FACTORS TRIGGERING NON-PERFORMING ASSETS IN APPRAISAL STAGE OF LOANS IN INDIAN COMMERCIAL BANKS- AN EMPIRICAL STUDY

*Surojit Dey**

Abstract: Non-Performing Asset (NPAs) is generated in three stages of loan proposal i.e., appraisal stage, sanction and disbursal stage and post disbursal stage. The first stage is the appraisal stage of a loan where precondition of a loan proposal is analysed. The study aims to find out the causes of NPAs at appraisal stage through primary survey among the credit officers of the bank. Factor analysis is performed to point out the important factors that are responsible for generation of NPAs due to faulty appraisal of a loan. Three major factors i.e. lack of knowledge about exposure, organization failure, and turnaround time (TAT) were obtained through analysis for which major exposure become NPAs. Finally ANOVA, Post-Hoc test between the groups is performed based on the demographic parameters i.e. type of organization they are working, Name of the department the concerned officer is working, and scale of the officers.

Keywords: Non-Performing Assets, Appraisal Stage, Factor analysis, Anova.

Introduction

An asset, including a leased asset, becomes non-performing when it ceases to generate income for the bank. A 'non-performing asset' (NPA) is defined as a credit facility in respect of which the interest or instalment of principal has remained due for a specified period of time.[1] Presently the period is 90 days. Non-Performing Loans could also be termed as signals towards the banking crisis. Although Non Performing Assets are a permanent phenomenon within the balance sheets of monetary institutions if not contained properly eventually will deteriorate the financial health of the system. The NPAs in the financial sector has been a matter of concern for all the stakeholders in economies. The Indian banking sector is characterized by huge NPAs, low capital adequacy, and low profitability. As per the financial stability report of RBI 2019 Schedule Commercial Banks (SCBs) GNPA ratio increase from 9.3 percent in September 2019 to 9.9 percent in September 2020 primarily due to a change in macroeconomic scenario,

[1] RBI circular DBOD No. BP.BC/ 20 /21.04.048 /2001-2002

* *Research Scholar, Department of Commerce, University of Calcutta*
E-mail: surojit210987@gmail.com

marginal increase in slippages, and the denominator effect of declining credit growth. As per the financial stability report of RBI 2020 capital to risk-weighted assets ratio (CRAR) of Scheduled Commercial Banks (SCBs) edged right down to 14.8 percent in March 2020 from 15.0 percent in September 2019 while their gross non-performing asset (GNPA) ratio declined 8.5 percent from 9.3 percent and therefore the provision coverage ratio (PCR) improved to 65.4 percent from 61.6 percent over this time period. In 2021 January, as per published report of RBI the capital to risk-weighted assets ratio (CRAR) of Scheduled Commercial Banks (SCBs) improved 15.8 percent in September 2020 from 14.7 percent in March 2020, while their gross non-performing asset (GNPA) ratio declined to 7.5 percent from 8.4 percent, and therefore the provision coverage ratio (PCR) improved to 72.4 percent from 66.2 percent over this period. The sharp increase in the stressed assets has adversely impacted the profitability of the banks in India. The annual return on assets has come down from 1.09% during 2010-11 to 0.78% during 2014-15 and in 2018-19 most of the Public Sector Undertakings(PSUs) are facing loss and in some cases negative returns on assets. The amount of Non-Performing Asset as a percentage of gross advance as of March 2015, 2016 and 2017 are 4.3%, 7.5%, and 9.3% respectively. The ratio in the year march 2018 and 2019 was 11.2 and 9.1%. As per published reports of RBI, it is seen stressed assets in some banks cross 25% of gross advance in 2019 and in 2020 which is a serious concern for the general public, banker and government, and all the stake holders. Non-Performing Asset (NPAs) is generated in three stages of loan proposal i.e., appraisal stage, sanction and disbursal stage and post disbursal stage. The first stage is the appraisal stage of a loan where precondition of a loan proposal is analysed. Some common attributes which explain the causes of NPAs at appraisal stage are selected based on available literature. Factor analysis is performed to point out the important factors that are responsible for generation of NPAs due to faulty appraisal of a loan out of the above selected variables.

Literature Review

Keeton and Morris (1987) reported the elemental drivers of non-performing loans using regression for a sample of two 500 US commercial banks for the period 1979-1985. They found that loan losses are highly positively related to adverse economic conditions.

Berger and DeYoung (1997) established the relationships between the specific characteristics of banks, the efficiency indicators, and bad loans. They argued that bad luck, bad management, skimping, moral hazard, and capital adequacy are all contributing factors resulting problems in loans.

Carey (1998) argued that the state of the economy is that the single most vital systematic factor influencing diversified debt portfolio loss rates.

Arpa et al. (2001) concluded that the loans of the banking sector fluctuate indirectly with real GDP growth and real interest

rates, and directly with CPI inflation and real estate price inflation.

Blaschke and Jones (2001) proved the impact of GDP growth and the business cycle on credit risk and also on the quality of banks loans.

Maravarman (2003) studied Non-Performing Assets in public sector banks for the period 1991-2001 and find market recession, globalization, the legal system, intention of borrowers and mismanagement are responsible for the poor recovery of bad loans.

Baboucek and Jancar (2005) studied that the appreciation of the real effective exchange rate does not deteriorate the NPAs ratio; increasing unemployment and inflation deteriorate the NPAs ratio, while faster GDP growth reduces the NPAs ratio.

Boyazny (2005) analyzed Non-Performing Assets in China, Japan, South Chorea, Thailand, and other southeast Asia for the period 1999-2004 and found the best return has been achieved by an investor who had the courage to invest during times of major structural market changes as well as external shocks.

Jayalakshmi (2006) argued that gross NPAs to gross advance were higher in public sector banks and lower in foreign banks. In private sector banks especially new private sector banks, the percentage is also less than in PSBs but higher than the foreign banks.

Rinaldi and Sanchis-Arellano (2006) have come up with empirical evidence that income, monetary conditions, and unemployment have great influence on NPAs.

Cihak et al. (2007) suggested that non-bank financial indicators and relevant macroeconomic factors such as exchange rate and the interest rate are relevant for the determination of NPAs.

Jakubik (2007) finds that the default rate for the corporate sector is determined by the appreciation of the real effective exchange rate and by the increase in the loan to GDP ratio. The default rate for households deteriorates via unemployment and interest rate increases.

Karim et al. (2010) investigated the relationship between Non-Performing Assets and bank efficiency in Malaysia and Singapore. Tobit simultaneous equation regression results clearly indicate that higher Non-Performing Assets reduce cost efficiency and poor management in banking institutions results in bad quality loans.

Poongavanam (2011) analyzed Non-Performing Assets in his article and highlights the reasons for an asset becoming NPAs and remedial measures to be taken.

Louzis et al. (2012) argued that Non Performing Loans may be termed as a signal towards the beginning of a banking crisis.

Sing (2013) argued that the magnitude of Non-Performing Assets is comparatively higher in public sector banks than private sector banks. To improve the efficiency and profitability of banks the Non-

Performing Assets got to be reduced and controlled.

Bhuyan and Rath (2013) analyzed challenges for the Indian Banking sector in the post-economic reform era in the context of management of Non-Performing Assets for the period 2007-2012 and found recovery mechanism was not up to the mark, Non-Performing Assets to advance ratio is increasing day by day.

Tsige (2013) observed in his thesis that Non-Performing Assets are determined by macroeconomic and bank-specific factors.

Ramanadh and Rajesham (2013) analyzed bank credit, economic growth, and Non-Performing Assets for the period 1996-97 to 2010-11 and found there is a positive and moderate correlation between the expansion of credit and GDP growth and a negative correlation between GDP growth and Non-Performing Assets of banks.

Tiwari and Sharma (2015) studied the causes of Non-Performing Assets in selected commercial banks in Pune for the period 2014-2015 and attempted to understand causes of Non-Performing Assets during the appraisal, sanction, and post disbursal stage. It was found in the study that the appraisal system and due diligence system of banks were not up to the mark.

Nazmin (2015) discussed that financial crisis, bubbles panic in the banking industry, currency crisis even sovereign defaults continue to occur periodically. Therefore when multilateral lenders contemplate lending credit to customers who are located in several countries they require a meticulous method of analyzing every aspect to pick the simplest customers, amongst numerous credit proposals from different countries.

Singh (2016) found that Non-Performing Assets reduced the earning capacity of banks and badly affect the ROI. Gross Non-Performing Assets of scheduled commercial banks have increased from Rs. 708 Billion in 2000-01 to Rs. 2642 Billion in 2012-13.

Kuchekar (2016) highlighted the dimensions of credit risk and its effect on asset quality that banks. NPA is closely associated with the extent of advance and this relationship is mediated and moderated by many bank-specific and economy-specific indicators.

Agrawal et al. (2017) found the standard of advances in India particularly the company stressed advances are quite poor and large as compared to other Asian Pacific emerging countries, if the NPAs are not managed properly there's every chance that the capital and reserves of banks shall not ready to meet the losses arising on account of write off of Bad Loans.

Das and Dey (2017) found that non-priority sector NPAs are more compared to priority sector NPAs. NPAs have a strong positive correlation with restructuring and a negative correlation with GDP growth.

Nidugala and Panth (2017) argued that rising NPAs in Indian public sector banks are a result of bank-specific, macroeconomic, and political factors.

Bhaarathi and Thilagavathi (2018) analyzed several macroeconomic factors affecting NPAs. The results show that the Interest rate is significantly affecting NPLs in Public Sector Banks (PSBs). In the case of private banks (PBs) per capita, income and inflation rate affects NPAs.

Das and Dey (2018) observed that non priority sector lending has higher contribution in generation of NPAs than priority sector lending. The study also observed macroeconomic variables like gross domestic product, cash reserve ratio, repo rate, exchange rate, inflation, has significant contribution in generation of NPAs.

Dey (2018) argued that recovery mechanism in India is very poor. Recovery through DRT's was found better than recovery through Lok Adalat and SARFAESI Act.

Raghavendra (2018) provide emphasis on adopting good policy remedies and appropriate credit mechanism of exposures to reduce NPAs of the bank.

Arasu et al. (2019) found a significant negative relationship between NPAs with return on assets of banks.

Chavan and Ritadhi (2019) argued that unrated exposures can pose serious challenges for the banks. It hampers the creditworthiness of borrowers and damages the capital adequacy of banks.

Khandelwal and Chowhury (2019) observed that the NPAs problem persists not only in small banks but exists in big banks and it is necessary to go slow in lending to curb NPAs.

Misra and Rana (2019) Studied the asset quality management of public sector banks is insignificant as compared to other banks and also reveals that the financial burden on public sector banks is more as compared to private sector banks.

Sowmya (2019) studied in her paper the reasons behind the increase of NPA levels prevailing in the country and state some measures to reduce the same.

Pramila (2020) discussed in her paper several contemporary reviews of the literature on Non-Performing Assets in the Indian banking sector.

Prasanth and Sudhamathi (2020) suggested some measures which will be implemented to rise affect in future balance sheet-related crisis within the banking sector.

Sharma et al. (2020) investigated the effect of Gross NPA on the profitability of different Public and Private Banks from 2006 to 2019. It can be concluded that NPAs on the profitability have an adverse impact on the public and private sector banks.

Wadha and Ramaswamy (2020) suggested with the help of correlation analysis that NPA was negatively correlated with net profits in the selected banks except for HDFC Bank.

Objectives and Methodology

Our aim of the paper is to analyze the causes of NPAs at appraisal stage of loan through the primary survey in Kolkata. A sample of 502 responses is collected through a suitable questionnaire out of

10000 credit officers working in Kolkata approximately. The convenience sampling technique is used to collect the primary data. Factor analysis and ANOVA is used to extract inferences from primary data. The ANOVA, Post-Hoc test between the groups is performed based on the demographic parameters i.e. type of organization they are working, Name of the department the concerned officer is working, and scale of the officers. SPSS 20 software is used to analyze data. Total 502 respondents were surveyed out of which 489(97.4%) belongs to public sector banks, 10 (2%) private sector banks and 3(0.6%) were foreign bank respondents. Department wise out of 502 respondents 137(27.3%) working in the credit department, 9(1.8%) working in the recovery department, 5(1%) working in the inspection department, and 351(69.9%) working in the general department. Scale wise out of 502 respondents, 180(35.9%) were below scale I officers, 138(27.5%) were scale II officers, 95(18.9%) were scale III officers and 12(2.4%) were scale IV and above officers.

Data Analysis

Table 1 : Anti-image Correlation Matrics

V3.1	V3.2	V3.3	V3.4	V3.5	V3.6	V3.7	V3.8	V3.9	V3.10	V3.11	V3.12	V3.13	V3.14
.929[a]	-0.16	-0.138	-0.119	-0.075	-0.076	0.013	-0.091	-0.012	-0.081	0.051	-0.033	-0.067	0.033
-0.16	.824[a]	-0.482	-0.115	-0.097	0.025	-0.076	-0.073	0.07	-0.026	-0.066	0.092	-0.126	0.064
-0.138	-0.482	.838[a]	-0.147	0.003	-0.034	-0.05	-0.031	-0.013	0.01	-0.016	-0.058	0.085	-0.095
-0.119	-0.115	-0.147	.923[a]	0.022	-0.178	0.035	-0.062	-0.127	-0.063	-0.012	0.043	-0.055	-0.097
-0.075	-0.097	0.003	0.022	.870[a]	-0.313	-0.074	0.026	-0.084	0.026	-0.095	-0.026	0.061	-0.153
-0.076	0.025	-0.034	-0.178	-0.313	.876[a]	-0.117	-0.178	0.008	-0.044	0.027	0.014	-0.067	0.044
0.013	-0.076	-0.05	0.035	-0.074	-0.117	.904[a]	-0.255	-0.134	-0.053	0.007	-0.085	-0.034	0.054
-0.091	-0.073	-0.031	-0.062	0.026	-0.178	-0.255	.902[a]	-0.176	0.007	-0.165	-0.1	0.022	-0.049
-0.012	0.07	-0.013	-0.127	-0.084	0.008	-0.134	-0.176	.902[a]	-0.16	-0.003	0.004	-0.002	-0.115
-0.081	-0.026	0.01	-0.063	0.026	-0.044	-0.053	0.007	-0.16	.881[a]	-0.317	-0.077	0.001	-0.062
0.051	-0.066	-0.016	-0.012	-0.095	0.027	0.007	-0.165	-0.003	-0.317	.876[a]	-0.006	-0.1	-0.108
-0.033	0.092	-0.058	0.043	-0.026	0.014	-0.085	-0.1	0.004	-0.077	-0.006	.841[a]	-0.342	-0.125
-0.067	-0.126	0.085	-0.055	0.061	-0.067	-0.034	0.022	-0.002	0.001	-0.1	-0.342	.827[a]	-0.281
0.033	0.064	-0.095	-0.097	-0.153	0.044	0.054	-0.049	-0.115	-0.062	-0.108	-0.125	-0.281	.873[a]

Source: Compiled by the Author

The diagonal value represented the anti-image correlation value of the question asked. Factor analysis is suitable if all the diagonal values are above 0.5. All the variables exhibit value greater than 0.6 hence we should go further in our analysis.

Table 2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.875
Bartlett's Test of Sphericity	Approx. Chi-Square	1954.512
	df	91
	Sig.	0

Source: Compiled by the Author

In our case, the KMO value is 0.875 which is highly acceptable to continue factor analysis. Bartlett's Test of Sphericity which is a Chi-Square test explaining indicator of how strong a relationship is lies between variables is also performed and F value comes to 1954.51 (P-value 0.000) which is statistically significant.

Table 3: Communalities

Variables	Extraction
3.1 Asymmetric information in project.	0.504
3.2 Pre sanction visit of borrower is not done properly.	0.716
3.3 No due-diligence in feasibility study.	0.699
3.4 Concealment of information of groups/firms.	0.470
3.5 Non-Availability of reliable market study to the officer.	0.402
3.6 Reliance on unaudited data submitted by borrower.	0.507
3.7 Non-Availability of skilled staff in department.	0.473
3.8 Data gap and lack of information in credit history.	0.550
3.9 Cash flow projection is failed.	0.486
3.10 External influence or pressure on clearance of loan proposal.	0.391
3.11 Lack of information system among banks enabling borrowers to enjoying bank funds from more than one bank.	0.405
3.12 Fear of staff accountability on account turning NPA in future in the mind of officers at the time of appraisal.	0.562
3.13 Turnaround time for appraisal turn a loan to NPAs.	0.659
3.14 Exchange of information among lenders.	0.547

Source: Compiled by the Author

Extraction indicates the proportion of each variable's variance that can be explained by the principal components. Variables with high values are well represented in the common factor space, while variables with low values are not well represented.

Table 4: Total Variance Explained by Factors

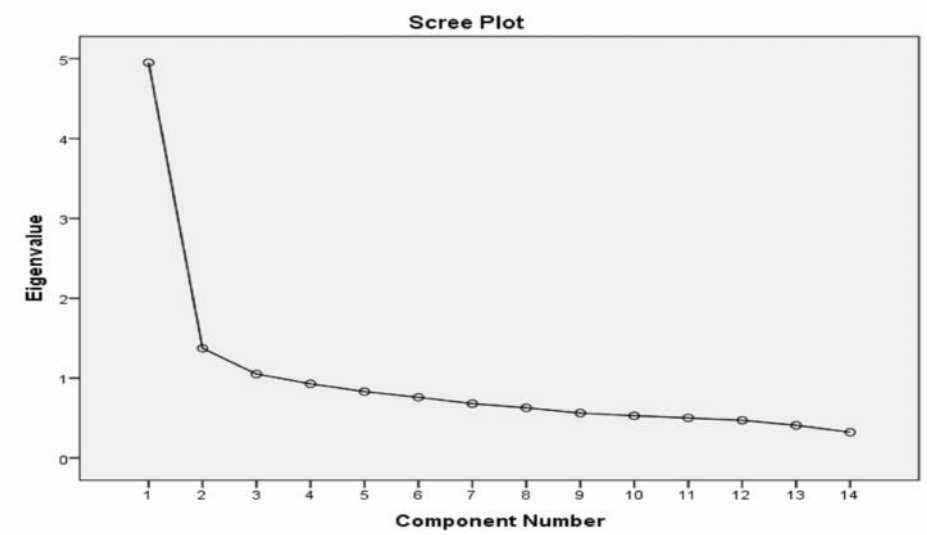
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.95	35.357	35.357	4.95	35.357	35.357	2.662	19.011	19.011
2	1.373	9.808	45.165	1.373	9.808	45.165	2.47	17.64	36.651
3	1.051	7.508	52.672	1.051	7.508	52.672	2.243	16.021	52.672
4	0.928	6.63	59.303						
5	0.832	5.94	65.243						
6	0.76	5.426	70.669						
7	0.681	4.863	75.532						
8	0.628	4.486	80.018						
9	0.562	4.016	84.034						
10	0.529	3.777	87.811						
11	0.502	3.585	91.396						
12	0.472	3.375	94.771						
13	0.409	2.923	97.693						
14	0.323	2.307	100						

Source: Compiled by the Author

As we have seen from above the total variance explained by the above three extracted factors are 52.672% and it is statistically significant. Components with an eigenvalue of more than 1 account for higher variance hence it is considered and components with eigenvalue less than 1 account for less variance hence excluded.

Three factors were extracted and suitable names were provided. Factor one comprises variable 3.9, 3.7, 3.8, 3.6, 3.5, and 3.10 are named as Lack of knowledge about exposure, variable 3.2, 3.3, 3.1 and 3.4 named as an Organizational failure, variable 3.13, 3.12 and 3.14 are jointly termed as the Turnaround time.

Figure 1: Scree Plot of Eigenvalue of Factors



Source: Compiled by the Author

The scree plot graphically displays the components eigenvalues. information in the previous table; the

Table 5: Rotated Component Matrix Table

Variables	Component		
	1	2	3
3.9 Cash flow projection is failed.	0.659		
3.7 Non-Availability of skilled staff in departments.	0.653		
3.8 Data gap and lack of information in credit history.	0.644		
3.6 Reliance on unaudited data submitted by borrower.	0.633		
3.5 Non-Availability of reliable market study to the officers.	0.574		
3.10 External influence or pressure on clearance of loan proposal.	0.456		
3.2 Pre sanction visit of borrower is not done properly.		0.821	
3.3 No due-diligence in feasibility study.		0.808	
3.1 Asymmetric information in project.		0.660	
3.4 Concealment of information of groups/firms.		0.565	
3.13 Turnaround time for appraisal turn a loan to NPAs.			0.781
3.12 Fear of staff accountability on account turning NPA in future in the mind of officer at the time of appraisal.			0.737
3.14 Exchange of information among lenders.			0.690
3.11 Lack of system among banks enabling borrowers to enjoying bank funds information from more than one bank.	0.407		

Source: Compiled by the Author

The rotation method is used to reduce the no of factor depending upon the factor loadings. Varimax rotation with Kaiser Normalization is applied for analysis. It is a popular scheme for an orthogonal rotation where all factors remain uncorrelated with one another. We have found that our factors un-correlated with a mean of 0 Standard deviations 1. Now we perform a reliability test of 3 factors followed by ANOVA to know the deviations of response among the respondents according to applicable demographic parameters.

Table 6: Reliability analysis of Factors

Factors	Cronbach's Alpha	No of Items
Factor 1 (Lack of Knowledge about Exposure)	0.750	6
Factor 2 (Organisational Failure)	0.752	5
Factor 3 (Turnaround Time)	0.704	3

Source: Compiled by the Author

The Cronbach's Alpha represents the reliability of the Individual factor for further analysis. For statistical significance, any value on and above 0.5 is considered ideal hence we select all the three factors for ANOVA and post hoc test to locate the actual deviation after checking the homogeneity of variance test. The ANOVA between the groups is performed based on the demographic parameters i.e. type of organization they are working, Name of the department the concerned officer is working, and scale of the officers. The empirical result based on the type of organization is as follows.

Test of Factors on the Basis of Organisational Type of the Respondents

Table 7: Test of Homogeneity of Variances

Factors	Levene Statistic	df1	df2	Sig.
Lack of Knowledge About Exposure	2.498	2	481	0.083
Organisation Failure	2.590	2	481	0.076
Turn Around Time	2.570	2	481	0.078

Source: Compiled by the Author

The significance value of the Levene statistic based on a comparison of medians is 0.83, 0.076 and 0.078 for above factors. This is not a significant result, which means the requirement of homogeneity of variance has been met and variance of means are equal. Hence we perform Tukey's HSD post hoc test.

Table 8: ANOVA of Lack of Knowledge, Organisational Failure and Tarn around Time on the Basis of Organisational Type

Factors		Sum of Squares	df	Mean Square	F	Sig.
Lack of Knowledge About Exposure	Between Groups	1.483	2	0.742	0.741	0.477
	Within Groups	481.517	481	1.001		
	Total	483	483			
Organisation Failure	Between Groups	2.115	2	1.058	1.058	0.348
	Within Groups	480.885	481	1		
	Total	483	483			
Turnaround Time	Between Groups	2.838	2	1.419	1.421	0.242
	Within Groups	480.162	481	0.998		
	Total	483	483			

Source: Compiled by the Author

As the ANOVA result is insignificant for all the three factors based on the organizational type we don't go forward for any kind of further testing and conclude that there exists no significant difference among the mean of the factors according to the organizational type.

Test of Factors on the Basis of Department of the Respondents

Table 9: Test of Homogeneity of Variances

Factors	Levene Statistic	df1	df2	Sig.
Lack of Knowledge About Exposure	1.539	3	480	0.204
Organisation Failure	3.072	3	480	0.028
Turnaround Time	1.149	3	480	0.329

Source: Compiled by the Author

The significance value of the Levene statistic based on a comparison of medians of Lack of Knowledge about Exposure and Turnaround Time is 0.204, and 0.329. This is not a significant result, which means the requirement of homogeneity of variance has been met and variance of means are equal. Hence we perform an ANOVA test with Tukey's HSD (Honestly Significant Difference) for factor 1 and factor 3 based on our demographic parameters along with a

post hoc test. As in the case of factor 2 i.e. organizational failure, the result was found significant which means the assumption of homogeneity of variance is violated, therefore we use the Games Howel test to analyze the data.

Table 10: Analysis of Variance of Lack of Knowledge, Turnaround Time on the Basis of Department

Factors		Sum of Squares	df	Mean Square	F	Sig.
Lack of Knowledge About Exposure	Between Groups	14.25	3	4.75	4.864	0.002
	Within Groups	468.75	480	0.977		
	Total		483	483		
Turnaround Time(TAT)	Between Groups	1.226	3	0.409	0.407	0.748
	Within Groups	481.774	480	1.004		
	Total	483	483			

Source: Compiled by the Author

As there exists no significant difference among the means of Turnaround Time according to the name of the department we don't go for further analysis of this variable. However, we will perform a post hoc test of Lack of Knowledge about Exposure to know exactly where the difference is.

Table 11: Post- Hoc Test of Lack of Knowledge

Name of the Department			Mean Difference	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tukey HSD	Credit	Recovery	-0.55	0.34	0.37	-1.43	0.32
		Inspection	-0.30	0.45	0.91	-1.46	0.86
		General	.289*	0.10	0.02	0.03	0.55
	Recovery	Credit	0.55	0.34	0.37	-0.32	1.43
		Inspection	0.25	0.55	0.97	-1.17	1.67
		General	0.84	0.33	0.06	-0.02	1.70
	Inspection	Credit	0.30	0.45	0.91	-0.86	1.46
		Recovery	-0.25	0.55	0.97	-1.67	1.17
		General	0.59	0.45	0.54	-0.56	1.74
	General	Credit	-.289*	0.10	0.02	-0.55	-0.03
		Recovery	-0.84	0.33	0.06	-1.70	0.02
		Inspection	-0.59	0.45	0.54	-1.74	0.56

Source: Compiled by the Author

The Tukey's Honestly Significant Difference analysis for above factor exhibits that there exist a significant difference in opinion among the respondent among the credit and general department officers. Mean difference of credit and general officers are positive meaning that recovery officers consider factor 1 i.e. Lack of Knowledge about exposures as a cause of NPAs generation but general officer disagree with the fact.

Fig 2: Mean Score of Lack of Knowledge

Source: Compiled by the Author

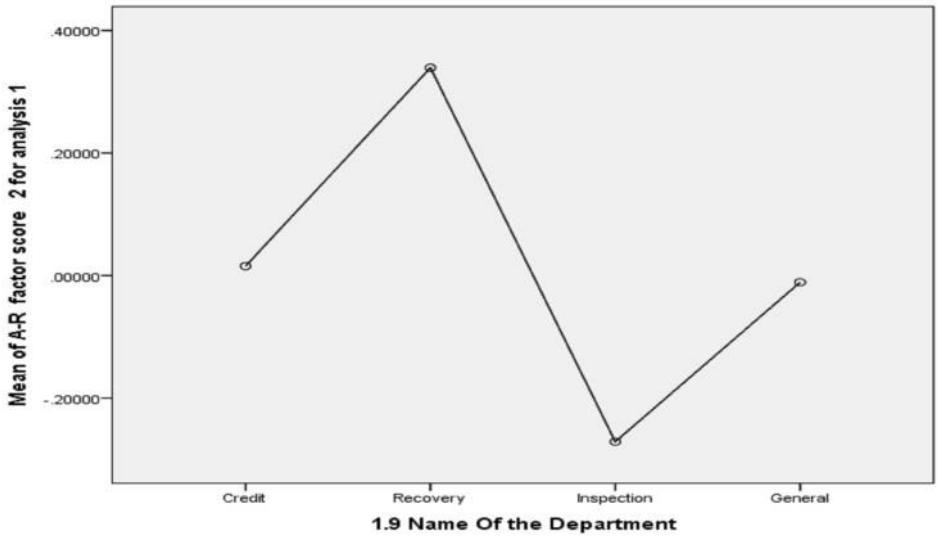
Table 12: Games Howell Post- Hoc Test of Organisation Failure on the Basis of Name of the Department

Name of the Department		Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Credit	Recovery	-0.3237721	0.12857997	0.088	-0.6843969	0.0368528
	Inspection	0.2866069	0.37529916	0.867	-1.178772	1.7519857
	General	0.0263687	0.09661017	0.993	-0.2233384	0.2760757

Name of the Department		Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Recovery	Credit	0.3237721	0.12857997	0.088	-0.0368528	0.6843969
	Inspection	0.6103789	0.38112713	0.459	-0.8401347	2.0608926
	General	.35014076*	0.11722611	0.044	0.0086223	0.6916592
Inspection	Credit	-0.2866069	0.37529916	0.867	-1.7519857	1.178772
	Recovery	-0.6103789	0.38112713	0.459	-2.0608926	0.8401347
	General	-0.2602382	0.37156239	0.892	-1.7380317	1.2175553
General	Credit	-0.0263687	0.09661017	0.993	-0.2760757	0.2233384
	Recovery	-.35014076*	0.11722611	0.044	-0.6916592	-0.0086223
	Inspection	0.2602382	0.37156239	0.892	-1.2175553	1.7380317

Source: Compiled by the Author

Fig 3 Mean Score of Organisational Failure



Source: Compiled by the Author

The Games Howell analysis for factor 2 exhibits that there exists a significant difference in opinion among the respondent among the recovery and general department officers. Mean difference of recovery and general officers are positive meaning that recovery officers consider factor 2 i.e. organizational failure as a cause of NPAs generation but general officer disagree with the fact.

Test of Factors on the Basis of Designation of the Respondents

Table 13: Test of Homogeneity of Variances

Factors	Levene Statistic	df1	df2	Sig.
Lack of Knowledge About Exposure	1.268	4	479	0.282
Organisational Failure	2.548	4	479	0.039
Turnaround Time	2.064	4	479	0.084

Source: Compiled by the Author

The significance value of the Levene statistic based on a comparison of medians of Lack of Knowledge about Exposure and Turnaround Time is 0.282, and 0.84. This is not a significant result, which means the requirement of homogeneity of variance has been met and variance of means are equal. Hence we perform an ANOVA test with Tukey's HSD (Honestly Significant Difference) for factor 1 and factor 3 based on our demographic parameters along with a post hoc test. As in the case of factor 2 i.e. organizational failure, the result was found significant which means the assumption of homogeneity of variance is violated. Therefore we use the Games Howell test to analyze the data. As ANOVA is found insignificant we ignore it from our analysis.

Table 14: ANOVA of Lack of Knowledge about Exposure, Turnaround Time on the Basis of Designation of Respondents

Factors		Sum of Squares	df	Mean Square	F	Sig.
Lack of Knowledge About Exposure	Between Groups	0.621	4	0.155	0.154	0.961
	Within Groups	482.379	479	1.007		
	Total	483	483			
Organisational failure	Between Groups	2.115	2	1.058	1.058	0.348
	Within Groups	480.885	481	1		
	Total	483	483			
Turnaround Time	Between Groups	4.368	4	1.092	1.093	0.359
	Within Groups	478.632	479	0.999		
	Total	483	483			

Source: Compiled by the Author

As there exist no significant difference among the means of Lack of knowledge, Organisational failure and Turnaround time according to the department we don't go for further analysis of this variable.

Concluding Remark

While responding about the cause of NPAs at the appraisal stage of a loan our respondents pointed out three major factors i.e. lack of knowledge about exposure, organization failure, and turnaround time (TAT). Based on organizational type all respondents agree with the fact that all three factors reasonable for the generation of NPAs at the appraisal stage. Based on the name of the department all respondents agree with the fact that Turnaround Time and organizational failure reason for the generation of NPAs at the appraisal stage however recovery officers consider lack of knowledge about exposures as a cause of NPAs generation but general officer disagree with the fact. Based on the designation of employees Scale III and Scale IV and officers agrees with the fact that lack of knowledge is responsible for the generation of NPAs at the appraisal stage however below Scale I and Scale I officers disagree with the fact.

Conflict of Interests

The authors declare that there are no conflict of interests that are directly or indirectly related to this research work.

Funding

We have not received any financial support from any organization to undertake this study.

References

- *Agarwal, P. G., Swain, K. A. and Bhuyan, K. A. (2017). Corporate Debt Restructuring in Scheduled Commercial Banks in India: An Analysis, International Journal of Research Granthaalayah, Vol. 5, Issue. 2, pp. 92-112.*
- *Arpa, M., Giulini, I., Ittner, A. and Pauer, F.(2001). The Influence of Macroeconomic Developments on Austrian Banks: Implications for Banking Supervision, Basel, Bank for International Settlements, No. 1, pp. 91-116.*
- *Arasu, S. B., Sridevi, P., Nageswari, P., and Ramya, R. (2019). A Study on Non-Performing Assets and its Impact on Profitability, International Journal of Scientific Research in Multidisciplinary Studies, Vol. 5, Issue. 6, pp.1-10.*
- *Baboucek, I. and Jancar, M. (2005). A VAR Analysis of the Effects to Macroeconomic Shocks to the Quality of the Aggregate Loan Portfolio of the Czech Banking Sector, Prague, Czech National Bank Working Paper Series, No. 1, pp. 1-69.*
- *Berger, A., DeYoung, R., (1997). Problem Loans and Cost Efficiency in Commercial Banks, Journal of Banking and Finance, Vol. 21, pp. 849–870.*
- *Bhaarathi, N. and Thilagavathi, M. (2018). The Factors Influencing the Non-Performing Assets in the Indian Banking Sector: An Economic Analysis, International Journal of Contemporary Research and Review, Vol. 9, Issue. 10, pp. 21080-21086.*
- *Bhuyan, R. and Rath, A. K. (2013). Management perspective of Non-Performing Assets: A challenge for Indian Banking sector in the post-economic reform Era, The Orissa Journal of Commerce, Vol. 34, No. 1, pp. 93-107.*

- *Blaschke, W. and Jones, M. (2001). Stress testing of financial systems: an overview of issues, methodologies and FSAP experiences, Washington, DC, IMF working paper, No. 01/ 88, pp. 1-55.*
- *Boyazny, M. (2005). Taming the Asian Tiger: Revival of Non-Performing Assets on the Asian Continent, The journal of private equity in EPW, Vol. 8, No. 2, pp. 104-109.*
- *Carey, M., (1998). Credit Risk in Private Debt Portfolios, Journal of Finance, Vol. 53, pp. 1363–1387.*
- *Chavan, P., and Ritadhi, S. K. (2019) Impact of Prudential Regulations for Unrated Exposures on the Rating Behaviour of Large Borrowers, Mint Street Memos, No. 20, pp. 1-21.*
- *Cihak, M., Hermanek, J, and Hlavacek, M. (2007). New Approaches to the Stress Testing of the Czech Banking Sector, Czech Journal of Economics and Finance, No. 57, pp. 41–59.*
- *Das, J. K. and Dey, S. (2017). Non-Performing Assets of Public and Private Sector Banks in India: An Empirical Study, Business Studies, Department of Commerce, University of Calcutta, Vol. 38, pp. 1-19.*
- *Das, J. K. and Dey, S. (2018). Factors Contributing to Non-Performing Assets in India, Review of Professional Management, Vol. 16, Issue. 2, pp. 62-69.*
- *Dey, S. (2018). Recovery Mechanisms of Non-Performing Assets in Indian Commercial Banks: An Empirical Study, NSOU OPEN JOURNAL, Vol. 1, No.2, pp.1-8.*
- *Jakubik, P. (2007). Macroeconomic environment and credit risk, Finance a úver-Czech Journal of Economics and Finance, No. 57, pp. 60–78.*
- *Jeyalakshmi, S. (2006). A Study on Non-Performing Assets Management in Public Sector Banks in India, Thesis Submitted to Department of Commerce, Madurai Kamaraj University, Madurai, Tamil Nadu,pp. 1-76.*
- *Karim, Z., Chan, G. S. and Hasssan, S. (2010). Bank Efficiency and Non-Performing Loans: Evidence from Malaysia and Singapore, Parague Economic Paper, Vol. 2, pp. 118-132.*
- *Khandelwal, A and Chowdhury, R (2019). Critical Analysis of Non-Performing Assets in Indian Banking Sector, International Journal of Research in Finance and Management, Vol. 3, pp.38-43.*
- *Keeton, W. R., and Morris, C. S. (1987). Why Do Banks Loan Losses Differ? Economic Review – Federal Reserve Bank of Kansas City, Vol. 1, pp.1-19.*
- *Kuchekar, P. R. (2016). A Comparative Study of Non-Performing Assets in Public Sector Banks and Co-operative Sector Banks in Pune District for the Period 2005-2010, Thesis Submitted to Savirtibaiphule Pune University, Pune(2016), pp.202-222.*
- *Louzis D. P., Vouldis A. T., and Metaxas V. L. (2012). Macroeconomic and Bank-Specific Determinants of Non-performing Loans in Greece: A Comparative Study of Mortgage, Business and Consumer Loan Portfolios, Journal of Banking & Finance, Vol. 36, pp.1012-102.*
- *Maravarman, M. (2003). A Study on Non-Performing Assets of Indian Public Sector Banks, Thesis Submitted to Post Graduate and Research Department of Economics, Presidency College (autonomous), Chennai(2003), pp. 129-177.*
- *Misra, K. S., and Rana, R. (2019). Non-Performing Assets of Public and Private Sector Banks in India: A Descriptive Study, International Journal of Emerging Technologies, Vol. 10, Issue. 2, pp. 371-375.*

- *Nazanin, S. (2015). Credit Risk Modelling for Multilateral Lenders, Thesis Submitted to College of Social Science, University of Glasgow, pp. 1-168.*
- *Nidugala, K. G. and Pant, A. (2017). Lessons from NPAs Crisis in Indian Banks, J Public Affairs, Wiley, pp. 1-6.*
- *Pramila, A. C. (2020). Non-Performing Assets in Indian Banking Sector –A Review of Literature Study, International Journal of Creative Research Thoughts, Vol. 8, No. 10, pp. 2777-2873.*
- *Prasanth, S. and Sudhamati, S. (2020). Non-Performing Assets in Indian Banks: Before and after Corona Pandemic Disease, JuniKhyat, Vol.10, No.5, pp.47-60.*
- *Poongavanam, S. (2011). Non-Performing Assets: Issues, Causes, and Remedial Solution, Asian Journal of Management and Research, Vol. 2, pp.123-132.*
- *Raghavendra, S. (2018). Non-Performing Assets in Commercial Banks in India: An Analysis, International Journal of Research in Humanities, Arts and Literature, Vol. 6, Issue. 4, pp. 377-386.*
- *Ramanadh, K. and Rajesham, C. (2013). Bank Credit, Economic Growth and Non-Performing Assets- an Analysis of Indian Commercial Banks, Journal of Commerce and Accounting Research, Vol. 2, pp. 19-30.*
- *Rinaldi, L., Sanchis-Arellano, A., (2006). Household Debt Sustainability: What Explains Household Non-Performing Loans? An Empirical Analysis. ECB Working Paper, No. 570, pp. 1-41.*
- *Sharma, S., Kothari, R. Rathore, S. D and Prasad, J. (2020), Causal Analysis of Profitability and Non-Performing Assets of Selected Indian Public and Private Sector Banks, Journal of Critical Review, Vol.7, No.9, pp.112-118.*
- *Sing, A. (2013). Performance of Non-Performing Assets in Indian Commercial Banks, International Journal of Marketing, Financial Services & Management Research, Vol. 2, No. 9, pp. 86-94.*
- *Singh, R. V. (2016). A study of Non-Performing Assets of Commercial Banks and its Recovery in India, Annual Research Journal of SCMS, Pune, Vol. 4, pp.110-125.*
- *Sowmya, K. (2019). A Study of Banks Non-Performing Assets and Problems Associated with its Recovery in India, International Journal of Scientific Research and Review, Vol. 8, Issue. 1, pp. 1063-1069.*
- *Tiwari, C. and Sharma, V. (2015). A Study on the Causes of Non-Performing Assets in Selected Commercial Banks in Pune, International Journal of Advance Research In Computer Science and Management Studies, Vol. 3, No. 5, pp. 255-260.*
- *Tsige, Z. (2013). Determinants of Non-Performing Loans: Empirical Study on Ethiopian Commercial Banks, Thesis Submitted to Addis Ababa University, Ethiopia , pp. 1-130.*
- *Wadha, R. and Ramaswamy, K. (2020), Impact of NPA on Profitability of Banks, International Journal of Engineering Technology and Management Science, Vol. 4, No. 3, pp.1-8.*