MANAGING NPAs IN THE BANKING INDUSTRY – AN EMPIRICAL STUDY

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Abstract

The SARFAESI Act was passed in year 2002 to legalise securitisation and reconstruction of financial assets and enforcement of security interest. This study attempts to find ways and managing NPAs in the banking industry. Results reveal that it is found that there is an association between the measures to overcome NPAs and age group and monthly income. It implies that different age group and different monthly income loan officers have perceived different type of notions towards the measures to overcome NPAs. The researcher concludes that RBI should create a centralised unit for processing the loan applications, documents and for evaluation pertaining to loans.

Keywords: Loan Officers, NPAs, SARFAESI Act, Post-Sanction Measure, Third Party Measures

1.1 Introduction

In late 1990s, rising level of bank NPAs raised concerns and Committees like the Narasimham Committee II and Andhyarujina Committee which were constituted for examining banking sector reforms considered the need for bringing about changes in the legal system to address the issue of NPAs. These Committees suggested a new legislation for securitisation, which empowered banks and financial institutions to take possession of the securities and sell them without the intervention of the court and without allowing borrowers to take shelter under provisions of SICA/BIFR. Acting on these suggestions, the SARFAESI Act was passed in year 2002 to legalise securitisation and reconstruction of financial assets and enforcement of security interest. The Act envisaged the formation of asset reconstruction companies (ARCs)/ Securitisation Companies (SCs).

1.2 Review of Literature

Kasturi Rangan,S. (2012) examined the relation between higher interest rates and NPAs of banks in India. A study is done on the repo rates, advances and NPAs of State Bank of India

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by taking repo rates as a proxy to the interest rates. The researcher framed hypothesis and tested it by t-test. The author concluded that there is relationship between NPA and rising interest rates. Further, the author observed that rising NPAs are also due to lack of sanguine business climate, wilful default, absence of strong legal system and weak repayment culture among other reasons.

Mohan Kumar and Govind Singh (2012) discussed that the non-performing assets are a double-edged weapon. According to them, on the one side, bank cannot generate interest on the non-performing asset accounts and it drains the bank's profitability due to higher funding cost on the other side. The authors examined the problems faced by the Indian banks due to non-performing The authors concluded that the recovery performance of individual borrowers is better than that of the corporate and institutional borrowers. The authors ultimately concluded that the level of NPAs in India is less as compared to China.

Reinout De Bock and Alexander Demyanets (2012) revealed how credit growth and asset quality of banks in emerging markets relate to different internal and external factors. The authors discussed that in the boom period a strong balance sheet may lead the bank to lend excess against the inflated value of the collateral and this situation makes banks to face recapitalization when banks suffer balance sheet deterioration. The authors found that the economic growth fell significantly after structural shocks that drove higher non-performing loans. The authors concluded that the deteriorating growth prospects, depreciating exchange rate, weaker terms of trade and a fall in debt-creating capital inflows will thus worsen the loan quality.

1.3 Statement of the Problem

RBI Report on Trends and Progress of Banking in India 2011 – 12 states that, though Indian banks remained well-capitalised, concerns about the growing non-performing assets (NPAs) loomed large. Eliminating the menace of non-performing assets is an uphill task for the banks. By implementing appropriate techniques including CDR, it would be possible for effectively managing the non-performing assets in banks.

1.4 Objectives of the Present Study

To study the perception of loan officers on the ways and means of managing NPAs in the banking industry.

1.5 Research Methodology

The primary data is collected through well framed and structured questionnaire to elicit the perception of loan officers in the banking sector. Simple random sampling has been used to collect responses from the loan officers in both public and private sector banks in India. The geographical limit of the study confined to only one city of Tamil Nadu i.e. Chennai. A

heterogeneous sample was adopted to cover a wide variety of demographic group. The prime respondents are loan officers in public and private sector bank branches situated in Chennai city. Since, they have 1059 public sector bank branches and 443 private sector bank branches in Chennai city, care was taken to ensure the selection of loan officers in a fairly proportionate manner. Out 1059 public sector banks branches 62 questionnaire were collected and out 443 private sector banks branches 37 questionnaire were collected. The total number of questionnaires collected for main study is 99 out of 1502 branches in Chennai city.

2.1 Empirical Analysis

Cluster Analysis has been applied to group the perception of loan officers in Public and Private Sector Banks in India. Chi-Square analysis is used to find the association between independent and dependent variables.

(a) Factor analysis

Nine factors were identified for ways and means for managing NPAs in both Public and Private sector banks in India such as Policy Measures, Procedural Measures, Pre-Sanction Measures, Security Measures, Post-Sanction Measures, Management Technique Measures, Third-Party Measures, Legal Measures and Technical Measures. The policy measures factor consists of two variables i.e. banks must have a prudent credit policy in place to avert any ill-effect of the credit risk and changing credit policies throughout the business cycle helps banks to reduce the level of NPAs. The procedural measures factor consists of two variables such as proper evaluation of the loan application is required to minimise the level of NPAs and avoiding problematic loans by ensuring that procedures are followed and that the good judgment is exercised in making decision about extension of loan. The pre-sanction measures factor consists of two variables i.e. pro-activeness in managing unsecured loan is required to minimise the level of NPAs and strengthening pre-credit appraisal reduces NPAs. The security measures factor consists of two variables such as issuing loans based on Collateral/Guarantee for effective management of NPAs and issuing loans for insurance and asset backed securities to reduce the risk of NPAs. The post-sanction measures factor consists of four variables i.e. close monitoring of borrower account activities reduces NPAs, periodical inspection i.e. site visit, factory visit etc. reduces NPAs, strengthening post-credit appraisal reduces NPAs and credit information sharing among the banks reduces the level of NPA. The management technique measures factor consists of four variables such as more and clearer asset classification is required for better management of NPAs, large-size banks have more risk management strategies, reducing exposure to the corporate sector and increasing exposure to households is an effective way to control NPAs and collateral/guarantee based provision for NPAs is required for effective ways of management of NPAs. The third-party measures factor consists of three variables such as bulk sale of NPAs to a third party is an effective method for NPA management, transfer of non-performing loans to Asset Reconstruction Companies is an effective

management of NPL and resolving NPAs by establishing joint ventures is an effective method. The legal measures factor contains three variables i.e. resolving NPAs individually is an effective method to manage NPAs, restructuring non-performing loans reduces NPAs and one time settlement reduce the level of NPAs. The technical measures factor contains four variables such as central server to store the data of different banks helps in managing NPAs effectively, automated data management helps to manage NPAs effectively, Softcopy of records helps to manage NPAs efficiently and complete and systematic reporting of NPAs periodically assists in managing NPAs efficiently.

(b) Cluster Analysis of Factors for Ways and Means for Managing NPAs

The cluster analysis is applied to classify the 99 respondents based on nine factors that emerged from the principal component analysis for ways and means for managing NPAs in India. It has resulted in formation of three clusters on the basis of similar characteristics which is exhibited in Table 1.

Table 1: Cluster Centres for Ways and Means for Managing NPAs

Ways and Means for Managing NPAs	Cluster		
	1	2	3
Policy Measures	3.77	4.30	3.50
Procedural Measures	4.08	4.59	4.23
Pre-Sanction Measures	4.05	4.45	4.23
Security Measures	3.68	4.46	3.23
Post-Sanction Measures	4.11	4.54	4.68
Management Technique Measures	3.05	3.83	3.36
Third Party Measures	2.83	3.47	3.64
Legal Measures	3.38	3.83	4.18
Technical Measures	3.45	3.89	4.39

Source: Computed Data

Table 2 shows the number of respondents classified into three clusters with cluster size ranging from 11 to 48.

Table 2: Frequency Distribution of Clusters for Ways and Means for Managing NPAs

Cluster	No of Respondents	Percentage
1	48	48.49
2	40	40.40
3	11	11.11
Total	**99**	**100.00**

Source: Computed Data

(i) Cluster 1

First cluster constitutes 48.49 per cent of the sample with 48 respondents. They strongly agree only with precautionary measures such as procedural measures, pre-sanction measures and post-sanction measures and strongly disagree with third party measures to device ways and means for managing NPAs. Therefore, the first cluster named as **Active Loan Officers**. The active Loan officers always believe that the NPAs can be controlled when preventive measures are followed rather than depending on third-parties to reduce NPAs.

(ii) Cluster 2

Second cluster constitutes 40.40 per cent of the sample with 40 respondents. They strongly agree with precautionary measures such as policy measures, procedural measures, pre-sanction measures, security measures and Post-Sanction Measures. Therefore, the second cluster labelled as **Defensive Loan Officers**. The defensive loan officers always believe that the NPAs can be controlled only by following preventive measures.

(iii) Cluster 3

Third cluster constitutes 11.11 per cent of the sample with 11 respondents. They strongly agree with both precautionary and curative measures such as procedural measures, pre-sanction measures, post-sanction measures legal measures, and technical measures. Therefore, the third cluster labelled as **Dynamic Loan Officers**. The dynamic Loan officers always believe that the NPAs can be controlled by following preventive measures and it also minimised with the help of curative measures.

(c) Chi-Square Analysis between Clusters on Measures to overcome the NPAs with Demographic Variables

The researcher identified three clusters measures to overcome the NPAs viz., Active Loan Officers, Defensive Loan Officers and Dynamic Loan Officers. The clusters are appropriately measured and named with suitable analogy. In this section, the researcher intends to associate the perception of loan officers on measures to overcome NPAs with demographic variables.

Association between measures for NPA and Banking Sector

The measures for NPAs and loan officers in four different banking sectors are considered to test their association and the results are presented in Table 3.

Table 3: Association between Measures for NPA and Banking Sector

Measures for NPAs - Clusters	Banking Sector								Total	
	Nationalised Bank		State Bank Group		Old Private-sector Bank		New Private-sector Bank			
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Active Loan Officers	23	47.9	5	10.4	10	20.8	10	20.8	48	100.0
Defensive Loan Officers	17	42.5	9	22.5	10	25.0	4	10.0	40	100.0
Dynamic Loan Officers	7	63.6	1	9.1	2	18.2	1	9.1	11	100.0
Total	47	47.5	15	15.2	22	22.2	15	15.2	99	100.0

Source: Computed Data

From the Table 3, it is found that 20.8 per cent active loan officers are in both old and new private sector banks, 22.5 per cent passive loan officers are in state banks group and 63.6 per cent dynamic loan officers are in nationalised banks. Verification of association has been done in the Table 4.

Table 4: Chi-Square Test for Measures for NPA with Banking Sector

Particulars	Value	Degrees of freedom	Significant
Pearson Chi-Square	5.470	6	.485
Likelihood Ratio	5.399	6	.494
Linear-by-Linear Association	1.114	1	.291
N of Valid Cases	99		

Source: Computed Data

From Table 4, it is found that Pearson Chi-Square value = 5.470 and p value = 0.485 are statistically insignificant. Therefore, it can be concluded that there is no association between measures for NPAs and different types of banking sector. It also implies that loan officers in nationalised banks, State Bank Group, old generation private-sector banks and new generation private-sector banks have same perception towards the measure for NPAs.

Association between Measures for NPA and Gender

The measures for NPAs and loan officer gender are considered to test their association and the results are presented in Table 5.

Table 5: Association between Measures for NPA and Gender

Measures for NPAs - Clusters	Gender				Total	
	Male		Female			
	Freq.	%	Freq.	%	Freq.	%
Active Loan Officers	35	72.9	13	27.1	**48**	**100.0**
Defensive Loan Officers	32	80.0	8	20.0	**40**	**100.0**
Dynamic Loan Officers	11	100.0	0	0.0	**11**	**100.0**
Total	**78**	**78.8**	**21**	**21.2**	**99**	**100.0**

Source: Computed Data

From the Table 5, it is found that 27.1 per cent active loan officers are females and 80.0 per cent defensive loan officers are males. Further, it is found that 100.0 per cent of dynamic loan officers are males. Verification of association has been done in Table 5.

Table 6: Chi-Square Test for Measures for NPA with Gender

Particulars	Value	Degrees of freedom	Significant
Pearson Chi-Square	3.987	2	.136
Likelihood Ratio	6.213	2	.045
Linear-by-Linear Association	3.480	1	.062
N of Valid Cases	99		

Source: Computed Data

From Table 6, it is found that Pearson Chi-Square value = 3.987 and p value = 0.136 are statistically insignificant. Therefore, it can be concluded that there is no association between measures for NPAs and gender. It also implies that male and female loan officers have perceived same type of notion towards the measures for NPAs.

Association between Measures for NPA and Age Group

The measures for NPAs and loan officers in different age group are considered to test their association and the results are presented in Table 7.

Table 7: Association between Measures for NPA and Age Group

Measures for NPAs - Clusters	Age Group								Total	
	Less than 30		31 – 40		41 – 50		More than 51			
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Active Loan Officers	4	8.3	8	16.7	20	41.7	16	33.3	**48**	**100.0**
Defensive Loan Officers	7	17.5	6	15.0	3	7.5	24	60.0	**40**	**100.0**
Dynamic Loan Officers	0	0.0	1	9.1	1	9.1	9	81.8	**11**	**100.0**
Total	**11**	**11.1**	**15**	**15.2**	**24**	**24.2**	**49**	**49.5**	**99**	**100.0**

Source: Computed Data

From the Table 7, it is found that 41.7 per cent active loan officers are in age group 41 - 50, 60.0 per cent defensive loan officers are in the age group more than 51 and 9.1 per cent dynamic loan officers are in age group 31 - 40. Further, it is found that 17.5 per cent of dynamic loan officers are in the age group less than 30. Verification of association has been done in Table 7

Table 8: Chi-Square Test for Measures for NPA with Age Group

Particulars	Value	Degrees of freedom	Significant
Pearson Chi-Square	20.790	6	.002
Likelihood Ratio	22.740	6	.001
Linear-by-Linear Association	3.174	1	.075
N of Valid Cases	99		

Source: Computed Data

From Table 8, it is found that Pearson Chi-Square value = 20.790 and p value = 0.002 are statistically significant. Therefore, it can be concluded that there is an association between measures for NPAs and age group. It also implies that loan officers in the age group of less than 30, 31 – 40, 41 – 50 and more than 51 have perceived differently towards the measures for NPAs.

Association between Measures for NPA and Education Qualification

The measures for NPAs and loan officers in different education qualification are considered to test their association and the results are presented in Table 9.

Table 9: Association between Measures for NPA and Education Qualification

Measures for NPAs - Clusters	Education Qualification								Total	
	Graduate		CAIIB		Post Graduate		Professional			
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Active Loan Officers	7	14.6	12	25.0	16	33.3	13	27.1	**48**	**100.0**
Defensive Loan Officers	6	15.0	14	35.0	16	40.0	4	10.0	**40**	**100.0**
Dynamic Loan Officers	1	9.1	3	27.3	6	54.5	1	9.1	**11**	**100.0**
Total	**14**	**14.1**	**29**	**29.3**	**38**	**38.4**	**18**	**18.2**	**99**	**100.0**

Source: Computed Data

From the Table 9, it is found that 27.1 per cent active loan officers are professionals, 35.0 per cent defensive loan officers are CAIIB and 54.5 per cent dynamic loan officers are post graduate. Further, it is found that 15.0 per cent defensive loan officers are graduates. Verification of association has been done in Table 10.

Table 10: Chi-Square Test for Measures for NPA with Education Qualification

Particulars	Value	Degrees of freedom	Significant
Pearson Chi-Square	6.147	6	.407
Likelihood Ratio	6.220	6	.399
Linear-by-Linear Association	.770	1	.380
N of Valid Cases	99		

Source: Computed Data

From Table 10, it is found that Pearson Chi-Square value = 6.147 and p value = 0.407 are statistically insignificant. Therefore, it can be concluded that there is no association between measures for NPAs and different types of education qualification. It also implies that loan officers who are Graduate or CAIIB or Post Graduate or Professional perceived same type of notion towards the measures for NPAs.

Association between Measures for NPA and Monthly Income

The measures for NPAs and loan officers in different monthly income group are considered to test their association and the results are presented in Table 11.

Table 11: Association between Measures for NPA and Monthly Income

Measures for NPAs - Clusters	Monthly Income (Rs)								Total	
	Up to 30000		30001 – 60000		60001 – 90000		Above 90000			
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Active Loan Officers	6	12.5	18	37.3	15	31.3	9	18.8	**48**	**100.0**
Defensive Loan Officers	3	7.5	23	57.5	9	22.5	5	12.5	**40**	**100.0**
Dynamic Loan Officers	0	0.0	1	9.1	10	90.9	0	0.0	**11**	**100.0**
Total	**9**	**9.1**	**42**	**42.4**	**34**	**34.3**	**14**	**14.1**	**99**	**100.0**

Source: Computed Data

From the Table 11, it is found that 18.8 per cent active loan officers earn monthly income group of above Rs. 90000, 57.5 per cent defensive loan officers earn monthly income of Rs. 30001 - 60000 and 90.9 per cent dynamic loan officers earn monthly income of Rs. 60001 – 90000. Further, it is found that 12.5 per cent active loan officers earn monthly income of up to 30000. Verification of association has been done in the Table 11.

Table 12: Chi-Square Test for Measures for NPA with Monthly Income

Particulars	Value	Degrees of freedom	Significant
Pearson Chi-Square	21.392	6	.002
Likelihood Ratio	22.001	6	.001
Linear-by-Linear Association	.242	1	.623
N of Valid Cases	99		

Source: Computed Data

FromTable 12, it is found that Pearson Chi-Square value = 21.392and p value = .002 are statistically significant. Therefore, it can be concluded that there is an association between measures for NPAs and monthly income group. It also implies that loan officers' monthly income up to Rs. 30000, Rs. 30001 – 60000, Rs. 60001 – 90000 and above Rs. 90000 have perceived differently towards themeasures for NPAs.

Association between Measures for NPA and Experience in Banking Sector

The measures for NPAs and loan officers having different experience in banking sectors are considered to test their association and the results are presented in Table 13.

Table 13: Association between Measures for NPA and Experience in Banking Sector

Measures for NPAs - Clusters	Experience in Banking Sector (Years)								Total	
	0 – 5		6 – 10		11 – 15		16 or more			
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Active Loan Officers	6	12.5	7	14.6	3	6.3	32	66.7	**48**	**100.0**
Defensive Loan Officers	9	22.5	3	7.5	0	0.0	28	70.0	**40**	**100.0**
Dynamic Loan Officers	1	9.1	0	0.0	0	0.0	10	90.9	**11**	**100.0**
Total	**16**	**16.2**	**10**	**10.1**	**3**	**3.0**	**70**	**70.7**	**99**	**100.0**

Source: Computed Data

From the Table 13, it is found that 14.6 per cent active loan officers have 6 to 10 years of experience in banking sector, 22.5 per cent defensive loan officers have over 0 – 5 years of banking experience and 90.9 per cent dynamic loan officers have 16 or more years of banking experience. Further, it is found that 6.3 per cent of active loan officers have 11 – 15 years of banking experience. Verification of association has been done in the Table 13.

Table 14: Chi-Square Test for Measures for NPA with Experience in Banking Sector

Particulars	Value	Degrees of freedom	Significant
Pearson Chi-Square	8.003	6	.238
Likelihood Ratio	10.118	6	.120
Linear-by-Linear Association	.476	1	.490
N of Valid Cases	99		

Source: Computed Data

From Table 14, it is found that Pearson Chi-Square value = 8.003 and p value = 0.238 are statistically insignificant. Therefore, it can be concluded that there is no association between measures for NPAs and experience in banking sector. It also implies that loan officers in 0 – 5, 6 – 10, 11 – 15, and 16 or more years of banking sector experience have same perception towards the measures for NPAs.

Association between Measures for NPA and Experience in Loan Products

The measures for NPAs and loan officers having different experience in loan products are considered to test their association and the results are presented in Table 15.

Table 15: Association between Measures for NPA and Experience in Loan Products

Measures for NPAs - Clusters	Experience in Loan Products (Years)								Total	
	0 – 5		6 – 10		11 – 15		16 or more			
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Active Loan Officers	15	31.3	11	22.9	9	18.8	13	27.1	**48**	**100.0**
Defensive Loan Officers	16	40.0	5	12.5	4	10.0	15	37.5	**40**	**100.0**
Dynamic Loan Officers	1	9.1	2	18.2	0	0.0	8	72.7	**11**	**100.0**
Total	**32**	**32.3**	**18**	**18.2**	**13**	**13.1**	**36**	**36.4**	**99**	**100.0**

Source: Computed Data

From the Table 15, it is found that 22.9 per cent active loan officers have 6 – 10 years of experience in loan products, 40.0 per cent defensive loan officers have over 0 – 5 years of loan product experience and 72.7 per cent dynamic loan officers have 16 or more years of loan product experience. Further, it is found that 18.8 per cent of dynamic loan officers have 11 – 15 years of loan product experience.

Table 16: Chi-Square Test for Measures for NPA with Experience in Loan Products

Particulars	Value	Degrees of freedom	Significant
Pearson Chi-Square	11.933	6	.063
Likelihood Ratio	13.199	6	.040
Linear-by-Linear Association	2.962	1	.085
N of Valid Cases	99		

Source: Computed Data

FromTable 16, it is found that Pearson Chi-Square value = 11.933 and p value = 0.63 are statistically insignificant. Therefore, it can be concluded that there is no association between measures for NPAs and loan officers experience in loan products. It also implies that loan officers with $0 - 5$, $6 - 10$, $11 - 15$, and 16 or more years of loan product experience have perceived similarly towards the measures for NPAs.

Association between Measures for NPA and Home Loan Product Risk Profile

The measures for NPAs and loan officer's perception towards home loan product risk profile are considered to test their association and the results are presented in Table 17.

Table 17: Association between Measures for NPA and Home Loan Product Risk Profile

Measures for NPAs - Clusters	Home Loan Products Risk Profile						Total	
	Low		Moderate		High			
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Active Loan Officers	26	54.2	12	25.0	10	20.8	**48**	**100.0**
Defensive Loan Officers	21	52.5	12	30.0	7	17.5	**40**	**100.0**
Dynamic Loan Officers	8	72.7	1	9.1	2	18.2	**11**	**100.0**
Total	**55**	**55.6**	**25**	**25.3**	**19**	**19.2**	**99**	**100.0**

Source: Computed Data

From the Table 17, it is found that 20.8 per cent active loan officers agreed that home loans are high risk products, 30.0 per cent defensive loan officers are agreed that moderate risk is involved in home loan products and 72.7 per cent dynamic loan officers agreed that low risk is involved in home loan products.

Table 18: Chi-Square Test for Measures for NPA with Home Loan Products Risk Profile

Particulars	Value	Degrees of freedom	Significant
Pearson Chi-Square	2.297	4	.681
Likelihood Ratio	2.600	4	.627
Linear-by-Linear Association	.425	1	.514
N of Valid Cases	99		

Source: Computed Data

From Table 18, it is found that Pearson Chi-Square value = 2.297 and p value = 0.681 are statistically insignificant. Therefore, it can be concluded that there is no association between measures for NPAs and home loan products risk profile. It also implies that all the clusters of loan officers have same perception about home loan products risk profile towards the measures for NPAs.

Association between Measures for NPA and Consumer Loan Product Risk Profile

The measures for NPAs and loan officer's perception towards consumer loan product risk profile are considered to test their association.

Table 19: Association between Measures for NPA and Consumer Loan Product Risk Profile

Measures for NPAs - Clusters	Consumer Loan Products Risk Profile						Total	
	Low		Moderate		High			
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Active Loan Officers	10	20.8	23	47.9	15	31.3	48	100.0
Defensive Loan Officers	8	20.0	14	35.0	18	45.0	40	100.0
Dynamic Loan Officers	2	18.2	4	36.4	5	45.5	11	100.0
Total	20	20.2	41	41.4	38	38.4	99	100.0

Source: Computed Data

From the Table 19, it is found that 47.9 per cent active loan officers agreed that consumer loans are moderate risk products, 20.0 per cent defensive loan officers agreed that low risk is involved in consumer loan products and 45.5 per cent dynamic loan officers agreed that high risk is involved in consumer loan products.

Table 20: Chi-Square Test for Measures for NPA with Consumer Loan Products Risk Profile

Particulars	Value	Degrees of freedom	Significant
Pearson Chi-Square	2.224	4	.695
Likelihood Ratio	2.237	4	.692
Linear-by-Linear Association	.886	1	.347
N of Valid Cases	99		

Source: Computed Data

FromTable 20, it is found that Pearson Chi-Square value = 2.224 and p value = 0.695 are statistically insignificant. Therefore, it can be concluded that there is no association between measures for NPAs and consumer loan products risk profile. It also implies that all the clusters of loan officers have same perception about consumer loan products risk profile towards themeasures for NPAs.

Association between Measures for NPA and Jewellery Loan Product Risk Profile

The measures for NPAs and loan officer's perception towards jewellery loan product risk profile are considered to test their association.

Table 21: Association between Measures for NPA and Jewellery Loan Product Risk Profile

Measures for NPAs - Clusters	Jewellery Loan Products Risk Profile						Total	
	Low		Moderate		High			
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Active Loan Officers	27	56.3	12	25.0	9	18.8	**48**	**100.0**
Defensive Loan Officers	29	72.5	5	12.5	6	15.0	**40**	**100.0**
Dynamic Loan Officers	9	81.8	0	0.0	2	18.2	**11**	**100.0**
Total	**65**	**65.7**	**17**	**17.2**	**17**	**17.2**	**99**	**100.0**

Source: Computed Data

From the Table 21, it is found that 25.0 per cent active loan officers agreed that jewellery loans are moderate risk products, 15.0 per cent defensive loan officers agreed that high risk is involved in jewellery loan products and 81.8 per cent dynamic loan officers agreed that low risk is involved in jewellery loan products.

Table 22: Chi-Square Test for Measures for NPA with Jewellery Loan Products Risk Profile

Particulars	Value	Degrees of freedom	Significant
Pearson Chi-Square	5.666	4	.226
Likelihood Ratio	7.390	4	.117
Linear-by-Linear Association	1.779	1	.182
N of Valid Cases	99		

Source: Computed Data

FromTable 22, it is found that Pearson Chi-Square value = 5.666 and p value = 0.226 are statistically insignificant. Therefore, it can be concluded that there is no association between measures for NPAs and jewellery loan products risk profile. It also implies that all the clusters of loan officers have same perception about jewellery loan products risk profile towards themeasures for NPAs.

Association between Measures for NPA and Mortgage Loan Product Risk Profile

The measures for NPAs and loan officer's perception towards mortgage loan product risk profile are considered to test their association and the results are presented in Table 23.

Table 23: Association between Measures for NPA and Mortgage Loan Product Risk Profile

Measures for NPAs - Clusters	Mortgage Loan Products Risk Profile						Total	
	Low		Moderate		High			
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Active Loan Officers	17	35.4	22	45.8	9	18.8	**48**	**100.0**
Defensive Loan Officers	19	47.5	13	32.5	8	20.0	**40**	**100.0**
Dynamic Loan Officers	6	54.5	2	18.2	3	27.3	**11**	**100.0**
Total	**42**	**42.4**	**37**	**37.4**	**20**	**20.2**	**99**	**100.0**

Source: Computed Data

From the Table 23, it is found that 45.8 per cent active loan officers agreed that mortgage loans are moderate risk products, 20.0 per cent defensive loan officers agreed that high risk is involved in mortgage loan products and 54.5 per cent dynamic loan officers agreed that low risk is involved and same percentage of them agreed that moderate risk is involved in mortgage loan products.

Table 24: Chi-Square Test for Measures for NPA with Mortgage Loan Products Risk Profile

Particulars	Value	Degrees of freedom	Significant
Pearson Chi-Square	3.760	4	.439
Likelihood Ratio	3.932	4	.415
Linear-by-Linear Association	.394	1	.530
N of Valid Cases	99		

Source: Computed Data

FromTable 24, it is found that Pearson Chi-Square value = 3.760 and p value = 0.439 are statistically insignificant. Therefore, it can be concluded that there is no association between measures for NPAs and mortgage loan products risk profile. It also implies that all the clusters of loan officers have same perception about mortgage loan products risk profile towards themeasures for NPAs.

Association between Measures for NPA and Business Loan Product Risk Profile

The measures for NPAs and loan officer's perception towards business loan product risk profile are considered to test their association.

Table 25: Association between Measures for NPA and Business Loan Product Risk Profile

Measures for NPAs - Clusters	Business Loan Products Risk Profile						Total	
	Low		Moderate		High			
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Active Loan Officers	5	10.4	28	58.3	15	31.3	**48**	**100.0**
Defensive Loan Officers	3	7.5	19	47.5	18	45.0	**40**	**100.0**
Dynamic Loan Officers	1	9.1	7	63.6	3	27.3	**11**	**100.0**
Total	**9**	**9.1**	**54**	**54.5**	**36**	**36.4**	**99**	**100.0**

Source: Computed Data

From the Table 25, it is found that 10.4 per cent active loan officers agreed that business loans are low risk products, 45.0 per cent defensive loan officers agreed that high risk is involved in business loan products and 63.6 per cent dynamic loan officers agreed that moderate risk is involved in business loan products.

Table 26: Chi-Square Test for Measures for NPA with Business Loan Products Risk Profile

Particulars	Value	Degrees of freedom	Significant
Pearson Chi-Square	2.277	4	.685
Likelihood Ratio	2.268	4	.687
Linear-by-Linear Association	.252	1	.616
N of Valid Cases	99		

Source: Computed Data

FromTable 26, it is found that Pearson Chi-Square value = 2.277 and p value = 0.685 are statistically insignificant. Therefore, it can be concluded that there is no association between measures for NPAs and business loan products risk profile. It also implies that all the clusters of loan officers have same perception about business loan products risk profile towards themeasures for NPAs.

Association between Measures for NPA and Personal Loan Product Risk Profile

The measures for NPAs and loan officer's perception towards personal loan product risk profile are considered to test their association.

Table 27: Association between Measures for NPA and Personal Loan Product Risk Profile

Measures for NPAs - Clusters	Personal Loan Products Risk Profile						Total	
	Low		Moderate		High			
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Active Loan Officers	4	8.3	14	29.2	30	62.5	48	100.0
Defensive Loan Officers	1	2.5	8	20.0	31	77.5	40	100.0
Dynamic Loan Officers	2	18.2	1	9.1	8	72.7	11	100.0
Total	7	7.1	23	23.2	69	69.7	99	100.0

Source: Computed Data

From the Table 27, it is found that 29.2 per cent active loan officers agreed that personal loans are moderate risk products, 77.5 per cent defensive loan officers agreed that high risk is involved in personal loan products and 18.2 per cent dynamic loan officers agreed that low risk is involved in personal loan products.

Table 28: Chi-Square Test for Measures for NPA with Personal Loan Products Risk Profile

Particulars	Value	Degrees of freedom	Significant
Pearson Chi-Square	5.786	4	.216
Likelihood Ratio	5.830	4	.212
Linear-by-Linear Association	.587	1	.444
N of Valid Cases	99		

Source: Computed Data

FromTable 28, it is found that Pearson Chi-Square value = 5.786 and p value = 0.216 are statistically insignificant. Therefore, it can be concluded that there is no association between measures for NPAs and personal loan products risk profile. It also implies that all the clusters of loan officers have same perception about personal loan products risk profile towards themeasures for NPAs.

Association between Measures for NPA and Loan against Deposits, Investments and Insurance Product Risk Profile

The measures for NPAs and loan officer's perception towards deposits, investments and insurance loan product risk profile are considered to test their association.

Table 29:Association between Measures for NPA and Loan against Deposits, Investments and Insurance Product Risk Profile

Measures for NPAs - Clusters	Loan against Deposits, Investments and Insurance Products Risk Profile						Total	
	Low		Moderate		High			
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Active Loan Officers	30	62.5	8	16.7	10	20.8	**48**	**100.0**
Defensive Loan Officers	30	75.0	2	5.0	8	20.0	**40**	**100.0**
Dynamic Loan Officers	8	72.7	1	9.1	2	18.2	**11**	**100.0**
Total	**68**	**68.7**	**11**	**11.1**	**20**	**20.2**	**99**	**100.0**

Source: Computed Data

From the Table 29, it is found that 20.8 per cent active loan officers agreed that loans against deposits, investments and insurance are high risk products, 75.0 per cent defensive loan officers agreed that low risk is involved in loan against deposits, investments and insurance products and 9.1 per cent dynamic loan officers agreed that moderate risk is involved in loan against deposits, investments and insurance products.

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Table 30: Chi-Square Test for Measures for NPA with Loan against Deposits, Investments and Insurance Product Risk Profile

Particulars	Value	Degrees of freedom	Significant
Pearson Chi-Square	3.276	4	.513
Likelihood Ratio	3.452	4	.485
Linear-by-Linear Association	.520	1	.471
N of Valid Cases	99		

Source: Computed Data

FromTable 30, it is found that Pearson Chi-Square value = 3.276 and p value = 0.513 are statistically insignificant. Therefore, it can be concluded that there is no association between measures for NPAs and loan against deposits, investments and insurance products risk profile. It also implies that all the clusters of loan officers have same perception about loan against deposits, investments and insurance product risk profile towards themeasures for NPAs.

Association between Measures for NPA and Education Loan Product Risk Profile

The measures for NPAs and loan officer's perception towards education loan product risk profile are considered to test their association and the results are presented in Table 31.

Table 31: Association between Measures for NPA and Education Loan Product Risk Profile

Measures for NPAs - Clusters	Education Loan Products Risk Profile						Total	
	Low		Moderate		High			
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Active Loan Officers	4	8.3	15	31.3	29	60.4	48	100.0
Defensive Loan Officers	2	5.0	10	25.0	28	70.0	40	100.0
Dynamic Loan Officers	2	18.2	2	18.2	7	63.6	11	100.0
Total	8	8.1	27	27.3	64	64.6	99	100.0

Source: Computed Data

From the Table 31, it is found that 31.3 per cent active loan officers agreed that education loans are moderate risk products, 70.0 per cent defensive loan officers agreed that high risk is involved in education loan products and 18.2 per cent dynamic loan officers agreed that low risk is involved in education loan products.

Table 32: Chi-Square Test for Measures for NPA with Education Loan Products Risk Profile

Particulars	Value	Degrees of freedom	Significant
Pearson Chi-Square	2.862	4	.581
Likelihood Ratio	2.602	4	.627
Linear-by-Linear Association	.046	1	.829
N of Valid Cases	99		

Source: Computed Data

FromTable 32, it is found that Pearson Chi-Square value = 2.862 and p value = 0.581 are statistically insignificant. Therefore, it can be concluded that there is no association between measures for NPAs and education loan products risk profile. It also implies that all the clusters of loan officers have same perception about education loan products risk profile towards themeasures for NPAs.

Association between Measures for NPA and NRI Loan Product Risk Profile

The measures for NPAs and loan officer's perception towards NRI loan product risk profile are considered to test their association and the results are presented in Table 33.

Table 33: Association between Measures for NPA and NRI Loan Product Risk Profile

Measures for NPAs - Clusters	NRI Loan Products Risk Profile						Total	
	Low		Moderate		High			
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Active Loan Officers	27	56.3	13	27.1	8	16.7	**48**	**100.0**
Defensive Loan Officers	21	52.5	8	20.0	11	27.5	**40**	**100.0**
Dynamic Loan Officers	7	63.6	2	18.2	2	18.2	**11**	**100.0**
Total	**55**	**55.6**	**23**	**23.2**	**21**	**21.2**	**99**	**100.0**

Source: Computed Data

From the Table 33, it is found that 27.1 per cent active loan officers agreed that NRI loans are moderate risk products, 27.5 per cent defensive loan officers agreed that high risk is involved in NRI loan products and 63.6 per cent dynamic loan officers agreed that low risk is involved in education loan products.

Table 34: Chi-Square Test for Measures for NPA with NRI Loan Products Risk Profile

Particulars	Value	Degrees of freedom	Significant
Pearson Chi-Square	2.068	4	.723
Likelihood Ratio	2.043	4	.728
Linear-by-Linear Association	.056	1	.812
N of Valid Cases	99		

Source: Computed Data

FromTable 34, it is found that Pearson Chi-Square value = 2.068 and p value = 0.723 are statistically insignificant. Therefore, it can be concluded that there is no association between measures for NPAs and NRI loan products risk profile. It also implies that all the clusters of loan officers have same perception about NRI loan products risk profile towards themeasures for NPAs.

Association between Measures for NPA and Other Loan Products Risk Profile

The measures for NPAs and loan officer's perception towards other loan products risk profile are considered to test their association and the results are presented in Table 35.

Table 35: Association between Measures for NPA and Other Loan Products Risk Profile

Measures for NPAs - Clusters	Other Loan Products Risk Profile								Total	
	Nil		Low		Moderate		High			
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Active Loan Officers	38	79.2	3	6.3	3	6.3	4	8.3	**48**	**100.0**
Defensive Loan Officers	33	82.5	1	2.5	2	5.0	4	10.0	**40**	**100.0**
Dynamic Loan Officers	9	81.8	0	0.0	2	18.2	0	0.0	**11**	**100.0**
Total	**80**	**80.8**	**4**	**4.0**	**7**	**7.1**	**8**	**8.1**	**99**	**100.0**

Source: Computed Data

From the Table 35, it is found that 8.3 per cent active loan officers agreed that high risk is involved in other loan products, 82.5 per cent defensive loan officers agreed that other loan products are not available and 18.2 per cent dynamic loan officers agreed that moderate risk is involved in other loan products. Further, it is found that 6.3 percent of active loan officers agreed that low risk in involved in other loan products risk profile. Verification of association has been done in the Table 36.

**Table 36: Chi-Square Test for Measures for NPA with
Other Loan Products Risk Profile**

Particulars	Value	Degrees of freedom	Significant
Pearson Chi-Square	4.575	6	.599
Likelihood Ratio	5.291	6	.507
Linear-by-Linear Association	.043	1	.836
N of Valid Cases	99		

Source: Computed Data

From Table 36, it is found that Pearson Chi-Square value = 4.575 and p value = 0.599 are statistically insignificant. Therefore, it can be concluded that there is no association between measures for NPAs and other loan products risk profile. It also implies that all the clusters of loan officers have same perception about other loan products risk profile towards the measures for NPAs.

Conclusion

Three clusters were formed from factors on the measures to overcome on NPAs in both public and private sector banks in India such as Active Loan Officers, Defensive Loan Officers and Dynamic Loan Officers. The active loan officers cluster consists of 48.49 per cent of respondents. They are strongly agreed only with precautionary measures such as procedural measures, pre-sanction measures and post-sanction measures and strongly disagreed with third party measures. The defensive loan officers cluster consists of 40.40 per cent of respondents. They are strongly agreed with precautionary measures such as policy measures, procedural measures, pre-sanction measures, security measures and Post-Sanction Measures. The dynamic loan officers cluster consists of 11.11 per cent of respondents. They are strongly agreed with both precautionary and curative measures such as procedural measures, pre-sanction measures, post-sanction measures legal measures, and technical measures.

From the chi-square analysis it is found that there is no association between measures to overcome NPA with banking sector, gender, education qualification, , banking sector experience, loan product experience, home loan product risk profile, consumer loan product risk profile, jewellery loan products risk profile, mortgage loan products risk profile, business loan products risk profile, personal loan products risk profile, loan against deposits, investments and insurance product risk profile, education loan products risk profile, NRI loan products risk profile and other loan products risk profile. It implies that the loan officers perceived same type of notions towards the causes for NPAs. Further, it is found that there is an association between the measures to overcome NPAs and age group and monthly income. It implies that different age group and different monthly income loan officers have perceived different type of notions

towards the measuresto overcome NPAs.

The Indian banking sector is facing a serious problem of mounting NPAs. In fact, NPA serves as an indicator of the performance of banks and financial institutions. Banks and financial institutions face various risks viz., operational risk, credit risk, management risk etc. Of these, credit risk is chiefly responsible for causing the problem of NPAs in the financial system of a country. Eliminating the menace of non-performing assets remains an uphill task. By implementing appropriate techniques including Corporate Debt Restructuring (CDR), it would be possible for banks and financial institutions to effectively manage the non-performing assets. This would contribute to the reduction in NPAs resulting in the enhancement of profitability position of banks and financial institutions.

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