

Review of Select Performance Indicators of Select Public Sector Banks Pre and Post Capital Infusion

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Abstract

Background: In January 2021 the Comptroller Auditor General of India wrote to the Finance Ministry, seeking performance audit of massive Recapitalization Exercise carried out for the Public sector banks. Out of the total recapitalization done for public sector banks for more than last decade, major portion is done under the 'Indradhanush scheme' from 2015-16.

As the government is facing further recapitalization challenge in view of the ongoing COVID 2019 crisis, it is necessary to take overview of the impact of the previous recapitalization.

Material and Methods : This study attempts to check a few key parameters of select public sector banks over the recapitalization period in order to do the same using relevant ratios for the three key parameters of operating profitability, capital adequacy and NPA proportion.

Results: A statistical comparison of the public sector banks pre and post recapitalization shows no significance difference in the Operating Profitability levels as well as its growth rates. There is a significant difference in Capital adequacy levels and growth Rates on the positive side for the two periods while the Net NPA levels as well as growth rates show significant differences on the negative side.

Conclusion: Thus it is seen from the study that while recapitalization done in past 5 years has not led to the improvement of profitability, it has definitely led to better capital adequacy and slowing of NPA growth

Key Words: Recapitalization, Public sector banks, Profitability, capital adequacy, NPAs

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I. Introduction

Indian banking sector has always played a key role in the economic progress of Indian economy. With economic reforms, banking sector has provided support to many vital areas like infrastructure building, employment generation, wealth creation, capital generation and financial inclusion. Especially public sector banks have always played a major role in the growth and development of Indian economy.

Post the subprime crisis, the public sector banks in India showed rising structural weaknesses. This combined with political uncertainty and an overall global economic slowdown resulted in rising levels of Non-Performing Assets and unfavourable impact on capital adequacy, capital mobility and profitability.

In order to give a boost to the cycle of lending and borrowing and to address the impending Capital requirements as stated by the Basel Accord 2011, the Indian government committed to carry out a sustained capital infusion program in the public sector banks over a period. The Indian public sector banks have received capital infusions in past, mostly as and when needed. However, in 2015-16, the Government established the 'Indradhanush 2015' road map to revamp the public sector banks. This was followed in 2017 by 'Indradhanush 2.0' for Among the comprehensive framework put in place as part of the plan, capital allocation is a major step.

As further allocations are declared and anticipated in view of challenges presented by the COVID 19 crisis, it is imperative to monitor the impact of the infusion on the banks over the period to see if they are showing some positive response to the capital infusion efforts.

II. Conceptual Framework

The banking sector has long since been accepted as being vitally important for the economy. While traditional banking activity is needed in any economy to pool savings, provide liquidity and also avenues for investments [Cecchetti (2012)], the modern banking has extended in scope beyond the traditional functions. It offers services in other financial activities like insurance, stockbroking, asset management and forex management as well as non-financial activities like real estate (Heffernan,2005).

With respect to Indian banking sector Sharma, N. & Shekhar, (2015), find that banking industry in India has also achieved a new height with the changing times due to technology revolution without compromising the basic fundamental aspects of banking i.e. trust and the confidence of the people. Most researcher have agreed over the period that the most critical risk today to the Indian banking sector has been due to the significantly high level of non-performing and stressed assets and the resultant impact on profitability, capital adequacy and other operating factors.

A report by Oliver Wyman financial services (2017) remarked that the Indian banking sector was close to breaking point mainly due to government-owned banks, who were struggling under the weight of crippling NPAs and deficient risk management capabilities. Singh (2016) have also stated that NPAs adversely impact the performance and profitability of banks.

Over the years the serious NPA issue of Public Sector banks seems to have flattened out with various measures carried out. Mergers of weak banks with strong ones, Pro-cyclical capital buffers, Prompt corrective action framework (PCA), Insolvency and Bankruptcy code to name a few. One of the major steps helping along the way is recapitalization of public sector banks (Chari et. all 2019)

Further the capital requirements under the Basel III norms have also been a matter of concern. Acharya & Subramanian (2015) had specifically mentioned the significant capital requirement to meet the Basel III norms and their high vulnerability and risk level due to significant distress combined with eroding capital, asset growth and high leverage, which is funded with volatile wholesale liabilities. The revised final implementation date of BASEL III approaches as on 2023 (www.bis.org.)

Saboo et al (2016) had elaborated on the impact of Basel III norms on Indian public sector banks causing to require high quality and higher quantity capital infusion in banks. They stated further that Public Sector Banks (PSB) in India cannot access to market for capital until Government of India is ready to bring equal amount of capital to maintain their stake. In the same vein, Kokane & Nerlekar (2017) had also commented that Non-Performing Assets have risen over the year. According to them, the infusion of capital will help banks over their declining non-performing assets.

In view of the above situation, government of India has been doing periodic capital infusion in the public sector banks. A major road to revamp of public sector banks through planned recapitalization has been stated by the Indian government in the Indradhanush road map. The scheme also heavily emphasizes on monitoring of performance of the capitalized banks through several qualitative and quantitative performance. Indradhanush 1.0 commenced in 2015 -16 and its second Tranche in 2017. (www.pib.com)

The CAG report no. of 2017 published by the Ministry of Finance has stated that Public sector Banks have been regularly recapitalised on an annual basis during the period 2008-09 to 2016-17. The report showed that the recapitalization takes place on the parameters of credit growth, risk profile of the assets to project the risk weighted assets of the bank, internal accruals of the bank and other sources of capital generation are also assessed and the balance capital requirements are sought. The report also emphasized that post recapitalization; banks are required to be regularly assessed.

Post the evaluation of CAG, the recapitalization of public sector banks was further carried out from 2017-18 to till date. By 2019-20 the government has completed a massive Rs. 2.95 lakh crores of recapitalization, over and above the Indradhanush target

In view of the above, the CAG has again commenced a performance audit and evaluation of effects of recapitalization of public sector banks in January 2021 and the process has since then commenced. In the same vein the study attempts to take an overview of key performance parameters of select public sector banks pre and post the infusion of capital

There are several performance parameters on which the banks can be evaluated. The main areas of quantitative monitoring have been capital adequacy, profitability and asset quality. Many researchers like Kaur et al (2015), Gupta (2014) etc. have described the performance measurement parameters under the CAMELS structure in detail. In order to measure capital adequacy, they have described a major ratio of Capital adequacy ratio. The earning efficiency is described by the ratio of operating profit to working funds. One of the major ratios describing asset quality is the ratio of Net NPAs to advances.

While measuring profitability, various measures of profit are used. However, in order to avoid the impact of provisions and to understand the real efficiency of bank, operating profitability is deemed to be the most suitable measure. The study by Ramnarayan & Unas (2014) use Operating Profit defined as net income minus provisions for loan losses and other provisions as a profit measure.

Based on the above understanding the researcher has carried out the study with the following broad objectives

- To compare key performance parameters of select public sector banks for the pre and post capital infusion period.
- To compare the growth rates of the key parameters of the select public sector banks for the pre and post capital infusion period

III. Materia and Methodology

A : Period of Study

The Public sector banks in India have seen several capital infusions in the past from their major stake holder i.e. the government. However the major recapitalization exercises are carried out from 2015-16 under the Indradhanush 1.0 and 2.0. Therefore the study is carried for the period of 2010-11 to 2018-19. The data from 2019-20 is not considered for the study as due to COVID crisis the data may not give true projection.

The period from 2010-11 to 2014-15 is taken as Pre-Infusion period while period from 2015-16 to 2018-19 are considered as Infusion Period.

The specific ratios of 2014-15 and 2018-19 are taken for the purpose of specific levels of performance parameters before and during infusion.

B. Overview of Data

The study is aimed at reviewing the performance indicators of specific banks, which are currently operating in the public sector. It is a population study. Total 18 banks are taken as part of the dataset out of the total number of banks receiving Capital infusion

Table 1: List of Banks Receiving Capital Infusion from 2010-11 to 2016-17

(Rs. in Crores)

Sr. No.	Names of Banks \ Years	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	Total Infusion (Per Bank)
1	Allahabad Bank	670	-	-	400	320	973	451	2,814
2	Andhra Bank	1,173	-	-	200	120	378	1,100	2,971
3	Bank of Baroda	2,461	-	850	550	1,260	1,786	-	6,907
4	Bank of India	1,010	-	809	1,000	-	3,605	2,838	9,262
5	Bank of Maharashtra	940	470	406	800	-	394	300	3,310
6	Canara Bank	-	-	-	500	570	947	748	2,765
7	Central Bank of India	2,253	676	2,406	1,800	-	535	1,397	9,067
8	Corporation Bank	309	-	204	450	-	857	508	2,328
9	Dena Bank	539	-	-	700	140	407	1,046	2,832
10	Indian Overseas Bank	1,054	1,441	1,000	1,200	-	2,009	2,651	9,355
11	Indian Bank	-	-	-	-	280	-	-	280
12	Oriental Bank of Commerce	1,740	-	-	150	-	300	-	2,190
13	Punjab National Bank	184	655	1,248	500	870	1,732	2,112	7,301
14	Punjab & Sind Bank	-	-	140	100	-	-	-	240
15	Syndicate Bank	633	-	-	200	460	740	776	2,809
16	UCO Bank	1,613	48	681	200	-	935	1,925	5,402
17	Union Bank of India	793	-	1,114	500	-	1,080	541	4,028
18	United Bank of India	558	-	100	700	-	480	1,026	2,864
19	Vijaya Bank	1,068	-	-	250	-	220	-	1,538
20	State Bank of India	-	7,900	3,004	2,000	2,970	5,393	5,681	26,948
21	IDBI Bank Ltd.	3,119	810	555	1,800	-	2,229	1,900	10,413
	Total Infusion (Per year)	20,117	12,000	12,517	14,000	6,990	25,000	25,000	1,15,624

Source: CAG Report No.28, 2017: Ministry of Finance

Further in FY 2017-18, the government had injected Rs 88,000 crore in banks and in 2018-19, Rs 65,000 crore of the proposed recapitalization. However, the banks could not raise their own portion of money via markets, leading to the government providing for an additional Rs 41,000 crore. The capital was infused in different banks as and when needed (www.financialexpress.com)

C. Sources of Data

The data is sourced from the RBI Statistical records (www.rbi.org) and www.moneycontrol.com.

D. Methodology

(I) The Public sector banks receiving capital infusion were considered. Based on literature review, the following performance parameters were chosen for the purpose

(A) The profitability and operating efficiency of a bank is measured by the Return on Asset calculated using Operating profit. Operating profit is taken instead of Net profit as Net profit is affected by provisioning practices of the banks.

$$\text{Operating Profit Return on Assets Ratio (OPPRA)} = \frac{\text{Operating Profit}}{\text{Average Total Assets}}$$

(B) The strength, adequacy and quality of the bank's capital is measured by the Capital Adequacy Ratio. It is the ratio of a bank's capital in relation to its risk weighted assets and current liabilities. It is decided by RBI to prevent commercial banks from taking excess leverage and becoming insolvent in the process

$$\text{Capital Adequacy Ratio (CAR)} = \frac{(\text{Tier I} + \text{Tier II} + \text{Tier III (Capital funds)})}{\text{Risk weighted assets}}$$

(C) The quality of assets of the bank is measured by the Net NPAs to Net Advances ratio of the banks.

$$\text{Net NPA Ratio (NNPA)} = \frac{\text{GrossNPAs} - \text{Provisions}}{\text{Net Advances}}$$

(IV) The Researcher wishes to check whether there is a change in the performance parameters from pre to post infusion period. Therefore, with respect to these banks, the student's t test for paired observations is applied for ratios of 2014-15 and 2018-19.

(V) Further to understand the growth trends of the performance ratios for the two given periods, CAGR are calculated for the ratios of both pre and post Indradhanush period. The CAGR is defined as the the geometric progression ratio that provides a constant rate of return over the time period. (www.wikipedia.org). It is calculated as follows

$$\text{CAGR} = [(A/P)^{1/(n-1)}] - 1$$

Where A = Value at the end of the period n, P = Value in the beginning i.e at period 0

n = Total number of years for which values are given from start

E. Hypotheses

With respect to the operating profitability ratios, capital adequacy ratios and net NPA ratios of the banks, the researcher is interested in knowing, whether the levels of ratios have changed in relation to the pre and post capital infusion period.

The comparison of CAGR of all the parameters is also done to study the changes in growth rates of the parameters if any

Hypothesis 1 : For the pre and post capital infusion periods, there is no significance difference in the proportions of

- **Operating Profitability**
- **Capital Adequacy**
- **Net NPA Ratio**

Hypotheses 2 : For the pre and post capital infusion periods, there is no significance difference in the growth rates of

- **Operating Profitability**
- **Capital Adequacy**
- **Net NPA Ratio**

F. Analysis

Testing of hypothesis

Table 2: Descriptive Statistics of Ratios

Sr.No	Names Of Banks\ Ratios	OPPR		CAR		NNPA	
		Pre-Infusion (2015)	Post-Infusion (2019)	Pre-Infusion (2015)	Post-Infusion (2019)	Pre-Infusion (2015)	Post-Infusion (2019)
1	STATE BANK OF INDIA	2.10	1.55	12.00	12.72	2.12	3.01
2	ALLAHABAD BANK	1.99	1.10	10.45	12.51	3.99	5.22
3	ANDHRA BANK	1.87	2.04	10.63	13.68	2.93	5.73
4	BANK OF BARODA	1.44	1.80	12.61	13.42	1.89	3.33
5	BANK OF INDIA	1.26	1.31	10.73	14.19	3.36	5.61
6	BANK OF MAHARASHTRA	1.67	1.37	11.94	11.86	4.19	5.52
7	CANARA BANK	1.34	1.61	10.56	11.90	2.65	5.37
8	CENTRAL BANK OF INDIA	1.18	0.95	10.90	9.61	3.61	7.73
9	CORPORATION BANK	1.35	1.79	11.09	12.30	3.08	5.71
10	INDIAN BANK	1.59	1.83	12.86	13.21	2.50	3.75
11	INDIAN OVERSEAS BANK	1.19	2.02	10.11	10.21	5.68	10.81
12	ORIENTAL BANK OF COMMERCE	1.75	1.41	11.41	12.73	3.34	5.93
13	PUNJAB AND SIND BANK	0.81	1.25	11.24	10.93	3.55	7.22
14	PUNJAB NATIONAL BANK	2.07	1.69	12.21	9.73	4.06	6.56
15	SYNDICATE BANK	1.44	0.89	10.54	14.23	1.90	7.37
16	UCO BANK	2.02	1.24	12.17	10.70	4.30	9.72
17	UNION BANK OF INDIA	1.58	1.53	10.22	11.78	2.71	6.85
18	UNITED BANK OF INDIA	1.96	0.95	10.57	13.00	6.22	8.67
	Mean	1.59	1.46	11.24	12.15	3.45	6.34
	Variance	0.14	0.13	0.74	2.06	1.40	4.24

Source:www.rbi.org

Table 3: Descriptive Statistics of CAGR

Sr.No	Names Of Banks\ CAGR	OPPR		CAR		NNPA	
		2011 to 2015 (%)	2015 to 2019 (%)	2011 to 2015 (%)	2015 to 2019 (%)	2011 to 2015 (%)	2015 to 2019 (%)
1	STATE BANK OF INDIA	-1.44%	-5.85%	0.04%	1.17%	6.79%	7.26%
2	ALLAHABAD BANK	2.53%	-11.14%	-4.46%	3.66%	42.05%	5.52%
3	ANDHRA BANK	-4.37%	1.78%	-4.83%	5.17%	38.77%	14.36%
4	BANK OF BARODA	-12.15%	4.49%	-3.23%	1.25%	49.34%	11.99%
5	BANK OF INDIA	-13.00%	0.85%	-7.28%	5.75%	76.02%	10.80%
6	BANK OF MAHARASHTRA	-0.76%	-3.87%	-0.48%	-0.14%	46.49%	5.67%
7	CANARA BANK	-9.90%	3.85%	-8.97%	2.42%	24.58%	15.17%
8	CENTRAL BANK OF INDIA	-2.70%	-4.26%	-1.63%	-2.49%	53.51%	16.45%
9	CORPORATION BANK	-9.35%	5.77%	-5.84%	2.09%	60.86%	13.14%
10	INDIAN BANK	-14.38%	2.93%	-1.32%	0.54%	47.37%	8.45%
11	INDIAN OVERSEAS BANK	-10.49%	11.27%	-8.70%	0.20%	47.81%	13.74%
12	ORIENTAL BANK OF COMMERCE	-5.25%	-4.30%	-5.37%	2.21%	35.87%	12.17%
13	PUNJAB AND SIND BANK	-15.98%	9.23%	-3.46%	-0.56%	58.68%	15.26%
14	PUNJAB NATIONAL BANK	-6.26%	-4.03%	-0.43%	-4.44%	47.83%	10.07%
15	SYNDICATE BANK	-6.14%	-9.28%	-5.18%	6.19%	18.30%	31.14%
16	UCO BANK	3.09%	-9.39%	-2.93%	-2.54%	23.64%	17.72%
17	UNION BANK OF INDIA	-5.63%	-0.65%	-5.75%	2.88%	22.84%	20.38%
18	UNITED BANK OF INDIA	2.05%	-13.41%	-5.13%	4.23%	44.67%	6.87%
	Mean	-6.12%	-1.45%	-4%	2%	41%	13%
	Variance	0.003	0.005	0.0007	0.0009	0.0291	0.0038

Source:www.rbi.org

Hypothesis 1(H₀) : For the pre and post capital infusion periods, There is no significance difference in the proportions of

- Operating Profitability
- Capital Adequacy
- Net NPA Ratio

Excel has tested the significance of pairs of average ratios of the banks in the group using Student's paired 't' test for equality of means

Test Used : Paired 't' test by Student for equality of paired means

1st Group of means : Group of Pre-Infusion ratios (M_1) (2015 Ratios)

2nd Group of means: Group of Post- Infusion Ratios (M_2) (2019 Ratios)

Significance level: 5%

Alternate Hypothesis (H_1) : There is significant Difference in the proportions .

Variable tested	Critical 't' value	Observed 't' value	'p' value	Remark
Operating Profitability Ratio (OPPR)	2.11	1.03	0.031	H_0 is Accepted
Capital adequacy Ratio (CAR)	2.11	-2.29	0.034	H_0 is Rejected, H_1 is accepted
Net NPA Ratio (NNPA)	2.11	-8.35	0.00	H_0 is Rejected, H_1 is accepted

Null Hypothesis is accepted for Operating profitability levels and Alternate hypothesis is accepted for Capital adequacy and Net NPA levels

I.e. There is no significant difference in the Operating Profitability levels of pre and post capital infusion period. However, the Capital adequacy and Net NPA levels show significant change for both the periods.

- The average Capital Adequacy Ratio shows improvement from 11.24% to 12.15%.
- The average Net NPA Ratio shows increase from 3.45% to 6.34%

Hypothesis 2 : For the pre and post capital infusion periods, there is no significance difference in the growth rates of

- Operating Profitability
- Capital Adequacy
- Net NPA Ratio

Excel has tested the significance of pairs of average ratios of the banks in the group using Student's paired 't' test for equality of means

Test Used : Paired 't' test by Student for equality of paired means

1st Group of means : Group of Pre-Infusion CAGR (2011 - 2015)

2nd Group of means: Group of Post- Infusion CAGR (2015 - 2019)

Significance level: 5%

Alternate Hypothesis (H_1) : There is significant Difference in the growth rates .

Variable tested	Critical 't' value	Observed 't' value	'p' value	Remark
Operating Profitability Ratio CAGR	2.11	1.60	0.127	H_0 is Accepted
Capital adequacy Ratio CAGR	2.11	-4.85	0.000	H_0 is Rejected
Net NPA Ratio CAGR	2.11	6.02	0.000	H_0 is Rejected

Null Hypothesis is accepted for Operating profitability growth rates and Alternate hypothesis is accepted for Capital adequacy and Net NPA growth rates

I.e. There is no significant difference in the Operating Profitability growth rate of pre and post capital infusion period. However, the Capital adequacy and Net NPA levels show significant differences in growth rates for both the periods.

The average Capital Adequacy growth rate changes from a declining rate of 4% to a positive growth of near 2% post infusion

The Net NPAs to advances growth rate shows a decline from 41% to 13% from pre to post infusion period.

IV. Conclusion and Observations

The study tries to take a review of select performance parameters of public sector banks during the period of massive capital infusion carried out within them by the government

The three key parameters of operating profitability, capital adequacy and NPA are chosen for the purpose.

1. The banks overall show no change in either the operating profitability levels or the rate of growth of profitability over the period.
2. The Capital adequacy has definitely improved over the period. The average rate of growth of capital adequacy has become positive post infusion as expected, whereas it was negative in the pre- infusion period
3. The average Net NPA ratio shows significant difference for the public sector banks

4. Even though the NNPA ratio has risen over the period, the rate of growth of NNPA shows significant reduction. This may be due to the resolution of NPAs through various measures.

Thus it can be concluded that while the recapitalization of banks in these years may not have impacted the operating profitability majorly, the capital adequacy has improved and the NNPA growth rate has declined

Limitations

- 1) The study focuses currently on only three performance parameters. A better understanding will be received with more parameters under consideration. However the issue can be addressed in further study.
- 2) The performance parameters of the banks are considered independently. There mutual interaction and the impact is not measured as it will require using regression tools which is beyond the scope of the study. For ex. NPA ratio can be considered in conjunction with the credit deposit ratio
- 3) There are several qualitative factors and economic and market elements affecting the performance of the banks. The study does not take their impact into consideration and views all performance parameters only in the light of capital infusion.

Endnote

The government of India has committed itself to revamping and reestablishment of public sector banks through various financial and operating steps over a period as the importance of these banks in the economy is unparalleled. an important step in this direction is taken by the Indradhanush road map. Under the scheme, already a significant capital infusion is done in the banks with the twin aims of helping the banks in rebuilding quality capital base and in meeting the Basel norms 2023.

Further deterioration in banks' performance parameters is feared due to the COVID 2019 crisis requiring further consistent recapitalization demands. Thus it is essential to keep a consistent watch over the impact of the recapitalization process by monitoring the performance norms as above.

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