A Study on Analysis of Non -Performing Assets and its Impact on Profitability

B Ashok,[1] Mohammad Faiz Ikram[2]

[1] *Associate Professor, Xavier Institute of Management and Entrepreneurship*

[2] *Post Graduate student, Xavier Institute of Management and Entrepreneurship*

Abstract- **In every economy, the banking industry plays an important role of intermediary for both asset and credit creation. Any Bank failure has potential for contagious effects on the economy. Hence, Bank's asset quality must be periodically measured and monitored for general economic health of the country.**

The purpose of this research is to establish relationship between the extent of non-performing assets (NPA) and profitability for Seven years from April 2014 to March 2021. During the study's time period, both public and private sector banks' Gross and Net NPAs gradually increased. The study discovered a significant positive association between public and private sector banks' gross and net nonperforming assets. The study also discovered a substantial negative association between NPA and public and private sector bank Return on Equity (ROA). The impact of ownership (public and private sector banks) on Gross and Net NPA is substantial. Its argued that NPA's movement across Banks follows herd behavior. And the root cause of NPA's appears to be structural/macro economic problems.

1.INTRODUCTION

The Indian Banking industry is currently worth Rs. 81 trillion (US $ 1.31 trillion) and banks are now utilizing the latest technologies like internet and mobile devices to carry out transactions and communicate with the Any degradation of assets or unacceptable levels of NPA would put enormous strain on the economy.

NPA' loans are those given out by banks or financial institutions to borrowers who had failed to either or both pay the principal or interest.The flow of funds in the banking business is harmed when a bank is unable to recover a loan or does not receive regular interest on such a loan. Non-Performing Assets (NPAs) have been extensively debated in relation to the global financial system.. In fact, the quantity of nonperforming assets in Indian banks is a measure of the industry's and trade's health.

Banking's primary responsibility is to provide credit for economic operations. Lending is often regarded as beneficial since it allows funds to be shifted from the banking system to productive uses, resulting in economic growth. However, lending entails a risk known as credit risk, which emerges from a borrower's failure. Non-recovery of loans, as well as interest, is a major stumbling block in the credit cycle. These loans have a significant impact on the bank's profits.While it is impossible to completely eliminate such losses, banks can always strive to limit losses to a minimum.

2. REVIEW OF LITERATURE

Shanabhogara Raghavendra looked at the impact of nonperforming assets (NPAs), the causes of NPAs, and the repercussions of NPAs in a commercial bank. This study concluded that bank or financial organization restructuring, financial deepening, and modernization of appropriate skills for credit wordiness upgradation, as well as staff efficiency, are the most important factors in resolving the current willful defaulter's system in India and around the world (1).

Suvitha K Vikram and Gayathri G focused their research on the sector with the most NPAs (public/privatesector banks), as well as the causes and controls for rising NPAs. It was discovered that the amount of nonperforming assets (NPAs) in public sector banks is higher than in private sector banks. Focused causes, NPA levels, and control measures were also investigated. It was suggested that the nature of bank oversight of credit risk and wilful defaulters is at the base of the issue of rising NPA's (2).

According to Payel Roy and Pradip Kumar Samanta , the overall NPA position of all banks has been deteriorating over time. It was discovered that there is a negative high correlation between GPA and NP, with profit decreasing as GNPA increases. Also, the

majority of the banks' profits have decreased significantly. Some banks have also suffered losses. Losses resulting from an increase in NPA cannot be avoided only by making preparations for NPA. It was indicated that while provisioning can operate as a buffer for NPA losses, it cannot be considered a remedy for expanding NPAs in all PSBs (3).

The banks advancing loans should be cautious enough to consider the backgrounds of the loan receiver and make the recovery procedure more stringent.

Senthil Arasu et al in their research found that public sector banks have a higher rate of nonperforming assets (NPAs) than private sector banks.(4) It was proposed that while the government is taking various initiatives to address the problem of non-performing assets, banks should also be more aggressive in adopting a structured NPAs strategy to prevent non-performing assets and implement severe recovery strategies. Bankers should also assess the return on investment (ROI) on a planned project and lend to customers with greater creditworthiness. Shiralashetti A.S. and Lata N. Poojari investigated the causes of nonperforming assets (NPAs) and their impact on a bank's profitability (5). The analysis discovered a moderate association between gross nonperforming assets (NPA) and the syndicate bank's net profit, as well as no significant differences in NPA by sector. The researchers made some recommendations to the regulators. Ombir and Sanjeev Bansal examined current trends in nonperforming assets (NPAs) among various types of Indian banks in their study (6). The impact of ownership pattern on determining the number of NPAs is explored in light of the belief that public sector banks have a higher proportion of NPAs. However, there was no strong empirical evidence in favor of this theory.

Their findings revealed that public sector banks are as good as or worse than private sector counterparts, but that overseas banks are more profitable than local public and private banks. A higher level of nonperforming assets (NPAs) is also found to have a detrimental impact on a bank's profitability. According to Samir and Deepa Kamra's (study, the problem of nonperforming assets is worse in public sector banks in India than in private and foreign banks. Similarly, the problem of nonperforming assets (NPAs) is more prevalent in the nonpriority sector than in the priority and public sectors (7). Furthermore, the SSI sector accounts for the majority of the overall NPA in the priority sector.

The financial health of banks has been negatively impacted as a result of this. According to the report, banks in India should use basic financial management concepts to handle challenges such as rising NPAs and strengthening recovery management, corporate governance, and technology upgrades, among other things. According to Rama Prasad and Ramachandra Reddy despite massive expansion in advances, there has been a tremendous drop in NPAs of Andhra Bank as well as Public Sector Banks over the study period (8) As a result, prudential norms were established. According to the survey, the usage of technology such as core banking solutions will revolutionize the way Indian banks handle their non-performing assets.

3. METHODOLOGY OF THE STUDY

With an aim to explore the relationship between NPA's and profitability of Banks, Data regarding select Pvt and Public Banks of their NPA's (both gross and nett) and ROE was collected. The best way to measure profitability was to through ROE as its size independent. It was reasoned that NPA's has a direct impact on Banks profit and hence on its ROE. Data was collected from Reserve bank of India website (rbi.org). Select Public sector banks chosen was State Bank of India (SBI), Punjab National Bank (PNB),IDBI Bank, Canara Bank, Central Bank and IOB. This selection has a mix of strong and weak Banks. The select Foreign banks were ICICI, AXIS, HDFC, J&K, Kotak Mahindra Bank (KOTAK), Karur Vysya Bank (KVB), Federal Bank, Yes Bank and Laxmi Vilas Bank (LVB). This selection also consists of some of the best performing banks as well as the worst performing banks.

Correlation studies was conducted across banks for NPA's (both Gross and Nett NPAs). Apart from correlation studies on ROE,(which is size independent), one way analysis of variance was attempted to test the null hypothesis if all Banks have similar ROE

4. LIMITATIONS OF THE PRESENT STUDY

The present study has the following limitations
The study is based on secondary data collected from RBI website. So the quality of the study depends purely upon the accuracy, reliability, and quality of the

secondary data source. Approximation and relative measures with respect to the data source might impact the results.

The study is limited to covers only for a period of 7 years from 2014 – 2021, therefore, a detailed analysis coveringa lengthy period, may give different results. The study considered only 10 Banks both public and private sector and ignore the othertypes of banks like foreign and co-operative banks.

5.RESULTS AND DISCUSSION

Table 1 Results of Net NPA of Public Sector Banks (Rs. Crore).

	SBI	PNB	BOI	IDBI	BOB	UNION BANK	CANARA	CENTRAL	IOB
2014	41815.1	9916.99	7690.6	4902.3	6034.76	7690.6	5965.46	6650	5658.12
2015	37277.73	15396.5	13517.57	5992.52	8069.49	6918.97	8740.09	6807	9813.33
2016	68894.38	35422.56	27996.4	14643.39	19406.46	14025.94	20832.91	13242	19212.58
2017	96932.22	32702.1	25305.03	25205.8	18080.18	19749.32	21648.98	14217.83	19749.32
2018	110854.7	48684.29	28207.27	28665.14	23482.65	24326.31	28542.4	17377.87	20399.66
2019	65894.74	30037.66	19118.96	14837.44	15609.5	20332.42	22955.11	11333.24	14368.3
2020	51871.3	27218.9	14320.1	5439.49	21576.6	3191.22	18250.95	11534.46	6602.8
2021	36809.72	38575.7	12262.02	2519.38	21799.9	27280.52	24442	9036.45	4577.59

5.2 Correlation between the nett NPA over the years 2014 to 2021 amongst banks is computed as under:
TABLE - 2

	SBI	PNB	BOI	IDBI	BOB	UNION BANK	CANARA	CENTRAL	IOB
SBI	1								
PNB	0.672734	1							
BOI	0.867096	0.732444	1						
IDBI	0.985422	0.617122	0.871517	1					
BOB	0.510715	0.913045	0.580458	0.40661	1				
UNION BANK	0.458112	0.761577	0.431103	0.474258	0.533321	1			
CANARA	0.645699	0.969476	0.685262	0.59267	0.909507	0.78066	1		
CENTRAL	0.932779	0.839059	0.901209	0.879024	0.763217	0.473876	0.811654	1	
IOB	0.886182	0.562943	0.958147	0.924867	0.350302	0.374623	0.527309	0.819682	1

By and large there is moderate to strong correlation between NPA's of Public sector banks.

Hence , its suggested that NPA's are more of structural problems relating to mcro economic Conditions.

Results of Nett NPA of Select Pvt Sector Banks
TABLE - 3

	ICICI	AXIS	HDFC	J&K	KOTAK	KVB	FEDERAL	YES BANK	LVB
2014	3297.96	1024.62	820.03	101.99	573.56	139.91	321.56	26.07	443.39
2015	6255.53	1316.71	896.28	1236.32	609.08	280.97	373.27	87.72	302.49
2016	12963.08	2522.14	1320.37	2163.95	1261.96	216.17	950.01	284.47	231.64
2017	25216.81	8626.55	1843.99	2425.37	1718.07	1033.46	941.2	1072.27	418.42
2018	27823.56	16591.71	2601.02	2791.12	1665.05	1862.83	1551.96	1312.75	1457.89
2019	13449.72	11275.6	3214.52	3239.61	1544.37	2420.34	1626.2	4484.85	1506.29
2020	9923.24	9360.41	3542.36	2181.36	1557.89	1808.65	1607.17	8623.78	1387.86
2021	9117.66	6993.52	4554.82	1995.73	2705.17	1719.39	1569.28	9813.36	

5.4 Correlation between nett NPA's amongst Pvt Banks is computed as under:
TABLE - 4

	ICICI	AXIS	HDFC	J&K	KOTAK	KVB	FEDERAL	YES BANK	LVB
ICICI	1								
AXIS	0.762412	1							
HDFC	0.12567	0.584401	1						
J&K	0.683454	0.784939	0.554846	1					
KOTAK	0.373611	0.542927	0.877728	0.583608	1				
KVB	0.387942	0.850624	0.847339	0.766931	0.667287	1			
FEDERAL	0.415458	0.807017	0.894343	0.809517	0.787992	0.919901	1		
YES BANK	-0.18072	0.30634	0.929426	0.298295	0.738313	0.665548	0.725454	1	
LVB	0.312682	0.840711	0.90794	0.616152	0.592176	0.94199	0.875909	0.714184	1

Except for ICICI, (which was into far more aggressive lending), rest of the select Pvt banks shows moderate to strong correlation.

5.5 Gross NPA's of select Public Sector Banks are as under:

TABLE - 5

	SBI	PNB	BOI	IDBI	BOB	UNION BANK	CANARA	CENTRAL	IOB
2014	79816.49	18880.06	12878.4	9960.16	11875.9	9563.74	7570.21	11500	9020.48
2015	73508.45	25694.86	22193.24	12684.98	16261.44	13030.87	13039.96	11873	14922.45
2016	121968.56	55818.33	49879.13	24875.06	40521.04	24170.89	31637.83	22721	30048.63
2017	177810.62	44752.59	52044.52	44752.59	42718.7	33712.28	34202.04	27251.33	35098.26
2018	223427.46	86620.05	62328.46	55588.25	56480.38	49369.93	47468.47	38130.7	38180.15
2019	172750.36	78472.7	60661.12	50027.94	48232.76	48729.15	39224.12	32356.04	33398.12
2020	149091.85	73478.76	61549.93	47272.37	69381.43	9935.23	37041.15	32589.08	19912.7
2021	126389.02	104423.42	56534.94	36211.95	66670.99	89788.2	60287.84	29276.96	16323.18

5.6 Correlations between Gross NPA's amongst banks over the years of study is as under:

TABLE - 6

	SBI	PNB	BOI	IDBI	BOB	UNION BANK	CANARA	CENTRAL	IOB
SBI	1								
PNB	0.616828	1							
BOI	0.821954	0.860241	1						
IDBI	0.942949	0.746062	0.921263	1					
BOB	0.648518	0.91215	0.920968	0.814396	1				
UNION BANK	0.390448	0.796906	0.530726	0.443861	0.566871	1			
CANARA	0.656397	0.96618	0.871738	0.757073	0.905752	0.847228	1		
CENTRAL	0.910824	0.856429	0.957937	0.972481	0.891102	0.528625	0.848325	1	
IOB	0.870538	0.385959	0.704555	0.751903	0.394245	0.247021	0.460822	0.702253	1

Moderate to strong correlations indicates that NPA problems are not Bank specific.

5.7 Gross NPA's of the select Pvt Sector Banks are as shown below.

TABLE - 7

	ICICI	AXIS	HDFC	J&K	KOTAK	KVB	FEDERAL	YES BANK	LVB
2014	10505.84	3146.41	2989.28	783.42	1059.44	279.18	1087.41	174.93	546.46
2015	15094.69	4110.19	3438.38	2764.08	1237.23	677.78	1057.73	313.4	454.62
2016	26221.25	6087.51	4392.83	4368.61	2838.11	511.18	1667.77	748.98	391.25
2017	42159.39	21280.48	5885.66	6000.01	3578.61	1483.81	1727.05	2018.56	640.19
2018	53240.18	34248.64	8606.97	6006.7	3825.38	3015.76	2795.62	2626.8	2694.21
2019	45676.04	29789.44	11224.16	6221.35	4467.94	4449.57	3260.68	7882.56	3358.99
2020	40829.09	30233.82	12649.97	7671.63	5026.89	4212.77	3530.83	32877.59	4233.31
2021	40841.42	25314.84	15086	6954.75	7425.51	4142.87	4602.39	28609.53	

5.8 The correlations amongst banks Gross NPA's over the years is computed as under:

TABLE - 8

	ICICI	AXIS	HDFC	J&K	KOTAK	KVB	FEDERAL	YES BANK	LVB
ICICI	1								
AXIS	0.95246	1							
HDFC	0.704474	0.802295	1						
J&K	0.885131	0.868464	0.84109	1					
KOTAK	0.723126	0.73977	0.950712	0.862353	1				
KVB	0.776655	0.890065	0.954491	0.83747	0.846241	1			
FEDERAL	0.704926	0.783589	0.991284	0.820112	0.963402	0.92832	1		
YES BANK	0.374861	0.529881	0.86266	0.682901	0.799101	0.74895	0.83272	1	
LVB	0.682411	0.849547	0.972617	0.748593	0.82903	0.964641	0.965783	0.799533	1

Majority of them are strongly correlated (ie above 0.8)

5.9 Return on Equity of Select Public Sector Banks are as under:

TABLE - 9

	SBI	PNB	BOI	IDBI	BOB	UNION BANK	CANARA	CENTRAL	IOB
2014	10.03	9.75	10.14	5	13.36	14.45	8.95	-8.12	4.06
2015	10.62	8.17	5.57	3.64	8.96	9.57	8.79	3.65	-2.86
2016	7.3	-10.27	-19.5	-14.08	-13.48	-22.33	-8.86	-8.07	-13.48
2017	6.31	3.3	-5.04	-20.52	3.44	-14.64	3.44	-13.96	8.41
2018	-3.21	-29.54	-18.23	-37.64	-5.81	-21.39	-12.19	-28.96	-46.63
2019	0.39	-23.24	-14.37	-51.4	0.97	-26.72	0.97	-30.56	-25.23
2020	6.4	2.29	-6.92	-35.98	0.84	-13.32	-5.92	-5.56	-52.45

| 2021 | 8.4 | 0.63 | 4.83 | 3.84 | 1.11 | 4.68 | 4.62 | -4.12 | 5.02 |

5.10 The correlations of ROE amongst banks are as under:

TABLE - 10

	SBI	*PNB*	*BOI*	*IDBI*	*BOB*	*UNION BANK*	*CANARA*	*CENTRAL*	*IOB*
SBI	1								
PNB	0.935272	1							
BOI	0.749362	0.832088	1						
IDBI	0.833605	0.744899	0.770309	1					
BOB	0.47525	0.64876	0.868304	0.424128	1				
UNION BANK	0.759253	0.786026	0.956822	0.871159	0.763528	1			
CANARA	0.672045	0.710321	0.879011	0.625015	0.862838	0.773547	1		
CENTRAL	0.925419	0.867016	0.655342	0.794175	0.325472	0.714251	0.468302	1	
IOB	0.654178	0.584814	0.617671	0.749543	0.429716	0.576129	0.77078	0.432044	1

The above table shows moderate to strong correlation amongst ROE

5.11) Return of Equity amongst select Pvt Sector banks are as under:

TABLE - 11

	ICICI	AXIS	HDFC	J&K	KOTAK	KVB	FEDERAL	YES BANK	LVB
2014	14.02	17.43	21.28	22.34	13.82	13.4	12.6	25.02	5.77
2015	14.55	17.75	19.37	8.6	14.12	12.26	13.69	21.33	10.14
2016	11.43	16.81	18.26	6.64	10.97	12.87	6.01	19.94	10.86
2017	10.33	6.76	17.95	-26.98	13.23	12.61	9.75	18.58	13.13
2018	6.61	0.46	17.87	3.42	12.55	6.12	8.31	17.67	-26.2
2019	3.15	7.19	16.5	7.27	12.11	3.32	9.76	6.53	-42.37
2020	7.05	2.15	16.4	-17.5	12.94	3.61	11.1	-67.52	-53.55
2021	12.27	7.06	16.61	6.54	12.36	5.3	10.38	-12.61	

5.12) The correlation table amongst Banks ROE is as under:

TABLE -12

	ICICI	*AXIS*	*HDFC*	*J&K*	*KOTAK*	*KVB*	*FEDERAL*	*YES BANK*	*LVB*
ICICI	1								
AXIS	0.729006	1							
HDFC	0.689376	0.728458	1						
J&K	0.307218	0.56695	0.517602	1					
KOTAK	0.420126	0.169859	0.52234	-0.00383	1				
KVB	0.761736	0.769247	0.812074	0.155201	0.275644	1			
FEDERAL	0.396675	0.2522	0.385719	0.164816	0.910245	0.086678	1		
YES BANK	0.345525	0.542365	0.627581	0.448212	0.061356	0.671061	-0.10842	1	
LVB	0.834041	0.731745	0.719866	0.180409	0.192373	0.979283	0.035619	0.749023	1

Except for federal bank, ROE's of select pvt sector banks are moderately to strongly correlated. As can be seen, the next logical question that arises is what differentiates various banks.

For this purposed the null hypothesis

H_o : All Public sector banks have equal ROE

H_a : All Public sector Banks have unequal ROE

This hypothesis was tested by one way Annova and the result output is as under:

TABLE -13

Anova: Single Factor						
SUMMARY						
Groups	*Count*	*Sum*	*Average*	*Variance*		
SBI	8	46.24	5.78	23.02863		
PNB	8	-38.91	-4.86375	215.3251		
BOI	8	-43.52	-5.44	130.3989		
IDBI	8	-147.14	-18.3925	474.1899		
BOB	8	9.39	1.17375	68.27548		
UNION BANK	8	-69.7	-8.7125	253.8429		
CANARA	8	-0.2	-0.025	64.80323		
CENTRAL	8	-95.7	-11.9625	144.9908		
IOB	8	-123.16	-15.395	566.8809		
ANOVA						

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	4085.194	8	510.6493	2.366874	0.026972	2.089185
Within Groups	13592.15	63	215.7484			
Total	17677.34	71				

As the F value is greater than F $_{crit}$, we reject the null and accept the Alternate Hypothesis that ROE amongst Banks are not equal, which perhaps could explain investor preferences only for certain Banks.

Similarly the following Hypothesis was tested for Pvt Banks.

H_o : All Private sector banks have equal ROE

H_a : All Private sector Banks have unequal ROE

The one way Annova output results is as under:

TABLE - 14

Anova: Single Factor						
SUMMARY						
Groups	Count	Sum	Average	Variance		
ICICI	8	79.41	9.92625	15.89188		
AXIS	8	75.61	9.45125	48.41513		
HDFC	8	144.24	18.03	2.7796		
J&K	8	10.33	1.29125	249.3254		
KOTAK	8	102.1	12.7625	1.008164		
KVB	8	69.49	8.68625	20.07257		
FEDERAL	8	81.6	10.2	5.758114		
YES BANK	8	28.94	3.6175	970.2759		
LVB	7	-82.22	-11.7457	801.6626		
ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	4270.039	8	533.7549	2.362985	0.027414	2.091693
Within Groups	14004.66	62	225.8817			
Total	18274.7	70				

As F value is greater than F$_{crit}$, we reject the null hypothesis and accept the alternate, that ROE amongst Pvt banks are unequal.

TABLE 15- Correlation Table between Nett NPA and ROE of Public and Pvt banks

Below table gives the correlation between Nett NPA and ROE of both Public and Pvt Sector Banks.

SBI	PNB	BOI	IDBI	BOB	UNION BANK	CANARA BANK	CENTRAL BANK	IOB
-0.75985	-0.72442	-0.8654	-0.54836	-0.7539	-0.3322	-0.67828	-0.66071	-0.16966

ICICI	AXIS	HDFC	J & K	KOTAK	KVB	FEDERAL	YES	LVB
-0.48735	-0.92794	-0.85673	-0.47582	-0.46104	-0.93799	-0.45777	-0.8268312	-0.94321

As expected the above table shows negative correlation between nett NPA and ROE of Banks. All are moderately to strongly correlated except for Union Bank and IOB. Hence NPA's are a strong indicator of the profitability of the Banks.

CONCLUSION

- The root causation of NPA's are structural and macro economic dependent.
- Banks in general show herd behavior in movements of NPA's.
- Increasing NPA's decisively affects profitability of Banks by decreasing ROE.

- The key differentiator between banks is in their ability to manage superior ROE inspite of NPA's.

REFERENCES

[1] Shanabhogara Raghavendra, "Non-Performing Assets in Commercial Banks in India: An Analysis", International Journal of Research in Humanities, Arts and Literature (IJRHAL),Vol.6, No.4, pp: 377-386, 2018

[2] Suvitha K Vikram, Gayathri G," Analysis of NonPerforming Assets", International Journal of Pure and Applied Mathematics, Vol. 118, No.20, pp: 4537-4540, 2018

[3] Payel Roy and Pradip Kumar Samanta, "Analysis

of Non Performing Assets in PublicSector Banks of India", International Journal of Management (IJM), Vol.8, No.1, pp:21-29, 2017

[4] B. Senthil Arasu , P. Sridevi , P. Nageswari, R. Ramya; A Study on Analysis of Non -Performing Assets and its Impact on Profitability, International Journal of Scientific Research in Multidisciplinary Studies Volume-5, Issue.6 , pp.1-10, Jun-2019

[5] Shiralashetti A.S.and Lata.N.Poojari," Non-Performing Assets: A Case Study of Syndicate Bank", Pacific Business Review International, Vol. 8, No.10, pp: 87-92, 2016

[6] Ombir and Sanjeev Bansal, "An Analysis of Non Performing Assets of Indian Banks", International Journal of Research in Commerce, Economics & Management, Vol. 6, No.9, pp: 37-42, 2016

[7] Samir and Deepa Kamra," A Comparative Analysis of NonPerforming Assets (NPAs) of Selected Commercial Banks in India.", Opinion: International Journal of Management, Vol.3, No.1, pp: 68-80, 2013

[8] Rama Prasad. KB. Ramachandra Reddy," Management of Non-Performing Assets in AndhraBank", Indian Journal of Applied Science, Vol: 2, pp: 13-15, 2012