Profitability and Asset Management of public sector Commercial Banking in India

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ABSTRACT

The paper analysis the management of risk based asset for the existence of banking sector in the competitive market. The bank has to inspect their income sources to go through many fluctuation and unexpected external crisis by managing their risk based credit for the survival and bench mark performance for profitability.

This study investigates the impact of credit risk management on the profitability of Indian Public sector commercial banks. Data from 20 commercial banks for the period 2006 to 2019 have been collected and analyzed using fixed regression analysis and panel data analysis. In the model specification, return on asset (ROA) were used as bank profitability indicators while capital adequacy ratio (CAR), bank size (TA, Total Asset) and non-performing loan ratio (NPL) were used as indicators of credit risk management.

The findings indicate that credit risk management has significant impact on the profitability of Indian Public sector commercial banks. The findings also describes that credit risk management does have an impact on profitability of commercial banks. Among the credit risk management, NPL, CAR and TA has a significant effect on ROA, from 2006 to 2019, the relationships between all the proxies are not stable but fluctuating. The study thus recommends focusing on effective credit risk management for commercial banks of India in order to maintain an optimum level of capital adequacy ratio, controls and monitors non-performing loan and increases bank size to enhance financial performance.

Keywords: *Profitability, Returns on Assets, Public sector schedule commercial banks, Credit risk management.*

1.0 Introduction

The importance of financial systems for economic development is well recognized world wide [King and Levine, 1993; Levine, 1997; Levine and Zervos, 1998; Rajan and Zingales, 1998] as well as in India [RBI, 2000; Bhattacharya and Sivasubramanian, 2003]. Banks are considered to be the mart of the world, the nerve Centre of economies and finance of a nation and the barometer of its economic perspective (Sharma, 1974). Indian banking sector is one of the largest sector in Southern Asian continent which is the mixture of public, private and foreign groups. The public sector banks continue to dominate the banking industry, in terms of lending and borrowing, and it has widely spread out branches which help greatly in pooling up of resources as well as in revenue generation for credit creation. The role of banks in accelerating economic development of the country has been increasingly recognized since the nationalization of fourteen major commercial banks in 1969 and six more in 1980. This facilitated the rapid expansion of banking in terms of its geographical reach covering rural India, in turn leading to significant growth in deposits and advances. Eventually, however, the government used banking sector to finance its own deficit by frequently increasing cash reserve ratios (CRR) and statutory liquidity ratio (SLR).

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This, in turn, affected the resource position of commercial banks adversely, restricting their lending and thereby the ability to generate profits. Besides, inefficiency and lack of competition caused the non-performing assets in the public sector banks to rise from 14 percent in 1969 to 35 percent in 1990. This problem had to be tackled during the nineties by undertaking an array of financial reforms.

The banking sector which persist its stability during South East Asia crisis in 1997 encouraged the government to review the progress of banking sector reforms and chart out the programme of financial sector reforms necessary to strengthen the Indian financial system for global competition. The ROA of the scheduled commercial banks which has negative figure during 1993 turned to be positive at 0.81 percent in 1998. By 1997, almost all public sectorbanks achieved the minimum capital adequacy norms of 8 percent. The gross and net NPAs of banking system as a percentage of advances had dec1ined to 16 percent and 8 percent respectively as on March 1998. In terms of percentage of total assets, gross and net NPAs have declined to 7 percent and 3 percent as on March 1998. The percentage of net NPAs to net advances of public sector banks has declined from 14.4 percent in 1994 to 8.5 percent by 1998 (Purohit and Jeevraj, 2012). Almost 80 percent of the businesses are still controlled by public sector banks (PSBs) which dominate the commercial banking sector. The recent statistics of RBI estimates that the gross NPA ratio of banks may rise to 4.4 percent by March 2014 as compared to 3.42 percent in March 2013 and NPA ratio was 2.94 percent in March 2012. The implementation of Securitization and Reconstruction of Financial Asset and Enforcement of Security Intersect Act (SARFAESI) in 2002 has helped many banks in debt recovery. Assets Reconstruction Company (India) Limited (ARCIL) set up in 2003 had provided a major boost to the efforts to recover the NPAs of the banks.

Banks started to implement the Basel II norms since March 2007. The Basel II framework has been designed to provide operations to banking system for determining the capital requirements for credit risk, market risk and operational risk and enable banks/supervisors to select approaches that are most appropriate for their operations and financial markets. After adequate skills are developed, both at the banks and at the supervisory levels, some banks may be allowed to migrate to the internal rating based (IRB) approach (Reddy 2005). Since March 2009 all commercial banks excluding regional rural and local banks became Basel II compliant which places the Indian banks on the international standard and provides a confidential base. As per Basel II norms, Indian banks should maintain tier I capital of atleast 6 percent. Even the G-10 countries are finding it difficult to implement the Basel II accord in all the banks (Goyal, 2010). Committee on Financial Sector Assessment, Mohan Committee (2009) had suggested significant measures to improve the stability and resilience of Indian financial system. The Basel III capital regulation has been implemented in India from April 1, 2013 onwards in phases and it will be fully implemented by March 31, 2019. The latest round of reforms published by the Basel Committee in December 2017 has implementation timelines stretching up to 2022. These norms lay more focus and importance on quality, consistency and transparency of the capital base. According to Iqbal & Mirakhor (2011) argued that existence of a strong risk management process can help the private and public banks to minimize exposure to risks and can enhance the competitive ability of the bank in the market. Psillakiet al., (2010) argued that effective management of credit risk exposure banks not only support the viability and profitability of their own business but also contribute to systemic stability and to an efficient allocation of capital in the economy

2.0 Review of literature

Several researchers have also dug into these topics Bourke (1989) & Molyneux & Thornton (1992) found there exists a relationship between liquidity and profitability of banks while Berger in 1995 in his empirical study for U.S. banks in the 1980s, there was a strong positive relationship

between capital-assets ratio and profitability under the condition he considered the relationship should be negative. Sergio (1996) studying non-performing loans in Italy found an increase in the riskiness of loan assets was rooted in a bank‘s lending policy adducing to relatively unselective and inadequate assessment of sectoral prospects. Business cycle could be a primary reason for banks non-performing loans. But the increase in bad debts as a consequence of recession alone was not empirically demonstrated. Das and Ghosh (2005) analysed the interrelationships among credit risk, capital and productivity change in the Indian context, using the data on state-owned banks (SOBs) for the period 1995– 2001. Found that higher productivity leads to a decrease in credit risk and also there was a positive relation between productivity and bank capitalization. Das et al., (2006) investigated the Indian commercial banking for 1992–2002 using multivariate analysis based with bank size, ownership, capital adequacy ratio, non-performing loans and management quality. The empirical results also showed that technically more efficient banks were having less non performing loans.

Omprakash et al., (2008) compared Indian banking sector for 1999–2003. The study showed that SBI and its group which have the highest efficiency and capital adequacy ratio was found to have a significant positive impact on efficiency. Ara et al., (2009) have found the positive relationship between credit risk management and profitability of commercial banks in Sweden. Kithinji (2010) assessed the effect of credit risk management on the profitability of commercial banks in Kenya and found that banks' profitability is not affected by credit risk management. When it comes to both credit risk and liquidity risk, Kolapo, et al., (2012) showed that credit risk management is positively related to profitability of banks in Nigeria. Dhanapal and Ganesan (2012) examined factors influencing the profitability of public sector banks in India for 2006- 2011. The stepwise regression reveals that there was a significant relationship between profitability, NPA to total assets and ROA were the key factors as they have highest positive coefficient. Achsania Ruziqa (2012) examined the impact of credit and liquidity risk on bank's financial performance. The study especially focused on Indonesian conventional bank during 2007– 2011. The results showed that credit risk had negative significant effect on ROA and bank size was only found to have negative significant while credit risk and liquidity ratio was found to have insignificant impact on NIM. Yasser et al., (2013) tested the performance of Indonesian banks in the most-stable period, 2005–2007, after having the worst crisis in the Indonesian bank's history, the Asian Financial Crisis 1997–1998. By using ROA, ROE and net interest income to total asset (NIITA) as the proxies for bank performance and non performing loan (NPL) as the proxy for bank efficiency, the study investigated 25 Indonesian banks for three consecutive years and applied multivariate regression analysis to test the proposed hypotheses. The results revealed the bank characteristics play important roles to determine the bank's performance measurement; however these variables have less influence on the bank efficiency measurement.

3.0 Gap

The above studies apprehended the importance of credit risk management and profitability for the sustainability of commercial banks.However the studies are not exhaustive and lack system wide analysis and the decision making orientation was altogether missing. The above studies have failed to clearly expose the relationship of credit risk management and profitability of commercial banks.Most of researchers have focused on one or several countries and showed different results. However, no researcher has been done on the Indian Public sector banks. Research on Indian commercial bank engaging risk management and profitability has not been developed until now. Indian bank had maintained stability during global financial crisis through reforms and it will create a benchmark for future research.

4.0 Objective of the study

The objective of the present study is to analyze the effect of risk management practices and profitability of selected public sector commercial banks in India during the period 2006-2019.To attain this objective, the study initially examine the relationship between credit risk management and profitability indicators.Capitaladequacy ratio (CAR) and non-performing loan ratio (NPA) are the indicators of credit risk management and ROA represent profitability. The study will checkthe stability over time of such relationship to find whether therelationship is fluctuating or stable.

5.0 RESEARCH METODOLOGY

Data

Data from secondary sources have been used in this study for analysis purposes. Data has been collected from "Basic Statistical Returns of Scheduled Commercial Banks"published by Reserve Bank of India (RBI) on an annual basis. The research will cover 20 public sector commercial banks which are continually registered in the range period of the research from 2006-2019 was included in the study. Data will be analysed using both descriptive and regression analysis. For regression analysis, the fixed effects were taken into consideration.

The model was proposed in this research is discussed below. Return on Assets can be predicted from the banks' size and risk management. Risk management will be measured by Non Performing Loan and Capital Adequacy Ratio. In a mathematical expression, it may state:

$$ROA=f(Size,CAR,NPL)$$

Whereas,
ROA = Return on Assets as firm's profitability.
CAR = Capital Adequacy Ratio as firm's capital to risk management.
NPL = Non-performing Loan, Loan level that close to default as risk management.
TA = Total Assets, representing firm's size.

The result and discussion

Table i. Descriptive statistics

Variable	Mean	Std. Dev	Min	Max
ROA	-0.16	1.03	-3.91	2.61
CAR	2.49	0.15	0.69	2.73
NPL	7.05	1.58	2.61	11.18
TA	12.11	0.90	9.85	15.12

Source: Calculation based on data compiled from 2006-2019.

In this paper the researcher used logarithm natural for all the variables as a standardization process.Profitability was measured by using Return on Assets. This ratio measures return on assets employed or the efficiency in utilization of assets. It is arrived at by dividing the net profit by average assets, which is the average of total assets in the current year and previous year. This ratio can be increased by firms either by increasing profit margins or asset turnover but they can't do it simultaneously because of competition and trade-off between turnover and margin. Higher return on asset means greater returns earned on assets deployed by the bank and it is one among the guidelines of RBI for balance sheet analysis of banks. As per Basel-II norms, the ROA should be more than one per cent (Ghosh, C.R. et al; 2004). In accordance with our result, on an average public sector banks had negative 0.16 returns on assets for 2006 through 2015. It registered a low of -3.91 to a high of

2.61.

CAR is the ratio of capital funds to risk weighted assets (both on and off balance sheet) expressed as a percentage. The capital funds comprises of Tier-I capital (shareholders equity and retained profits) and Tier-II capital (supplementary capital) and Tier-III capital (subordinated debt with a minimum maturity of two years). This criterion was suggested by Basle-II committee, which came into effect in March-2005. The one important parameter that essentially relates to the bank's ability to sustain the losses due to risk exposures is the bank's capital. The intermediation activity exposes the bank to a variety of risks. Even the big banks collapse, due to their inability to sustain the risk. Considering this, it is highly essential to examine the capital vis-a -vis the risk weighted assets. This is the capital to risk weighted assets ratio (CRAR) as given by the Basle Committee. The statutory prescription for CRAR is 9 percent, which has been well surpassed by most banks. The attainment of the minimum capital adequacy ratio ensures the soundness and financial health of the banks. It measures the ability of a bank in absorbing losses arising from risky assets. The higher the value of this ratio, better the financial health of a bank. On average, public sector banks had 2.49 Capital Adequacy Ratio to manage the risk of its services. However, during 2006 to 2019, there are banks which lowered its CAR to level 0.69 or maintained it at level of 2.73.

The improvement in the financial health of the banking system is reflected in declining share of NPAs in the advances and assets of all the bank groups. According to Kumar Sanjeev (2010) the measure of non-performing assets (NPAs) explains the efficiency in allocation of resources made by the banks to productive sectors. The problem of NPAs arises either due to bad management by banks or due to change in business cycle. Among the several channels of recovery available to the banks dealing with non-performing loans (NPLs), the Debt Recovery Tribunal (DRT) and the SARFAESI Act have been most effective in terms of amount recovered. Non-Performing Loan, which should be avoided were on 7.05 in average. The lowest level of NPL for 2006 to 2019 was 2.61 and the highest was 11.18.

According to Isik and Hassan (2002), the size of the bank can be an important driver of the variation of efficiency across banks.Bank size accounts for the existing economies and diseconomies of scale in the banking market (Athanasoglou, Brissimis, & Delis, 2008). Larger banks tend to be more active in markets, have a greater product and have better possibilities for risk diversification (Lehar, 2005).Size of the firm was measured using its total assets. Higher the banks' total assets, the bigger its firm size. The study found that there was a huge gap between the smallest bank and the largest bank in term of their total assets. The smallest size was 9.85 and the biggest size was 15.12. The average size of banking total assets was 12.11.

6.0 Stationarity Test

Stationary test was conducted for the series included in the study. This is done in order to avoid spurious regression. Spurious regression refers to the regression that tends to accept a false relation or reject a true relation by flawed regression schemes (Chiarella & Gao, 2002).

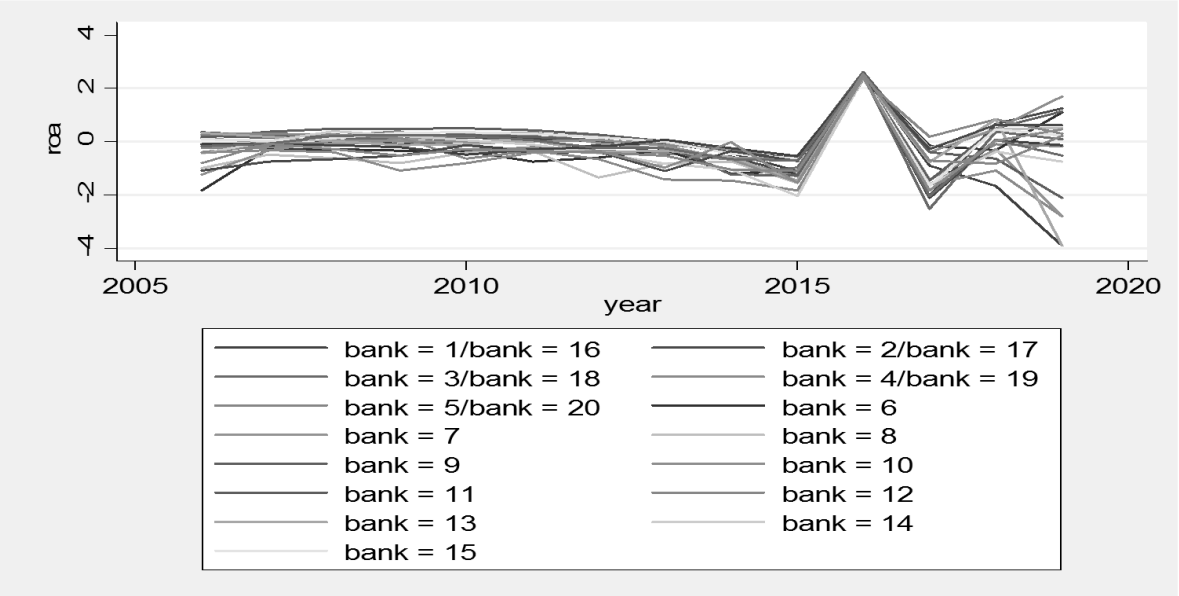
Table-2 Result for ADF test

Variables	ADF - Fisher Chi-square	ADF - Choi Z-stat	Prob
ROA	137.244	-8.7145	0.00
CAR	146.407	-9.39481	0.00
NPL	90.7093	-6.43119	0.00
TA	76.3911	-5.65182	0.00

Source: Calculation based on data compiled from 2006-2019.

Table 2 reports the results of unit root tests. The null hypothesis of a unit root at the zero level was accepted for all the variables using Augmented Dickey-Fuller (ADF) test. The table reveals all the variables were stationery at one percent.

Figure 1 ROA for panel public sector banks



Source: Calculation based on data compiled from 2006-2019.

From the trend figure 1 of ROA for different bank are found to be never constant, and always in change constant it fluctuated among positive and negative. The figure observe a large waves during 2016-2017; this may be largely on account of a massive flow of funds into the banking system after the demonetization of November 2016.These lead us to infer that our variables are more aligned in periods of high instability.

7.0 Multicollinearity Test

Hypothesis: significant association between the variables

Table 3 Correlation Matrix for the regression

	CAR	NPL	TA	ROA
CAR	1			
NPL	-0.2252	1		
TA	-0.0085	0.8346	1	
ROA	***-0.1048***	***0.0298***	***-0.0562***	1

Source: Calculation based on data compiled from 2006-2019.

Multicollinearity is a situation where the explanatory variables are nearly linear dependent (Jurczyk, 2012). From table 3 the highest correlation among all the variables is -0.1048 which is the correlation between NPL and ROA. Researchers always prefer an absolute value larger than 0.8 to be enough to cause multicollinearity (Studenmund, 2011). Considering this the study concludes that

there is no problem of multicollinearity among our variables.

8.0 Model specification

The Hausman test is used for model misspecification. In panel data analysis (the analysis of data over time), the Hausman test can help to choose between fixed effects model and random effects model. The null hypothesis is that the preferred model is random effects. The alternate hypothesis is that the model is fixed effects; there is a correlation between the unique errors and the repressor in the model. The null hypothesis is that there is no correlation between the two.

Hypothesis: fixed effects (correlated errors) vs. random effects for panel data

Tabl1-4 HausmanAnalysis

	FIXED	RANDOM	DIFFERENCE	S.E.
CAR	-0.5657067	-0.4073754	-0.1583314	0.1738735
NPL	0.2996403	0.1368994	0.1627409	0.0655759
TA	-0.82355	-0.2652847	-0.5582653	0.2139056
chi2(3)	**7.42**	**Prob**	**0.0596**	**Prob>chi2**

Source: Calculation based on data compiled from 2006-2019.

Table 4 reveals that null hypothesis cannot be rejected for all chosen levels of significance, since 0.0596<0.10. Hence the study adopts the fixed effect model. Hausman test would almost never reject the null hypothesis for small values of the nominal size when constant term is used in the models. And this applies even if the alternative hypothesis is actually true, which explains the 0 values of the power for nominal size 0.01 and 0.05. Even for size 0.10, the power remains smaller than the nominal size.

9.0 Regression Analysis

Hypothesis: The association between CAR,SIZE and NPLR on ROA of public sector commercial banks.

Table-5 Fixed-effects regression

Group variable: bank			Number of obs			280
R-sq:			Number of groups			20
within = 0.0518			Obs per group: min			14
between =0.0373			avg			14.0
overall =0.0197			max			14
			Wald chi2(3)			14.51
corr(u_i, Xb) = -0.7854			Prob> chi2			0.0000
	Coef.	robust std. err	t	P>|t|	[95% Conf	Interval]
CAR	-0.5657067	0.23711	-2.39	0.028	-1.061984	-0.0694297
NPL	0.2996403	0.0798537	3.75	0.001	0.1325046	0.466776

TA	-0.82355	0.1972526	-4.18	0.001	-1.236404	-0.4106956
CONS	9.105806	1.824248	4.99	0.000	5.287611	12.924
sigma_u	0.41237664					
sigma_e	1.0296464					
rho	0.13823028	(fraction of variance due to ui)				

Source: Calculation based on data compiled from 2006-2019.

'Rho' (intraclass correlation) represent that 13.8% of the variance is due to differences across panels. The errors ui are correlated by -0.7854with the repressor in the fixed effects model. The table showed significant relationships between the independent variables to dependent variable, Return on assets. The p value is < 0.05; hence the model is fit. There is a significant relationship between the bank size, capital adequacy ratio, and their non-performing loan to their profitability.

The regression analysis shows that the p-value for CAR is 0.028 and for TA and NPLR is 0.001. Under the condition that the level of significance is 5 percent, hence there is association between CAR NPA, TA and ROA. To control heteroscedasticity robust analysis was adopted. The study although finds significant the coefficient of CAR, it is negative. Thus, it may be realized that CAR could negatively affect the bank profitability. This negative association may be in order to keep a higher CAR banks will restrict their activities whichcould be negatively associated with bank development and profitability.This result is in line with the findings of Alshatti (2015); Poudel (2012); Zou and Li (2014); and Ndoka and Islami (2016) who found negative linkage between CAR and bank profitability. Abdelrahim (2013) found a negative impact of bank size on the effectiveness of credit risk management. TA has a negative effect on ROA and observes highly significant. Larger the assets more deposits a bank uses, the lower the bank's profitability. This may be due to the facts that banks offer high interest rates in order to attract more deposits which may reduce their profitability.

NPL and ROA have the positive association which indicates that lower NPL is related with the lower risk and deposit rate, meaning a positive impact on banks' operations. Alshatti (2015) positive effect of non-performing loans/gross loans on banks' financial performance during the period of 2005 to 2013 using thirteen commercial banks of Jordan.The negative relationship between bank size and ROA could be due that the larger thebank is, the more managerial inefficiencies and risks it will face, which could inversely affect the ROA of commercial banks.

To test the stability of those relationships, the study used further time horizon regression analyses.

Hypothesis: The association between CAR, TA and NPLR and ROA is stable over time of study at 5% level of significance.

The calculated p value holds on to the null hypothesis of statistically there is significant difference in the mean ratio of Return on Asset Ratio among the year wise analysis.The year wise analysis in table 6 shows that the p-value for CAR is 0.016 and for TA is 0.00 depicting the level of significance is 5 and 1 percent respectively; hence there is negative association between CAR, TA and ROA. NPL shows the insignificant association with ROA this may be due that higher the NPL is, the less the available capital for banks to invest over the time zone. Adeusi et al. (2014) evaluated inverse relationship of (NPL) risk management practices and banks' financial performance in Nigeria and Aduda and Gitonga (2011) for Kenya bank.

Table-6 Year-Wise Analysis

Group variable: bank			Number of obs		280	
R-sq:			Number of groups		20	
within =0.7209			Obs per group: min		14	
between =0.0275			avg		14.0	
overall =0.1315			Max		14	
			Wald chi2(3)		39.40	
corr(u_i, Xb) = -0.9118			Prob> chi2		0.0000	
	Coef.	robust std. err	t	P>|t|	[95% Conf	Interval]
CAR	-0.7101488	0.2916315	-2.44	0.016	-1.284585	-0.1357124
NPL	-0.0521943	0.0843195	-0.62	0.536	-0.2182812	0.1138927
TA	-2.659438	0.4077966	-6.52	0.00	-3.462689	-1.856187
2007	0.8285363	0.2068045	4.01	0.00	0.4211865	1.235886
2008	1.467942	0.2623276	5.6	0.00	0.9512267	1.984658
2009	2.030444	0.323045	6.29	0.00	1.394131	2.666756
2010	2.56843	0.4029105	6.37	0.00	1.774804	3.362057
2011	3.097669	0.4818812	6.43	0.00	2.148491	4.046847
2012	3.297009	0.5394296	6.11	0.00	2.234476	4.359541
2013	3.491583	0.6053563	5.77	0.00	2.299192	4.683974
2014	3.519304	0.6710569	5.24	0.00	2.1975	4.841108
2015	3.274793	0.7008681	4.67	0.00	1.89427	4.655317
2016	7.009999	0.7421949	9.44	0.00	5.548073	8.471926
2017	3.483168	0.7512749	4.64	0.00	2.003356	4.96298
2018	4.767645	0.7922409	6.02	0.00	3.207141	6.328148
2019	4.352186	0.8043723	5.41	0.00	2.767786	5.936585
CONS	31.08865	4.485008	6.93	0.00	22.25438	39.92292
sigma_u	1.983875					
sigma_e	0.573255				: F(19, 244)	3.51
Rho	0.922938	(fraction of variance due to u_i)			Prob> F	0.0000

Source: Calculation based on data compiled from 2006-2019.

Compared with the regressions of dependent variable ROA seems to experience large waves during 2016. The coefficients are not consistent across banks for different periods, indicating that there are significant differences among the time periods on these aspects. Therefore, the relationships between CAR, TA, NPLR and ROA are not constant and always changing.

The coefficients of size are negative and significant during the study period indicating that larger banks are less profitable inspite of competition and financial crisis. Merging or acquiring bank may increase the bank size but lessen the bank profitability. CAR and ROA has negative association this may be due that banks have begun to apply Basel II provisions from March 31, 200 7while a slight extending further than this date move to the Basel II framework with effectfrom March 31, 2009". Banking risk management& regulation was entirely executed on April 2009 to retain "a Capitalto Risk Weighted Assets Ratio (CRAR)" at '9%'.The relationships between NPLR and ROA

are negative but not significant.

To check the reliability of time fixed effects model the study applied Post estimation test of parameters. It is a joint test to see if the dummies for all years are equal to 0.

Test parameters	***values***
F(13, 244) =	45.01
Prob> F	0.0000

Source: Calculation based on data compiled from 2006-2019.

The Prob>F is < 0.05, so we reject the null that the coefficients for all years are jointly equal to zero, therefore time fixed effects are needed in this case for better result.

Hypothesis: The association between CAR and NPLR and ROE is stable between / among the selected public sector commercial banks.

Table-7 Bank Wise Analysis

Source	SS	df	MS	Number of obs	280
Model	23.1557414	22	1.0525337	F(22, 257)	0.99
Residual	272.464105	257	1.06017162	Prob> F	0.4739
Total	295.619846	279	1.05956934	R-squared	0.0783
Root MSE	1.0296			Adj R-squared	-0.0006

Roa	Coef.	Std. Err.	t	P>|t|	[95% Conf.Interval]	
CAR	-0.56571	0.476137	-1.19	0.236	-1.50333	0.371919
NPL	0.29964	0.100806	2.97	0.003	0.101129	0.498152
TA	-0.82355	0.250755	-3.28	0.001	-1.31735	-0.32975
Allahabad Bank	-0.79041	0.557827	-1.42	0.158	-1.88891	0.308081
Andhra Bank	-0.89695	0.572993	-1.57	0.119	-2.02531	0.231413
Bank of Baroda	-0.4532	0.441807	-1.03	0.306	-1.32323	0.416819
Bank of India	-0.58613	0.466689	-1.26	0.21	-1.50515	0.332893
Bank of Maharashtra	-1.39999	0.618419	-2.26	0.024	-2.6178	-0.18217
Canara Bank	-0.55084	0.460132	-1.2	0.232	-1.45695	0.35527
Central Bank of India	-1.02409	0.512594	-2	0.047	-2.0335	-0.01467
Corporation Bank	-0.76734	0.563548	-1.36	0.175	-1.87709	0.342424
Dena Bank	-1.29616	0.653765	-1.98	0.048	-2.58358	-0.00874
Indian Bank	-0.63598	0.548022	-1.16	0.247	-1.71516	0.44321
Indian Overseas Bank	-0.93298	0.544731	-1.71	0.088	-2.00568	0.139726
Oriental Bank of Commerce	-1.05449	0.543519	-1.94	0.053	-2.12481	0.01583
Punjab And Sind Bank	-1.46231	0.638085	-2.29	0.023	-2.71885	-0.20577
Punjab National Bank	-0.17839	0.450922	-0.4	0.693	-1.06636	0.709587
Syndicate Bank	-0.83643	0.526584	-1.59	0.113	-1.8734	0.200536
Uco Bank	-1.04734	0.553592	-1.89	0.06	-2.13749	0.042814
Union Bank of India	-0.6481	0.492959	-1.31	0.19	-1.61886	0.322651
United Bank of India	-1.53589	0.62877	-2.44	0.015	-2.77408	-0.29769
Vijaya Bank	-1.27867	0.595041	-2.15	0.033	-2.45045	-0.1069

cons	9.974589	2.953672	3.38	0.001	4.158106	15.79107

Source: Calculation based on data compiled from 2006-2019.

The calculated value of F is lesser than the table value. Hence, Null Hypothesis is unable to be rejected. The table shows that statistically there is no significant difference in the mean Return on Asset Ratio among the select banks.Finally, the coefficients on CAR,TA, NPL and ROA are consistent across banks ofdifferent size, indicating that effects of these variables on bank profitability are the same acrossbanks of different size.The mean coefficient of NPL and TA shows the significant results. Among the banks Bank of Maharashtra, Central Bank of India, Bank of India, Dena Bank, Punjab and Sind Bank, United Bank of India and Vijaya Bank showed significant association on ROA. Remaining banks exhibited lack of significant relationships. This may be due to neglecting the impact of the systematic risks during the financial crisis. Table 7 shows that CAR and ROA and CAR and ROA is not significant. This could due to the controversial theoretical prediction of the relationship between CAR and banks' profitability. This result is in line the finding reported by Abdelrahim (2013) who found capital adequacy have an insignificant impact on the effectiveness of credit risk management of Saudi Banks

The result found that there is a negative relationship between NPL and ROA. This is in accordance with most of the previous researches conducted in one specific country. The higher the NPLR is, the less the available capital for banks to invest indicates lower asset qualities. Nawaz et. al. (2012) profitability is inversely influenced by non-performing loan and deposits thus exposing them to risk of illiquidity and distress. The authors recommend for the management to be cautious when setting up the credit policy as not to affect profitability. TA result showed a negative association with ROA this may be due to medium and large banks that have more loans tied up to totalasset are less profitable, larger banks should not rely too much on loans to generate profits since more percentage of loans could possibly reduce their profitability. While for smaller banks has lesser asset funds to generate profits.

Moreover, coefficients are negative for all public sector banks. these could be explained by the contradictory prediction of the relationship between CAR, TA and NPL and ROA. Higher CAR and TA could internalize the risk for stakeholders and hence banks face lower cost of funding andfurther support for higher ROA.

To conclude the result strongly declares that there is strong association between risk management and profitability of the commercial banks.The findings of the study showed that the public sector commercial banks under consideration have been practicing poor credit risk management.The overall findings of this study conceal with Kaaya and Pastory (2013)study for Tanzania banks, Zubairi and Ahson (2014) for Islamic banks & Poudel (2012) for Nepalese banks showed that credit risk indicators have a negative correlation with bank performance, meaning that an increase in credit risk tends to lower bank performance. The study recommends that banks have to maintain a substantial amount of capital reserve to absorb credit risk in the event of failure, as well as to enhance lending criteria, portfolio grading and credit mitigation techniques to reduce chances of default.

10.0 Conclusion

The findings from credit risk management indicators CAR and NPL reflected a strong association with the profitability of public sector commercial banks. That conforms that better the credit risk management is, the higher will be the profitability of commercial bank. Thus efficient management of risk by banks has influence on their accounting performance.The banks need to allocate more funds to default rate management and try to maintain an optimum level of capital

adequacy to reduce risk on loans and achieve maximum performance.

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