the banks. Considering the effect it has on both capital and liquidity position of the bank, there is urgency for banks to decrease their stressed assets and clean up their balance sheets otherwise they will show impact on agriculture, industrial and service sectors and also on Indian economy.

2. Literature Review

Indira Rajaraman and Garima Vasishtha (2002) found that fixed effects model carries better explanatory power than the random effects model, as tested by the Hausman statistic. Finally, all the results are relative to the mean for PSU banks, the pool used in this exercise, which as a group carry higher NPAs than all other ownership categories.

Jain Vibha (2007) studied the problem of NPAs as a serious concern for the banking industry in India. He concluded that the root cause of the problem is "inadequate credit appraisal mechanism". Early recognition may reduce the problem of bad loan up to a certain extent, which alertness of the bank which is invariably related with the profitability.

Rajini Saluja and Roshan Lal (2010) found that the growing NPAs in banking sector are a problem of deep concern. It is not only a problem for banks but also proves fatal to the economic growth of the country. They concluded that there is a huge difference in NPAs of public and foreign banks. Gross and Net NPAs of public sector banks have increased over the years because of rigorous policy initiatives and enforcement of various legal and non-legal measures.

Socol Adela & Iuga Iulia (2010) stated that the connection of banking elements average interest rate and NPAs in Romanian banking system and other indirect channels which affect the NPAs as well on the basis of Pearson correlation coefficient.

Khizer Ali et al., (2011) found that efficient asset management and economic growth establish positive and significant relation with profitability in both models (measured by ROA & ROE). The high credit risk and capitalization lead to lower profitability measured by return on assets (ROA). The operating efficiency tends to exhibit the higher profitability level as measured by return on equity.

Jayasree M. and Radhika R. (2011) found that the level of NPAs have been increased in new private sector banks and foreign banks during 2005 to 2009 and NPAs show negative impact on the profitability of banks.

Sofoklis and Eftychia (2011) found that inflation, unemployment rate, external debt to gross domestic product, money supply and investment with construction expenditure jointly with country's (Greek) crises specific variables influences the credit risk of banking system on the basis of univariate regression.

Saikat Ghosh Roy (2014) result indicates that the GDP growth, change in exchange rate and global volatility have major effects on the NPA level of Indian banking sector.

Krishna Prasanna P et al., (2014) conclude that among bank specific variables inefficiency ratio had significant positive impact on the non-performing advances. Bank size and performance indicators had significant negative impact indicating efficient operational management at bank level helps to reduce nonperforming advances.

Satyajit Dhar and Avijit Bakshi (2015) results imply that banks should give adequate attention to variables such as advances to the sensitive sector, net interest margin and capital adequacy ratios to control the problems of loan losses. Our results support the view that the factors which are responsible for loan losses are generally country-specific, due to variations in regulatory frameworks and the roles of central banks.

Mahmoud Abdelaziz Touny and Mohamed Abdelhameed Shehab (2015) suggested that inflation rate has a negative impact on NPLs, whereas improvement in macroeconomic and financial conditions seems to have a negative impact on the level of NPLs.

Gokul Kumar et al. (2017) conducted Granger Causality Test confirmed the association of CAR, CRR, RRR, IR, MS, UR and GDPGR with the non-performing assets whereas the remaining variables such as PLR and RR portrayed a negative relationship with the non-performing assets. Further the Johansen Co-integration Test results witnessed that all the institutional-specific and macroeconomic variables are co-integrated with the non-performing assets of SBI and Associate Banks in India.

Jayaraman T.K. et al., (2018) results reveal that real GDP, gross advances, total expenditures and price level are important determinants of NPA in India's commercial banks.

Manvir Kaur and Rohit Kumar (2018) study found that Bank specific determinants and macro determinant influence the level of gross non-performing assets of public sector banks.

Kandela Ramesh (2019) Using the random effect model, it is found that credit-deposit ratio, loan maturity, and return on assets have a negative relationship with NNPA's. These factors have an association with a lower level of NPAs. Operating expenses and capital adequacy ratio have an insignificant effect on NNPA's. On the other hand, factors such as priority sector loans, collateral values, and non-interest income have a positive impact on NNPA's.

Varuna Agarwala and Nidhi Agarwala (2019) found that assessment of private sector banks reveals that the growth rate of NPAs is low as compared to the nationalized banks, as well as the SBI and its associates. The nationalized banks and the associate banks of SBI failed to handle the issue of poor loans effectively due to which the growth in such loans has been phenomenally high.

Sudarsan K and Santosh Kathari (2019) found that there is a statistically significant relationship between Gross Domestic Product (GDP) and NPAs (both GNPAs and NNPA's) and Inflation Rate and NPAs (both GNPAs and NNPA's) of Public and Private Sector Banks. But interesting one is the Unemployment rate is statistically insignificant relationship with Net NPAs of Foreign Banks.

Jaslene Kaur Bawa et al. (2019) found that, a negative significant relationship between intermediation cost ratio, Return on Assets and NPAs. Asset growth, lagged NPAs, and total liabilities by total assets are positively related to NPAs.

Statement of the Problem

Commented [PR1]: There needs to be more review of literatures to ensure the gap in the study.

Based on the above literature, majority of the studies conducted for determining non-performing assets determinants in India. Some studies focused on impact of economic variables on non-performing assets. But very few studies conducted on institution variables impact on non-performing assets. Considering this, the present paper is to determine relationship between institution variables and Gross NPAs Ratio and Net NPAs Ratio of Scheduled Commercial Banks (SCBs) in India during 2001-01 to 2019-20 by using correlation and multiple regression. Here the institutional variables are Cash Reserve Ratio, Repo Rate, Reverse Repo Rate, Bank Rate and Statutory Liquidity Ratio considered for this study.

Objectives of the Study

- To find out correlation between institution variables and scheduled commercial banks Gross NPAs and Net NPAs Ratio; and
- To find out the impact of institution variables on scheduled commercial banks Gross NPAs Ratio and Net NPAs Ratio.

Hypothesis of the Study

On the basis of the objectives of the study, following hypotheses have been formulated:

Hypothesis 1

H01: There is no significant relationship between Institution Variables and SCBs Gross NPAs Ratio during 2000-01 to 2019-20.

H0_{1.1}: There is no significant relationship between Cash Reserve Ratio (CRR) and SCBs Gross NPAs Ratio during 2000-01 to 2019-20.

H0_{1.2}: There is no significant relationship between Repo Rate and SCBs Gross NPAs Ratio during 2000-01 to 2019-20.

H0_{1.3}: There is no significant relationship between Reverse Repo Rate and SCBs Gross NPAs Ratio during 2000-01 to 2019-20.

H0_{1.4}: There is no significant relationship between Bank Rate and SCBs Gross NPAs Ratio during 2000-01 to 2019-20.

H0_{1.5}: There is no significant relationship between Statutory Liquidity Ratio (SLR) and SCBs Gross NPAs Ratio during 2000-01 to 2019-20.

Hypothesis 2

H02: There is no significant relationship between Institution Variables and SCBs Net NPAs Ratio during 2000-01 to 2019-20.

H0_{2.1}: There is no significant relationship between Cash Reserve Ratio (CRR) and SCBs Net NPAs Ratio during 2000-01 to 2019-20.

H0_{2.2}: There is no significant relationship between Repo Rate and SCBs Net NPAs Ratio during 2000-01 to 2019-20.

H0_{2.3}: There is no significant relationship between Reverse Repo Rate and SCBs Net NPAs Ratio during 2000-01 to 2019-20.

H0_{2.4}: There is no significant relationship between Bank Rate and SCBs Net NPAs Ratio during 2000-01 to 2019-20.

H0_{2.5}: There is no significant relationship between Statutory Liquidity Ratio (SLR) and SCBs Net NPAs Ratio during 2000-01 to 2019-20.

3. Research Methodology

The present study period is 2000-01 to 2019-20. The study depends upon the secondary data. The secondary data was collected from the Reserve Bank of India (RBI) website (www.rbi.org). The data was analyzed by applying multiple regression as a major statistical

tool. Multiple regression was used to establish an empirical relationship between Institution Variables and NPAs of Scheduled Commercial Banks. The results were drawn by using the Statistical Package for Social Sciences (SPSS) 20.0.

To draw the inferences for the present study, Scheduled Commercial Banks' Gross NPAs Ratio considered as a dependent variable and Institutions variable such as Cash Reserve Ratio (CRR), Repo Rate, Reverse Repo Rate, Bank Rate and Statutory Liquidity Ratio (SLR) are considered as independent variables.

The following regression equation is used for Institution Variables and SCBs Gross NPAs Ratio.

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + e$$

Where; Y = SCBs Gross NPAs Ratio

X₁ = Cash Reserve Ratio (CRR)

X₂ = Repo Rate

X₃ = Reverse Repo Rate

X₄ = Bank Rate

X₅ = Statutory Liquidity Ratio (SLR)

The following regression equation is used for Institution Variables and SCBs Net NPAs Ratio.

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + e$$

Where; Y = SCBs Net NPAs Ratio

X₁ = Cash Reserve Ratio (CRR)

X₂ = Repo Rate

X₃ = Reverse Repo Rate

X₄ = Bank Rate

X₅ = Statutory Liquidity Ratio (SLR)

4. Data Analysis

Regression Results of Institution Variables and SCBs Gross NPAs Ratio

Table - 1: Descriptive Statistics

Measure	Cash Reserve Ratio (CRR) (X ₁)	Repo Rate (X ₂)	Rev Repo Rate (X ₃)	Bank Rate (X ₄)	SLR (X ₅)	SCBs Gross NPAs Ratio (Y)
Mean	4.85	6.87	5.71	6.66	23.14	5.74
Standard Deviation	0.95	1.06	1.02	1.10	2.20	3.38
Kurtosis	1.79	-0.58	0.57	0.78	-0.44	-1.45
Skewness	1.25	-0.20	-0.42	1.48	-0.94	0.49
Range	3.50	3.75	4.25	3.35	6.50	9.20
Minimum	4.00	4.75	3.25	5.65	18.50	2.20

Maximum	7.50	8.50	7.50	9.00	25.00	11.40
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Table - 2: Correlation Matrix for Variables of Study

Correlations					
	Cash Reserve Ratio	Repo Rate	Rev Repo Rate	Bank Rate	SLR
SCBs Gross NPAs Ratio	-0.39	-0.097	-0.077	-0.221	-0.350

**. Correlation is significant at the 0.01 level (2-tailed).

Table - 2 indicates the correlation analysis which is carried out through SPSS. It can be observed that almost all the institutional variables are negatively correlated with SCBs Gross NPAs Ratio.

Table - 3: Results of Multiple Regression Analysis

Model Summary						
Model	R	R Square	Adjusted R Square	F Change	Sig. F Change	Durbin-Watson
1	0.808	0.653	0.520	4.893	.010	2.024

Source: SPSS.

Table - 4: Regression Coefficients

Variable	Un-standardized Coefficients B	Standardized Coefficients Beta	t -value	Sig.	H ₀ : Rejected/ Accepted	VIF
(Constant)	44.274		4.389	0.001		
Cash Reserve Ratio	-2.855	-0.804	-2.868	0.013	Rejected	2.94
Repo Rate	4.247	1.337	2.621	0.021	Rejected	9.74
Rev Repo Rate	-2.592	-0.783	-1.524	0.151	Accepted	9.89
Bank Rate	-2.739	-0.892	-3.383	0.005	Rejected	2.60
SLR	-0.898	-0.586	-1.691	0.115	Accepted	4.50
Dependent Variable: SCBs Gross NPAs Ratio						

Table - 3 indicates the model summary of multiple regression analysis which is carried out through SPSS. The result of the model shows that the value of *R* is 0.808, which indicates a high correlation between SCBs Gross NPAs Ratio and Institution variables. The value of *R* square is 0.653. The *p* value of the model is .010 which is less than .05 indicating that the regression model is statistically significant and a fit model. The value of Durbin-Watson statistic is 2.02 which is free from autocorrelation problem.

Table – 4 illustrates the results of regression analysis for SCBs Gross NPAs Ratio and Institution variables, it is to be noted that Institution variable includes Cash Reserve Ratio, Repo Rate, Rev Repo Rate, Bank Rate and Statutory Liquidity Ratio. Results of multiple

regression reveals that the p value of Cash Reserve Ratio is 0.013, which is less than .05 at 5 % level of significance. This indicates that there is a statistically significant relationship between dependent variable and independent variable. The p value of Repo Rate is 0.021, which is less than .05 at 5 % level of significance. This indicates that there is a statistically significant relationship between dependent variable and independent variable. The p value of Rev Repo Rate is 0.151, which is more than .05 at 5 % level of significance. This indicates that there is a statistically insignificant relationship between dependent variable and independent variable. The p value of Bank Rate is 0.005, which is less than .05 at 5 % level of significance. This indicates that there is a statistically significant relationship between dependent variable and independent variable. The p value of Statutory Liquidity Ratio is 0.115, which is more than .05 at 5 % level of significance. This indicates that there is a statistically insignificant relationship between dependent variable and independent variable.

The following regression equation was obtained:

$$Y = 44.27 - 2.85X_1 + 4.24X_2 - 2.59X_3 - 2.73X_4 - 0.89X_5 + e$$

Regression Results of Institution Variables and SCBs Net NPAs Ratio

Table - 5: Descriptive Statistics

Measure	Cash Reserve Ratio (CRR) (X ₁)	Repo Rate (X ₂)	Rev Repo Rate (X ₃)	Bank Rate (X ₄)	SLR (X ₅)	SCBs Net NPAs Ratio (Y)
Mean	4.85	6.87	5.71	6.66	23.14	2.82
Standard Deviation	0.95	1.06	1.02	1.10	2.20	1.87
Kurtosis	1.79	-0.58	0.57	0.78	-0.44	-1.08
Skewness	1.25	-0.20	-0.42	1.48	-0.94	0.67
Range	3.50	3.75	4.25	3.35	6.50	5.2
Minimum	4.00	4.75	3.25	5.65	18.50	1.0
Maximum	7.50	8.50	7.50	9.00	25.00	6.2

Table - 6 : Correlation Matrix for Variables of Study

Correlations

	Cash Reserve Ratio	Repo Rate	Rev Repo Rate	Bank Rate	SLR
SCBs Net NPAs Ratio	-0.42	-0.032	0.008	-0.118	-0.391

**. Correlation is significant at the 0.01 level (2-tailed).

Table - 6 indicates the correlation analysis which is carried out through SPSS. It can be observed that, only reverse repo rate is positively correlated with SCBs Net NPAs Ratio and others are negatively correlated.

Table - 7: Results of Multiple Regression Analysis

Model Summary						
Model	R	R Square	Adjusted R Square	F Change	Sig. F Change	Durbin-Watson

1	0.785	0.616	0.468	4.172	.018	1.903
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Source: SPSS.

Table - 8: Regression Coefficients

Variable	Un-standardized Coefficients B	Standardized Coefficients Beta	t -value	Sig.	H ₀ : Rejected/ Accepted	VIF
(Constant)	25.53		4.004	0.002		
Cash Reserve Ratio	-1.461	-0.742	-2.518	0.026	Rejected	2.94
Repo Rate	2.433	1.383	2.577	0.023	Rejected	9.74
Rev Repo Rate	-1.489	-0.812	-1.503	0.157	Accepted	9.89
Bank Rate	-1.326	-0.779	-2.810	0.015	Rejected	2.60
SLR	-0.562	-0.662	-1.814	0.093	Accepted	4.50
Dependent Variable: SCBs Net NPAs Ratio						

Table - 7 indicates the model summary of multiple regression analysis which is carried out through SPSS. The result of the model shows that the value of *R* is 0.785, which indicates a high correlation between SCBs Net NPAs Ratio and Institution variables. The value of *R* square is 0.616. The *p* value of the model is .018 which is less than .05 indicating that the regression model is statistically significant and a fit model. The value of Durbin-Watson statistic is 1.903 which is free from autocorrelation problem.

Table – 8 illustrates the results of regression analysis for SCBs Net NPAs Ratio and Institution variables, it is to be noted that Institution variable includes Cash Reserve Ratio, Repo Rate, Rev Repo Rate, Bank Rate and Statutory Liquidity Ratio. Results of multiple regression reveals that the *p* value of Cash Reserve Ratio is 0.026, which is less than .05 at 5 % level of significance. This indicates that there is a statistically significant relationship between dependent variable and independent variable. The *p* value of Repo Rate is 0.023, which is less than .05 at 5 % level of significance. This indicates that there is a statistically significant relationship between dependent variable and independent variable. The *p* value of Rev Repo Rate is 0.157, which is more than .05 at 5 % level of significance. This indicates that there is a statistically insignificant relationship between dependent variable and independent variable. The *p* value of Bank Rate is 0.015, which is less than .05 at 5 % level of significance. This indicates that there is a statistically significant relationship between dependent variable and independent variable. The *p* value of Statutory Liquidity Ratio is 0.093, which is more than .05 at 5 % level of significance. This indicates that there is a statistically insignificant relationship between dependent variable and independent variable.

The following regression equation was obtained:

$$Y = 23.53 - 1.46X_1 + 2.43X_2 - 1.48X_3 - 1.32X_4 - 0.56X_5 + e$$

Table - 9: Summary Table

As per the above analysis, the following results drawn.

SCBs Gross NPAs Ratio	Variables	H ₀ : Rejected/ Accepted	SCBs Net NPAs Ratio	Variables	H ₀ : Rejected/ Accepted
	Cash Reserve Ratio	Rejected (H _{01.1})		Cash Reserve Ratio	Rejected (H _{02.1})
	Repo Rate	Rejected (H _{01.2})		Repo Rate	Rejected (H _{02.2})

	Rev Repo Rate	Accepted (H _{01.3})		Rev Repo Rate	Accepted (H _{02.3})
	Bank Rate	Rejected (H _{01.4})		Bank Rate	Rejected (H _{02.4})
	SLR	Accepted (H _{01.5})		SLR	Accepted (H _{02.5})

Conclusion

The study investigated the impact of institutional variables on the non-performing assets of scheduled commercial banks in India. Majority of the institutional variables has significant relationship with non-performing assets. Further research, include some more variables related to banks for determining non-performing assets in Indian banking sector. Once the factors are identified, which will help policy makers to make necessary actions for reducing non-performing assets of commercial banks. This will help to increase credit growth in the Indian economy.

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