

Research Article

A Comparative Study of Npas in Private Sector Banks in India with Special Reference to ICICI Bank and HDFC Bank

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A B S T R A C T

Indian Economy heavily depends on Banking Sector. Commercial Banks provide finances personal, business as well as industries. The Indian banking system is currently facing numerous issues as a result of growing NPAs. This paper focusing on the NPA study of two largest private sector banks in India. Two banks selected for this research ICICI and HDFC Bank. This research will study the bank business, profitability and NPAs of these banks from the period of 2012-2022.

Keywords: ICICI Banks, Banking, HDFC Bank, NPAs, Commercial Banks

Introduction of NPA

Loans or advances that are in default or arrears are categorized as non-performing assets. NPAs. Today, the banking industry and commercial world are spooked by the three letters Strike. The dreaded NPA rule states that if a bank's interest or other sums owed go unpaid for more than 90 days, the entire bank loan becomes a nonperforming asset.

Concept of NPA

A loan that is listed under "Non-Performing Assets" has not produced any income from interest or principal repayment. The Narasimham Committee Report (1991) states that assets with outstanding interest and principal payments for 180 days or more should be classified as non-performing assets (NPAs). According to the Banking Regulation Act of 1949, the grace period was shortened to 90 days starting in 1995.

Classification and Provisions for Assets

Banks divide loan assets into four groups, as follows:

Standard Assets: These kinds of assets are risk-free and don't cause any issues for routine business. As a result, these assets are regarded as performing assets in banking parlance; yet, a provision of 0.25 percent must be made for safety in order to sustain the worldwide loan portfolio.

Substandard Assets: As of the 31st of March 2005, a substandard asset is one that has remained non-performing for less than or equal to a year. These assets have a credit risk, there is a chance of some loss if borrowers delay making payments, which reduces the banks' liquidity. These subpar assets require a general provision of 10% of the outstanding amount.

(iii) Doubtful assets: Assets that have been non-performing for longer than a year but are not regarded as loss assets are referred to as doubtful assets. After deducting the realized

amount under the Deposit Insurance and Credit Guarantee Corporation Scheme and the realized/realizable amount of guarantee cover under the Export Credit Guarantee Corporation (ECGC) schemes, banks are required to provide 100% of the outstanding advance's unsecured component. As of June 3, 2014, the advances listed below would be considered doubtful assets according to provisional criteria for assets older than three years.

Unsecured component: The portion of the advance not covered by the recoverable amount of the physical security to which the bank has legal recourse would be granted up to the total amount, the realistic value would be calculated on a reasonable basis.

Secured portion: The time frame during which the advance was classified as Doubtful. provisions needed (percent) Up to one year, 25 years, three decades Over three years, one hundred

Loss assets: are those that have been recognized as losses by the bank, internal or external auditors, in accordance with RBI requirements but have not yet been fully written off. These are the lost assets; however some of them may be salvaged.

Literature Review

Already many researches have already been conducted on NPAs of different types of Banks like Commercial Banks, RRBs and Co-operative Banks. Some of these banks research paper discussed below as these are used as references for this study.

Goyal & Kaur (2011) study on Private sector Banks and Foreign Banks NPAs. Data analysis on the basis of Gross NPAs, Gross Advances, Net NPAs, Net Advances and various classes of Assets. ANOVA test, Standard Deviations and Post Hock Tukey test uses for the study. During the study period from 2005 to 2009 both private and foreign banks NPAs increases and Foreign Banks NPAs increased much faster than Private Banks of India.

Gupta & Banerjee (2019) study on the effect on Non-Performing Assets on Return on Assets on Punjab National Banks. Data analysis from the period of 2014 to 2018. It has been found there is negative correlation between these two.

Banerjee & Verma, (2020) study on Non-Performing Assets of Allahabad Uttar Pradesh Gramin Bank. The correlation coefficient test is used to analyse net NPA and net profit data. The study period 2013-2018 revealed a negative association between Net Profit and Net NPA, with Net Profit increasing and Net NPA decreasing.

Banerjee & Verma (2022) worked on the NPAs of Allahabad U. P. Regional Rural Bank and Kashi Gomti Samyut Gramin Bank data analysis on the basis of Gross and Net Advances,

Gross and Net NPAs, Gross Profit, Net Profit, various categories of NPAs, as well as the recovery channels used by these banks from 2011 to 2018. ANOVA and Post Hock Tukey & Hochberg tests shows that there is a significant relationship between different types of NPAs and Advances of Allahabad U. P. Regional Rural Bank, Net Advances with Net NPAs of Kashi Gomti Samyut Gramin Bank.

Objectives

1. To find out the relationship between Gross Advances & Gross Non-Performing Assets of ICICI & HDFC Bank.
2. To find out the relationship between Net Advances & Net Non-Performing Assets of ICICI & HDFC Bank
3. To find out the relationship between Gross Non-Performing Assets and Gross Profits of ICICI & HDFC Bank.
4. To find out the relationship between Net Non-Performing Assets and Net Profits of ICICI & HDFC Bank.

Research Methodology

Nature of Study: Secondary Data Analysis

Sources of Data Collection: Annual Audit Reports of the Banks.

Time Frame: 2012-2022

Sample Banks: ICICI & HDFC Bank

Parametric Test: Correlation, Regression, Coefficient of determination, ANOVA

Non Parametric Test: Kruskal-Wallis Test

Hypothesis

H_0 : There is no significant association between Gross Advances & Gross Non-Performing Assets of the ICICI Bank and HDFC Bank.

H_0 : There is no significant association between Net Advances & Net Non-Performing Assets of the ICICI and HDFC Bank.

H_0 : There is no significant association between Gross Non-Performing Assets & Gross Profit of the ICICI and HDFC Bank.

H_0 : There is no significant association between Net Non-Performing Assets & Net Profit of the ICICI and HDFC Bank.

Data Analysis

H_0 : There is no significant association between Gross Non-Performing Assets & Gross Advances of ICICI Bank.

Table no 2 regression tests shows relationship between Gross Advances & Gross Non-Performing Assets of the ICICI Bank. Adjusted R square value 0.369 which lies between -1 to +1, Adjusted R Squared the independent variables here cumulatively explain 36.9% of the dependent variables. Adjusted R square is saying this model is 36.9% fit. Table no 6 calculated value of F which is (6.255) which is significant at 5%, so the difference is significant and

hypothesis is rejected which indicates that the value of slope is nonzero. Therefore null hypothesis rejected, hence there is a cause and effect relationship between Gross

Advances & Gross Non-Performing Asset. We can also proof with non-parametric Kruskal-Wallis Test which has shown similar results in Table 4.

Table 1. Gross Advance and Gross-Non Performing Assets of ICICI Bank & HDFC Bank (Rs. Crore)

Year	ICICI Bank		HDFC Bank	
	Gross Advances	Gross-Non Performing Assets	Gross Advances	Gross-Non Performing Assets
2012-13	2,75,119	9,647	2,39,721	2,374
2013-14	3,38,703	10,554	3,03,000	2,989
2014-15	3,87,522	15,242	3,65,495	3,438
2015-16	4,35,264	26,721	4,64,594	4,393
2016-17	4,64,232	42,552	5,54,568	5,886
2017-18	5,66,854	54,063	6,58,333	8,607
2018-19	5,86,647	45,292	8,19,401	11,224
2019-20	6,45,290	41,409	9,93,703	16,141
2020-21	7,33,729	41,373	11,32,837	15,086
2021-22	8,59,020	33,919	13,68,821	12,650

Table 2. Gross Advances & GNPA of ICICI Bank Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.662	.439	.369	12487.85

Table 3. ANOVA Test

	Sum of Squares	df	Mean Square	F	Sig.
Regression	9.755E8	1	9.755E8	6.255	.037
Residual	1.248E9	8	1.559E8		
Total	2.223E9	9			

a. Predictors: (Constant), Gross Advances

b. Dependent Variable: Gross NPA

Table 4. Summary of Hypothesis Test

Test	Sig.	Result
Kruskal-Wallis Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Table 5. Gross Advances & Gross Non-Performing Assets of HDFC Bank Model Summary

R	R Square	Adjusted R Square	S.E of the Estimate
.914	.836	.815	2232.93

Table 6. ANOVA Test

	Sum of Squares	df	Mean Square	F	Sig.
Regression	2.033E8	1	2.033E8	40.766	.000
Residual	3.989E7	8	4985955.582		
Total	2.431E8	9			

a. Predictors: (Constant), Gross Advances

b. Dependent Variable: Gross Non-Performing Assets

H₀: There is no significant association between Gross Advances & Gross Non-Performing Assets of HDFC Bank.

Table 5, regression tests shows relationship between Gross Advances & Gross Non-Performing Assets of the HDFC Bank. Adjusted R square value 0.815 which lies between -1 to +1, Adjusted R Squared the independent variables here cumulatively explain 81.5% of the dependent variables. Adjusted R square is saying this model is 81.5% fit. Table no

6 calculated value of F which is (40.766) which is significant at 5%, so the difference is significant and hypothesis is rejected which indicates that the value of slope is nonzero. Therefore null hypothesis rejected, hence there is a cause and effect relationship between Gross Advances & Gross Non-Performing Assets. Kruskal-Wallis non parametric test conducted because of Independent samples, which reflects same result in Table 7.

Table 7. Summary of Hypothesis Test

Test	Sig.	Result
Kruskal-Wallis Test	.000	Reject the null hypothesis.
Asymptotic significances are displayed. The significance level is .05.		

Table 8. Net Advance and Net Non-Performing Assets (Rs. Crore)

Year	ICICI Bank		HDFC Bank	
	Net Advances	Net Non- Performing Assets	Net Advances	Net Non- Performing Assets
2012-13	2,75,119	2,234	2,39,721	491
2013-14	3,38,703	3,301	3,03,000	820
2014-15	3,87,522	6,325	3,65,495	896
2015-16	4,35,264	13,297	4,64,594	1,320
2016-17	4,64,232	25,451	5,54,568	1,844
2017-18	5,66,854	27,886	6,58,333	2,601
2018-19	5,86,647	13,577	8,19,401	3,215
2019-20	6,45,290	10,114	9,93,703	4,408
2020-21	7,33,729	9,180	11,32,837	4,555
2021-22	8,59,020	6,961	13,68,821	3,542

Table 9. Net Advances & Net Non-Performing Assets of ICICI Bank Model Summary

R	R Square	Adjusted R Square	SE of the Estimate
.152	.023	-.099	9094.44

Table 10. ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	1.567E7	1	1.567E7	.189	.675
Residual	6.617E8	8	8.271E7		
Total	6.773E8	9			
a. Predictors: (Constant), Net Advances					
b. Dependent Variable: Net Non-Performing Assets					

Table 11. Summary of Hypothesis Test

Test	Sig.	Decision
K-W Test	.000	Reject the null hypothesis.
Asymptotic significances are displayed. The significance level is .05.		

H_0 : There is no significant association between Net Advances & Net Non-Performing Assets of ICICI Bank.

From the Table no 8 data Table 9, 10 regression and ANOVA tests shows relationship between Net Advances and Net Non-Performing Assets of ICICI Bank. Adjusted R square value -.099, which is negative so the model does not fit. There is need of alternative non parametric test of ANOVA which is Kruskal-Wallis Test in Table 11, show the result, where null hypothesis rejected.

H_0 : There is no significant association between Net Advances & Net Non-Performing Assets of the HDFC Bank.

Table 12, regression tests shows relationship between Net Advances & Net Non-Performing Assets of the HDFC Bank. Adjusted R square value 0.816 which lies between -1 to

+1, Adjusted R Squared the independent variables here cumulatively explain 81.6% of the dependent variables. Adjusted R square is saying this model is 81.6% fit. Table no 13 calculated value of F which is (40.935) which is significant at 5%, so the difference is significant and hypothesis is rejected which indicates that the value of slope is nonzero. Therefore null hypothesis rejected, hence there is a cause and effect relationship between Net Advances & Net Non-Performing Assets. Kruskal-Wallis Test non parametric test also conducted because of Independent samples, which reflects same result in Table 14, image also display same thing.

H_0 : There is no significant association between Gross Non-Performing Assets & Gross Profit of ICICI Bank.

Table 12. Net Advances & Net Non-Performing Assets of HDFC Bank Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.915	.837	.816	648.03

Table 13. ANOVA Test

	Sum of Squares	df	Mean Square	F	Sig.
Regression	1.719E7	1	1.719E7	40.935	.000
Residual	3359532.715	8	419941.589		
Total	2.055E7	9			
a. Predictors: (Constant), Net Advances					
b. Dependent Variable: Net Non-Performing Assets					

Table 14. Summary of Hypothesis Test

Test	Sig.	Decision
K-W Test	.000	Reject the null hypothesis.
Asymptotic significances are displayed. The significance level is .05.		

Table 15. Gross Non- Performing Assets and Gross Profit ICICI Bank & HDFC Bank. (Rs. Cr)

Years	ICICI Bank		HDFC Bank	
	Gross Non- Performing Assets	Gross Profit	Gross Non-Performing Assets	Gross Profit
2012-13	9,647	22,212	2,374	3,443
2013-14	10,554	26,903	2,989	26,402
2014-15	15,242	31,216	3,438	31,392
2015-16	26,721	36,547	4,393	38,343
2016-17	42,552	41,242	5,886	45,436
2017-18	54,063	40,445	8,607	55,315
2018-19	45,292	41,527	11,224	65,869
2019-20	41,409	49,716	16,141	79,447
2020-21	41,373	57,958	15,086	90,084
2021-22	33,919	65,984	12,650	1,01,519

Table 16. Gross Non-Performing Assets and Gross Profits of ICICI Bank Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.624	.389	.312	11242.33

Table 17. ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	6.431E8	1	6.431E8	5.088	.054
Residual	1.011E9	8	1.264E8		
Total	1.654E9	9			

a. Predictors: (Constant), Gross Non- Performing Assets

b. Dependent Variable: Gross Profit

Table 18. Hypothesis Test Summary

Test	Sig.	Decision
Kruskal-Wallis Test	.364	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Table 19. Gross Non-Performing Assets and Gross Profit of HDFC Bank Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.921	.849	.830	12680.19

Table 20. ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	7.211E9	1	7.211E9	44.845	.000
Residual	1.286E9	8	1.608E8		
Total	8.497E9	9			

a. Predictors: (Constant), Gross Non-Performing Assets

b. Dependent Variable: Gross Profit

Table 21. Summary of Hypothesis Test

Test	Sig.	Result
Kruskal-Wallis Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Table 22. Net NPA and Net Profit ICICI Bank and HDFC Bank. (Rs. Cr)

Year	ICICI Bank		HDFC Bank	
	Net Non-Performing Assets	Net Profit	Net Non-Performing Assets	Net Profit
2012-13	2,234	8,325	491	6726
2013-14	3,301	9,810	820	13444
2014-15	6,325	11,175	896	10216
2015-16	13,297	9,726	1,320	12296
2016-17	25,451	9,801	1,844	14550
2017-18	27,886	6,777	2,601	17487
2018-19	13,577	3,363	3,215	21,078
2019-20	10,114	7,931	4,408	26,257

2020-21	9,180	16,193	4,555	31,117
2021-22	6,961	23,339	3,542	36,961

Table 23. Net Non-Performing Assets and Net Profits of ICICI Bank Model Summary

R	R Square	Adjusted R Square	SE of the Estimate
.308	.095	-.018	5579.54

Table 24. ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	2.614E7	1	2.614E7	.840	.386
Residual	2.491E8	8	3.113E7		
Total	2.752E8	9			
a. Predictors: (Constant), Net Non-Performing Assets					
b. Dependent Variable: Net Profit					

Table 25. Hypothesis Test Summary

Test	Sig.	Result
Kruskal-Wallis Test	.364	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Table 26. Net Non-Performing Assets and Net Profits of HDFC Bank Model Summary

R	R Square	Adjusted R Square	SE of the Estimate
.890	.791	.765	4713.73

Table 27. ANOVA Test

	Sum of Squares	df	Mean Square	F	Sig.
Regression	6.744E8	1	6.744E8	30.350	.001
Residual	1.778E8	8	2.222E7		
Total	8.521E8	9			
a. Predictors: (Constant), Net Non-Performing Assets					
b. Dependent Variable: Net Profit					

Table 28. Hypothesis Test Summary

Test	Sig.	Result
Kruskal-Wallis Test	.000	Reject the null hypothesis.

The Co-relation also display in Table No 29.

Table 29. Co-relation Table

S. No		Correlation
1	Gross Advances & Gross Non-Performing Assets of ICICI Bank	0.662
2	Net Advances & Net Non-Performing Assets of ICICI Bank	0.152
3	Gross Non-Performing Assets and Gross Profit of ICICI Bank	0.623
4	Net Non-Performing Assets and Net Profit of ICICI Bank	-0.308
5	Gross Advances & Gross Non-Performing Assets of HDFC Bank	0.914
6	Net Advances & Net Non-Performing Assets of HDFC Bank	0.914
7	Gross Non-Performing Assets and Gross Profit of HDFC Bank	0.921
8	Net Non-Performing Assets and Net Profit of HDFC Bank	0.889

From the Table no 15 data Table 16 & 17, regression and ANOVA tests shows relationship between Gross Non-Performing Assets and Gross Profits of ICICI Bank. Adjusted R square value 0.312 which lies between -1 to +1, Adjusted R Squared the independent variables here cumulatively explain 31.2 % of the dependent variables. Adjusted R square is saying this model is 31.2% fit. Due to lower model fit there is need of alternative non parametric test of ANOVA which is Kruskal-Wallis Test Table 8. Result shows significant level.364 so null hypothesis cannot be rejected.

H_0 : There is no significant association between Gross Non-Performing Assets & Gross Profit of HDFC Bank

Table 19, regression tests shows relationship between Gross Non-Performing Assets and Gross Profit of HDFC Bank. Adjusted R square value 0.830 which lies between -1 to +1, Adjusted R Squared the independent variables here cumulatively explain 83% of the dependent variables. Adjusted R square is saying this model is 83% fit. Table no 20 calculated value of F which is (44.845) which is significant at 5%, so the difference is significant and hypothesis is rejected which indicates that the value of slope is nonzero. Therefore null hypothesis is rejected, hence there is a cause and effect relationship between Gross Non-Performing Assets and Gross Profits. We can also prove by using Kruskal-Wallis Test (table 21), which rejects the null hypothesis.

H_0 : There is no significant association between Net Non-Performing Assets & Net Profit of the ICICI Bank

From the Table no 22 data Table no 23 & 24 regression and ANOVA tests shows relationship between Net Non-Performing Assets and Net Profit. Adjusted R Square value negative so the model does not fit and now we have to conduct non-parametric test. The alternative a non-parametric test of ANOVA is the Kruskal-Wallis Test (Table 25) as Net Non-Performing Assets and Net Profit both are independent variables. Result shows we should retain null hypothesis.

H_0 : There is no significant association between Net Non-Performing Assets & Net Profit of the HDFC Bank.

Table no 26 regression tests shows relationship between Net Non-Performing Assets and Net Profit of HDFC Bank. Adjusted R square value 0.850 which lies between -1 to +1, Adjusted R Squared the independent variables here cumulatively explain 76.5% of the dependent variables. Adjusted R square is saying this model is 76.5% fit. Table no 27 calculated value of F which is (30.350) which is significant at 5%, so the difference is significant and hypothesis is rejected which indicates that the value of slope is nonzero. Therefore null hypothesis H_{01} is rejected, hence there is a cause and effect relationship between Net Non-Performing Assets and Net Profit. Independent-Samples Kruskal-Wallis Test also showed the same result.

Findings

S. No		Hypothesis
1	There is no significant association between Gross advances & GNPA's of Purvanchal Bank	Rejected
2	There is no significant association between Net advances & Net NPA's of Purvanchal Bank	Rejected
3	There is no significant association between Gross Non-Performing Assets and Gross Profits of Purvanchal Bank	Not Rejected
4	There is no significant association between Net Non-Performing Assets and Net Profits of Purvanchal Bank	Rejected
5	There is no significant association between Gross advances & GNPA's of Sarva U.P. Gramin Bank	Rejected
6	There is no significant association between Net advances & Net NPA's of Sarva U.P. Gramin Bank	Rejected
7	There is no significant association between Gross Non-Performing Assets and Gross Profits of Sarva U.P. Gramin Bank	Rejected
8	There is no significant association between Net Non-Performing Assets and Net Profits of Sarva U.P. Gramin Bank	Rejected

Conclusion

From this study it has been proven there is relationship between Independent variables Gross Advances and Gross Non-Performing Assets of Both ICICI and HDFC Bank. Gross Advances which is the businesses of the banks increases suggest growth of business but increasing Gross Non-Performing Assets is alarming sign correlation test suggest both ICICI Bank and HDFC Bank Gross Advances and Gross NPAs Positive Correlation which indicates business increases but side by side Gross NPAs also increases. Net Advances & Net NPAs of both the banks showing same direction, Net advances increases and Net NPAs also increases however ICICI Bank increasing trend is less when it compare with HDFC Bank. Positive correlation Gross Non-Performing Assets and Gross Profits of both the banks. Net Non-Performing Assets and Net Profis of ICICI Bank negative correlation. Net Non-Performing Assets and Net Profits of HDFC Bank positively correlated.

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