

**A Study On NPA Resolution Mechanism Of Indian  
Banks With A Special Reference To Gujarat**

A Thesis submitted to Gujarat Technological University  
for the Award of

Doctor of Philosophy

in

Management

by

Sharma Naren Raghunandan  
(Enrollment No. 169999903006)

under supervision of

Dr. Kerav Pandya



**GUJARAT TECHNOLOGICAL UNIVERSITY  
AHMEDABAD**

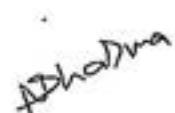
[July – 2023]

© Sharma Naren Raghunandan

## **DECLARATION**

I declare that the thesis entitled "A Study On NPA Resolution Mechanism Of Indian Banks With A Special Reference To Gujarat" submitted by me for the degree of Doctor of Philosophy is the record of research work carried out by me during the period from May 2017 to January 2023 under the supervision of Dr. Kerav Pandya and this has not formed the basis for the award of any degree, diploma, associateship, fellowship, titles in this or any other University or other institution of higher learning.

I further declare that the material obtained from other sources has been duly acknowledged in the thesis. I shall be solely responsible for any plagiarism or other irregularities, if noticed in the thesis.

Signature of the Research Scholar: .....  Date: 28-07-2023

Name of Research Scholar: Sharma Naren Raghunandan

Place: Vadodara

## **CERTIFICATE**

I certify that the work incorporated in the thesis "A Study On NPA Resolution Mechanism Of Indian Banks With A Special Reference To Gujarat" submitted by Mr. Sharma Naren Raghunandan was carried out by the candidate under my supervision/guidance. To the best of my knowledge: (i) the candidate has not submitted the same research work to any other institution for any degree/diploma, Associateship, Fellowship or other similar titles (ii) the thesis submitted is a record of original research work done by the Research Scholar during the period of study under my supervision, and (iii) the thesis represents independent research work on the part of the Research Scholar.

Signature of Supervisor: .....  Date: 28-07-2023

Name of Supervisor: **Dr. Kerav Pandya**

Place: Vadodara

## Course-work Completion Certificate

This is to certify that Mr. Sharma Naren Raghunandan enrolment no. 169999903006 is enrolled for PhD program in the branch Management of Gujarat Technological University, Ahmedabad.

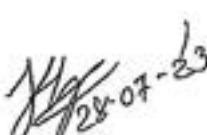
(Please tick the relevant option(s))

He has been exempted from the course-work (successfully completed during M.Phil Course)

He has been exempted from Research Methodology Course only (successfully completed during M.Phil Course)

He has successfully completed the PhD course work for the partial requirement for the award of PhD Degree. His/ Her performance in the course work is as follows-

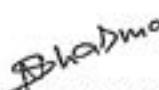
Grade Obtained in Research Methodology [PH001]	Grade Obtained in Self-Study Course/ Contact Program [PH002]
BC	BB

  
Dr. Kerav Pandya

## **Originality Report Certificate**

It is certified that PhD Thesis titled "A Study On NPA Resolution Mechanism Of Indian Banks With A Special Reference To Gujarat" by Sharma Naren Raghunandan has been examined by us. We undertake the following:

- a. Thesis has significant new work / knowledge as compared already published or are under consideration to be published elsewhere. No sentence, equation, diagram, table, paragraph or section has been copied verbatim from previous work unless it is placed under quotation marks and duly referenced.
- b. The work presented is original and own work of the author (i.e. there is no plagiarism). No ideas, processes, results or words of others have been presented as Author own work.
- c. There is no fabrication of data or results which have been compiled / analyzed.
- d. There is no falsification by manipulating research materials, equipment or processes, or changing or omitting data or results such that the research is not accurately represented in the research record.
- e. The thesis has been checked using URKUND (Original) (copy of originality report attached) and found within limits as per GTU Plagiarism Policy and instructions issued from time to time (i.e. permitted similarity index <=10%).

Signature of the Research Scholar: .....  Date: 28-07-2023

Name of Research Scholar: **Sharma Naren Raghunandan**

Signature of Supervisor: .....  Date: 28-07-2023

Name of Supervisor: **Dr. Kerav Pandya**

Place: Vadodara

## Document Information

---

Analyzed document All Chapters Only 22122022 (1).pdf (D154728241)

Submitted 2023-01-02 09:58:00

Submitted by Naren sharma

Submitter email naren7@gmail.com

Similarity 4%

Analysis address naren7.gtuni@analysis.urkund.com

## Sources included in the report

---

SA	<b>Final NPA Thesis (All Chapters).docx</b> Document Final NPA Thesis (All Chapters).docx (D113519793)	 15
SA	<b>Final thesis to print pdf.pdf</b> Document Final thesis to print.pdf.pdf (D63993318)	 79
SA	<b>an inquisition of non performing...docx</b> Document an inquisition of non performing...docx (D20378471)	 3
SA	<b>Sibin.pdf</b> Document Sibin.pdf (D130895050)	 27
SA	<b>Main Body of Content for DVD.pdf</b> Document Main Body of Content for DVD.pdf (D28847392)	 2
SA	<b>Meet Shah PF2022-2073 B Final Draft.docx</b> Document Meet Shah PF2022-2073 B Final Draft.docx (D128330530)	 3
SA	<b>2019-53.docx</b> Document 2019-53.docx (D55235746)	 5
W	URL: <a href="https://www.pramanaresearch.org/gallery/prj-p778.pdf">https://www.pramanaresearch.org/gallery/prj-p778.pdf</a> Fetched: 2019-10-15 08:36:35	 7
SA	<b>Ravishankar.docx</b> Document Ravishankar.docx (D36681169)	 3
SA	<b>C. Srin..pdf</b> Document C. Srin..pdf (D110148354)	 1

## **Ph.D. Thesis Non-Exclusive License to GUJARAT TECHNOLOGICAL UNIVERSITY**

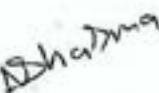
In consideration of being a Research Scholar at Gujarat Technological University, and in the interests of the facilitation of research at the University and elsewhere, I, Sharma Naren Raghunandan having Enrollment No. 169999903006 hereby grant a non-exclusive, royalty free and perpetual license to the University on the following terms:

- a. The University is permitted to archive, reproduce and distribute my thesis, in whole or in part, and/or my abstract, in whole or in part ( referred to collectively as the “Work”) anywhere in the world, for non-commercial purposes, in all forms of media;
- b. The University is permitted to authorize, sub-lease, sub-contract or procure any of the acts mentioned in paragraph (a);
- c. The University is authorized to submit the Work at any National / International Library, under the authority of their “Thesis Non-Exclusive License”;
- d. The Universal Copyright Notice (©) shall appear on all copies made under the authority of this license;
- e. I undertake to submit my thesis, through my University, to any Library and Archives. Any abstract submitted with the thesis will be considered to form part of the thesis.
- f. I represent that my thesis is my original work, does not infringe any rights of others, including privacy rights, and that I have the right to make the grant conferred by this non-exclusive license.
- g. If third party copyrighted material was included in my thesis for which, under the terms of the Copyright Act, written permission from the copyright owners is required, I have obtained such permission from the copyright owners to do the acts mentioned in paragraph (a) above for the full term of copyright protection.
- h. I understand that the responsibility for the matter as mentioned in the paragraph (g) rests with the authors / me solely. In no case shall GTU have any liability for any acts / omissions / errors / copyright infringement from the publication of the said thesis or otherwise.

- i. I retain copyright ownership and moral rights in my thesis, and may deal with the copyright in my thesis, in any way consistent with rights granted by me to my University in this non-exclusive license.
- j. GTU logo shall not be used /printed in the book (in any manner whatsoever) being published or any promotional or marketing materials or any such similar documents.
- k. The following statement shall be included appropriately and displayed prominently in the book or any material being published anywhere: "The content of the published work is part of the thesis submitted in partial fulfilment for the award of the degree of Ph.D. in **Management** of the Gujarat Technological University".
- l. I further promise to inform any person to whom I may hereafter assign or license my copyright in my thesis of the rights granted by me to my University in this nonexclusive license. I shall keep GTU indemnified from any and all claims from the Publisher(s) or any third parties at all times resulting or arising from the publishing or use or intended use of the book / such similar document or its contents.
- m. I am aware of and agree to accept the conditions and regulations of Ph.D. including all policy matters related to authorship and plagiarism.

Date: 28-07-2023

Place: Vadodara

  
Signature of the Research Scholar

Recommendation of the Supervisor: **Recommended**



Signature of Supervisor

## Thesis Approval Form

The viva-voce of the PhD Thesis submitted by Shri. Sharma Naren Raghunandan (Enrollment No. 169999903006) entitled "A study on NPA resolution mechanism of Indian Banks with a special reference to Gujarat" was conducted on Friday, 28th July 2023 at Gujarat Technological University.

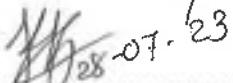
(Please tick any one of the following option)

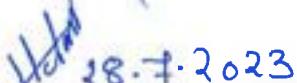
- The performance of the candidate was satisfactory. We recommend that he/she be awarded the PhD degree.
- Any further modifications in research work recommended by the panel after 3 months from the date of first viva-voce upon request of the Supervisor or request of Independent Research Scholar after which viva-voce can be re-conducted by the same panel again.

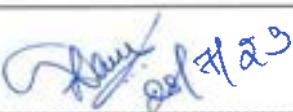
(briefly specify the modifications suggested by the panel)

- The performance of the candidate was unsatisfactory. We recommend that he/she should not be awarded the PhD degree.

(The panel must give justifications for rejecting the research work)

  
Dr. Kerav Pandya  
Signature of Supervisor

  
2) Dr. Hetal Tandel  
Signature of External Examiner

  
1) Dr. Darshana R Dave  
Signature of External Examiner

  
3) Dr. Suzan Dsouza  
Signature of External Examiner

# **ABSTRACT**

Non performing assets (NPA) create a negative impact on the banks and economy, therefore, it is essential to resolve the issues of NPA on timely basis. A prolonged time spent on recovery of assets, may reduce the value of the assets, and lead to losses for the bank. Thus, NPA resolution mechanism main purpose is active measures of recovery to be adopted to reduce the negative impact of NPA.

This studies is an effort to analyze the framework of NPA resolution in Indian banking sector. Introduction involves discussion on non-performing assets buildup in Indian Banking sector and various mechanism to resolve the issue. In this research attempt is made to measure the non performing assets of Indian banks through secondary data sources and understand NPA position of public sector bank, private sector bank, foreign bank and small bank. The secondary data of recovery tools IBC, DRT, SARFAESI and the Lok Adalat to recover the NPA were further classified and tabulated to assess the performance of various recovery tools. In order to evaluate effective recovery mechanism various indicators has been analyzed for a period of five years. The analysis of these indicators is then represented through table and chart. Further, to know the effectiveness of various tools of NPA resolution in Gujarat region data was collected through primary source as well.

Next to evaluate the association of selection of tool depends upon the default amount, collateral availability, time and cost involving, type of default and acceptance of delegated authority of case. Further, studied Gujarat's 50 resolved NPA company to understand where the NPA amount was recovered and where the NPA amount was not recovered.

This study will be useful to bankers for choosing an appropriate and effective NPA resolution mechanism. The recovery of bad loans, would provide liquidity to the banks, and thereby increase their profitability of the banks. Bankers will be able to standardize the selection of proper tools, to address the recovery of NPAs. The research would suggest measures for strengthening the NPA recovery mechanism. This study will be helpful to the academicians, to practically discuss the significance of the tools for NPA resolution.

## **Acknowledgement**

First and foremost. I am thankful to almighty, whom I worship as Lord Shiva for providing patience and ability to acquire knowledge which helped me to complete this task. My late grandfather and grandmother whose prayer for me was what sustained me thus far. I am thankful to my parents for their foundation of ethics and values have always helped me in achieving success in life. Every journey begins with an idea. Hence the person who seeded the idea of pursuing Ph.D. in me. I thank my wife, Dr. Renuka Sharma for encouraging me to join Ph.D. programme. Words cannot express how grateful I am to my lovely son Riyaan Sharma. Whenever I am burdened with my work, he provides an endless enjoyment and cheer to work, to freshen up my zeal for work.

Without proper guidance, a goal cannot be achieved. I thank my supervisor Dr. Kerav Pandya, Professor and Director, C K Shah Vijapurwala Institute of Management, Vadodara, Gujarat for accepting me as his scholar. His valuable guidance has always provided me right direction and helped me to complete this research work. His guidance will always remain with me in the form of this degree. My deepest gratitude to my Supervisor for guiding me throughout this journey.

I am also thankful to Dr. Bindiya Soni, Professor I/C Director Anand Institute of Management Anand, Gujarat and Dr. Ajay Trivedi Dean- Faculty of Commerce, Parul University, Waghodia, Vadodara, Gujarat who have provided valuable suggestions and guidance during doctoral progress review which has helped me to enhance my research skills.

I am thankful to entire administrative staff of Ph.D. Section of GTU for providing all necessary information and guidance throughout the course. I also acknowledge the contribution of all members of the University administration whose direct or indirect involvement has made the system smooth and provided this great platform of learning. I am also thankful to the University authorities for all kind of support that has been provided by them.

I am also lucky to having friends and colleague who have provided guidance, support and motivation for completing this research work. There may be many more names which might not have been mentioned here. I thank all such friends and colleagues.

# **A Study On NPA Resolution Mechanism Of Indian Banks With A Special Reference To Gujarat**

## **Table Of Contents**

<b>Chapter 1 Introduction.....</b>	<b>1</b>
<b>1.0 Background.....</b>	<b>1</b>
<b>1.1 Banking Sector.....</b>	<b>2</b>
<b>1.2 Non-Performing Assets (NPAs).....</b>	<b>4</b>
<b>1.3 Impact Of NPA .....</b>	<b>8</b>
<b>1.4 NPA Resolution Mechanism.....</b>	<b>9</b>
<b>1.5 Research Outline .....</b>	<b>10</b>
<b>1.6 Importance Of The Research.....</b>	<b>11</b>
<b>1.7 Sections Of The Study.....</b>	<b>11</b>
<b>Chapter 2 Literature Review .....</b>	<b>13</b>
<b>2.0 Background.....</b>	<b>13</b>
<b>2.1 Outline Of Literature Review .....</b>	<b>13</b>
<b>2.2 Origin Of Bank .....</b>	<b>14</b>
<b>2.3 Indian Knowledge System And Banking .....</b>	<b>14</b>
<b>2.4 Risk Faced By Banks.....</b>	<b>17</b>
<b>2.5 Credit Risk .....</b>	<b>18</b>
<b>2.6 Basel Norms .....</b>	<b>22</b>
<b>2.7 Studies On NPA .....</b>	<b>24</b>
<b>2.7.1 Credit Risk Management And NPAs.....</b>	<b>24</b>
<b>2.7.2 Determinants Of NPAs.....</b>	<b>26</b>
<b>2.7.3 Theoretical And Descriptive Studies On NPA .....</b>	<b>27</b>
<b>2.7.4 Detection, Evolution, Resolution And Recovery Mechanism Of NPAs.....</b>	<b>31</b>
<b>2.7.5 Bank Officials View On NPAs .....</b>	<b>33</b>
<b>2.7.6 Empirical Studies On NPAs.....</b>	<b>35</b>
<b>2.7.7 Bad Loans .....</b>	<b>46</b>
<b>2.7.8 Studies On Recovery Mechanism Of NPAs .....</b>	<b>52</b>
<b>2.7.9 Bad Loans And Recovery.....</b>	<b>55</b>
<b>2.7.10 Studies On NPA Resolution Mechanism .....</b>	<b>56</b>
<b>2.8 Research Gap.....</b>	<b>58</b>
<b>Chapter 3 Research Methodology .....</b>	<b>62</b>
<b>3.0 Background.....</b>	<b>62</b>

<b>3.1 Scope of the Study .....</b>	62
<b>3.2 Research Objectives .....</b>	63
<b>3.3 Research Design.....</b>	66
<b>3.4 Data Sources .....</b>	66
<b>3.4.1 Primary Data.....</b>	67
<b>3.4.2 Secondary Data.....</b>	67
<b>3.6 Measurement And Scaling.....</b>	68
<b>3.6.1 Research Instrument Development.....</b>	73
<b>3.6.2 Description Of Variables And Questionnaire Design .....</b>	74
<b>3.6.3 Pilot Testing, Reliability Testing And Validity Of The Questionnaire.....</b>	75
<b>3.7 Research Approach .....</b>	75
<b>3.8.1 Population.....</b>	77
<b>3.8.2 Sampling Element And Sampling Unit.....</b>	77
<b>3.8.3 Sampling Procedure .....</b>	77
<b>3.8.4 Sampling Technique.....</b>	77
<b>3.8.5 Sample Size.....</b>	78
<b>3.8.6 Sample Size Determination.....</b>	78
<b>3.8.7 Sampling Area.....</b>	79
<b>3.8.8 Sampling Duration .....</b>	79
<b>3.9 Data Processing .....</b>	79
<b>3.9.1 Field Work Validation.....</b>	79
<b>3.9.2 Data Editing .....</b>	80
<b>3.9.3 Data Coding.....</b>	80
<b>3.9.4 Data Classification .....</b>	81
<b>3.9.5 Data Tabulation And Charts .....</b>	81
<b>3.9.6 Usage Of Statistical Package .....</b>	81
<b>3.10 Data Analysis Plan .....</b>	81
<b>3.10.1 Univariate, Bivariate, And Multivariate Analysis Of Data.....</b>	81
<b>3.10.2 Descriptive Analysis Of The Data.....</b>	82
<b>3.10.3 Inferential Analysis Of The Data.....</b>	82
<b>3.11 Formation Of Hypothesis .....</b>	82
<b>3.12 Limitations Of The Research .....</b>	89
<b>3.13 Conclusion.....</b>	89
<b>Chapter 4 Data Analysis And Interpretation.....</b>	92
<b>4.0 Background.....</b>	92

<b>4.1 NPAs Of Indian Banks.....</b>	<b>92</b>
<b>4.1.1 Yearly Gross Advances And Net Advances Of Different Types Of Banks .....</b>	<b>92</b>
<b>4.1.2 Compounded Annual Growth Rate In Gross And Net Advances .....</b>	<b>95</b>
<b>4.1.3 Percentage Growth In Gross Advances Of Public Vs. Private Sector Banks ..</b>	<b>95</b>
<b>4.1.4 Descriptive Statistics On Gross Advances And Net Advances Of Different Banks.....</b>	<b>96</b>
<b>4.1.5 Normality Testing Of The Gross Advances And Net Advances Data .....</b>	<b>98</b>
<b>4.1.6 Homogeneity Of The Variance Of Gross Advances And Net Advances Data .</b>	<b>98</b>
<b>4.1.7 Welch Test Of Gross Advances And Net Advances .....</b>	<b>99</b>
<b>4.1.8 Post-Hoc Analysis On Gross Advances And Net Advances.....</b>	<b>100</b>
<b>4.1.9 Gross And Net NPA Status Of Scheduled Commercial Banks .....</b>	<b>102</b>
<b>4.1.10 Scheduled Banks' NPAs As A Percentage Of Gross And Net Advances ....</b>	<b>103</b>
<b>4.1.11 Gross NPAs And Net NPAs Of Different Banks.....</b>	<b>104</b>
<b>4.1.12 Percentage Of Gross NPAs And Net NPAs To Advances Of Public And Private Banks .....</b>	<b>105</b>
<b>4.1.13 Normality Testing Of Gross NPAs And Net NPAs.....</b>	<b>106</b>
<b>4.1.14 Homogeneity Of The Variance Of Gross NPAs And Net NPAs.....</b>	<b>107</b>
<b>4.1.15 Welch Test Of Gross NPAs And Net NPAs.....</b>	<b>107</b>
<b>4.1.16 Post-Hoc Analysis On Gross NPA And Net NPA .....</b>	<b>108</b>
<b>4.1.17 Pearson Correlation Between Gross Advances And Gross NPAs And Net Advances And Net NPAs.....</b>	<b>110</b>
<b>4.1.18 Additions Of NPAs In Public, Private And Foreign Banks.....</b>	<b>111</b>
<b>4.1.19 Homogeneity Of The Variance For Net Additions In NPA Amount .....</b>	<b>112</b>
<b>4.1.20 Welch Test For Additions In NPA Amount .....</b>	<b>112</b>
<b>4.1.21 Post-Hoc Analysis On Additions In NPA .....</b>	<b>113</b>
<b>4.1.22 Year-On-Year Growth In Additions In NPA.....</b>	<b>114</b>
<b>4.1.23 Reductions In NPAs Across Public, Private And Foreign Banks .....</b>	<b>115</b>
<b>4.1.24 Homogeneity Of The Variance For Reductions In NPA Amount.....</b>	<b>116</b>
<b>4.1.25 Welch Test For Reduction In NPA Amount .....</b>	<b>116</b>
<b>4.1.26 Post-Hoc Analysis On Reductions In NPA.....</b>	<b>117</b>
<b>4.1.27 Year-On-Year Growth In Reductions In NPA .....</b>	<b>118</b>
<b>4.1.28 Write-Offs Of NPAs Across Public, Private And Foreign Banks .....</b>	<b>119</b>
<b>4.1.29 Homogeneity Of The Variance For Write-Offs Of NPA Amount .....</b>	<b>120</b>
<b>4.1.30 Welch Test For Write-Offs Of NPA Amount .....</b>	<b>120</b>
<b>4.1.31 Post-Hoc Analysis On Write-Offs Of NPA.....</b>	<b>121</b>
<b>4.1.32 Year-On-Year Growth In Write-Offs Of NPA .....</b>	<b>122</b>

<b>4.1.33 Pearson Correlation Between Gross Additions, Reductions And Write-Offs Of NPAs .....</b>	<b>123</b>
<b>4.1.34 Bank Specific CAGR Of Gross NPA Additions And Gross NPA Reductions .....</b>	<b>124</b>
<b>4.1.35 Net NPA And Public Sector Banks .....</b>	<b>127</b>
<b>4.1.36 Composition Of NPA As Per Priority And Non-Priority Sector.....</b>	<b>127</b>
<b>4.1.37 Normality Test For Per Priority And Non-Priority Sector NPA .....</b>	<b>128</b>
<b>4.1.38 Independent Sample T-Test On Priority And Non-Priority Sector NPA ....</b>	<b>129</b>
<b>4.1.39 Gross NPA And Net NPA Across Different Types Of Banks .....</b>	<b>129</b>
<b>4.1.40 Homogeneity Of The Variance For Gross NPA And Net NPA.....</b>	<b>130</b>
<b>4.1.41 ANOVA Test For Gross Amount of NPAs.....</b>	<b>131</b>
<b>4.1.42 Post-Hoc Analysis On Gross NPA.....</b>	<b>131</b>
<b>4.1.43 The Homogenous Subsets Analysis Of Gross NPA .....</b>	<b>132</b>
<b>4.1.44 Welch Test For Net Amount of NPAs.....</b>	<b>132</b>
<b>4.1.45 Post-Hoc Analysis On Net NPA.....</b>	<b>133</b>
<b>4.1.46 Gross NPA And Gross Advances Of Public And Private Sector Banks.....</b>	<b>134</b>
<b>4.1.47 Gross NPA To Gross Advances Ratio Of Public Sector Banks.....</b>	<b>136</b>
<b>4.1.48 Gross NPA To Gross Advances Ratio Of Private Sector Banks .....</b>	<b>136</b>
<b>4.1.49 Correlation Between Interest Income And Gross NPA .....</b>	<b>137</b>
<b>4.1.50 Ratio Of Gross NPA To Interest Income.....</b>	<b>139</b>
<b>4.1.51 Normality Check On Domestic Banks Data.....</b>	<b>139</b>
<b>4.1.52 Independent T-Test On Gross Advances In Different Sectors .....</b>	<b>140</b>
<b>4.1.53 Independent T-Test On Gross NPA In Different Sectors .....</b>	<b>141</b>
<b>4.1.54 Sector Wise Correlation Between Gross Advances And Gross NPA .....</b>	<b>142</b>
<b>4.1.55 Gross Advances Across Public, Nationalized, SBI Group and Private Sector Banks.....</b>	<b>143</b>
<b>4.1.56 Homogeneity Of The Variance For Gross Advances Across Different Types Of Banks .....</b>	<b>143</b>
<b>4.1.57 Welch Test For Gross Advances Across Different Sectors Of Banks.....</b>	<b>143</b>
<b>4.1.58 Post-Hoc Analysis On Gross Advances Across Different Sectors Of Banks</b>	<b>144</b>
<b>4.1.59 Gross NPA Across Public, Nationalized, SBI Group and Private Sector Banks.....</b>	<b>145</b>
<b>4.1.60 Homogeneity Of The Variance For Gross NPA Across Different Types Of Banks.....</b>	<b>145</b>
<b>4.1.61 Welch Test For Gross NPA Across Different Sectors Of Banks .....</b>	<b>146</b>
<b>4.1.62 Post-Hoc Analysis On Gross NPA Across Different Sectors Of Banks .....</b>	<b>146</b>

<b>4.1.63 Comparison Of GNPA In Priority Vs. Non-Priority Sector In Domestic Banks.....</b>	<b>147</b>
<b>4.1.64 Normality Test For Per Priority And Non-Priority Sector Percent GNPA In Domestic Banks.....</b>	<b>149</b>
<b>4.1.65 Independent Sample T-Test On Priority And Non-Priority Sector GNPA (%) .....</b>	<b>149</b>
<b>4.2 NPA Resolution Mechanism Of Indian Banks .....</b>	<b>150</b>
<b>    4.2.1 Yearly Number Of NPA Cases .....</b>	<b>150</b>
<b>    4.2.2 Yearly Amount Involved In NPA.....</b>	<b>151</b>
<b>    4.2.3 Yearly NPA Amount Recovered .....</b>	<b>152</b>
<b>    4.2.4 Descriptive Statistics On Number of Cases, Amount Involved And Amount Recovered .....</b>	<b>153</b>
<b>    4.2.5 Year-Wise Descriptive Statistics On Number Of Cases, Amount Involved And Amount Recovered .....</b>	<b>153</b>
<b>    4.2.6 NPA Resolution Across Four Channels.....</b>	<b>157</b>
<b>    4.2.7 YOY Status Of Cases, Amount and Recovery By Lok Adalat.....</b>	<b>157</b>
<b>    4.2.8 YOY Status Of Cases, Amount and Recovery By DRT .....</b>	<b>159</b>
<b>    4.2.9 YOY Status Of Cases, Amount and Recovery By SARFAESI.....</b>	<b>160</b>
<b>    4.2.10 YOY Status Of Cases, Amount and Recovery By IBC .....</b>	<b>161</b>
<b>    4.2.11 YOY Ranking On Number Of Cases Under Each Recovery Mechanism....</b>	<b>162</b>
<b>    4.2.12 YOY Ranking On Amount Of Recovery Under Each Recovery Mechanism .....</b>	<b>162</b>
<b>    4.2.13 YOY Ranking On Recovery Of Amount Under Each Recovery Mechanism .....</b>	<b>163</b>
<b>    4.2.14 Success Rate In Recovery.....</b>	<b>165</b>
<b>    4.2.15 YOY Recovery Amount Across All Channels.....</b>	<b>166</b>
<b>    4.2.16 YOY Percentage Recovery Amount Across All Channels.....</b>	<b>167</b>
<b>    4.2.17 YOY Recovery Rate Of Specific Channel Against Itself .....</b>	<b>168</b>
<b>    4.2.18 Comparison Of Total Amount For Recovery And Total Recovered .....</b>	<b>168</b>
<b>    4.2.19 Normality Test On Number Of Cases Referred To Various Channels .....</b>	<b>169</b>
<b>    4.2.20 Homogeneity Of The Variance On Number Of Cases .....</b>	<b>170</b>
<b>    4.2.21 Welch Test Of Number of Cases .....</b>	<b>170</b>
<b>    4.2.22 Post-Hoc Analysis On Number Of Cases .....</b>	<b>171</b>
<b>    4.2.23 Normality Test On The NPA Recoverable Amount Under Different Recovery Channels .....</b>	<b>172</b>
<b>    4.2.24 Homogeneity Of The Variance On NPA Amount Recoverable .....</b>	<b>172</b>
<b>    4.2.25 Welch Test On NPA Amount Recoverable .....</b>	<b>173</b>

<b>4.2.26 Post-Hoc Analysis On NPA Amount Recoverable.....</b>	174
<b>4.2.27 Normality Test On NPA Amount Recovered From Various Channels.....</b>	174
<b>4.2.28 Homogeneity Of The Variance On Amount Recovered.....</b>	175
<b>4.2.29 Welch Test Of NPA Amount Recovered .....</b>	175
<b>4.2.30 Post-Hoc Analysis On NPA Amount Recovered.....</b>	176
<b>4.2.31 Pearson Correlation Between NPA Recoverable Amount And NPA Amount Recovered .....</b>	177
<b>4.3 Primary Survey of Resolution Planners And Bankers .....</b>	178
<b>    4.3.1 Name Of The Respondent.....</b>	178
<b>    4.3.2 Gender Of The Respondents .....</b>	178
<b>    4.3.3 Location Of The Respondents .....</b>	179
<b>    4.3.4 Profession Of The Respondents .....</b>	179
<b>    4.3.5 Designation Of The Respondents .....</b>	180
<b>    4.3.6 Work Experience Of The Respondents .....</b>	181
<b>    4.3.7 Cross Tabulation Of Demographic Information .....</b>	181
<b>    4.3.8 Overall Opinion On NPA.....</b>	182
<b>    4.3.9 Normality Test On Opinion On NPA .....</b>	187
<b>    4.3.10 Mann-Whitney U Test Between Males' And Females' Opinion On NPA....</b>	189
<b>    4.3.11 Kruskal Wallis Test Amongst The Professionals On The Opinion On NPA .....</b>	190
<b>    4.3.12 Kruskal Wallis Test Amongst Experienced Respondents On The Opinion On NPA.....</b>	191
<b>    4.3.13 Tool Preferred For NPA Resolution .....</b>	191
<b>    4.3.14 Normality Test On NPA Resolution Tools .....</b>	193
<b>    4.3.15 Mann-Whitney U Test Between Males' And Females' On NPA Resolution Tools.....</b>	194
<b>    4.3.16 Kruskal Wallis Test Amongst The Professionals On The NPA Resolution Tools.....</b>	194
<b>    4.3.17 Kruskal Wallis Test Amongst Experienced Respondents On The NPA Resolution Tools.....</b>	195
<b>    4.3.18 Normality Test On NPA Resolution Process Through Lok Adalat .....</b>	196
<b>    4.3.19 Mann-Whitney U Test Between Males' And Females' On NPA Resolution Process Under Lok Adalat.....</b>	197
<b>    4.3.20 Kruskal Wallis Test Amongst The Professionals On The NPA Resolution Process In Lok Adalat.....</b>	198
<b>    4.3.21 Kruskal Wallis Test Amongst Experienced Respondents On The NPA Resolution Process Used In Lok Adalat .....</b>	199

<b>4.3.22 Normality Test On NPA Resolution Process Through SARFAESI.....</b>	200
<b>4.3.23 Mann-Whitney U Test Between Males' And Females' On NPA Resolution Process Under SARFAESI.....</b>	200
<b>4.3.24 Kruskal Wallis Test Amongst The Professionals On The NPA Resolution Process In SARFAESI.....</b>	201
<b>4.3.25 Kruskal Wallis Test Amongst Experienced Respondents On The NPA Resolution Process Used In SARFAESI .....</b>	202
<b>4.3.26 Normality Test On NPA Resolution Process Through DRT .....</b>	203
<b>4.3.27 Mann-Whitney U Test Between Males' And Females' On NPA Resolution Process Under DRT .....</b>	204
<b>4.3.28 Kruskal Wallis Test Amongst The Professionals On The NPA Resolution Process In DRT .....</b>	205
<b>4.3.29 Kruskal Wallis Test Amongst Experienced Respondents On The NPA Resolution Process Used In DRT .....</b>	206
<b>4.3.30 Normality Test On NPA Resolution Process Through IBC .....</b>	207
<b>4.3.31 Mann-Whitney U Test Between Males' And Females' On NPA Resolution Process Under IBC .....</b>	208
<b>4.3.32 Kruskal Wallis Test Amongst The Professionals On The NPA Resolution Process In IBC .....</b>	209
<b>4.3.33 Kruskal Wallis Test Amongst Experienced Respondents On The NPA Resolution Process Used In IBC.....</b>	210
<b>4.3.34 Ranking On Opinion On Different NPA Resolution Process .....</b>	211
<b>4.4 Scrutiny Of Selected Cases Of Gujarat.....</b>	215
<b>4.4.1 NPA Amount Recovered.....</b>	216
<b>    4.4.1.1 Initiation Of Resolution Process .....</b>	216
<b>    4.4.1.2 Status Of The Company .....</b>	216
<b>    4.4.1.3 Time Taken For Approving Resolution.....</b>	217
<b>    4.4.1.4 Claims Admitted .....</b>	217
<b>    4.4.1.5 Company Wise Claims Admitted .....</b>	218
<b>    4.4.1.6 Comparison Of Realizable Value By FC, OCs And Total .....</b>	220
<b>    4.4.1.7 Descriptive Statistics On Liquidation Value And Realizable Value By FCs And OCs.....</b>	221
<b>    4.4.1.8 Corporate Debtor's Comparison Of Admitted Claim And Realizable Value .....</b>	222
<b>    4.4.1.9 Comparison Of Percentage Of Recovery Through FCs, OCs And Total .....</b>	225
<b>    4.4.1.10 Normality Test On The Data Of NPA Amount Recovered .....</b>	227
<b>    4.4.1.11 Mann-Whitney U Test Between Claim Initiator And Total Claims Admitted, Liquidation Value And Total Realizable Value .....</b>	227

<b>4.4.2 NPA Amount Not Recovered .....</b>	<b>228</b>
<b>4.4.2.1 Cases Triggered.....</b>	<b>230</b>
<b>4.4.2.2 Status Of The Cases .....</b>	<b>230</b>
<b>4.4.2.3 Duration For Processing Of Cases .....</b>	<b>230</b>
<b>4.4.2.4 Claim Admissions.....</b>	<b>231</b>
<b>4.4.2.5 Company Wise Claim Admitted Through FCs, OCs And Total.....</b>	<b>231</b>
<b>4.4.2.6 Number Of Resolution Plans Received .....</b>	<b>237</b>
<b>4.4.2.7 Details Of Resolution Plans And Proposed Resolution Value .....</b>	<b>238</b>
<b>4.4.2.8 Normality Test On The Data Of NPA Amount Not Recovered.....</b>	<b>239</b>
<b>4.4.2.9 Mann-Whitney U Test Between Claim Initiator And Total Claims Admitted .....</b>	<b>240</b>
<b>Chapter 5 Findings, Suggestions And Conclusion .....</b>	<b>241</b>
<b>5.0 Background .....</b>	<b>241</b>
<b>5.1 NPAs of Indian Banks .....</b>	<b>241</b>
<b>5.2 Comparison Of The Tools Of NPA Resolution Of Indian Banks .....</b>	<b>248</b>
<b>5.3 Opinion Of RPs And Bankers .....</b>	<b>253</b>
<b>5.4 NPA Cases in Gujarat .....</b>	<b>257</b>
<b>5.5 Suggestions And Research Utility .....</b>	<b>260</b>
<b>5.6 Conclusion .....</b>	<b>265</b>
<b>Bibliography, References And Webography .....</b>	<b>XV</b>
<b>List of Publication.....</b>	<b>XVIII</b>
<b>Annexure- I Questionnaire .....</b>	<b>XXX</b>

#### List of Tables

<b>Table 1-1 Asset Categorization and Percentage Provision for NPA.....</b>	<b>5</b>
<b>Table 1-2 Country Wise Percentage of NPAs .....</b>	<b>5</b>
<b>Table 1-3 Trend Percentage in NPA .....</b>	<b>7</b>
<b>Table 2-1 Snapshot On The Credit Risk Management Study .....</b>	<b>21</b>
<b>Table 2-2 Credit Risk And NPAs .....</b>	<b>25</b>
<b>Table 2-3 Factors Causing NPAs .....</b>	<b>26</b>
<b>Table 2-4 Effect Of NPAs On Various Variables .....</b>	<b>28</b>
<b>Table 2-5 Preventive And Active Strategies .....</b>	<b>32</b>
<b>Table 2-6 Variables Identification .....</b>	<b>34</b>
<b>Table 2-7 Impact Of Macroeconomic Variables On NPA Indicators Of Different Banks .....</b>	<b>37</b>
<b>Table 2-8 Statistical Testing of Ratios Across Different Types of Banks .....</b>	<b>38</b>
<b>Table 2-9 Snapshot Of Major Empirical Studies On NPA.....</b>	<b>40</b>
<b>Table 2-10 Warning Bells Of Wilful Defaulters .....</b>	<b>48</b>
<b>Table 2-11 Empirical Studies Outcome On Warning Bells .....</b>	<b>50</b>
<b>Table 2-12 Factors Of NPA Recovery Mechanism .....</b>	<b>55</b>
<b>Table 2-13 Banker's View On NPA Recovery Mechanism .....</b>	<b>55</b>
<b>Table 2-14 Snapshot Of Empirical Studies On NPA Recovery Mechanism .....</b>	<b>57</b>
<b>Table 3-1 Research Settings .....</b>	<b>64</b>
<b>Table 3-2 Description Of Data Files And Nature Of Scale .....</b>	<b>70</b>

<b>Table 3-3 Outline Of Questionnaire .....</b>	74
<b>Table 3-4 Details of Hypothesis .....</b>	83
<b>Table 3-5 The Curx Of The Research Methodology.....</b>	89
<b>Table 4-1 Yearly Gross And Net Advances Of Different Types of Banks.....</b>	92
<b>Table 4-2 Descriptive Statistics On Gross Advances And Net Advances Of Different Banks.....</b>	97
<b>Table 4-3 Shapiro Wilk Test Statistics On Gross Advances And Net Advances .....</b>	98
<b>Table 4-4 Levene Test Statistics On Gross Advances And Net Advances (Rs. Crores) ..</b>	98
<b>Table 4-5 Welch Test Statistics On Gross And Net Advances.....</b>	99
<b>Table 4-6 Post-Hoc Test Statistics On Gross And Net Advances .....</b>	100
<b>Table 4-7 Gross And Net NPA Status Of Scheduled Commercial Banks .....</b>	102
<b>Table 4-8 Yearly Comparison Of Gross NPA And Net NPA Of Public, Private And Foreign Banks.....</b>	104
<b>Table 4-9 Shapiro Wilk Test Statistics On Gross NPA And Net NPA.....</b>	106
<b>Table 4-10 Levene Test Statistics On Gross NPA And Net NPA .....</b>	107
<b>Table 4-11 Welch Test Statistics On Gross NPA And Net NPA.....</b>	107
<b>Table 4-12 Post-Hoc Test Statistics On Gross And Net NPAs.....</b>	108
<b>Table 4-13 Pearson Correlation Test Statistics Between Advances And NPAs .....</b>	110
<b>Table 4-14 Shapiro Wilk Test Statistics On Additions Of NPA .....</b>	111
<b>Table 4-15 Levene Test Statistics On Additions In NPAs (Rs. Crores) .....</b>	112
<b>Table 4-16 Welch Test Statistics On Additions In NPA .....</b>	113
<b>Table 4-17 Post-Hoc Test Statistics On Additions In NPA .....</b>	113
<b>Table 4-18 Y-O-Y Growth In Additions In NPA .....</b>	114
<b>Table 4-19 Shapiro Wilk Test Statistics On Reductions of NPA.....</b>	116
<b>Table 4-20 Levene Test Statistics On Reductions In NPAs (Rs. Crores).....</b>	116
<b>Table 4-21 Welch Test Statistics On Reductions In NPA .....</b>	117
<b>Table 4-22 Post-Hoc Test Statistics On Reductions In NPA.....</b>	117
<b>Table 4-23 Y-O-Y Growth In Reductions In NPA.....</b>	118
<b>Table 4-24 Shapiro Wilk Test Statistics On Write-Offs Of NPA .....</b>	119
<b>Table 4-25 Levene Test Statistics On Write-Offs Of NPAs (Rs. Crores) .....</b>	120
<b>Table 4-26 Welch Test Statistics On Reductions In NPA .....</b>	120
<b>Table 4-27 Post-Hoc Test Statistics On Write-Offs Of NPA.....</b>	121
<b>Table 4-28 Y-O-Y Growth In Write-Offs Of NPA .....</b>	122
<b>Table 4-29 Pearson Correlation Test Statistics For Additions, Reductions And Write-Offs Of NPA.....</b>	123
<b>Table 4-30 Bank Wise Ranking Of CAGR On Gross NPA Additions And Reductions</b>	125
<b>Table 4-31 Model Summary Of Regression For Public Sector Bank .....</b>	127
<b>Table 4-32 Priority Vs Non-Priority Sector NPA Of Public Sector Banks .....</b>	127
<b>Table 4-33 Shapiro Wilk Test Statistics On Priority Sector And Non-Priority Sector NPA .....</b>	128
<b>Table 4-34 Independent T-Test Statistics For Priority And Non-Priority Sector Lending .....</b>	129
<b>Table 4-35 Shapiro Wilk Test Statistics On Gross NPA And Net NPA Of Different Banks .....</b>	130
<b>Table 4-36 Levene Test Statistics On Gross NPA And Net NPA (Rs. Crores).....</b>	130
<b>Table 4-37 One-Way ANOVA On Gross NPA .....</b>	131

<b>Table 4-38 Post-Hoc Test Statistics On Gross NPA.....</b>	132
<b>Table 4-39 Homogeneous Subsets.....</b>	132
<b>Table 4-40 Welch Test Statistics On Net NPA .....</b>	133
<b>Table 4-41 Post-Hoc Test Statistics On Write-Offs Of NPA.....</b>	133
<b>Table 4-42 CAGR In Gross NPA and Gross Advances Across Public Vs Private Sector Banks.....</b>	134
<b>Table 4-43 Test Statistics For Correlation Between Interest Income And Gross NPA.</b>	138
<b>Table 4-44 Model Summary Of Regression For Gross NPA to Interest Income Ratio</b>	139
<b>Table 4-45 One Sample Kolmogorov Smirnov Test Results.....</b>	139
<b>Table 4-46 Data Summary .....</b>	140
<b>Table 4-47 Independent T-Test Statistics For Gross Advances In Priority And Non-Priority Sector .....</b>	141
<b>Table 4-48 Independent T-Test Statistics For Gross NPA In Priority And Non-Priority Sector.....</b>	141
<b>Table 4-49 Test Statistics For Correlation Between Gross Advances And Gross NPA</b>	142
<b>Table 4-50 Levene Test Statistics On Gross Advances (Rs. Crores).....</b>	143
<b>Table 4-51 Welch Test Statistics On Gross Advances Across Different Sectors Of Banks .....</b>	144
<b>Table 4-52 Post-Hoc Test Statistics On Gross Advances Across Different Sectors Of Banks.....</b>	144
<b>Table 4-53 Levene Test Statistics On Gross NPA (Rs. Crores) .....</b>	145
<b>Table 4-54 Welch Test Statistics On Gross Advances Across Different Sectors Of Banks .....</b>	146
<b>Table 4-55 Post-Hoc Test Statistics On Gross NPA Across Different Sectors Of Banks .....</b>	146
<b>Table 4-56 Comparison Of Percentage GNPA In Priority Vs. Non-Priority Sector ....</b>	147
<b>Table 4-57 Shapiro Wilk Test Statistics On Priority Sector And Non-Priority Sector GNPA (%).....</b>	149
<b>Table 4-58 Independent T-Test Statistics For Priority And Non-Priority Sector GNPA (%).....</b>	150
<b>Table 4-59 Total Number Of NPA Cases And YOY Change .....</b>	150
<b>Table 4-60 Yearly Amount Involved In NPA And YOY Change.....</b>	151
<b>Table 4-61 Yearly Amount Recovered Against NPA And YOY Change .....</b>	152
<b>Table 4-62 Descriptive Statistics On Number Of Cases, Amount Involved And Amount Recovered.....</b>	153
<b>Table 4-63 Year Wise Descriptive Statistics On Number Of Cases, Amount Involved And Amount Recovered .....</b>	154
<b>Table 4-64 NPA Resolution Across Four Channels .....</b>	157
<b>Table 4-65 YOY Comparison And Descriptive Statistics On Cases, Amount And Recovery In Lok Adalat .....</b>	157
<b>Table 4-66 YOY Comparison And Descriptive Statistics On Cases, Amount And Recovery In DRT .....</b>	159
<b>Table 4-67 YOY Comparison And Descriptive Statistics On Cases, Amount And Recovery In SARFAESI.....</b>	160
<b>Table 4-68 YOY Comparison And Descriptive Statistics On Cases, Amount And Recovery In IBC.....</b>	161

<b>Table 4-69 Rank Analysis On Number Of Cases .....</b>	162
<b>Table 4-70 Rank Analysis On Amount Of Recovery .....</b>	163
<b>Table 4-71 Rank Analysis On Recovery Of Amount .....</b>	164
<b>Table 4-72 Ranking On Latest Details Of Cases, Amount Of Recovery And Amount Recovered (2021).....</b>	164
<b>Table 4-73 Computation of Success Rate Recovery Under Four Channels .....</b>	165
<b>Table 4-74 Year Wise Recovery Across Four Channels (Rs. Crores).....</b>	166
<b>Table 4-75 Year Wise Percentage Recovery.....</b>	167
<b>Table 4-76 Year Wise Percentage Recovery.....</b>	169
<b>Table 4-77 Shapiro Wilk Test Statistics On Number Of Cases Across Different Channels Of Recovery .....</b>	169
<b>Table 4-78 Levene Test Statistics On Number Of Cases.....</b>	170
<b>Table 4-79 Welch Test Statistics On Number Of Cases .....</b>	170
<b>Table 4-80 Post-Hoc Test Statistics On Number Of Cases .....</b>	171
<b>Table 4-81 Shapiro Wilk Test Statistics On The NPA Recoverable Amount Under Different Recovery Channels .....</b>	172
<b>Table 4-82 Levene Test Statistics On NPA Amount Recoverable (Rs. Crores) .....</b>	172
<b>Table 4-83 Welch Test Statistics On Number Of Cases .....</b>	173
<b>Table 4-84 Post-Hoc Test Statistics On NPA Recovery Amount.....</b>	174
<b>Table 4-85 Shapiro Wilk Test Statistics On NPA Amount Recovered Across Different Channels Of Recovery .....</b>	175
<b>Table 4-86 Levene Test Statistics On Amount Recovered (Rs in Cr) .....</b>	175
<b>Table 4-87 Welch Test Statistics On NPA Amount Recovered .....</b>	176
<b>Table 4-88 Post-Hoc Test Statistics On Amount Recovered.....</b>	176
<b>Table 4-89 Pearson Correlation Test Statistics Between Advances And NPAs .....</b>	177
<b>Table 4-90 Cross Tabulation Of Gender And Experience .....</b>	181
<b>Table 4-91 Cross Tabulation Of Gender And Profession .....</b>	181
<b>Table 4-92 Cross Tabulation Of Profession And Experience .....</b>	182
<b>Table 4-93 Computational Process Of Rank Into Score For Each Statement .....</b>	183
<b>Table 4-94 Garrett Ranking On Overall Opinion On NPA .....</b>	186
<b>Table 4-95 Sub-Grouping Of Opinion .....</b>	186
<b>Table 4-96 One Sample Kolmogorov Smirnov Test Results .....</b>	187
<b>Table 4-97 One Sample Kolmogorov Smirnov Test Results .....</b>	188
<b>Table 4-98 Mann-Whitney U Test Results On Gender And Factors .....</b>	189
<b>Table 4-99 Kruskall Wallis Test Results On Profession And Factors .....</b>	190
<b>Table 4-100 Kruskall Wallis Test Results On Experience And Factors .....</b>	191
<b>Table 4-101 Computational Process Of Rank Into Score For Each NPA Resolution Tool .....</b>	192
<b>Table 4-102 Garrett Ranking On Tools Of NPA Resolution .....</b>	193
<b>Table 4-103 One Sample Kolmogorov Smirnov Test Results .....</b>	193
<b>Table 4-104 Mann-Whitney U Test Results On Gender And NPA Resolution Tools .....</b>	194
<b>Table 4-105 Kruskall Wallis Test Results On Profession And NPA Resolution Tools .....</b>	195
<b>Table 4-106 Kruskall Wallis Test Results On Experience And NPA Resolution Tools .....</b>	195
<b>Table 4-107 One Sample Kolmogorov Smirnov Test Results .....</b>	196
<b>Table 4-108 Mann-Whitney U Test Results On Gender And NPA Resolution Process Under Lok Adalat .....</b>	197

<b>Table 4-109 Kruskall Wallis Test Results On Profession And NPA Resolution Process Used In Lok Adalat.....</b>	198
<b>Table 4-110 Kruskall Wallis Test Results On Experience And NPA Resolution Process Used In Lok Adalat.....</b>	199
<b>Table 4-111 One Sample Kolmogorov Smirnov Test Results.....</b>	200
<b>Table 4-112 Mann-Whitney U Test Results On Gender And NPA Resolution Process Under SARFAESI.....</b>	201
<b>Table 4-113 Kruskall Wallis Test Results On Profession And NPA Resolution Process Used In SARFAESI.....</b>	201
<b>Table 4-114 Kruskall Wallis Test Results On Experience And NPA Resolution Process Used In SARFAESI.....</b>	203
<b>Table 4-115 One Sample Kolmogorov Smirnov Test Results.....</b>	203
<b>Table 4-116 Mann-Whitney U Test Results On Gender And NPA Resolution Process Under DRT .....</b>	204
<b>Table 4-117 Kruskall Wallis Test Results On Profession And NPA Resolution Process Used In DRT .....</b>	205
<b>Table 4-118 Kruskall Wallis Test Results On Experience And NPA Resolution Process Used In DRT .....</b>	206
<b>Table 4-119 One Sample Kolmogorov Smirnov Test Results.....</b>	207
<b>Table 4-120 Mann-Whitney U Test Results On Gender And NPA Resolution Process Under DRT .....</b>	208
<b>Table 4-121 Kruskall Wallis Test Results On Profession And NPA Resolution Process Used In IBC .....</b>	209
<b>Table 4-122 Kruskall Wallis Test Results On Experience And NPA Resolution Process Used In IBC .....</b>	210
<b>Table 4-123 Computation Of Rank Analysis.....</b>	211
<b>Table 4-124 Comparison Of Ranks Across Four Resolution Process Tools.....</b>	215
<b>Table 4-125 NPA Resolution Initiation .....</b>	216
<b>Table 4-126 NPA Resolution Initiation .....</b>	217
<b>Table 4-127 Time Taken For Approving Resolution.....</b>	217
<b>Table 4-128 Admission of Claims (Rs. Crores) .....</b>	217
<b>Table 4-129 Company Wise Admission of Claims (Rs. Crores) .....</b>	218
<b>Table 4-130 Admission of Claims (Rs. Crores) .....</b>	220
<b>Table 4-131 Descriptive Statistics On Liquidation And Realizable Value (Rs. Crores).....</b>	221
<b>Table 4-132 Comparison Of Total Admitted Claim And Total Realizable Value .....</b>	222
<b>Table 4-133 Percentage Comparison Of Realizable Value Against The Claim Of FCs, OCs And Total.....</b>	225
<b>Table 4-134 One Sample Kolmogorov Smirnov Test Results.....</b>	227
<b>Table 4-135 Mann-Whitney U Test Results On FCs And OCs Admitted Claims, Liquidation Value And Realizable Value .....</b>	228
<b>Table 4-136 Deal Initiation.....</b>	228
<b>Table 4-137 Defunct Status .....</b>	229
<b>Table 4-138 Claims Admission .....</b>	229
<b>Table 4-139 Company Wise Claims (Rs . In. Cr).....</b>	230
<b>Table 4-140 Number Of Resolution Plans Received.....</b>	236
<b>Table 4-141 Company Wise Claims (Rs. Crores) .....</b>	237

<b>Table 4-142 One Sample Kolmogorov Smirnov Test Results.....</b>	238
<b>Table 4-143 Mann-Whitney U Test Results On FCs And OCs Total Admitted Claims .....</b>	238
<b>Table 5-1 Major Findings from the Testing Of the Hypothesis For Part I .....</b>	243
<b>Table 5-2 Major Findings from the Testing Of the Hypothesis For Part II.....</b>	251
<b>Table 5-3 Major Findings from the Testing Of the Hypothesis For Part III .....</b>	253
<b>Table 5-4 Major Findings from the Testing Of the Hypothesis For Part IV .....</b>	258
<b>List of Figures</b>	
<b>Figure 1-1 The Circular Flow of Income .....</b>	1
<b>Figure 1-2 Sources of Capital.....</b>	2
<b>Figure 1-3 Country Wise Percentage of NPA-2022 .....</b>	6
<b>Figure 1-4 Top Three Highest Gross NPAs to Gross Advance Ratio (%).....</b>	7
<b>Figure 1-5 Shift of NPAs.....</b>	8
<b>Figure 1-6 Impact of NPA .....</b>	9
<b>Figure 2-1 Structure of the Indian Banking System.....</b>	16
<b>Figure 2-2 Number of Banks in India .....</b>	17
<b>Figure 2-3 Credit Risk Ratios .....</b>	22
<b>Figure 2-4 Crux of Basel Norms .....</b>	23
<b>Figure 2-5 Date-Line Of NPA Reforms .....</b>	31
<b>Figure 2-6 Bank Employees' Opinion On NPAs.....</b>	33
<b>Figure 2-7 Vicious Cycle Due To NPAs .....</b>	51
<b>Figure 2-8 Financial Restructuring Measures .....</b>	53
<b>Figure 2-9 Methods For One Time Settlement.....</b>	53
<b>Figure 2-10 Summary Of The Research In the Field Of NPA.....</b>	58
<b>Figure 2-11 Keywords Of the Reviewed Papers.....</b>	59
<b>Figure 2-12 Secondary Sources Of Material Referred For Literature Review .....</b>	59
<b>Figure 3-1 Scope Of The Study.....</b>	62
<b>Figure 3-2 Sample Size Determination For RPs And Bankers.....</b>	79
<b>Figure 4-1 Scheme Of Data Analysis.....</b>	92
<b>Figure 4-2 CAGR In Gross And Net Advances.....</b>	95
<b>Figure 4-3 Year-On-Year Percentage Growth In Gross Advances Of Public Vs. Private Sector Banks .....</b>	96
<b>Figure 4-4 Mean Plot of Gross Advances .....</b>	101
<b>Figure 4-5 Mean Plot Of Net Advances .....</b>	102
<b>Figure 4-6 NPA As A Percentage Of Gross And Net Advances .....</b>	103
<b>Figure 4-7 Gross NPA Percentage Of Gross Advances Of Public And Private Banks .</b>	105
<b>Figure 4-8 Net NPA Percentage Of Net Advances Of Public And Private Banks .....</b>	106
<b>Figure 4-9 Mean Plot of Gross NPA.....</b>	109
<b>Figure 4-10 Mean Plot of Net NPA.....</b>	109
<b>Figure 4-11 Mean Plot Of Additions In NPA .....</b>	114
<b>Figure 4-12 Mean Plot Of Reductions In NPA.....</b>	118
<b>Figure 4-13 Mean Plot Of Write-Offs Of NPA .....</b>	122
<b>Figure 4-14 Gross NPA To Gross Advances Of Public Sector Banks (%) .....</b>	136
<b>Figure 4-15 Gross NPA To Gross Advances Of Private Sector Banks (%) .....</b>	137
<b>Figure 4-16 Average Recovery Percentage Of Average Amount Recoverable .....</b>	156
<b>Figure 4-17 YOY Recovery Rate Across All Channels (%).....</b>	168

<b>Figure 4-18 Gender Of The Respondents .....</b>	178
<b>Figure 4-19 Location Of The Respondents .....</b>	179
<b>Figure 4-20 Profession Of The Respondents .....</b>	180
<b>Figure 4-21 Profession Of The Respondents .....</b>	180
<b>Figure 4-22 Work Experience Of The Respondents .....</b>	181
<b>Figure 4-23 CIRP Flow Chart .....</b>	216

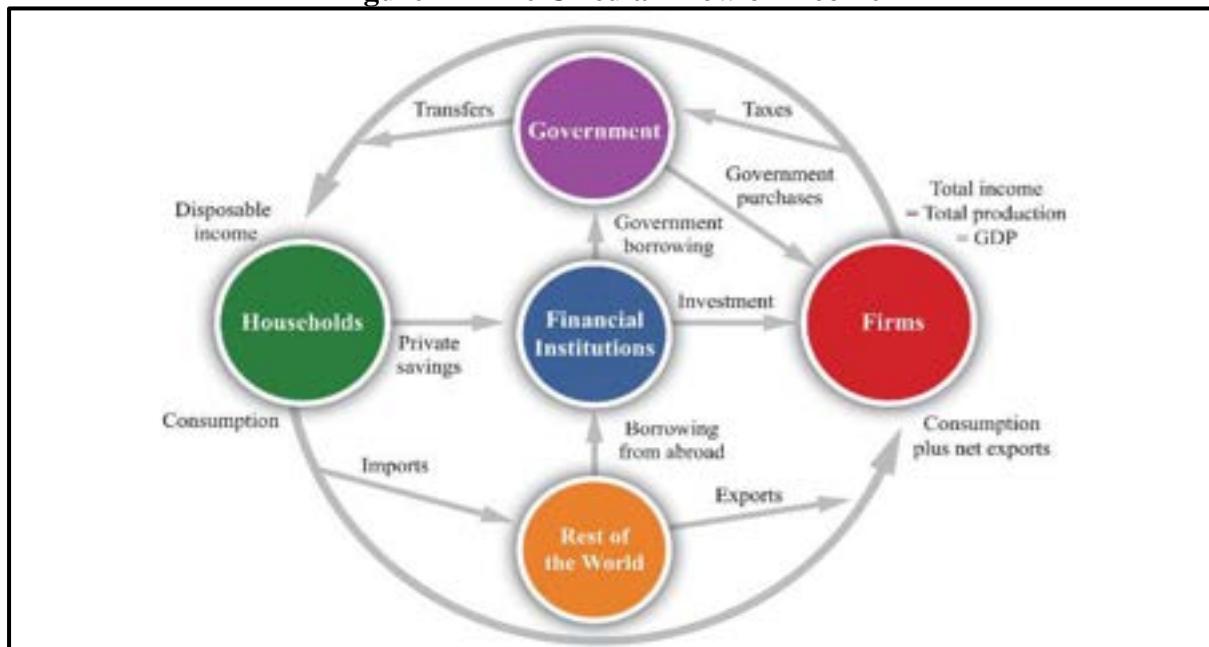
## Chapter 1 Introduction

### 1.0 Background

People of households perform economic activity either by working in the government sector or firms and earning income, which is often called disposable income. Households spend the money for serving their consumption needs. Households often save money from their income, which is parked with Financial Institutions (FIs). Thus, FIs bring household savings into the formal markets.

Firms produce goods and services and thereby contribute to the Gross Domestic Product (GDP) of the economy. For conducting these activities, firms need money, which they often avail in the form of borrowings from FIs. Thus, indirectly the households serve the financial needs of the firm. The government often purchases from the firms, which results in the cash inflow to the firms. Firms on their income are bound to pay taxes, resulting in cash outflow. Government is indebted to perform welfare activities for the country, in which the households reside. Thus, the government using its funds (income), provides necessary amenities to households and firms. To complete giant infrastructure, education, or health-related projects, the government borrows from FIs. Thus, households are indirect suppliers of funds to the government. Many times, if the firms have surplus funds, they too invest the money in financial markets through FIs. Any surplus goods are exported, and any deficit is made good through imports. Firms at times, in need of money, may borrow from abroad too. Foreign investors may also invest in other countries financial markets too. The circular flow of income is depicted in Figure 1-1.

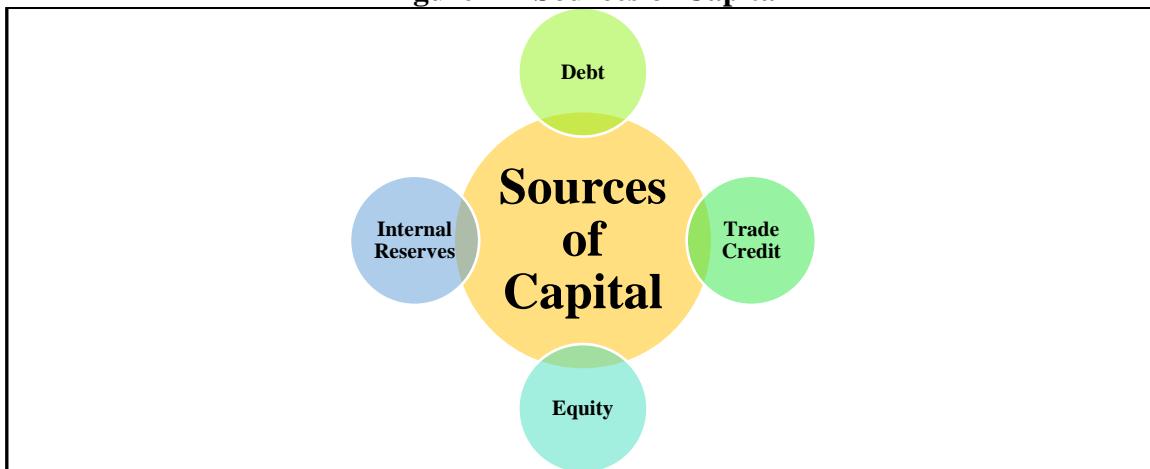
**Figure 1-1 The Circular Flow of Income**



(Source: Reproduced from Saylor Academy, n.d.)

Thus, it may be inferred that the circular flow of income is imperative to the growth of the economy. For the firms, the preliminary sources of funds are depicted in Figure 1-2.

**Figure 1-2 Sources of Capital**



**(Source: Research's Comprehension)**

It may be understood that companies raise money by issuing shares to the public or privately, which is termed equity. Companies receive credit on the purchase of raw materials, goods, or services, which may be treated instead of money, and it is called trade credit. In case of higher needs for funds, companies often resort to banks or financial institutions to borrow money at a fixed rate of interest which is known as debt. When the company starts earning profits, it may not distribute the entire profits to the shareholders, it may retain the profits, and use the same for serving the business needs such as growth or expansion. The phenomenon in which a company uses its funds is termed internal reserves.

### **1.1 Banking Sector**

44,000 banks and credit unions across the globe are providing the banking services such as lending to corporates and retail lending (Ryan, 2018). As per the latest statistics of The World Bank, the number of commercial bank branches per 1,00,000 Indian adults in the year 2020 was 14.7, versus 8.9 in 2004, representing the active role of Indian banks. At the world level the number of commercial bank branches per 1,00,000 adults for the same period i.e. 2004 to 2020, the number of banks had been noted at 9.7 Vs.10.8 (The World Bank, n.d.). The revolution in today's bank sector is the acceleration of Digital banking, where the use of cash has decreased, and savings has increased. The performance of the bank is measured on two yardsticks viz., Return on Equity (ROE) which is used to measure the current profitability, and the market-to-book-value ratio, a capital market valuation for banks. The report narrated that the government and shareholders had injected \$2.8 trillion in capital into the banking sector. The report had analyse 599 financial institutions, of which 65 institutions were outperformers,

which had adopted asset-light strategy, and gained more than \$8 billion gain in market capitalization. Thus, the role of the banks in developing the country's economy is quite huge (McKinsey's Global Banking, 2021).

The financial role of banks has been enlarged with the introduction of Financial Inclusion (FI) as one of the 7<sup>th</sup> goals of the total 17 Sustainable Development Goals (SDG). Banks are now looked upon as providers of services related to transactions, payments, credit, savings, and insurance. FI's goal enables poverty reduction and enhances wealth. As per The World Bank's latest report more than 55 countries committed to FI and more than 60 countries had launched strategies to implement FI. India is one of the foremost countries to become universal digital, as well as the implementation of Aadhar and Jan-Dhan-Yojana covers more than 1.2 billion residents (The World Bank, n.d.). Prime Minister Shri Narendra Modi's vision of FI was enacted under the name of Pradhan Mantri Jan-Dhan Yojana in the year 2014. The goal of the FI was to provide primary savings, deposits, credit, insurance, remittances, and pension benefits to all citizens of the country (Pradhan Mantri Jan Dhan Yojana, n.d.). The onus of fulfilling this vision was a strong mission conducted by the regional rural banks, public sector banks, and private sector banks. Thus, it may be inferred that the banks are the pillars of the country's economy. Primarily it is engaged in the activity of collecting surplus funds from households and lending them to those who need them. Banks are an intermediary between creditors and debtors. Commercial banks act as custodians to the receipts of the community deposits, and it is a generator of credit for economic activity (Desai, 1976). It was researched that as the number of bank branches increased the credit deposit ratio also increased, which in turn raised the GDP of the country (Iqbal & Sami, 2017).

During the year 2016-2021 the compounded annual growth rate (CAGR) in bank credit was 0.29%, and in deposits, it was 12.38% (India Brand Equity Foundation, n.d.). As per the latest RBI Report, total deposits as on 15th July 2022, with all scheduled commercial banks is Rs.62,40,97,667 Crores, whereas the bank credit on the same date stood at Rs.1,22,81,233 (Reserve Bank of India, 2022). As per the data of 17th June 2022, the Indian banks offered credit to the agriculture sector (13.33%); industry (28.14%); personal loans (31.26%), and for services sector (27.27%) (Reserve Bank of India, 2022). The banking services such as payment and remittances, overdraft, loans, currency exchange, online banking, mobile banking, investment banking, etc are inevitable aspects of banks. Thus, the role of banks in the economic sector cannot be underappreciated. In terms of employment too as per the latest 2018-19 statistics, the number of employees working in the banking sector was 29,09,910, which

indicated a 5% growth on a year-on-year basis (Reserve Bank of India, 2020). Thus, the socio-economic contribution of the bank is also immense.

For the years 2020-21 the outstanding credit to Micro, Small, and Medium Enterprises (MSMEs) was Rs.17,83,924.80 Crore. In March 2022, The Scheduled Commercial Banks increased the credit to MSMEs by 13.4%, which was just 10.6% a year ago (Bank Credit to MSMEs, 2022). During the pandemic time, the Government of India and RBI supported the MSME sector with the announcement of the Emergency Credit Line Guarantee Scheme (ECLGS). This support provided a breathing space to MSMEs by assisting them to pay off creditors (raw material suppliers), resume economic activity, payment of salaries to employees, and meet other expenses (Impact of COVID-19 Relief Measures on Small Business Financing, 2022).

## **1.2 Non-Performing Assets (NPAs)**

In common parlance, it is understood that when an asset stops generating income for the bank, it is treated as NPA. Bank classifies the loans as NPA, even if the interest is paid regularly but the principal is not paid at the time of maturity. In India, RBI defined NPA as the concept of ‘past due, which means, the interest and installment of the principal amount were not paid within 30 days. From 31<sup>st</sup> March 2001, the concept of ‘past due’ was replaced with ‘due date of payment. In alignment with the adherence to international practice, from 31<sup>st</sup> March 2004, 90 days ‘overdue’ norms were considered as a basis, for defining NPA. Interest or/and principal amount on term loan, the overdraft or cash-credit, discounted bills, or outstanding on any other type of account may be treated as NPA if it has crossed the benchmark criteria of 90 days. For the categorization of agricultural loans as NPA, the criteria are dependent on the period of crop seasons (Reserve Bank of India, 2009). Whenever the companies face operating risk or business risk (global recession); price risk (cycles in commodity price), event risk (global financial crisis, pandemic), its cashflows become uncertain, leading to non-payments of loans, and resulting in NPAs. Top industrialists contribute to the NPAs more than the marginal farmers and small entrepreneurs. Indian government has adopted a policy of waving agricultural loans at the time of natural calamities, so the amount of NPAs is less in agriculture and priority sectors. Loan waiver policy of the government creates a burden on public sector banks to deploy higher level of provision for NPAs (NPAs and its effects, 2020, December, 22).

As directed by the Central Bank, commercial banks categorize their assets into four different categories. The first one is, standard assets are those assets that are good assets, devoid of any problems and risk. Under the second category, if the assets have remained NPA for a period of

less than or equal to 12 months it is called sub-standard assets. Under the third category, if the asset has been NPA for more than 12 months, it is called doubtful assets. Lastly, the loss assets are uncollectible and have very little value to call it as a bankable asset, even though they may have some residual value (The Economic Times, n.d. and Reserve Bank of India, 2009). NPAs are computed by the value of non-performing loans or bad loans to the total value of the loan portfolio.

In India, the Narasimhan Committee advised the banks to rename the bad loans (which were earlier treated as bad debts by the banks) as NPAs. Banks had a liberty to write-off the bad debts based on their discretion. But with the recommendations of the committee, it was ordered to the banks to follow the standardized norms for provisioning of the NPAs (NPAs and its effects on banks profitability, 2020). The committee not only classified the assets but it also suggested the rates of percentage of provisioning, which are mentioned in the Table 1-1.

**Table 1-1 Asset Categorization and Percentage Provision for NPA**

Asset Categorization	Percentage Provision for NPA
Standard Assets	0% (till 1991)
Standard Assets	0.25% on agricultural loans, 0.75% on commercial and real estate residential loans, 1% on real estate commercial loans 2% on tear housing loans
Substandard Assets	15% on secured amount 25% on unsecured portion
Doubtful Assets	Category-1: 25% on secured amount +100% on Unsecured amount Category-2: 40% on secured amount +100% on Unsecured amount Category-3: 100% on loan amount
Loss Assets	100% on loan amount

(Source: Researcher's Compilation)

At the world level, for the year 2021, the average number of NPAs was 5.5% in 41 countries (The Global Economy, n.d.). The list of country-wise percentage of NPAs is listed in Table 1-2.

**Table 1-2 Country Wise Percentage of NPAs**

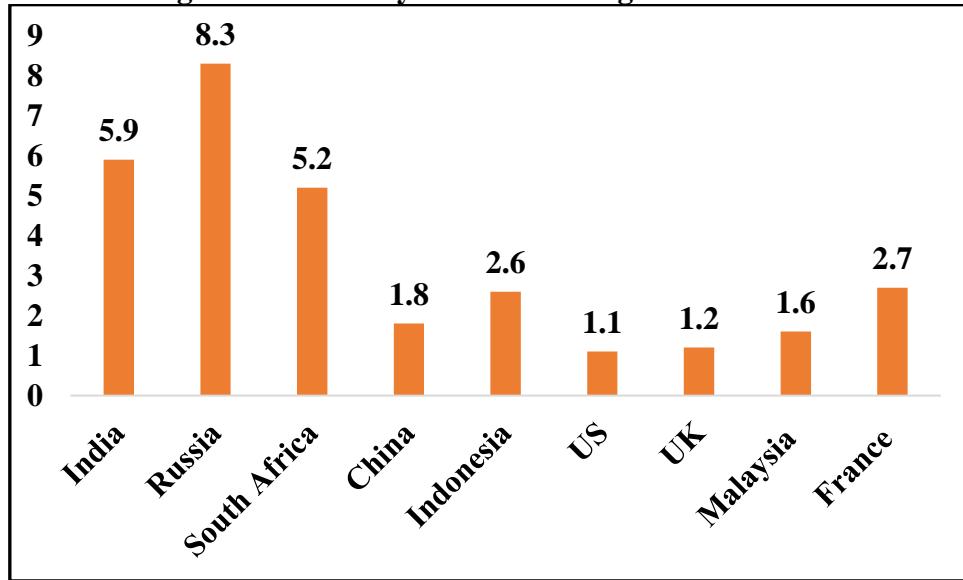
Country	Percentage	Country	Percentage
Ukraine	31.72	Hungary	3.77
Ghana	15.07	Brunei	3.11
Tajikistan	13.65	Poland	2.87
Kenya	13.14	Honduras	2.69
Kyrgyzstan	10.82	Indonesia	2.64
Mozambique	10.60	Latvia	2.47

Country	Percentage	Country	Percentage
Guinea	9.21	Paraguay	2.27
Pakistan	7.89	Panama	2.25
UA Emirates	7.29	Slovakia	2.12
Barbados	7.24	Iceland	2.06
Montenegro	6.83	Slovenia	2.06
Papua N.G.	6.16	Georgia	1.88
Moldova	6.13	El Salvador	1.83
Zambia	5.82	Cambodia	1.74
Seychelles	5.45	Guatemala	1.73
Albania	5.39	Malaysia	1.45
Belarus	5.30	Denmark	1.25
Uzbekistan	5.13	Australia	0.91
Botswana	4.24	Luxembourg	0.79
Lesotho	4.07	Macao	0.64
Colombia	3.95	<i>World Level</i>	5.50

(Source: The Global Economy, n.d.)

Thus, it may be inferred that the highest level of NPA was in Ukraine and lowest in Macao. At Indian level, in the last six years, the bad loans were lowest (2022), but the NPA ratio was high when compared with the other economies. The selected country-wise percentage of NPA is depicted in Figure 1-3.

**Figure 1-3 Country Wise Percentage of NPA-2022**



(Source: Author's Compilation)

It may be inferred that the highest NPA was in Russia, followed by South Africa, and the lowest was in the US. The developed economies like the US, UK, Malaysia, China, Indonesia, and France had NPA of less than three percent. Efforts such as Institutional and government intervention, and continued deleveraging brought down NPAs in developing economies. As

high as 9.4% of Gross NPAs were from the agriculture sector, 8.4% from the industrial sector, and 5.8% from the service sector. In the retail sector, the percentage of NPAs was lowest, especially at 1.8% for the home loan. The Gross Non-Performing Assets (GNPA) as a percentage of Gross Advances stood at 10.30% for public sector banks; 8.24% for Scheduled Commercial Banks; 5.50% for the private sector and 2.30% for foreign banks (Reserve Bank of India, 2022).

The trend of percentage NPA for six consecutive years are depicted in Table 1-2.

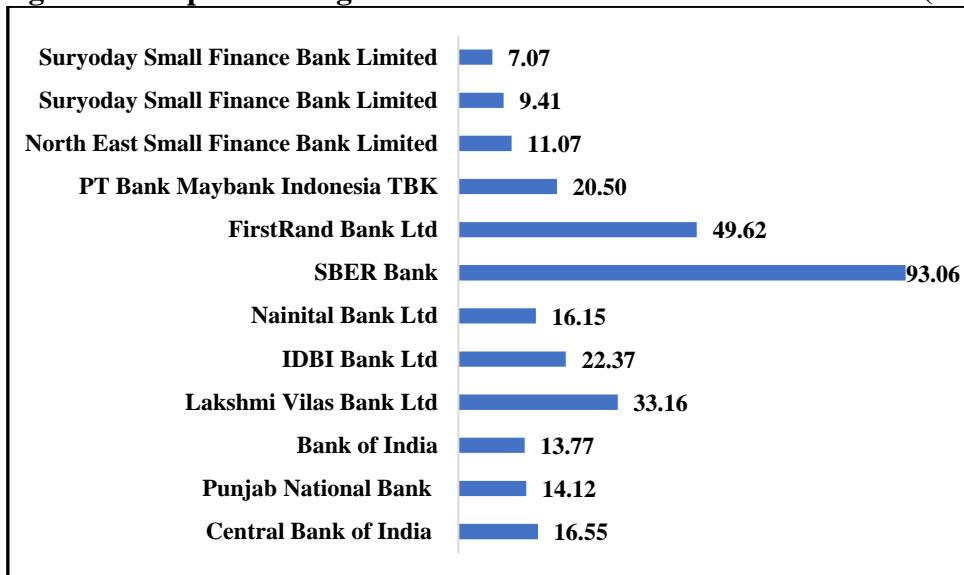
**Table 1-3 Trend Percentage in NPA**

Banks	Public Sector Banks	Private Sector Banks	Foreign Banks
FY15	5.00%	2.10%	3.20%
FY16	9.30%	2.90%	4.20%
FY17	11.70%	4.10%	4.00%
FY18	14.60%	4.70%	3.80%
FY19	11.60%	5.30%	3.00%
FY20	11.30%	4.20%	2.30%

(Source: Deloitte, 2020)

It is observed that public sector banks have highest percentage of NPA when compared to the private sector banks and foreign banks. Private sector banks and foreign banks have NPAs only in single digit, when compared on Year-on-Year (YOY) basis.

**Figure 1-4 Top Three Highest Gross NPAs to Gross Advance Ratio (%)**

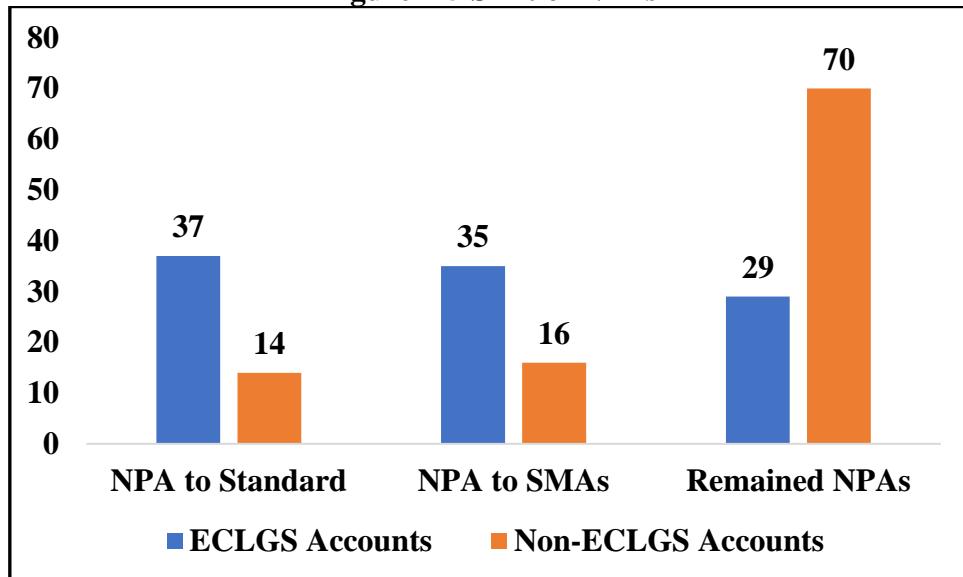


(Source: Reserve Bank of India, 2021)

Based on the data of 2021, from the Figure 1-5 it may be observed that highest Gross NPAs to Gross Advance Ratio percentage was noted for the foreign banks namely, SBER Bank, followed by First Rand Bank Ltd. The private sector banks i.e. Lakshmi Vilas Bank Ltd and IDBI bank Ltd also accounted for high percentage ratio. The public sector bank i.e. Central

Bank of India and Punjab National Bank accounted for high NPA percentage ratio. The small finance banks had lower percentage of NPA ratio when compared to public, private and foreign banks. The Figure 1-4 indicates the shift of NPAs, based on the latest data of 2022.

**Figure 1-5 Shift of NPAs**



(Source: Transition of NPAs, 2022)

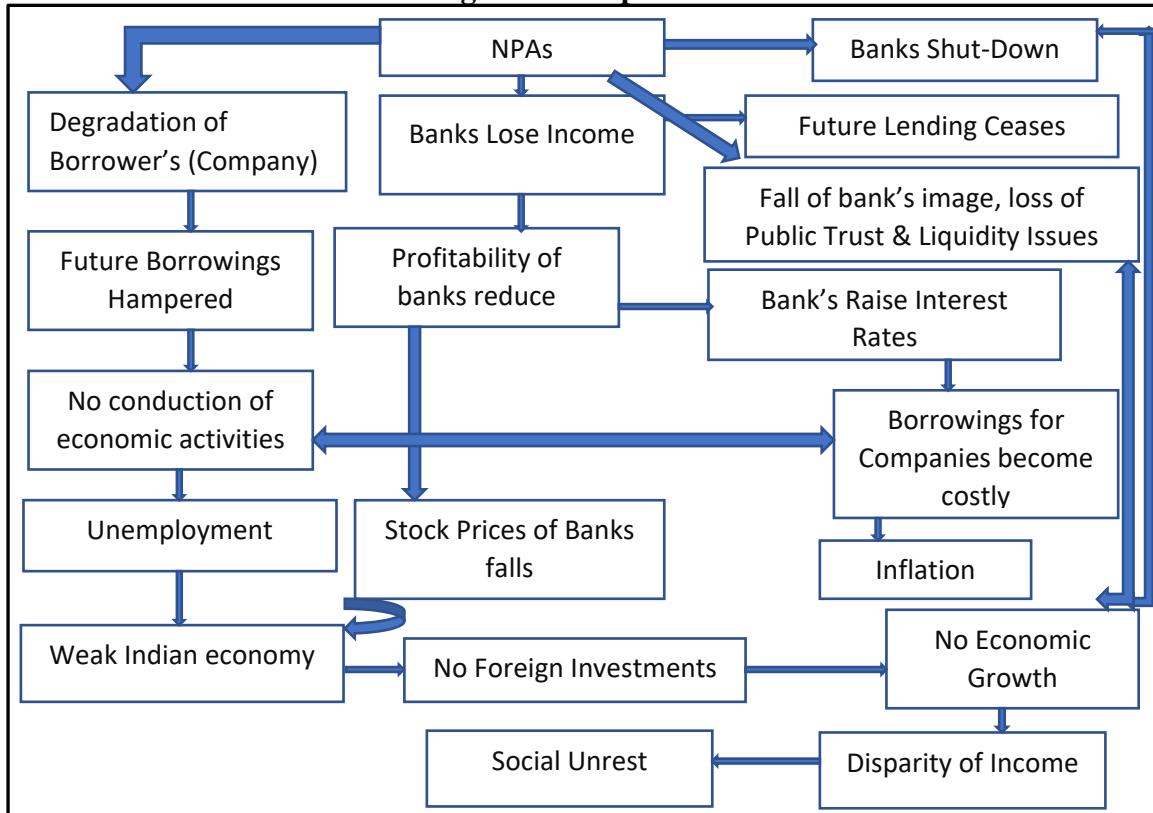
During the year 2022, 15 lakh accounts were ECLGS, of which 88% were standard accounts, 10% were Special Mention Accounts (SMAs), and 2% were NPAs. From the above graph, it may be inferred that under ECLGS the transition of NPA to Standard and SMAs was greater than the non-ECLGS accounts. The percentage of NPAs was more under non-ECLGS when compared to ECLGS.

### 1.3 Impact Of NPA

NPA negatively affects the borrower, because, the credit score or credit history is downgraded and it would hamper the future borrowing capacity of the borrower. In the course of NPA, the lenders lose their income and profitability in the short run and the long run jeopardizing the existence, of the lender. The liquidity of the bank gets hampered, which obstructs banks to conduct future investments. If banks are unable to provide funds to the corporate then the economic activity will not be carried out by the companies, this will further result in unemployment and a bearish market. If banks cover up their NPA losses and raises interest rates, then it results in inflation. A higher level of NPAs pulls down the prices of banks' shares, this would provide a gloomy picture of the economy as a whole. If the books of the banks have NPAs, then higher provisions are imposed by banks, which ultimately affects the profitability of the banks (Corporate Finance Institute, n.d., Angel One, n.d.; Money Tap, n.d.). If the

businesses and banks shut-down, the growth of the economy is fully hampered. The figure 1-6 portrays the impact of NPAs on banks, corporates, economy and society as a whole.

**Figure 1-6 Impact of NPA**



**(Source: Researcher's Creation)**

Thus, it may be deduced that NPAs weakens the economy. The growth of the country comes to a standstill, resulting in disparity of income and social unrest.

#### 1.4 NPA Resolution Mechanism

NPAs create a negative impact on the banks and economy, therefore, it is essential to resolve the issues of NPAs on timely basis. From 2011 onwards, the problem of rise in Gross NPAs started, which aggravated in the year 2015. An Asset Quality Review (AQR) was undertaken by RBI to check the quality of asset on a proactive basis. A proactive asset quality recognition should be followed by proper asset resolution and recovery, for quick recognition of NPAs. A prolonged time spent on recovery of assets, may reduce the value of the assets, and lead to losses for the bank (RBI Bulletin, 2021). Thus, NPA resolution mechanism has twin purpose viz., enacting preventive measures, so that NPAs do not arise, and active measures of recovery to be adopted to reduce the negative impact of NPAs (Das, 2022). In 1993, Recovery of Debts Due to Banks and Financial Institutions (RDDBF) Act was passed to conduct the reform in the financial sector. A committee on financial system (CFS), popularly known as the Narsimhan Committee-I, the resolutions for NPA were enacted. Debt Recovery Tribunals

(DRTs) were set up for recovery of loans up to Rs.10 lakh. The limit was enhanced to Rs.20 lakh in the year 2018. DRTs were given powers to constitute Lok Adalat, and take decision on the cases for recovery of an amount up to Rs.20 lakh. In the initially phase the recovery was quickly made by the DRTs, but over a period of time, it slowed down, due to reasons such as lack of infrastructure and over-stretched capacity. In the year 2002, the Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest Act (SARFAESI Act) was passed to empower banks and financial institutions with recovery mechanism. As per the SARFAESI Act, banks could easily recover their secured loans amount through security interest and carrying out the auctioning of borrower's property, without any intervention of the court. In line with the Act, Asset Reconstruction Company (ARCs) were also setup for NPAs resolution. RBI regulated and supervised the ARCs. The primary work of ARCs is to purchase the financial assets of banks and financial institutions. Based on the recommendation of Narsimhan Committee-II, in the year 2016, the Insolvency and Bankruptcy Code (IBC) was enacted, which standardized the process of NPA resolution of individuals, companies, and also protected the interest of unsecured creditors (RBI Bulletin, 2021).

In the Budget of 2021, the concept of 'bad bank' or National Asset Reconstruction Company Ltd (NARCL) was introduced to take-over the large NPAs of the banks, maximize the recovery of outstanding dues, at a minimum cost (Das, 2022). The bad banks would operate through NARCL, which will primarily identify, accumulate and acquire the NPAs from the banks, and India Debt Resolution Company would handle the resolution of the debts of the banks. As per 2021 data, Indian banks had gross NPAs at 8%, which was projected to grow near to 15%. Such grey picture of the bank, would tarnish the economic image of the country. To clean up the Balance-Sheet of banks, the genesis of bad banks was taken up. There is remarkable difference between Bad Banks and ARCs. ARCs are private companies and bad banks are public sector entity. ARCs collects the NPAs at a steep discount from banks, whereas bad banks being government organizations, the valuations of NPAs won't be an issue. Private ARCs always have little cash to settle the big NPAs, which forces the banks to carry forward their assets in the books of accounts. Bad banks have huge cash and hence it is possible for them to settle the higher amount of NPAs, and help the banks to clean their balance-sheet (Unnikrishnan, 2021).

## **1.5 Research Outline**

Present study is a blend of secondary data, and empirical study. The secondary study uses the pooled data, for examining the amount of NPAs in Indian banks, across selected time frame. The study also tries to compare the NPA resolution adopted by the different Indian banks across

the different time frame. Under the specific context the study tries to compare the tools adopted for NPA resolution of Indian banks in Gujarat state. The study tries to compare the Gross NPA, Net NPA against Gross and Net advances of bank, for public, private, foreign and small banks. The study tries to cross compare on year-on-year basis, the additions in NPA, reduction of NPA, and write-off of bad loans during the year, for public, private, foreign and small banks. The research tries to draw out the usage of different types of tools adopted by public, private, foreign and small banks in NPA recovery, and thereby identify the best mechanism for recovery. The secondary data consisted for 11 years, starting from 2010 to 2020. The empirical study was conducted by surveying 100 bank officials to understand the importance of credit risk and effective approach for NPA resolution.

### **1.6 Importance Of The Research**

This study will be useful to the bankers for choosing an appropriate and effective NPA resolution mechanism. Adoption of proper NPA resolution mechanism would help the banks to recover the bad loans as soon as possible. The recovery of bad loans, would provide liquidity to the banks, and thereby increase the profitability of the banks. Bankers will be able to standardize the selection of proper tool, to address the recovery of NPAs. The research would suggest the measures for strengthening the NPA recovery mechanism. This study will be helpful to the academicians, to practically discuss the significance of the tools for NPA resolution.

### **1.7 Sections Of The Study**

Present study is divided into following chapters, which are discussed as forthcoming chapters. In total there are five chapters including introduction.

#### **Chapter-2 Literature Review**

Exhaustive narrative literature review is performed to understand the topic and identify the research gap. The review of literature starts from the origin of the banks, Indian Knowledge System and banking, risk faced by the banks, credit risk, Basel norms, studies on NPAs and studies on NPA Resolution mechanism. The crux of the literature review is tried to capture, wherever possible in the tabular format highlight the year of research, period of research, place of research, statistical technique adopted, and the major outcomes of the previous studies.

#### **Chapter-3 Research Methodology**

This chapter describes the path used in the present research. It highlights the objectives of research, type of research, research design, sampling design, sampling method, sampling technique, sampling duration, sampling element, method of data collection, sources of data

collection, data management, data analysis, use of descriptive statistics, and use of inferential statistics. The limitations of the research were also highlighted in this section. The chapter concludes with the snapshot of research methodology table.

#### **Chapter-4 Data Analysis and Interpretations**

This chapter describes the analysis of the data with in depth interpretations. The analysis is divided into two sections, viz., primary data analysis and secondary data analysis. The analysis of the data is executed using descriptive statistics, and inferential statistics. Proper care was taken to choose the appropriate measures of central tendency, measures of dispersion, and statistical test to analyse the field data, and also the secondary data. The scale of the data was considered before apply the descriptive and inferential statistics.

#### **Chapter-5 Findings, Suggestions and Conclusion**

The chapter abruptly discussed the entire study. Based on the exhaustive secondary data analysis, the key findings of the study were discussed. The findings of this study were tried to match with the study of other researches. Any deviations in the findings of the study were also justified. Suggestions useful to bankers were discussed in this chapter. The chapter ends with the overall conclusion of the research.

## **Chapter 2 Literature Review**

### **2.0 Background**

The word “bank” originated from the Italian word banco, which represents bench. Merriam-Webster defined Banca as the bench-like counter where the early money changer transacted the business (Hall, 2021). The banking sector is the most inevitable sector of the economy. The banking sector assists in capital formation by channelizing the surplus funds of individuals, households, corporates, governments, nonfinancial firms, etc. The funding support to the companies promotes employment generation and economic growth. The financial infrastructure develops the rural and backward regions of the economy. The primary sector witnesses growth only due to the support of the banking sector. The retail needs of the customers such as housing, automobile, education, consumer goods, etc also served by the banks. The inbound and outbound trade is also supported by banks (General Knowledge Chronicle, n.d.). In the process of lending and borrowing, the bank generates its income in the form of interest. The return on a bank’s assets (deposits and advances) is on an average between one and two percent, which varies from country to country. Banks are also vulnerable like any other business when the client does not pay back the loan amount. Such overdue accounts of the banks are treated as Non-Performing Assets (NPAs), which are major disruptors in the economy. A large quantum of NPAs leads to the freezing of deposits, and the breakdown of a bank’s business (Gobat, n.d.). NPAs hurt profitability, create a threat to the existence of banks, and create a gloomy picture for the economy.

### **2.1 Outline Of Literature Review**

The literature review was conducted for the time frame between 2002 to 2022. A twenty years period was taken for the review, to get a fair idea on the research conducted by other scholars in the same period, across the world, country and state. An attempt was made to understand the different level of work accomplished by the researchers for the said period. A period of twenty years helped to incorporate the latest and the oldest work in the study. A typical process was adopted for the search of the papers. The search engine used was Google Scholar. An advanced search option was used in which the key-words were typed, date range were mentioned, and the search of the key-words in the title option was selected. Database such as Scopus, Proquest, Directory of Open Access Journal (DOAJ), Web of Science and Science Direct were also surfed for the literature review. Key-Words used in the study were Credit Risk, Credit Risk and Non-Performing Assets, Credit Risk and NPAs, Non-Performing Assets, NPAs, Bad Loan, Recovery of Non-Performing Assets, Recovery of NPAs, and NPA recovery mechanism. More weightage was provided to the research papers and thesis. For exhaustive literature review

articles in edited books, a chapter in a book, papers presented in the conference, informative articles from websites were also referred. National, International, and Indian Journals were referred for the literature review. Similar articles or research papers which tried to convey the same results, were omitted from the literature review. Omission was necessary to avoid repetition of the similar type of results. Thus, the selection of the papers was based on the novelty in the findings and identification of the new variables. Every theme of the literature review tried to identify the variables. Identified variables were further investigated for their nature of relationship i.e. dependent, independent, and correlation.

## **2.2 Origin Of Bank**

The birth of the bank occurred when the big empires looked for an easy way to exchange and pay for overseas goods and services. The replacement was done for coins with paper bills. The rich in Rome parked the coins in the basement of the temples, assuming it to be the safest and most guarded place. It was traced in history that in Babylon, Egypt, Greece, and Rome the temples also loaned money, the most important function of today's bank. The Romans, expert civil engineers removed the banking design from temples and replicated the same in buildings. In ancient Rome, banking was the business of moneylenders and government, as well as businesses turned to institutional banks for their credit needs. Julius Caesar implemented a rule of seizure of property in case of default of loan payments. The rulers of Europe borrowed huge funds from banks and spent the same for unproductive purposes. For the first time in history, in the year 1557, Philip II of Spain declared himself bankrupt. In the British empire, banking was well-developed and it got momentum when the great economists propounded the Law of Invisible Hand. In the United States of America, Alexander Hamilton (the first US Treasury Secretary), had established a national bank for accepting banknotes and Treasury securities. In the year 1920s, a new concept of large merchant banks emerged, which were engaged in corporate finance and merchant banking services. During the late 1800s, banks acted as underwriters to the Initial Public Offerings (IPOs) and demanded a seat on the management board. J.P. Morgan and Company was a big merchant bank, which had a monopoly in lending to corporates. It did not lend any funds to "common people" and was responsible for widespread racism. To promote banking equity, in the year 1913, the US government formed the Federal Reserve Bank to regulate the financial market (Beattie, 2021).

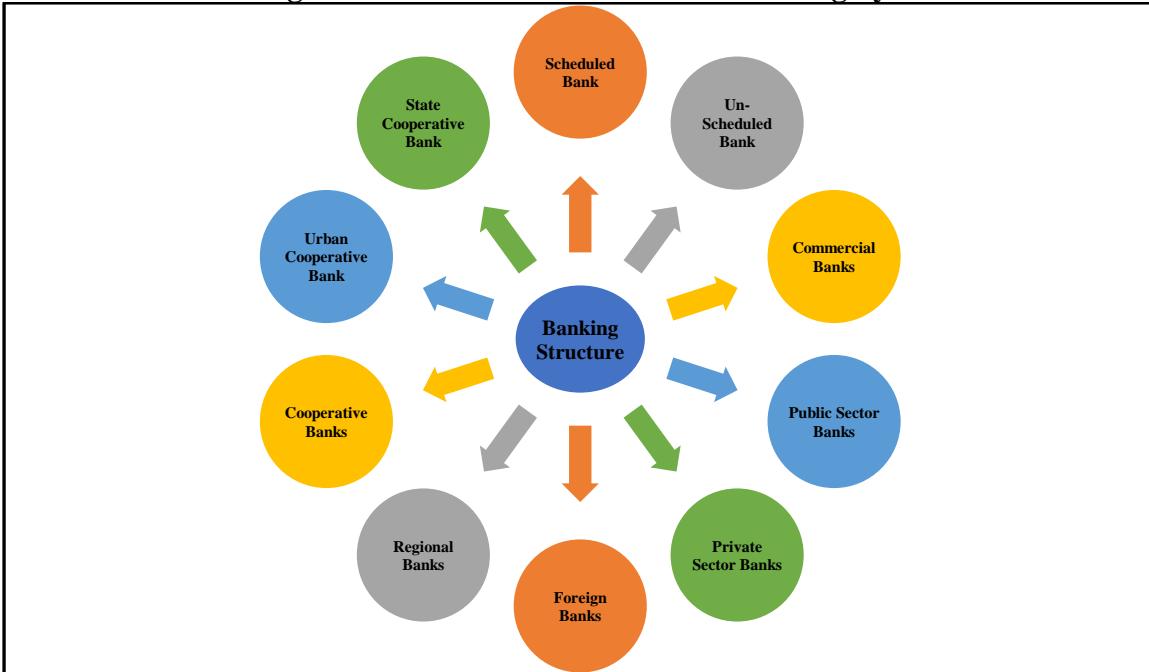
## **2.3 Indian Knowledge System And Banking**

Banking in India has its roots in Vedic civilization. The words used for loan deeds were "rnapatra or rnalekhya", and interest rates were referred to as usury or "sudkhori". In Manusmriti, usury was condemned as a means of acquiring wealth. The rules were framed for

fixing the range of interest rates, according to the caste. 24%, 36%, 48%, and 60% were the interest rates charged from Brahmins, Kshatriyas, Vaishyas, and Shudras, respectively. Even the Buddhist, Mauryan, and Mughal periods witnessed the prevalence of banking practices. The presence of bankers during the Maurya era was documented in the Arthashastra of Kautilya. Evidence of bills of exchange was traced to the instrument called “Adesha”. Many indigenous bankers financed trade and commerce in ancient India. The businessman called “Shroffs, Sheths, Sahukars, Mahajans, Chettis” etc were actively engaged in the money lending business from small amounts to the farmers to huge amounts to the businessmen (Gajdhane, 2012). Bank of Hindustan was the first bank that came into operation in 1770, which stopped working in 1832. Before Independence, The Imperial Bank of India (a combination of Bank of Bengal, Bank of Bombay, and Bank of Madras) existed, which was established by The East India Company. The Imperial Bank of India is today’s State Bank of India, the largest public sector bank. Allahabad Bank, Punjab National Bank, Bank of India, Central Bank of India, Canara Bank, and Bank of Baroda existed in India, before independence. The Reserve Bank of India (RBI), was set up as a private entity in 1935, which was nationalized in 1949. RBI being the banker’s bank, conducted timely surveillance of banks in India, and framed monetary policy, for maintaining growth and stability in the Indian economy. RBI also manages the foreign exchange of the country. Post-independence, in the year 1949, 14 banks were nationalized, to imbibe trust, and free the rural folks to turn off from moneylenders. Later in 1959 and 1980, subsidiaries of State of Bank and six other banks were nationalized, respectively. The primary motive for the nationalization of banks was to boost the rural and agricultural sectors of the economy. During the era of Liberalization in the year 1991, RBI permitted ten private banks and foreign banks to open branches in India (History of Banking in India, 2022). Various innovative banking practices such as rollout of payment banks and small finance banks have contributed by far and large in the banking reach. The dream of financial inclusion was made true with the inception of Jan Dhan Yojana and Post Payment Bank. The credit cycle growth could be witnessed due to the innovative banking sector reforms such as digital payments, neo-banking, fintech solution and rise of Non-Banking Financial Company (India Brand Equity Foundation, 2022).

With increase in exposure to the digital access to deposits and loans, the businesses of banks have increased manifold. The structure of the Indian Banking System is depicted in Figures 2-1. There are ten different parts to the development of economy’s Banking sector. Each sector has its own speciality of lending to a varied sectors of the market.

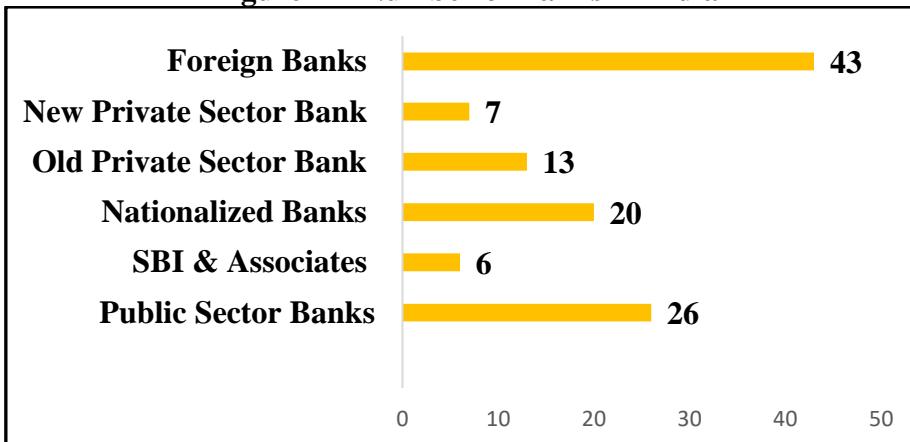
**Figure 2-1 Structure of the Indian Banking System**



(Source: History of Banking in India, 2022)

The scheduled banks are listed under the Schedule II of the RBI Act, 1934, with a paid-up capital of at least Rs.5 Lakh. Un-Scheduled banks have a paid-up capital of less than Rs.5 lakh. Commercial banks are in the business of offering various types of loans such as all types retail loans and corporate loans. In a Public Sector bank, the government body is the owner, and it primarily serves financial services to people and entities not served by the private banks. Private sector banks are devoid of any government shareholding, it also offers different types of banking services to the customers. These banks are mostly technology driven. Foreign banks operate through a branch or wholly-owned subsidiary in India, to cater to the niche requirement of trade finance, wholesale lending, external commercial borrowings, etc. Regional Rural Banks (RRBs) are government-owned scheduled commercial banks, which are under the ownership of the Ministry of Finance, and it serves the rural areas with basic banking services. In a Cooperative bank, the members of the bank are the owners of the banks, who are actively engaged in providing regular banking services. Urban cooperative banks are cooperative banks located in urban and semi-urban areas to provide non-agricultural credit. The State Cooperative Bank (SCB), acts as a federation of the central cooperative bank, which are like custodians of the cooperative banking structure of the state (History of Banking in India, 2022). The number of banks in India is diagrammatically represented in Figures 2-2.

**Figure 2-2 Number of Banks in India**



(Source: A Profile of Banks, 2013)

It may be inferred that in India as per the annual report from RBI there are 43 foreign banks, 20 private sector banks, 20 nationalized banks, six SBI banks, and their associates, and 26 public sector banks. All scheduled commercial banks in India are 89.

#### **2.4 Risk Faced By Banks**

Banks face different types of risk such as Credit Risk (a default by the borrower to pay the debt); Liquidity risk (banks are unable to pay on time); Interest Rate Risk (the change in the economy's interest rate, affects the interest rate it charges or it has to pay on the assets and liabilities); Market Risk (loss due to adverse change in the value of the portfolio, held by the bank); Country Risk (it is like a credit risk accruing on account of cross-border lending) and Solvency Risk (the capital is not sufficient to cover the losses of the bank generated by different types of risk) (Washington Bankers Association [WBA], n.d.; Basu and Satsangi, 2019). The study conducted in the United Arab Emirates (UAE) explained that banks primarily faced foreign exchange risk, credit risk, and operating risk. It was understood that risk identification, risk assessment, and risk analysis were the important tools adopted by UAE-based banks to mitigate the risk (Hassan Al-Tamimi and Mohammed Al-Mazrooei, 2007). A similar study by Tamimi and Hussain, (2002) explained that the main risk associated with the UAE banks was a credit risk. Benchmark standards, computation of credit score, assessing the creditworthiness, preparation of periodical reports, rating assessment, collateral check, tight credit policy, and use of technology-based risk management techniques may be used as a tool to manage credit risk. Based on the customer behavior and payback credit method, a predictive model for bifurcating the customers into the good or bad category may help in better risk management of the banks. J48 was treated as one of the efficient models for loan classification (Hamid and Ahmed, 2016). Hussain and Al-Ajmi (2012) expressed that in Bahrain conventional banks

significantly faced credit, liquidity, and operational risk, which are different from Islamic banks, which face a higher level of liquidity, operational, residual, settlement, and country risk. The findings of Tan, Floros, and Anchor (2017) explained that Chinese banks faced insolvency, security, credit, liquidity, and capital risk, which in turn impacted the profits of the banks. Credit risk negatively impacted profitability. The research of Islamic banks in Pakistan described that understanding of risk and risk management, risk monitoring, and credit risk analysis highly influenced efficient risk management practices (Khalid and Amjad, 2012). Hassan et al., (2015) highlighted the negative relationship between the performance of the Islamic bank, operational risk, and capital risk. Sinkey and Greenawalt (1991) explained that non-performing loans in the banks reflected credit risk. It was further explained that credit risk arises either due to external unfavorable economic factors or internal factors such as poor lending decisions. Credit risk and interest rate risk are the prominent risk faced by commercial banks and the interaction between the two is quite significant (Drehmann et al., 2010). Lepetit et al., (2008) identified through empirical research that banks that carried out non-interest income activities turned out to be risky, and experienced a higher level of insolvency risk when compared with the original business of supplying loans. Comprehensive risk management strategies are a prerequisite to the long-term success of banks (Nair, 2013).

## **2.5 Credit Risk**

Credit risk and liquidity risk increases the probabilities of defaults in banks, as a result, the joint management of both risk was suggested. If the interaction between credit risk and default risk rises, then the probability of bank default is between 10% to 30% (Imbierowicz and Rauch, 2014). The significant predictors of credit risk are firms, family indebtedness, past credit, Gross Domestic Product growth rate, capital ratio, market power, portfolio composition, size, net interest margin, branch expansion, inefficiency, and portfolio composition (Salas and Saurina, 2002). Mileris (2020) explained that banks often rely on qualitative data and financial data to assess the credit risk of the borrowers. The macro-economic variables such as GDP, interest rates, inflation, money supply, industrial production index, and current account deficit influence the credit risk of borrowers which in turn disturbs the bank's loan portfolio. The assessment of environmental risk helped to manage the credit risk, and it also indicated that the Canadian banks conducted systematic environmental scrutiny of loans, mortgages, and credits (Weber, 2011).

Das and Ghosh (2007) explained that GDP growth (macro level), real loan growth, operating expenses, and size of the bank (at bank level) influence the credit risk of a bank's loan portfolio. Kolapo et al., (2012) expressed that an increase in non-performing loans reduced the

profitability of banks. Credit risk had a positive relationship with profitability, in other words, banks had higher profits despite the higher level of credit risk. The exorbitant interest and lending rates and non-interest income significantly raised the profits of the banks. Proper credit risk management by banks impacted their profits (Abiola and Olaus, 2014). The lagged non-performing assets had a significant positive impact on the current non-performing asset. An inverse relationship existed between GDP and credit risk. Credit risk is influenced by macroeconomic and bank-specific factors (Thiagarajan, 2011). Poudel, (2012) revealed that the default rate is the significant predictor of a bank's financial performance (23%). There was no relationship between the amount of NPAs, amount of credit, and amount of profits (Kithinji, 2010).

Financing to the risky sector, the requirement of regulatory capital, and Islamic Contract influence the credit risk of Islamic banks. For conventional banks' provision for bad loans, debt-to-total asset ratio, regulatory capital, size, liquidity, and earning management influence the credit risk in the bank (Waemustafa & Sukri, 2015). Kaaya & Pastory (2013) explained that a negative correlation was indicated between credit risk and bank performance. The default rate, cost of debt collection, and cost per loan asset have an inverse relationship with a bank's financial performance. The default rate highly predicts the bank's financial performance (Musyoki & Kadubo, 2012). The non-performing loan, provisions for loan loss, and capital adequacy adversely impacted the profitability of the commercial banks (Gizaw et al., 2015). With the implementation of Basel-II norms, credit risk management has become an imperative tool, in which the Non-performing loan ratio (NPLR) has supported the negative impact of NPLR on the return on equity (ROE). The capital adequacy ratio also impacts or profitability of the bank (Hosna et al., 2009). Cucinelli et al., (2018) explained that the internal rating-based (IRB) model, as advocated by Basel-II norms was effective in curbing the increase in credit risk due to macroeconomic slowdown. Banks that adopted the IRB model were better in credit risk management than banks under a standardized approach. Hassan et al., (2019) concluded that for Islamic banks there was a negative relationship between liquidity and credit risk. These banks were better able to manage the liquidity risk and credit risk when compared to conventional banks. At the time of the financial crisis, the relationship between liquidity and stability was negative for both types of banks. If the banks paid attention to the sustainability issues then the credit risk was managed in a better way, in which the banks had an onus to fund the sustainable leader (Weber et al., 2015).

A negative relationship existed between credit risk and Return on Assets (ROA) and ROE. The credit risk may be managed well if proper control and monitoring of non-performing loans are

carried out (Ekinci & Poyraz, 2019). A positive relationship was noted between the ratio of non-performing loans to loans and advances and the performance of the bank (Marshal & Onyekachi, 2019). Singh (2015) measured the performance of the bank using ROA and credit risk using NPA. He identified an inverse and direct relationship between ROA and the ratio of NPA. If the bank adopted a good credit risk management mechanism and earned good interest then it had lower NPAs.

Srikanth & Kishore (2014) surveyed the banker's opinion on the 5 Cs such as character, cash flows, capital, capacity utilization, and condition which are fundamental measures of credit risk assessment. It was concluded that ratios such as capital adequacy, asset quality, cost efficiency, and profitability ratio were good indicating the financial soundness of the Indian banks. The research also suggested the implementation of in-depth legal documentation, proper credit monitoring, detailed due diligence, and a strong credit appraisal system for proper credit risk management. The Indian banks were prepared for a better and higher quality of capital with the implementation of Basel III norms. Arora (2021) explained that healthy credit risk management practices may be implemented by adopting other bank's risk management systems, detailed loan review and loan appraisal mechanism, multiple-stage credit approval process, following strict Know Your Client (KYC), risk-based appraisal, and controlling wilful defaults. The obstacles in credit risk management practices were inadequate training of bank staff, improper data management, unstructured Information Technology (IT) support, unpredictable rating approach, and system fragmentation (Arora & Singh, 2014). A strong correlation existed between NPA, advances, and investments (Sahoo et al., 2017).

Bodla and Verma (2009) conducted an empirical study across 26 banks and identified that the loan sanction authority and credit risk, rested in the hands of the Board of Directors (BODs) or credit policy committee. More than 80% of the Indian commercial banks adhered to the prudential limits, risk rating, credit approval authority, and loan review policy for managing credit risk. Most of the banks were performing activities like timely credit calls, timely field visits, studying industry profiles, developing Management Information systems (MIS), risk scoring, and annual review of accounts to mitigate the risk of credit default. It was noticed that banks in India did not use any derivative products to hedge their credit risk.

Sharifi et al (2019) empirically explained that NPA in a bank was dependent on credit risk perception, credit risk identification, credit risk assessment, credit risk control, and credit risk capital requirements. The study was performed across 24 government and 14 private sector banks. Credit risk identification had a negative relationship with NPAs/loans. RBI too ensures that commercial banks must identify credit risk and emphasized to share the profile and credit

scores of potential borrowers. Given the operational freedom, the credit risk management of private banks was far more efficient than public sector banks.

A snapshot of the credit risk management study is depicted in Table 2-1.

**Table 2-1 Snapshot On The Credit Risk Management Study**

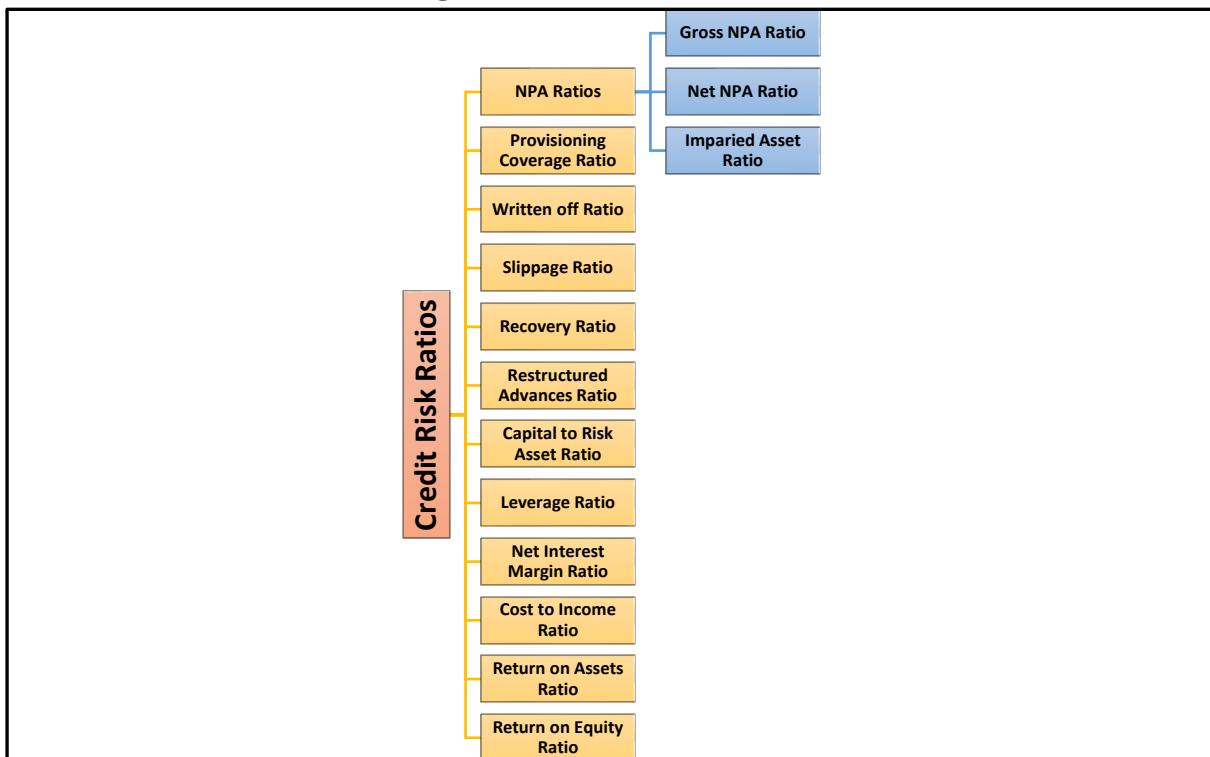
Author	Place of Study	Period	Statistical Technique
Imbierowicz & Rauch (2014)	US	1998-2010	Regression
Salas & Saurina (2002)	Spain	1985-1997	Regression
Mileris (2012)	European Union	2008-2010	Logistic Regression and Probit
Weber (2011)	Canda	2006-2009	Qualitative and Analysis of Variance (ANOVA)
Das & Ghosh (2007)	India	1994-2005	Regression
Kolapo et al (2012)	Nigeria	2000-2010	Regression
Boahene et al (2012)	Ghana	2005-2009	Regression
Abiola & Olausi (2014)	Nigeria	2005-2011	Regression
Thiagarajan (2011)	India	2001-2010	Regression
Poudel (2012)	Nepal	2001-2011	Regression
Kithinji (2010)	Kenya	2004-2008	Regression
Waemustafa & Sukri (2015)	Malaysia	2000-2010	Regression
Kaaya & Pastory (2013)	Tanzania	2005-2008	Regression
Musyoki & Kadubo (2012)	Kenya	2000-2006	Regression and Correlation
Gizaw et al., (2015)	Ethiopia	2003-2004	Regression
Hosna et al., (2009)	Sweden	2000-2008	Regression
Cucinelli et al., (2018)	Europe	2008-2015	Regression
Hassan et al., (2019)	Islamic Corporation Countries	2009-2015	Regression
Weber et al., (2015)	Bangladesh	Not Mentioned	Chi-Square Test, Correlation, Logistic Regression
Ekinci & Poyraz, (2019)	Turkey	2005-2017	Regression
Marshal & Onyekachi, (2019)	Nigeria	1997-2011	Regression
Singh (2015)	India	2003-2013	Regression
Srikanth & Kishore (2014)	India	2006-2013	Ratio Analysis
Arora (2021)	India	Not-Mentioned	Chi-Square Test
Arora & Singh (2014)	India	Not-Mentioned	ANOVA

Author	Place of Study	Period	Statistical Technique
Sahoo et al (2017)	India	Not-Mentioned	Correlation
Bodla & Verma (2009)	India	Not-Mentioned	T-Test and Chi-Square
Sharifi et al (2019)	India	2012-2016	Regression

(Source: Researcher's Compilation)

The past research may be categorized into two themes, viz., analysis of credit risk management based on secondary data and opinion of bankers on credit risk management practices followed by them. A majority of the study is based on secondary data. From the crux of the secondary data, it may be deduced that credit risk management may be identified using the following ratios, as depicted in Figures 2-3.

**Figure 2-3 Credit Risk Ratios**



(Source: Adapted from Srikanth & Kishore, 2014)

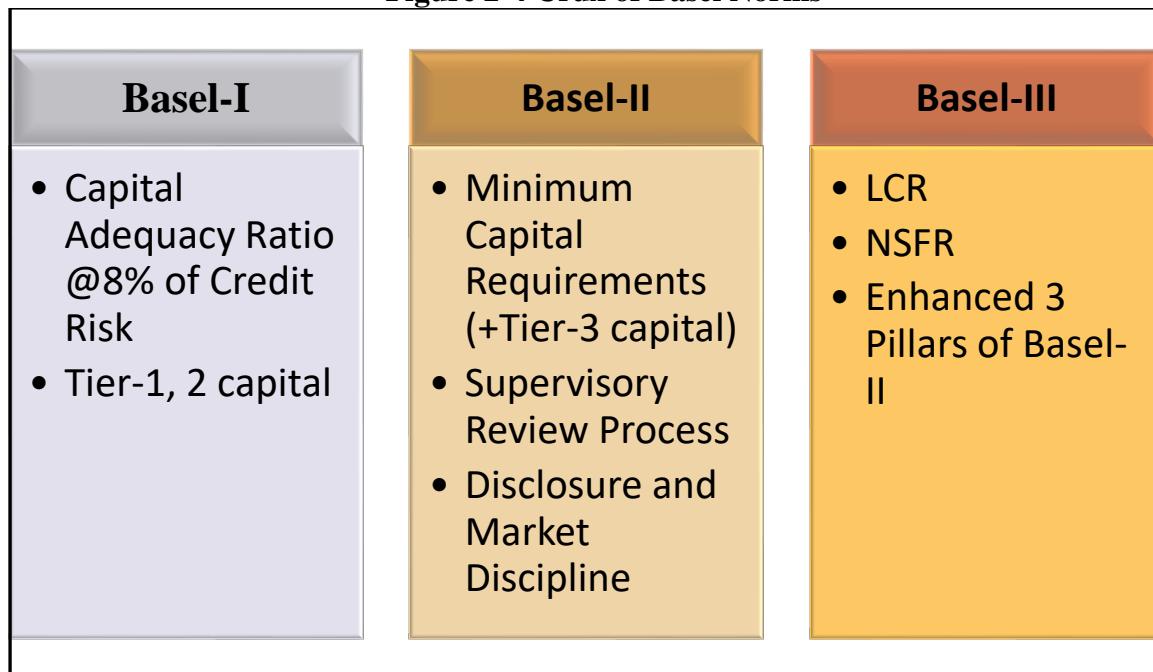
Thus, the above ratios are useful in identifying the credit risk faced by the banks on account of the NPAs.

## 2.6 Basel Norms

The Basel Committee on Banking Supervision (BCBS) issues Basel Norms for strengthening the International Banking System and Banking Regulations. There are 27 countries including India, following Basel Norms. The first Basel-I guideline was introduced in the year 1988,

which directed banks to maintain the capital adequacy ratio at 8% of the credit risk. In a bank, the capital is divided into two parts viz., Tier 1(the core capital) and Tier 2 (the supplementary capital). Basel-II was initiated in the year 2004, which rested on three main pillars viz., Minimum Capital Requirements (as indicated in Basel-I + introduction of short-term subordinated loans as Tier-3 capital); Supervisory Review Process (for managing three different kinds of risk such as credit, market, and operations), and Disclosure and Market Discipline (bank are now required to disclose more information and adhere to the compliance requirement). Basel-III was introduced post-financial crisis of 2008 in year 2010. Its objective was to make the banking system more strong, more transparent, and shockproof. It advised banks to come out with two new ratios viz., Liquidity Coverage Ratio (LCR) (to meet 30 days short-term requirements through high-quality liquidity assets), and Net Stable Funds Rate (NSFR) (to meet the medium-term requirement of 1 year via stable funding profile). Under the latest norms, the three pillars of Basel-II were enhanced at the individual level. India currently follows Basel-III norms (Legal Service India, n.d.).

**Figure 2-4 Crux of Basel Norms**



(Source: Adapted from Legal Service India, n.d.)

Many researchers have conceptually explained the transition and the outcomes of moving from Basel-I to Basel-III (Minocha, 2013; Khetarpal, 2013; Lakra, 2013). The Capital Adequacy Ratio (CAR) represents the financial soundness of the banks. It is a ratio of a bank's capital to the risk-weighted asset. The global benchmark range of CAR is 7.1% to 34.9%. As of 2007, CAR in Indian banks was 12.3%, greater than RBI's requirement of 9%, and Basel's

requirement of 8% (Dhanda & Rani, 2010). Based on the study period of 2010-11, India's public and private sector banks had implemented structural initiatives to risk management for the smooth functioning of Basel-II and preparedness for Basel-III. The sample banks under study had signed a Memorandum of Understanding (MOU) with credit rating agencies to avail rating on their domestic and international loan portfolio (Popli & Kumari, 2012). Indian banks were compatible to implement Basel-II and are fully prepared for the implementation of Basel-III norms (Arora & Kohli, 2015).

As per the study by Jangra (2019), during 2014-2017, it was concluded that banks were not operationally strong, due to low Net-Interest Income (NIM), and high-cost income ratio. An important positive relationship exists between adherence to information provision and banks' financial soundness. Highly rated banks in a country were the ones which followed the principle of timely and full disclosure of information as per Basel norms (Pandey, 2013). Parmar (2017) highlighted in his awareness study, that lack of awareness of Basel-III norms amongst employees would lead negatively affect the bank's performance. Thus, it may be inferred that the application of Basel norms would assist in better credit risk management.

## **2.7 Studies On NPA**

The forthcoming section deals with credit risk management and NPAs; determinants of NPAs; Theoretical and Descriptive Studies on NPAs; Detection, Evolution, Resolution, and Recovery Mechanism of NPAs; Bank Official's View on NPAs; Empirical Studies on NPAs; Bad Loans; Bad Loans and Recovery, and Studies on NPA Resolution Mechanism.

### **2.7.1 Credit Risk Management And NPAs**

A default by the borrower to pay interest or principal or both is treated as credit risk. The indicators of credit risk management are Capital Adequacy Ratio (CAR) and the NPAs. There exists a direct relationship between bank's performance and the credit risk management. The CAR of private sector banks with low level of NPAs is higher than the CAR of public sector banks with high level of NPAs (Singh, 2015). Credit risk management of banks are jeopardized due to NPAs in banks (Rai, 2012).

If the credit risk is identified then it meaningfully affects the credit risk performance. The relationship between credit risk identification and yearly growth in NPAs is negative. In other words, if the credit risk is identified at the early stage, then level of NPAs may be controlled. (Sharifi et al., 2019).

**Table 2-2 Credit Risk And NPAs**

<b>Relationship</b>	<b>Relationship</b>	<b>Test</b>	<b>Statistical Significance</b>
NPAs $\leftarrow \rightarrow$ Credit Risk Perception	Negative	Regression	Significant
NPAs $\leftarrow \rightarrow$ Credit Risk Identification	Negative	Regression	Significant
NPAs $\leftarrow \rightarrow$ Credit Risk Assessment	Negative	Regression	Significant
NPAs $\leftarrow \rightarrow$ Credit Risk Control	Negative	Regression	Significant
NPAs $\leftarrow \rightarrow$ Credit Risk Capital Requirement	Negative	Regression	Significant
Credit Risk Management Practices $\leftarrow \rightarrow$ Credit Risk Perception	Positive	Regression	Significant
Credit Risk Management Practices $\leftarrow \rightarrow$ Credit Risk Identification	Positive	Regression	Significant
Credit Risk Management Practices $\leftarrow \rightarrow$ Credit Risk Assessment	Positive	Regression	Significant
Credit Risk Management Practices $\leftarrow \rightarrow$ Credit Risk Control	Positive	Regression	Significant
Credit Risk Management Practices $\leftarrow \rightarrow$ Credit Risk Capital Requirement	Positive	Regression	Significant
Credit Risk Management Practices of Government and Private Sector Banks	Differences in Mean	ANOVA	Significant

(Source: Sharifi et al, 2019)

Funding the troubled industries by increasing the provisions requirements is not a good practice, to hide the NPAs. Credit risk identification would help banks in managing the credit risk. Private banks enjoy freedom to conduct the professional business, and hence the level of NPAs are less in a private banks when compared to the public banks (Sharifi et al., 2019). A study was conducted using the secondary data of 1996 to 2007. The credit advances were segregated into sectors such as agriculture, industry, transporters, services, personal (retail) loans, trading and financing, based on the rural, semi-urban, urban and metro areas. The correlation statistics revealed a negative relationship between the different sector of investment and the level of NPAs. In other words, it indicated that the private banks NPAs reduced if its loan portfolios were diversified, in the rural, semi-urban, urban and metro areas. Loans to agriculture sector in rural region, industrial sector in all region, loans to transporters in semi-urban cum metro region, personal loans, loans to salaried in rural and semi-urban regions, loans to traders of all region, finance loans in all region, except rural region, indicated a positive contribution towards NPAs, in other words, if loans were provided to the aforementioned sectors only, and not the diversified portfolio then the chances of NPAs become high (Suresh et al., 2010).

## 2.7.2 Determinants Of NPAs

Many researchers have tried to identify the determinants of the NPAs. The cause of the NPAs from the literature are discussed in this point. The scholars have not only identified the factors but, it was statistically tested using regression or panel data estimation results. The factors affecting the NPAs were identified by Bajaj et al (2021) from the secondary data under the study period of 1998-1999 using the Arellano-Bond Dynamic Panel Analysis for public sector banks, private sector banks and on consolidated data. The results of the same are discussed in Table 2-3.

**Table 2-3 Factors Causing NPAs**

Factors	Relationship With NPA	Crux
Net Interest Margin of Banks	Negative	If banks earn good then it refrains from aggressive lending.
Maturity Period	Negative	A long tenure of loans are offered to sound borrower who lends strong collateral asset as security.
Collateral Assets	Positive	Improper valuation of high value of collaterals, borrower may wilfully default if the value of the collateral goes down, political pressure to cease liquidation or non-availability of buyers at the time of auction, due to very high value of collateral.
Collateral Assets and Recovery	Negative	
Priority Sector Loans	Positive	RBI's directives of compulsory 40% lending of adjusted net bank credit (ANBC) to priority sector, pushes NPAs of public sector banks which works on the motive of financial inclusion to support agriculture and Small and Medium Enterprises (SMEs).
Bank's Business Size	Positive	If the client of the banks are big borrowers who face the heat of macro-economic environment, causes a trickledown effect of systematic risk to the banks.
Recovery	Positive	If business have hindrance in earning income then it defaults on instalment and eventually the account turns into NPA.

**(Source: Adapted from Bajaj et al., 2021)**

Kadanda and Raj (2018) applied panel Wald Test identify the determinants of the NPAs. It was pointed that the banks usually take a long time in writing-off the NPAs, so the past quantum of NPAs are carried forward in the subsequent years. Thus, past NPAs positively influence the GNPs. There existed a negative relationship between lagged CAR and NPA, which indicated that the banks with lower level of capital would have higher level of NPAs, because, such banks in order to earn more interest, tries to fund the risky, low credible clients, which causes higher NPAs. Such phenomena is referred as moral hazard hypothesis. Moreover, when Government of India (GoI) infuses the public money and the Public Sector Banks (PSBs) are recapitalized

then also the PSBs are underperformers. PSBs exhibit carelessness in the key areas such as lending, relationship with the customers, credit appraisal and also the mechanism of monitoring the clients. During the good times when the GDP is rising, banks provide aggressive lending, in the boom period, which eventually results in the NPA. During boom period, at times bankers do not conduct proper due diligence, or they lack skills to conduct the same or they simply ignore the risk, which later is penalized in terms NPAs. The bad management on the part of banks is also responsible for higher GNPs. To represent efficiency, banks in the short-run may curtail expenses on screening the customers, true valuation of collateral, proper check and control on borrowers' post-issue of loans. The short run efficiency is penalized in terms of the higher NPAs in the long run. Thus, a negative relationship exists between operating ratio and GNPA. Return on Assets and NPAs have a negative relationship. Banks earning higher profits may either make higher provisions for bad loans or may easily write-off the bad loans. A positive relationship was noted for bank size and GNPA, which indicated that if the largest borrower defaulted, then it would lead to high amount of bad assets for the banks. A rising interest rate results in the growth of the NPAs, indicating a positive relationship. A negative relationship was noted between provision coverage ratio and GNPA. In other words, the banks which had higher provision coverage ratio would be able to manage their NPA better. The influencers of NPAs were money supply, financial development and macroeconomics of the economy (Adusei, 2018). The factors which determines the NPAs from the viewpoint of the banks were weak credit risk evaluation, poor assessment on the quality of the collateral, improper monitoring and follow-up of the loan, concentrated loan portfolio, absence of credit advisory practices, inability in lending matters and short-term loans (Prasanth et al., 2020).

### **2.7.3 Theoretical And Descriptive Studies On NPA**

Many research scholars have conducted theoretical studies on NPAs, describing the meaning, classification of NPAs, identified the reasons for NPAs, and tools that may be used for recovery of NPAs (Barge, 2012). Gross NPAs represent the quality of loans provided by the banks and Net NPAs reflects the actual financial problem faced by the banks (Sikdar & Makkad, 2013). NPAs wipe out the trust of depositors, reduces the profits of the banks, leads to shrinkage in the bank's market share (Boddu, 2019). Bhardwaj and Chaudhary (2018) identified the following relationship between different variables and NPAs, as described in Table 2-2.

**Table 2-4 Effect Of NPAs On Various Variables**

<b>Dependent Variables</b>	<b>Effect</b>	<b>Dependent Variables</b>	<b>Effect</b>
Earning Capacity	Fall	ROI	Fall
Cost of Capital	Rise	Provisioning	High
Banks Profit	Fall	Economic Value Additions	Fall

<b>Dependent Variables</b>	<b>Effect</b>	<b>Dependent Variables</b>	<b>Effect</b>
Asset-Liability Gap	Widens	Value of the Bank's Share	Fall
Risk facing Ability of Banks	Fall	Capital Adequacy Ratio	Fall

**(Source: Bhardwaj and Chaudhary, 2018)**

A descriptive analysis on a time series data of three consecutive years, 2009-2010 to 2011-2012, was undertaken to compute the GNPA to Gross Advances, and Net NPAs to Net advances percentage. The sectoral percentage of NPAs to total advances described highest percentage of NPAs for agriculture and allied activities, followed by services, MSMEs and personal loans (Singh, and Modiyani, 2013). Some of the studies tried to capture recovery mechanism's effectiveness, through consecutive data from 2013 to 2016 on the elements such as cases referred to a particular recovery mechanism, amount of NPAs, amount recovered through the selected mechanism, and the percentage of amount recovered. Lok Adalats, DRTs, and SARFAESI Act. The most effective mechanism in terms of recovery was SARFAESI Act (Padmavathi et al., 2017). A cross-sectional study of 14 years from 2000 to 2014 was conducted for commercial banks, in which the GNPAs and Net NPAs had increased. The rise in NPAs was due to wilful defaults, defective lending process, and improper recovery mechanism. The study concluded that NPAs negatively affected the earning capacity and ROI of the banks (Singh, 2016). A similar type of single cross-sectional, time-series study was conducted for two public, and two private sector banks for the period of 2007-2015. It was highlighted that accounting norms were modified to reduce the bad loans. NPAs impacted the income of the bank. The public sector banks had highest level of NPAs when compared to the private sector banks (Rajender and Yakub, 2017; Dadhich et al., 2021). Scholars had also studied the theoretical aspects such as categorization criteria of the assets, reasons for NPAs, Basel norms to manage NPAs, impact of NPAs, remedial measures for NPAs, mechanism to reduce NPAs, and percentage quantification of gross and net NPAs for consecutive number of years (Rao, 2014). Rajesh and Sivakumar (2017) expressed that a reduced NPAs indicates that the banks had made the credit appraisal system stronger, and higher provisioning signalled higher level of NPAs. To reduce the threat of credit risk and NPAs, it was suggested that banks may use data analytics, securitization, credit derivative products, and credit debt obligations. In a comparative study of NPAs amongst India, Australia and Canada, highest level of NPAs was in India (Shah and Talwar, 2018). Theivanayaki (2017) studied mean, standard deviation, CAGR, in GNPA, NPA ratios for different types of banks such as public, private, nationalized, foreign banks, regional rural banks, scheduled state-cooperative and urban cooperative banks, during the selected period of 2005-06 to 2014-15. It was noted that the growth of GNPA was higher

than the total advances made by the banks. CAGR was also computed for amount of advances, which were segregated as sub-standard, doubtful, and loss advances. The private sector banks had a better asset-wise classification than the private sector bank. Good credit appraisal system, proper internal control and improvement in asset quality would help the banks to reduce the high level of NPAs (Balasubramaniam, 2012). Based on the credit risk management technique, the interest rate spread are fixed, higher the interest rate spreads, higher is the cost of loans, which leads to higher probability of the NPAs. Sometimes, interest rate spreads are benchmarked to NPAs and NPAs are associated to the high cost of loans (Collins, and Wanjau, 2011). NPAs raise the cost of capital of banks, and hampers their liquidity. The level of NPAs is higher in public sector than private sector banks. NPAs represents the degree to which the assets are utilized and the effectiveness of bank's management (Mittal & Suneja, 2017). The increase in NPAs forces the banks to make large provisions, which pulls down the profits of the banks, and the decline in NPAs indicates that banks have made the credit appraisal norms strict and strong. The governmental thrust on commercial banks to lend at least 40% money to the priority sector, is one of the main macro level reasons for NPAs. When banks lend to tiny and micro sectors, under the pressure of directed loans, they often face the problem of recoveries, when the units become sick, such situation leads to NPAs. NPAs generate bad assets and blockage of funds. NPAs is central to the opportunity cost because, due to NPAs the future investment in profit earnings projects cannot be undertaken. Due to NPAs, banks often face liquidity issues, image of the bank gets deteriorated, and loss of productive time in recovery (Singh, 2013). Provisioning for NPAs provides a cushion, but such phenomena is transitory and not perpetual. Severe norms, and proper background check of the borrowers would assist in reducing the NPAs (Roy & Samanta, 2017).

Based on the secondary data of public sector banks from 2007 to 2012, the descriptive analysis using Coefficient of Variation (CV) highlighted low level of variation in loss assets which was noted be consistent. High variation was noted for doubtful assets and sub-standard assets. For the same year, based on the CV, the private sector banks exhibited low level of variation in sub-standard assets. High variation was noted for doubtful and loss assets. In the case of the foreign banks, based on the CV, low variation was noted for doubtful assets. The sub-standard and loss assets of foreign banks had high variation (Ibrahim & Thangavelu, 2014). Rizvi et al (2019) using Total Interpretive Structural Modelling (TISM), had identified ten determinants of NPAs. The independent factors with frail dependence power, such as economic conditions and political parties were key drivers of NPAs. Conditions of external environment, banks' internal factors, pattern of ownership, observance of regulatory framework, legal factors and

technological factors were identified by the researchers as linkage factors, which were highly dependent, and had strong driving force. The dependent factors with strong dependence but a weak driving power were factors related to the borrower, and socio-cultural factors. Ramu (2009) explained Indian banks adopts international prudential norms in their operations. With the tightening of the weightage to asset quality, many Indian banks loan books resulted in the NPAs. RBI under Capital Adequacy, Asset Quality, Management, Earnings and Liquidity (CAMEL) model instructs the banks to offer 25% weightage to the asset quality, this forces the Urban Cooperative banks (UCBs) to maintain superior quality of the assets to foster economic growth. Descriptive analysis on time series data from 2000 to 2014 was conducted on Scheduled Commercial Banks by Bhardwaj and Chaudhary (2018) on various ratios such as Gross Advances to GNPs; Net NPAs as a percentage of Net Advances to identify the trend. A percentage trend analysis was conducted on number of cases referred, amount of NPAs, amount recovered, and percentage of amount recovered through resolution mechanism such as Lok Adalats, DRTs, and SARFAESI Act. A similar study was noted for the period 2008-09 to 2014-15 on recovery channels of NPAs (Banana & Chepuri, 2016).

Bhaskaran et al., (2016) in their study on the secondary data from 2004 to 2013 on net advances and net NPAs identified that the level of NPAs was more in public sector banks than private sector banks. Public sector banks are unable to recover the money from bad loans account (Chary & Fasi, 2019; Valliammal & Manivannan, 2018).

The ROA and CAR plays a vital function in management of NNPAs. The quantum of provisioning minimally influences the NNPAs. The change in the macroeconomic factors strongly influence the nationalized banks. The shocks of macro-economic environment excessively impact the private banks, whereas the foreign banks do not experience any negative impact, due to the shock in the macro-economic environment. The Indian banks experience higher problem of NNPAs when compared to the foreign banks operating in India. Steps such as monitoring and following macro fundamentals, the policy suggested by the regulators, and bank's own management decisions may assist in controlling NNPAs (Patra & Padhi, 2016).

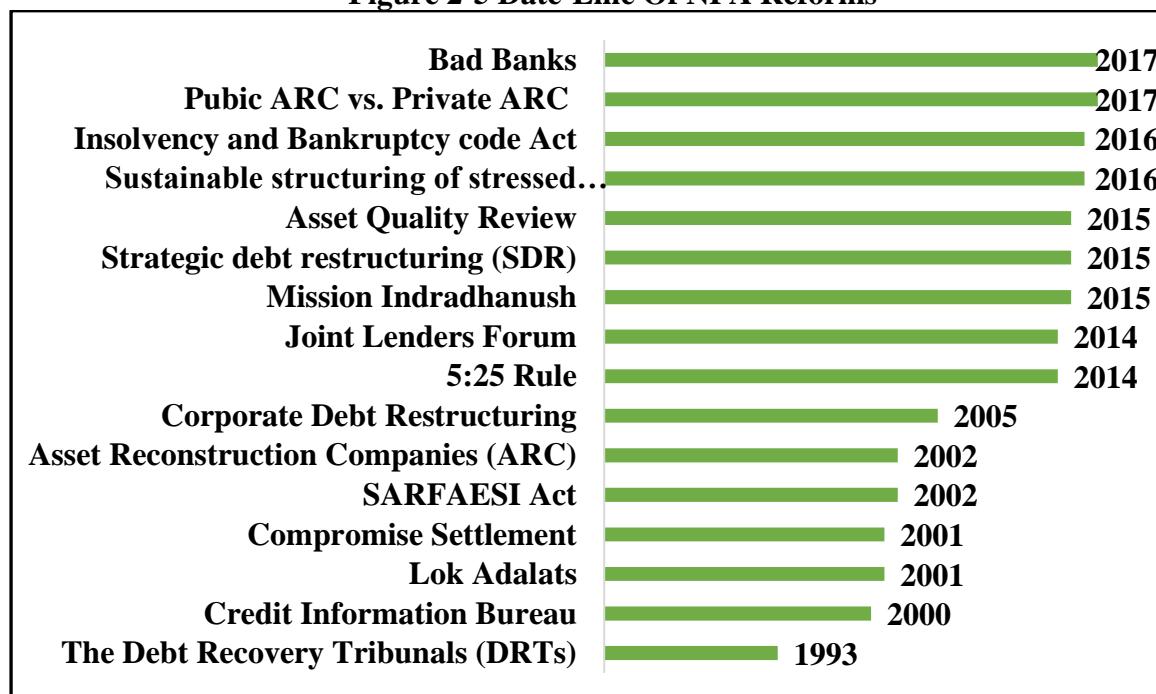
The capital position and profitability of the banks were often eroded by NPAs. The shareholding pattern in the banks also affect the efficiency gap in the banks. The efficiency gap occurring due to NPAs was low for the banks which had higher public shareholding. The efficiency gap due to NPAs was high for the banks which had more private or government shareholding. In the year 2016, a loss or efficiency gap due to NPAs was 16.2% in the Indian banking sector. The loss due to NPA kept increasing on a year-on-year basis, and it significantly differed on the shareholding pattern of the banks (Hafsal et al., 2020).

The poor asset quality led to higher level of NPAs, which in turn brings down the efficiency of the banks (Maity, 2019). A detailed analysis of the assets given as mortgage and collateral by the borrower, and the quality of the assets of the guarantor would help in minimizing the NPAs (Xiao et al., 2021). Banks settled the NPA accounts of borrowers by accepting a lesser amount, which was treated as a violation of the RBI guidelines. A good quality of advances and right recovery procedures in place, would ensure lower level of NPAs. Strict follow-up of prudential and provisioning norms would help banks to avoid NPAs (Rajput et al., 2011).

#### **2.7.4 Detection, Evolution, Resolution And Recovery Mechanism Of NPAs**

It discusses the loan recovery mechanism, enacted by government in the Figure 2-5.

**Figure 2-5 Date-Line Of NPA Reforms**



**(Source: Researcher's Presentation)**

It may be observed that the oldest effort for NPA resolution was DRT, which was enacted in the year 1993, and the latest of 2017 is forming of Bad bank. Lok Adalats assisted in loan recovery of up to Rs.5 lakh. Compromise settlement helps to recover NPAs below Rs.10 Crores. SARFAESI Act, targeted to sell off the assets for recovery of NPA up to Rs.1 lakh and above. Mission Indradhanush aimed at improving the performance of public sector banks in terms of appointments, bank board bureau, capitalization, distressing, employment, framework of accountability, and governance reforms (Raj, 2020).

The loan recovery strategy may be preventive or proactive strategy to prevent the accrual of NPAs or corrective or active strategy to recover the bad loans, by applying proper legal,

regulatory and non-legal measures (Thomas & Vyas, 2016). The preventive strategy includes the 5-Es framework, and active strategies are described in Table 2-2.

**Table 2-5 Preventive And Active Strategies**

<b>Preventive Strategies</b>	<b>Active Strategies</b>
<b>Economic Cautions</b> (are signalled through outstanding loan installment; regular delay in payments; non-usability of letter of credit or bank guarantee; working capital crunch, highly geared debt-equity ratio, reduction in sales and profits, minus Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA); loss, higher sales and minus gross profit; and increase in non-operating expenses ratios)	<b>Civil Case</b> (filing a legal suit for recovering dues). <b>DRTs</b> (referring the funds outstanding case to the tribunal). <b>SARFAESI</b> (Sale of property to recover the loans). <b>Lok Adalats</b> (Compromise for payments amongst lender and borrower, and avoids cases in the legal system). <b>ARCs</b> (banks sale their bad assets to ARCs and clean up the balance-sheet)
<b>Enterprise Cautions</b> (Unused installed capacity, higher attrition, lack of fixed expenses, decline in number of customers, labour unrest, alteration in expansion plans, disposal of fixed assets, and high or low inventory margins)	<b>Bankruptcy and Insolvency Code (BIC)</b> (resolving financial distress or liquidating the company, and insolvency resolution and reorganization of business). <b>Central Repository of Information on Large Credits (CRILC)</b> (Information furnishing to RBI of stressed borrowers).
<b>Executional Cautions</b> (Mis-appropriation of funds, poor banker-client association, dilution of ownership, regular change in top managerial position, diversification in unrelated areas, window dressing of financial statements, and disputes in management)	<b>SMA</b> (Classification of lending into three categories of SMA on the basis of time). <b>Joint Lenders Forum (JLF)</b> (All creditors, together, forms a corrective action plan (CAP), for quick resolution of stressed assets, of a lender's group).
<b>Exchequer Cautions</b> (demand for increase in working capital, reorganization of loan, disturbed repayments, reduction of transactions in operating accounts, operating accounts with other banks, infrequent submission of statements, payments to unconnected parties, high-value monetary transactions with related parties, and return of cheque due to insufficient balance.)	5/25 Mechanism (Increasing loan amortization to 25 years, with refinancing at every 5 years. The repayment would be treated as bullet repayment). <b>Strategic Debt Restructuring (SDR)</b> (in the first place, the shareholders are made to bear the loss than debtholders, promoters are required to pump more money and control to be rested in the hands of the lenders).
<b>Extraneous Cautions</b> (Recession, technological change, policy level changes, increase in rivalry, natural calamities, downfall of industry, regulatory changes, manmade disorders, and shift in customer preferences)	<b>Corporate Debt Restructuring (CDR)</b> (The distressed loans of the company are reorganized, to generate liquidity and pay off the creditors). <b>S4A Mechanism</b> (swapping the 50% debt into equity). <b>Penal Actions</b> (names of the wilful defaulters are shared to Securities and Exchange Board of India- <b>SEBI</b> , and Credit Information Bureau India Ltd- <b>CIBIL</b> , they

Preventive Strategies	Active Strategies
	<p>are not allowed to raise loans for 5 years of name display, and commencement of criminal proceedings.</p> <p><b>One-Time Settlement (OTS)</b> (it is negotiated compromise settlement for payment of dues, mutually agreed by the debtor and the creditor).</p> <p><b>Recovery Camps</b> (Bank personnel approach the small defaulting borrowers for repayment of loans).</p>

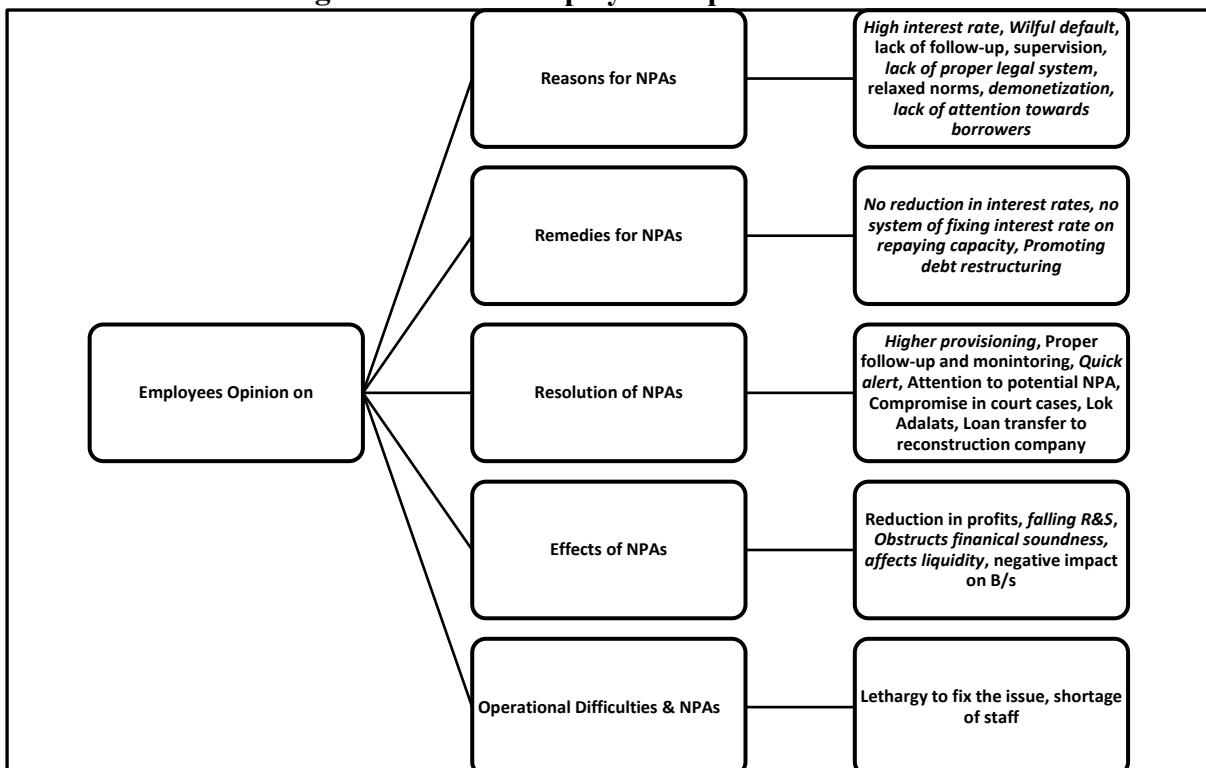
(Source: Compiled from Thomas & Vyas, 2016)

Thus, it may be understood that preventive strategies would provide early indicators for probable NPAs, which may help bank to control the situation, before it goes bad to worst. The active strategies would help in recovery of the money from the account, which has been already treated as NPA.

#### 2.7.5 Bank Officials View On NPAs

Many research scholars have conducted primary study to check the opinion of bank officials on reasons for NPAs, challenges involved in recovery, and effectiveness of NPA recovery mechanism. An empirical study of bank employees on the NPAs revealed the following variables, which are shown in Figure 2–6.

**Figure 2-6 Bank Employees' Opinion On NPAs**



(Source: Adapted from Gupta, 2017)

(Note: Italics indicates, statistically non-significant results)

The latent variables identified were reasons for NPAs, remedies for NPAs, resolution for NPAs, effects of NPAs, and operational difficulties and NPAs. The variables were identified in the category of causes of NPAs, recovery challenges, and utility of recovery methods from the empirical research conducted by Bhatia (2019) with the bank officials are represented in Table 2-5. 32 reasons, nine reasons, and six methods were identified for the causes of NPAs, recovery challenges, and recovery methods of NPAs respectively. The statistical significance of the test is also highlighted in the Table 2-6.

**Table 2-6 Variables Identification**

Variables		
Causes of NPAs		
Independent Variable	Statistical Test	Statistically Not Significant
Gender (Male Vs. Female)	Independent T-Test	13, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 32
Type of Banks (Public, Private, Foreign)	ANOVA	3, 9, 29
Level of Management (Top, Middle, Lower)	ANOVA	12, 15, 16, 18, 23, 24
Different Experience in Years (<10, 10-15, 16-20, 21-25 and 25+)	ANOVA	10, 11, 15
Recovery Challenges		
a) Benefit from sluggish legal process b) Unwillingness to pay c) Unhurried legal proceeding	e) Political pressure created by giant borrowers f) Delayed recovery due to obsolete laws g) Unethical employees slow down the recovery process	

<b>Variables</b>		
d) Lack of insolvency and bankruptcy code	h) Supportive role of industry chambers i) Poor market value of stressed assets	
<b>Independent Variable</b>	<b>Statistical Test</b>	<b>Statistically Not Significant</b>
Type of Banks (Public, Private, Foreign)	ANOVA	h)
<b>Utility of Recovery Methods</b>		
SARFESI Act DRT OTS	Recovery Agents ARC Lok Adalat	
<b>Independent Variable</b>	<b>Statistical Test</b>	<b>Statistically Not Significant</b>
Type of Banks (Public, Private, Foreign)	ANOVA	All Significant
Different Experience in Years (<10, 10-15, 16-20, 21-25 and 25+)	ANOVA	All Significant
Level of Management (Top, Middle, Lower)	ANOVA	All Significant

(Source: Adapted from Bhatia, 2019)

Above variables were treated as dependent variables in the primary research, which were measured on 5-point Likert scale from Strongly Agree (5) to Strongly Disagree (1). Kapoor (2016) explained that NPAs of public sector banks impacts 84% of its profitability. Senthilraja Prabha (2019) from the data of 2017-18, State Bank of India had highest NPAs, followed by Punjab National Bank, Bank of India and Bank of Baroda. 30% of the Net profit of the Regional Rural Banks (RRBs) is impacted by NPAs.

Poor project appraisals, wilful default attitude, schemes-policies of government, and interference from politicians were the major reasons for NPAs. The study highlighted if the debt-wavier scheme was announced by the government, then the borrowers who regularly repaid their loans, deliberately defaulted to avail the benefit of loan-wavier. The degree of bossism of borrowers, was so high that, they even threatened the life of the recovery officers, which resulted in non-recovery of loans. Compulsive lending targets also led to poor credit appraisal, which was a major cause of NPAs. The prime indicators of early warning signals of NPAs were no payment of the early instalments, or payment of less amount, or non-traceability of the borrowers, and the death of the borrowers (Meher et al., 2020).

## 2.7.6 Empirical Studies On NPAs

DRT and SARFAESI Act are more effective in recovery of NPAs, rather than Lok Adalat (Gupta & Malhotra, 2017). DRTs and SARFAESI Act are powerful in the recovery of NPAs. Lok Adalats have large number of cases, but the recovery performance from this channel is very low (Kumar, 2017). SARFAESI Act was better for NPA recovery when compared to Lok

Adalat and DRT (Puntambekar & Meher, 2016; Dey, 2018). The correlation of recovery methods used by public sector and private sector banks was strong at 0.99 (Gautami, 2017). The empirical study on employee's opinion on NPAs was conducted by Gupta (2017), which is explained through the Figure 2-6. Perumal & Anilkumar (2018) explained a strong negative correlation between NPAs and Net Profit, for the five selected banks under the study. Only for two banks a positive correlation existed between NPAs and Net Profit. Jain (2018) using exploratory factor analysis identified three factors responsible for NPAs. The identified factors were *External Factors* (weak legal framework, socio-political pressures, unhealthy competition, and changes in government policies); *Internal Factors* (improper selection of borrower, lack of supervision and follow-up, lack of interbank coordination and diversion of funds); and *Borrower's Default* (adverse external environment, borrowers wilful default, product obsolescence, and lack of experience and expertise). Raj et al., (2018) explained that there is a negative correlation between the net profit and Net NPAs, in other words, as net NPAs rise the profits fall. Return on equity, Return on assets, Capital adequacy Ratio, net interest margin etc also impact the profitability of the banks. The Central Government Relief's Package helps in reducing the NPAs. An increase in Gross NPAs results in decline of the share price of the banks (Ranjini, 2013). Sekar (2015) explained that 23% variation in perception of NPAs were explained by the eight factors identified. Junior level management significantly differed in their opinion on dimensions influencing NPAs. Bank officials who had experience between 21-30 years, significantly differed in their opinion on dimensions influencing NPAs. Male or female officials did not differ in their opinion on dimensions influencing NPAs. Negative correlation existed between position, gender and dimensions of NPAs. Positive correlation existed between experience, age and dimension of the NPAs. Dharwal (2016) explained the scheduled commercial banks, public sector banks, old private sector banks, new private sector banks significantly differed in the percentage of GNPA to Gross Advance, GNPA to Total Assets, percentage of Net NPA to Net Advances, Net NPA to Total Assets. The macro-economic indicators, namely GDP, Inflation, and Industrial production were used to assess the predictability of NPA indicators. The secondary data from 2001 to 2011 was used. The statistically significant outcomes of the study are represented in Table 2-7. The detailed explanation is given post table. The table is prepared to show-case the findings of the researchers at the cursory glance and also helps in cross-comparison with the different types of banks such as Scheduled Commercial Banks, Public Sector Banks, Old Private Sector Banks and New Private Sector Banks. The comparison is between the dependent and independent variables.

**Table 2-7 Impact Of Macroeconomic Variables On NPA Indicators Of Different Banks**

Dependent Variable (DV)	R <sup>2</sup> And Adjusted R <sup>2</sup>			
	Scheduled Commercial Banks	Public Sector Banks	Old Private Sector Banks	New Private Sector Banks
GNPA as a percentage of Gross Advances	59% (42%)	59% (42%)	67% (54%)	53% (43%)
GNPA as a percentage of Total Assets	61% (54%)	61% (44%)	70% (57%)	55% (35%)
Net NPA as percentage of Net Advances	53% (33%)	53% (33%)	62% (45%)	64% (56%)
Net NPA as percentage of Total Assets	54% (64%)	53% (33%)	65% (51%)	35% (30%)

(Source: Compiled from Dharwal, 2016)

Thus, it may be concluded that as high as 64%, and as low as 30% of NPA ratios could be explained by the macro-economic factors. Theivanayaki (2017) highlighted higher the level of NPAs, higher are the chances of bank becoming insolvent. If the insolvency risk is high, then net interest margin of the banks is low. The study conducted by Bhatia (2019) on the secondary data for the period of 2005-15 is depicted in Table 2-4.

**Table 2-8 Statistical Testing of Ratios Across Different Types of Banks**

Dependent Variable	Independent Variable	Statistical Test Applied	Statistical Significance	Crux
Gross NPA to Gross Advance Ratio	Public and Private Sector Banks	ANOVA	Significant	Lowest Ranking: Foreign banks, public sector banks, and private sector banks.
Gross NPA to Total Assets Ratio	Public and Private Sector Banks	ANOVA	Significant	Highest Ratio: private, public, and foreign banks.
Net NPA to Net Advances	Public and Private Sector Banks	ANOVA	Significant	Highest Ratio: private, public, and foreign banks.
Net NPA to Total Assets	Public and Private Sector Banks	ANOVA	Significant	Highest Ratio: private, public, and foreign banks.
NPA in Public Sector Banks	Time	Regression	Significant	49%, variation of NPAs over the

<b>Dependent Variable</b>	<b>Independent Variable</b>	<b>Statistical Test Applied</b>	<b>Statistical Significance</b>	<b>Crux</b>
				study period was noted. (Negative trend)
NPA in Private Sector Banks	Time	Regression	Significant	71%, variation of NPAs over the study period was noted. (Negative trend)
Priority Sector's NPA (% of Total NPA)	Public and Private Sector Banks	Independent T-Test	Significant	Private banks had lower NPAs from priority sector than Public banks.
Non-Priority Sector's NPA (% of Total NPA)	Public and Private Sector Banks	Independent T-Test	Significant	Private banks had highest NPAs from priority sector than Public banks.
Net NPA to Net Advances Ratio	Public, Private Sector, and Foreign Banks	ANOVA	Significant	Highest Ratio: Public, private and foreign banks.

**(Source: Compiled from Bhatia, 2019)**

Thus, it may be inferred that foreign banks have least NPAs. Public banks had lowest level of NPAs in priority sector lending, and highest NPA in non-priority sector lending was of private banks. Roy & Samanta (2017) explained that GNPAs influenced the Net-Profits (NP) of the banks, thus, as the GNPAs rise, NP falls. A significant difference was noted for recovery of sector-wise NPAs. Lowest recovery was in the agriculture sector (Rajender, 2009). As the NPAs in priority sector, public sector and non-priority sector increased, it increased the total amount of sector wise NPAs in the banks. The proportionate NPA recovery in the priority sector had a negative correlation, in other words the amount of NPAs were high in priority sectors. A decline in the NPA in agriculture sector in the year 2008, mainly occurred due to the announcement of the debt-waiver scheme of the Government of India in the year 2007 (Samir and Kamra, 2013). Veerakumar (2012) explained that lending to priority sector constitutes 40% under direct lending system, and as a result there was no statistical difference in the priority Sector NPAs and Non-Priority Sector NPAs to total NPAs of SCBs. In other words, it was myth to assume that there is less amount of NPAs in priority sector. In fact, the non-priority sectors also contribute to the NPAs of the banks. The private sector banks have no pressure for

priority sector lending, so it's NPAs majority come from non-priority sector lending and not the priority sector lending.

Using the Cross Correlogram technique, it was noted that there is a negative correlation between GNPAs and Gross Advances; Net NPAs to Net Advances, GNPAs to Total Assets, and Net NPAs to Total Assets. If the NPAs reduce then the profitability rises. The relationship between Net NPA to Net Advances is negative. A fall in the NPAs have an indirect impact on the profitability of the banks. Ratio of Gross NPAs to total assets, and Net NPAs to total assets significantly impact the profitability of the banks. 98% of the variation in GNPA (%) was explained by GNPA (Rs) and Gross Advances. The relationship between GNPA(%) and gross advance was negative, and it was positive between GNPA (%) and GNPA (Rs.). A similar 98% variation in Net NPA (%) was explained by Net NPAs (Rs.) and Net Advances. The relationship between Net Advance and Net NPA (%) was negative. The relationship between Net NPA (Rs.) and Net NPA (%) was positive (Kavitha & Muthukrishna, 2019). A study conducted by Dadhich et al (2021) on the secondary data from 2015-19, applied the CAMEL model. The independent sample T-Test revealed that the performance of private sector banks was better than public sector banks on the parameters such as NPA management, Profit per head count of employee, and net-profit to total funds of private sector banks. Vallabh et al., (2016) described that the risk associated with the bad assets of the banks increased with the government's push on financial inclusion. 86% variation in the NPA was explained by the four factors namely CPI, loans and advances, repo rate, and inflation rate.

A negative correlation existed between GNPAs and net profits (Dudhe, 2017). In the study conducted by Swamy (2012), it was found that NPAs were not affected by the lending rates. Large banks with standard risk management procedures and higher level of technology had lower level of NPAs. The study also indicated that the private banks and foreign banks had good credit risk management system, which led to the lower level of NPAs. Thus, privatization of banks may be a strategic move to curb NPAs.

**Table 2-9 Snapshot Of Major Empirical Studies On NPA**

Citation	Period of Study/ Sample Size	Variables	Hypothesis	Statistical Test	The outcome of the Study
Gupta & Malhotra (2017)	2006-2007 to 2015-2016	NPA recovery and Mechanism (Lok Adalat, DRT, and	There is no significant difference between the recovery of	One Way ANOVA	Significant

Citation	Period of Study/ Sample Size	Variables	Hypothesis	Statistical Test	The outcome of the Study
		SARFAESI Act)	Non-Performing Assets through Lok Adalat, Debt Recovery Tribunals as compared to SARFAESI act.		
Kumar (2017)	2006-2015	Number of Cases and reference to Lok Adalat, DRT, and SARFAESI Act	There is no significant difference between cases referred to Lok Adalats, DRTs and SARFAESI Act.	One Way ANOVA	Non-Significant
		Recovery Amount and reference to Lok Adalat, DRT, and SARFAESI Act	There is no significant difference between amount recovered through Lok Adalats, DRTs and SARFAESI Act.	One Way ANOVA	Significant
Puntambekar & Meher (2016)	2005-2006 to 2013-2014	NPA recovery through SARFAESI Act and Lok Adalat	The proportion of NPA recovery amount through Lok Adalat is less than SARFAESI Act.	Z-Test	Non-Significant
Dey (2018)	2003-2004 to 2016-17	NPA recovery through SARFAESI Act, DRT and Lok Adalat	There is no difference in the recovery through different channels.	ANOVA	Significant
Gautami (2017)	2012-2013 to 2013-2014	Different Recovery Method of public and	There is no association in the recovery methods of	Chi Square	Significant

Citation	Period of Study/ Sample Size	Variables	Hypothesis	Statistical Test	The outcome of the Study
		private sector bank.	public sector and private sector banks.		
Gupta (2017)	125	Different reasons and Public and Private Sector Banks	There is no significant difference in responses of public and private sector bank employees regarding various reasons for increasing NPA.	ANOVA	Significant: 12 Reasons Non-Significant: 12 Reasons
Jain (2018)	95	13 Statements	Factors are uncorrelated.	Factor Analysis	Significant
Raj et al., (2018)	2014-2017	Net Profit and Net NPA	There exists no linear relationship between Net Profit and Net NPA of SBI and ICICI bank	Correlation	Non-Significant
Ranjini (2013)	175	NPA and Market Share	There is no association between NPA and Market share. There is no association between Securitization Act and Empowerment of banks. There is no association between Securitization Act and reduction of NPAs. There is no association between NPA	Chi-Square	Non-Significant Significant *

Citation	Period of Study/ Sample Size	Variables	Hypothesis	Statistical Test	The outcome of the Study
			and bank's profit. There is no association between Central Government's relief to the banks and reduction of NPAs*.		
Sekar (2015)	370	NPAs and General Opinion on NPAs, General Opinion on One-Time Settlement (OTS) Scheme, Exceptions or deviations in OTS, SARFAESI Act, Transfer of assets to ARCs, Sale of NPAs, CDR and CDR Mechanism.	None of the Eight independent variables explain the dependent variable NPAs.	Regression	Significant
Sekar (2015)	370	Level of Management, (Experience), {gender} and Dimensions influencing NPAs	Top, middle and junior management (Four level of experiences), {male and female} do not significantly differ in the dimensions influencing NPAs	ANOVA, (ANOVA), (T-Test)	Significant
Dharwal (2016)	2002-2013	Different categories of	Scheduled Commercial	ANOVA	Significant

Citation	Period of Study/ Sample Size	Variables	Hypothesis	Statistical Test	The outcome of the Study
		banks and Gross NPAs as a percentage of Gross Advances	Banks, Public Sector Banks, Old Private Sector Banks, New Private Sector Banks do not significantly differ in NPA indicator i.e. Gross NPA as a Percentage of Gross Advances		
Theivanayaki (2017)	2005-06 to 2014-15	IDV: Net NPA to Net Advances, Total Assets, Capital Adequacy Ratio, Net Interest Margin, Liquid Assets to Total Assets, and Safety Index of Book Value Insolvency (DV)	None of the IDVs explain the DV.	Regression	Significant
Kapoor (2016)	2014-2015	NPAs and Profitability of Public Sector Banks	NPAs do not significantly impact the profitability of public sector banks.	Polynomial Regression	Significant
Senthilrajaprabha (2019)	2008-09 to 2017-18	Non-Priority Sector NPAs and Total NPAs	There is no significant difference between Non-Priority Sector NPAs and Total NPAs of	Independent T-Test	Not Significant

Citation	Period of Study/ Sample Size	Variables	Hypothesis	Statistical Test	The outcome of the Study
		public sector banks.			
		NPAs and Total NPAs	There is no significant difference between NPAs and Total NPAs of public sector banks.	Independent T-Test	Significant
		GNPAs and Different Public Sector Banks	Different public sector banks do not differ in the GNPAs.	ANOVA	Significant
		Gross Advances and Different Public Sector Banks	Different public sector banks do not differ in the Gross Advances.	ANOVA	Significant
		GNPAs Ratio and Different Public Sector Banks	Different public sector banks do not differ in the GNPAs.	ANOVA	Not Significant
Dave (2019)	2006-07 to 2015-16	NPAs and Net Profits, NPAs and Regional Rural Banks	The NPAs of Regional Rural Banks do not impact the Net Profits, NPAs do not significantly differ among selected Regional Rural Banks	Regression, ANOVA	Significant
Roy & Samanta (2017)	2011-12 to 2015-16	GNPAs and Net Profit	GNPAs does not impact the net profits of the selected banks.	Regression	Significant
Rajender (2009)	1999-2000 to	Sectors (Priority, Public and	Recovery of NPAs in Priority, Public	ANOVA	Significant

Citation	Period of Study/ Sample Size	Variables	Hypothesis	Statistical Test	The outcome of the Study
	2006-07	Non-Priority) and NPA Recovery	and Non-Priority sectors is not significant.		
	2001-02 to 2010-11	Sector-wise NPAs	Priority Sector NPAs and Non-Priority Sector NPAs do not significantly differ in contribution to total NPAs of SCBs.	T-Test	Not Significant
		NPAs in the Public Sector and Priority Sector Lending	The total NPAs of public sector banks do not depend on priority sector lending.	Regression	Not Significant
		NPAs in the Private Sector and Priority Sector Lending	The total NPAs of private sector banks do not depend on priority sector lending.	Regression	Significant
Kavitha & Muthukrishna (2019)	2007-08 to 2016-17	NPAs and Profitability	There is no significant difference in NPAs, creating a direct and negative impact on the profitability of the bank.	Regression	Significant
Vallabh et al., (2016)	2004 to 2015	NPAs and Repo rate, GDP, Loans and Advances, and Inflation Rate	None of the independent predictors predict the dependent variable.	Regression	Significant

(Source: Researcher's Compilation)

## 2.7.7 Bad Loans

The credit risk management of private banks are better than the public banks (Sharifi et al., 2019). The reserves and bank's loan loss provisions play a crucial role in the requirement of minimum capital requirement. The member banks operating in the G-10 countries showcased a positive relationship between the provisions and the operating income. A negative correlation was noticed for the banks who were not the member of the G-10 countries. In other words, if the provisions increased then the operating income decreased (Cavallo & Majnoni, 2002). Banks often hide the bad loans by increasing the provisions, with a hope that the NPAs would transform into standard assets over a period of time. Such window-dressing is carried out by banks to protect the share prices from tumbling in the stock market, and also a pressure from RBI to portray itself as a profit-making bank (Upadhyay, 2019). Weak banks with low capital ratios and low profitability ratios, often disguised their GNPs to boost their earnings, and indicate a higher capital adequacy ratio (Chipalkatti and Rishi, 2007). The recessionary situation and wilful default attitude by the borrowers were the primary causes of bad loans. The loan sanctioning managers often lack credit appraisal skills, lack of penalties on sanctioning loans to below creditworthy borrowers, and pressure to achieve targets were cited as the biggest reasons for NPAs. The toughest challenge post-NPA were confiscation and sale of assets (Sanjeev, 2007). Corporates strong connections with the government and excessive lobbying with politicians and bureaucrats is not only one of the reason to NPAs, but it also forces the banks to lend money to the fraudulent NPA accounts. Considering this RBI, has put a framework of prompt corrective action, in which the banks are restricted to expand, increase exposure, and are not allowed to pay-out dividend. As a part of corrective action strategy RBI permitted banks, which had more than six percent NPAs to consolidate, such as Oriental Bank of Commerce, United Bank of India, Allahabad Bank, Syndicate Bank, Corporation Bank, Andhra Bank, Dena Bank, Vijaya Bank, all associate banks of State Bank of India, IDBI Bank, UCO Bank, Central Bank of India etc. Thus, restructuring activity was carried out in the banks' assets to charge higher level of NPAs (Nidugala & Pant, 2017). Higher level of NPAs, reduces the lending capacity of the banks, it also hampers its regular interest earning capability, and acts as a 'dead-weight' on the books of the banks. Higher level of NPAs kills the investors' confidence (Tiwari, 2011). The early signals depicting the wilful defaulters are described in Table 2-10.

**Table 2-10 Warning Bells Of Wilful Defaulters**

Signals	Description	Benchmark
<b>Monetary Ratios</b>		

<b>Signals</b>	<b>Description</b>	<b>Benchmark</b>
Asset Coverage Ratio	The availability of assets to cover the loan amount.	Greater than 1.
Debt Equity Ratio	Owner's Contribution Vs. Outsiders' Contribution	2 or 2.5:1
Debt Service Coverage Ratio	Availability of cash flow to pay the current debts.	1.25 to 1.5 times
Debt/EBIDTA Ratio	Cashflow available to service debt before the payment of interest, taxes, depreciation and amortization.	Less than 1 or 3
Fixed Assets to Net worth	Usage of own funds in buying fixed assets.	Less than 1
Interest Coverage Ratio	Times profit is available to cover the interest expenses.	Minimum 1.5 times
Long-Term Debt to Capitalization Ratio	Amount of long-term debt availed to finance the assets.	Less than 1
Current Assets	Ability to pay short-term debts.	Greater than 1
Total Expense Ratio	Portion of expense in the revenue.	Lower is better. Less than 1.
Interest to Sales Ratio	Portion of interest on debt in the revenue earned.	Less than 1.
Credit Rating Agency	Grade or Rating to the company based on its financial strength.	Higher is better.
Write-offs	Inability to collect money.	Lower is better.
Current Liability to Fixed Assets	Usage of short-tenure funds to buy long-term assets.	Lower is better.
<b><i>Operational</i></b>		
Average Payment Period	Longer time lag in payment to suppliers.	Payment in stipulated time.
Average Collection Period	Longer time lag in receipts from customers.	Receipt in stipulated time.
Loss of Customers	Customers not buying the goods or services.	Lower is better.
Suppliers and Buyers	Frequent change in suppliers and buyers.	Lower changes are better.
Business Model	Change in the business model.	No change is better.
<b><i>Administrative</i></b>		
Alteration of funds	Misusing the loan for other than its stated purpose.	No change is better.
Change in Key Personnel's Attitude	Avoids discussions and meetings with banks' official.	No change is better.

<b>Signals</b>	<b>Description</b>	<b>Benchmark</b>
Change in administrative positions	Frequently the administrative personnel positions are changed.	Lower is better.
<b><i>Industry</i></b>		
Business Growth	Rate of firm's growth.	Higher is better.
Industry Regulations Changes	Change in macro dynamics creates sunshine or sunset industry.	Monitored through News items.
Increase in Input Cost	Rise in the price of raw material.	Lower is better.
Competitive performance and emerging market	Positive if firm's growth and market growth is positive.	In tandem with the industry trend.
Buying Behaviour	Changes with time.	Match with the operational trend.
<b><i>Social</i></b>		
Company Official's Life Style	Aloof social behaviour, and poor life style.	Identification of suspicious changes.
Pattern of Investment	Surplus money is invested for growth.	Lower the erratic patterns, better it is.
Travel Expenses etc	Splurge in the expenses.	Lower is better.
Management's Outlook	Promptness in repayment from management's side.	Positive is better.
Social Behaviour	Post on social media.	Fishy changes to be identified.
<b><i>Bank</i></b>		
Objective of loan	To know the probable usage of funds.	Usage of borrowed money should be as per the stated objective.
Status of past loan	To identify the outstanding amount.	No dues are better.
Yearly Income	To judge from annual reports.	Higher is better.
Grading of loan	To identify the status of loan.	Higher is better.
Score on Credit	Indicates the credibility of the borrower.	Higher is better.
Criminal behaviour	Describes the intention and behaviour of the borrower.	Clean records are better.
Delayed Payments	Lag in repayment of loans.	No delay is better.

(Source: Adapted from Attigeri et al., 2019)

It may be observed that the various monetary and non-monetary tools provide early warning signals to identify the wilful attitude of the defaulters. Companies Auditor's Report Order (CARO) may also be used to validate the information stated in the financial statements. A shift in the performance on pre-loan and post-loan may also be regarded as a negative indicator. Neural network may be used to predict the NPAs, and hence may be used in the model building.

The use of Artificial Intelligence (AI) on real time basis in loan portfolio would assist banks in better credit risk management. The predictive analytics would be helpful for real-time surveillance, and proper management of NPAs (Attigeri et al., 2019). The results of empirical study on early warning bells based on monetary, operational, and managerial signals are described in Table 2-11.

**Table 2-11 Empirical Studies Outcome On Warning Bells**

Warning Bells	Test Applied	Statistical Significance
<b>Monetary</b>		
Irregularity in the account, Repayment default, Fall in Sales, Poor working capital management, and increase in operating losses.	Friedman's Test	Significant
<b>Operational</b>		
Plant Capacity's Underutilization, Outstanding Power Bills, Outstanding Wages, Labour Unrest, Old Inventory Pile-up, and Losing Customers	Friedman's Test	Significant
<b>Managerial</b>		
Alteration of funds, Non-Cooperation from Key Person, Change in administrative positions, Undue Risk Taking and Financial Statements Fudging	Friedman's Test	Significant
<b>Banking</b>		
Add on Loan Request, Interest Delay, Bouncing of Cheques or Collections, Often Account Access, Bank Balance Reduction, and Infrequent Banking Operations	Friedman's Test	Significant

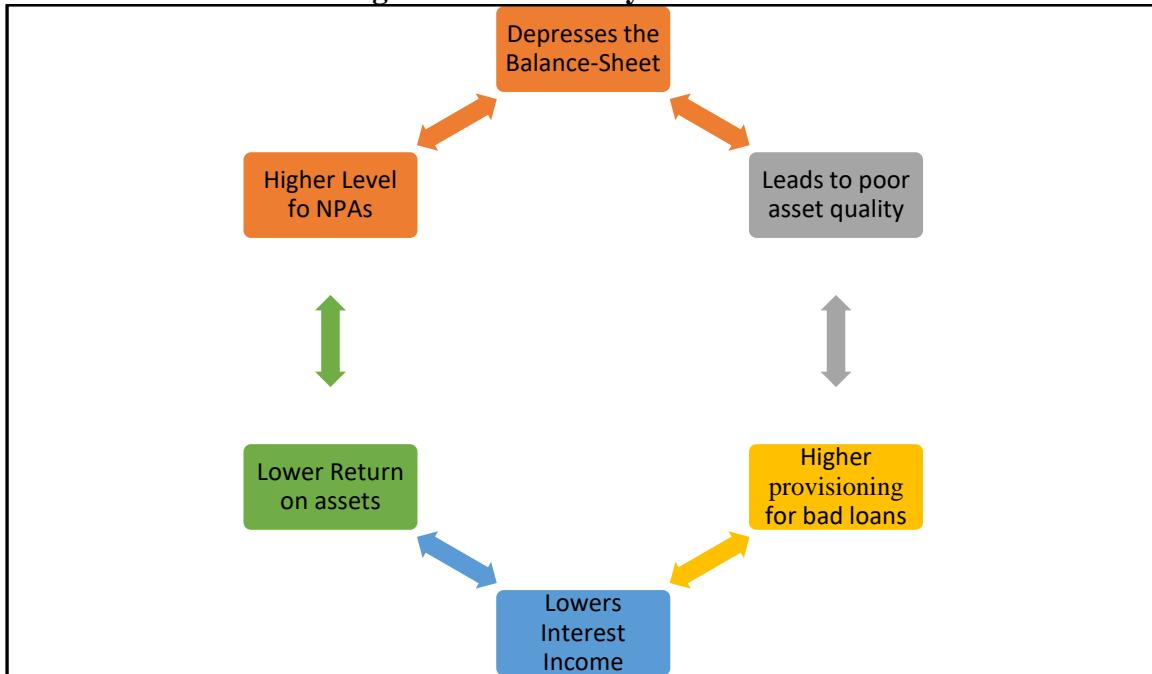
**(Source: Compiled from Naveenan, 2016)**

The closure of many cooperative banks may be attributed to the bad loans (Tiwari, 2015). Loan write-off on the bad loans is not just the exercise of cleaning the balance-sheet, it adversely impacts the efficiency. Presence of GNPs and write-offs eroded the profit efficiency of the banks. A wrong choice of input-output mix vis-a-vis given input cost and output prices is an indicator of allocation inefficiency. Such allocation inefficiency results in profit inefficiency for the banks (Jayaraman & Bhuyan, 2020). A study was conducted by Ramesh (2019) with NNPs and various financial indicators. NNPs was treated as dependent variable, and financial indicators as independent variable. Loan maturity, credit deposit ratio, and return on assets had a negative relationship with NNPs. NNPs were not affected by operating expenses and capital adequacy ratio. Level of NNPs increased with the increase in lending to priority sector lending, increase in collateral values, and increase in non-interest income. Such factors increased in the accumulation of NNPs of banks. Priority sector lending promotes growth of the economy, which may be evident from rise in GDP. Such lending did not contribute to the NPA ratio. In other words, if the banks provided loans to the government

mandatory sector, it did not lead to the bad loan portfolio (Gaur and Mohapatra, 2021). Credit risk identification is negatively related to bad loans (Naveenan, 2016).

In the early days loans from the companies and persons could not be recovered due to the absence of the Bankruptcy Code and an inactive legal system. Sale of unsecured loans, lack of analysis of financial status, and credit rating were the main reasons for occurrence of NPAs. Banks strategy to fund the delayed projects (due to reasons like no timely sanctions and approvals from government authorities) in the false of revival, just reflects the wait and watch strategy, which ultimately results in the quality of assets to move from bad to worst (Jauhari, 2020). Government's clause on no collateral up to loan amount of Rupees Four Lakhs, has led to the higher default in the education loan segment. Three categories of defaulters were identified viz., Genuine Defaulters (wish to pay, but could not pay due to non-availability of the job); Wilful Defaulters (have the money to pay, but do not pay due to the negative attitude towards the repayments. Believes in revolt and disrespect of the law), and Unconventional Reasoning Defaulters (do not wish to pay, because they feel that the waiver of educational loan would happen soon, vote-bank politics would help them to skip the loan repayment, considered that if one loan instalment was paid, then they would disqualify to avail the waiver benefit) (Janetius et al., 2013). Non-existence of credit and risk management, weak recovery measures, purposeful default by borrowers, absence of strict rules and regulations, lack of good corporate governance, large borrowers, and misappropriation of funds give rise to the bad loans (Pramahender, 2022; Pradhan, 2012). The vicious cycle due to the NPAs is described in Figure 2-7. It starts with the higher level of NPAs, depressing the balance-sheet, leading to poor quality of assets, higher provisioning of bad loans, lower interest income, and lower returns on assets.

**Figure 2-7 Vicious Cycle Due To NPAs**



(Source: Adapted from Pramahender, 2022)

In the agriculture sector the primary reason for NPAs were wilful default and debt-wavier schemes (Hawaldar et al., 2020). In a study of 64 scheduled commercial banks (SCBs) in the time frame from 2008 to 2018 brought out a positive relationship between Capital Adequacy Ratio and Net Interest Margin, which may be attributed to the tightening of the capital requirement under the Basel III norms (Agrawal et al., 2021). There exists a negative relationship between NPAs and total loans, and NPAs and operating expenses (Tanted et al., 2021).

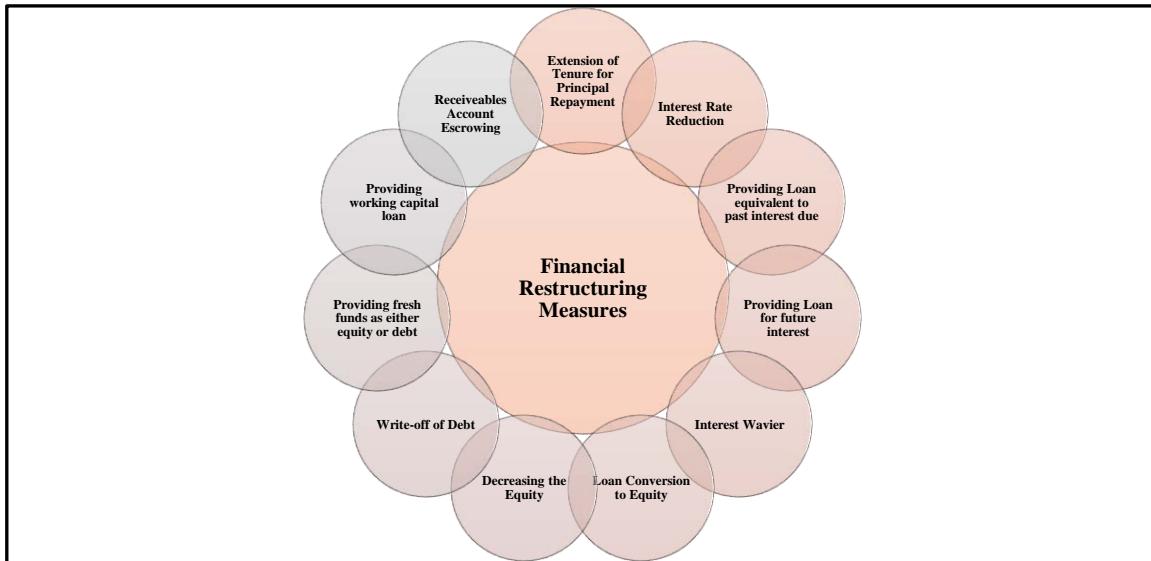
Bankers had an idea to classify loans as NPAs; fund siphoning, poor recovery and absence of managerial skills created NPAs. NPAs increased due to agriculture lending and lending to allied sectors and industries. It was suggested that apart from a check on financial feasibility, borrower's integrity should also be given equal weightage in the pre-loan sanction process (Sharma et al., 2018). Shadow banking also raises the NPAs in countries like India and China (Rajeev and Bhandarkar, 2016). The Indian Banks faced a downfall in the Total Factor Productivity (TFP) due to loss in their efficiency. The global financial crisis had declined the growth rate of TFP (Goswami and Gulati, 2022). Sikarwar and Deepika (2020) expressed a statistically significant relationship between GNPAs and Gross Advances. Bawa et al (2019) conducted a panel study for 46 Indian banks with the focus of 31 financial ratios which impacted the NPAs in the banks. The data was gathered for a period of eight years i.e. 2007 to 2014. 85% variation in NPA of the banks was expressed through the 31 ratios. A negative

relationship was noted between intermediation cost ratio and NPAs and return on assets and NPAs. The level of NPA increased with the increase in the asset growth, lagged NPAs, and total liabilities to total assets ratio. Implementation of Forensic Audit would curb NPAs (Sharma, 2016). The reason for NPAs in cooperative banks was attributed to the political pressure (Patnaik et al., 2011). At times the NPAs increased due to multiple loans availed by borrowers. Banks had inadequate and varied credit history of the borrowers due to which they could not identify the current loan outstanding status of the borrowers, and hence provided loans, which eventually turned out to be NPAs (Moses and Kwambai, 2013). Borse (2016) explained that as NPA increased the ROA of the banks decreased. A weak corporate balance sheet has a high correlation the banks NPAs (Dhananjaya, 2021). For increasing the efficiency, risk diversification and reducing NPAs the consolidation of banks was suggested by the researchers (Rajoria, 2021). A negative relationship was noted between GNPAs and the different types of loans offered to priority sector, unsecured loans and loans to sensitive sectors (Tripathi et al., 2014). There was a significant correlation between weighted Corporate Governance and NNPAs in the public sector banks, whereas the same was not significant for the private sector banks. The regression results reported that as the Corporate Governance measures were increasing but it not help in lowering the NPAs of either public sector or private sector banks (Sahu and Maharana, 2017). The exists a statistically significant relationship in the Indian banks pre and post write-off of operating profits. In other words, if the bad loans were written-off then it would increase the operating profits (Narayanan and Surya, 2014).

### **2.7.8 Studies On Recovery Mechanism Of NPAs**

There are different methods of recovering the bad loans. Securitization method is one of the most prominent methods. If the NPA recovery scores were higher than or equal to 0.4, then the securitization method was suitable for recovery (Chen & Liu, 2010). Asset Management Corporations (AMCs) adopts measures such as sale, restructuring, exchange, securitization, auction, and swap of debt-equity to settle the NPAs accounts purchased from the financial institutions (An-Shi et al., 2007). Proper guidelines from the regulatory authorities, constant surveillance from RBI, helps the commercial banks to reduce their NPAs, and adopt measures for recovery of lost assets (Dadhich et al., 2021). The recovery strategies that can be adopted for financial restructuring are depicted in Figure 2-7.

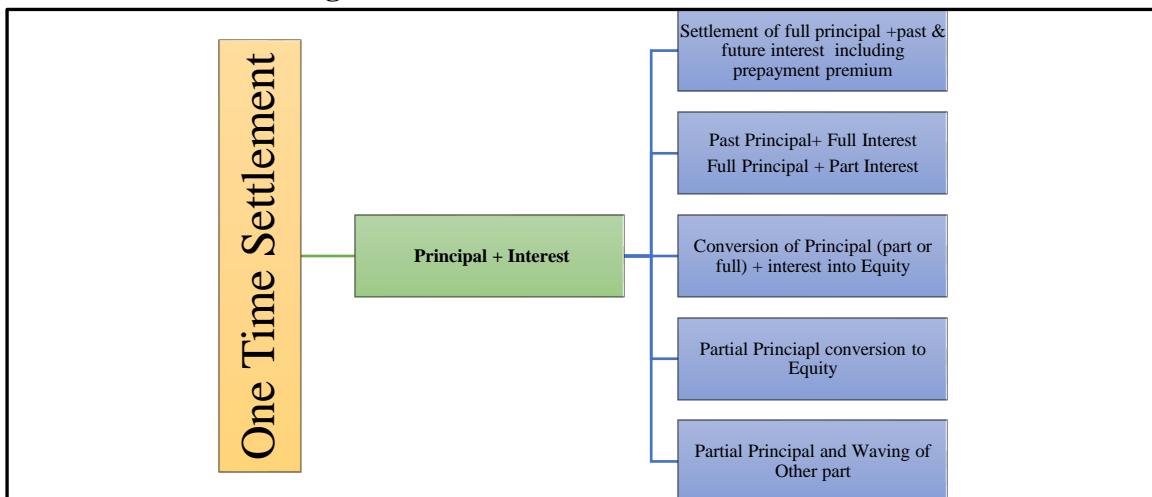
**Figure 2-8 Financial Restructuring Measures**



(Source: Chaudhuri, 2005)

Thus, it may be inferred that banks have many ways to recover the money from the bad loans. Under the change in management strategy, banks may allow the company to conduct their operations, but it may either change the promoters or appoint the professionals. Under the OTS mechanism, banks may adopt the following strategies, as outlined in Figure 2-8.

**Figure 2-9 Methods For One Time Settlement**



(Source: Adapted from Chaudhuri, 2005)

The researcher had suggested through various case let scenarios to first identify the right cause for NPAs and then apply the best optimal recovery mechanism. Banks can look at the growth of the market and competitive position; management quality and skill set; unpaid liabilities and quality of management; type of industry and the debt-equity ratio; macro factors and growth of the industry, and then select the appropriate recovery mechanism. The recovery determinants

were also analysed using Arellano-Bond Dynamic Panel Analysis for the study period of 2003-04 to 2017-18, which are discussed in Table 2-9

**Table 2-12 Factors Of NPA Recovery Mechanism**

Factors	Relationship With Recovery	Crux
Operating Expenses	Negative	It indicated operational inefficiency of the banks.
Slippage Ratio	Negative	Recovery level increases with the decrease in slippage.
Provisioning	Positive	Public sector banks in order to hide high level of NPAs show high level of provisioning. Negative relationship was noted for private sector banks indicating a poor quality of the asset.
Unemployment Rate	Negative	It indicates a poor state of the economy, which may be heading towards recession.
Real Interest Rate	Negative	The cost of loans increases, and the borrower is unable to repay the debts.
Wholesale Price Index	Positive	The value of the collateral decreases, and borrower wilfully defaults.
Decline in Inflation	Positive	Borrowers are in the capacity to repay and the buyers for collateral may also be easily searched.
Index of Industrial Production	Positive	Indicator of good times for the company, with increased sales and higher revenue, which may be used for repaying the loans.

(Source: Adapted from Bajaj et al., 2021)

Thus, it may be inferred that the macroeconomic factors plays a vital role in the recovery of the NPAs. Researchers had proposed pay out of funds based on the needs of the borrowers, appropriate regulatory intervention, strict supervision, rapid solution of the problems, and effective follow-up of NPA accounts, and instructing borrowers to implement the corporate governance practices would help in curbing the NPAs (Chawla and Rani, 2022). Based on the empirical study of 350 bankers' perception of NPAs of top 11 banks, a confirmatory factor analysis was conducted to identify factors which may help in curtailing the NPAs.

**Table 2-13 Banker's View On NPA Recovery Mechanism**

Name of the factor	Explanation
Staff Incentivising	Staff shortage may lead to non-timely follow-up of the NPA accounts. On the contrary, if the staff is provided some monetary or non-monetary incentive then they may be motivated to recover the money from NPA account.
Regulatory Intervention	Practising implementation of KYC, asking clients to follow corporate governance and paying attention to the dissemination of information by credit rating agency. Income diversification may also help banks to avoid the risk of NPAs.

Name of the factor	Explanation
Robust appraisal and assessment	Refers to the strict appraisal norms at pre-sanction stage of the loan and quick release of the loans to avoid commission delays.
Debtor Mortifying	Declaring and publishing the names of non-paying borrowers.
Quick Resolution and disposal	Regulatory bodies may quickly resolve the case and offer the verdict. The SARFAESI Act, OTS, DRTs etc are the most efficient tools.
Borrower Incentivising	Providing the moratorium period or waiving off the interest on the bad loans, may prompt the borrower to repay it quickly.
Monitoring and Follow-up	Continuous monitoring may help the banks to take appropriate actions, before the case becomes NPA.

**(Source: Chawla and Rani, 2022)**

Researchers have suggested proper methodology of credit creation, allocation, surveillance and compliance to manage the NPAs and recovery of the same (Tandon and Tandon, 2019). Implementation of quick resolution policy, would lead to better realization in the value of the assets. Delay in the resolution process would deteriorate the value of the assets (Chaudhuri, 2005). A Korean researcher, suggested that court auction for sale of secured loans, bulk sale to third parties for prompt realization of the money, transfer of assets to the Special Purpose Vehicle for storing the same, and later on disposing the asset. Asset based securitization was also suggested as one of the mode for NPA resolution (Kang, 2018).

### **2.7.9 Bad Loans And Recovery**

Management of NPAs are better than write-off the NPAs in the Indian context, because the banks keep high level of spread between the lending and deposit rates. Recovery of loans in the rural areas were well managed by the respective branch of the banks. So, in the rural areas the Lok Adalats and DRTs were more effective than ARC. ARCs may be used for larger borrowers. For a potential buyer, the transfer of ownership rights when properties are sold by ARCs, would instil confidence. Development of active capital markets and credit derivatives would provide liquidity in recovery of NPAs. Securitization mechanism may be adopted for mortgage-backed securities. Excessive provision of reserves may be viewed as negative move to curb the long-term dividends paid to the shareholders. Economic Value of Equity or Market Value, and Economic Value of Equity at Risk may be used as new measures to monitor NPA level in banks. Banks get a kickbacks, if it loans to doubtful debtors, which, eventually turns out as wilful defaulters (Reddy, 2002).

Researchers had proposed an establishment of Development Finance Institution (DFIs) which may be funded by private equity funds, entrepreneur's risk capital, and sovereign wealth funds. Bonds targeting a specific project may be issued in the capital market. Large venture funds

with higher percentage of promoter's equity may be another source of funding. Such mechanism may help to curtail NPAs (Mukhopadhyay, 2018). Establishment of standalone Asset Management Company (AMC) to recover bad loans from stressed assets, without any political interference, which is able to provide accurate asset valuation and its transfer price (Bhadury and Pratap, 2018). A negative correlation exists between NPAs and recovery channels. The number of cases being referred to for NPA recovery had not been reduced (Sumathy and Das, 2021). The DRTs often reduced the average loan by 28% and also reduced the interest rates charged on the loan for quick recovery of the outstanding (Visaria, 2009). The bad loan recovery receives a boost if the macroeconomic factors improves and the development of the financial sector takes place. Market monitoring channels and corporate governance do not play a significant role in recovery of bad loans. It was also noted that the problem of the bad loans may be left at the discretion of the banks, and it should be given full authority to resolve the same, without any government intervention (Amin et al., 2014).

### **2.7.10 Studies On NPA Resolution Mechanism**

Table 2-13 narrates the various studies on NPA Resolution Mechanism.

**Table 2-14 Snapshot Of Empirical Studies On NPA Recovery Mechanism**

Author	Study Period	Variables Under the Study	Statistical Tool for Analysis	Outcome
Singh (2013)	2003-04 to 2010-11	Number of Cases Recovered through Channels, Amount Due for Recovery of SCB, Amount Actually Recovered, Percentage of Amount Recovered,	Mean	Consolidated outline of each component.
Alamelumangai and Sudha (2019)	2005 to 2017	Number of cases referred to various channels, Outstanding amount and the amount recovered.	ANOVA	Highest amount was recovered from DRT, followed by SARFAESI Act, and Lok Adalat.
Sahoo and Majhi (2020)	2009-10 to 2018-19	Number of cases referred and amount recovered through various channels	ANOVA	There lies a difference in the number of cases referred and the amount recovered through various channels.

<b>Author</b>	<b>Study Period</b>	<b>Variables Under the Study</b>	<b>Statistical Tool for Analysis</b>	<b>Outcome</b>
Khaitan (2016)	2014-15 and 2015-16	Number of cases referred, total dues, and amount recovered through various channels	Aggregate	Large number of cases were referred in Lok Adalats, SARFAESI Act and DRTs. Highest recovery was through Lok Adalats and DRTs. Recovery decreased under SARFAESI Act.
Uppal and Juneja (2012)	2007-08 to 2010-11	Amount recovered	Comparative	Banks were able to control the NPAs. DRT and SARFAESI Act are most effective channels in the recovery of NPAs. Lok Adalats are not so effective.
Gupta and Dharwal (2017)	2001-02 to 2012-13	Growth of NPAs and Effectiveness of Recovery Channels	Comparative	Study tried to indicate the level of NPAs and the suitability of the channels.
Gupta and Singh (2020)	Not Applicable	Effectiveness of Insolvency and Bankruptcy Code (IBC)	Theoretical Study	Immediately the control of assets of the defaulting debtors goes in the hands of the creditors and India's ease of doing business improved.
Saini and Tayal (2018)	Not Applicable	Effectiveness of SARFAESI Act	Theoretical Study	Health Code System as replaced with DRT, and later a more stricter act was passed- SARFAESI Act which ensured faster recovery than Lok Adalat and DRTs.
Gupta & Malhotra (2017)	2006-07 to 2015-16	Recovery of NPAs through various channels	ANOVA	DRTs and SARFAESI Act were more effective than Lok Adalat.

Author	Study Period	Variables Under the Study	Statistical Tool for Analysis	Outcome
Swain et al., (2017)	2010-11 to 2014-15	NPA Recovery and Different Channels	Wilcoxon Signed Rank Test	SARFAESI Act is the most suitable mechanism.

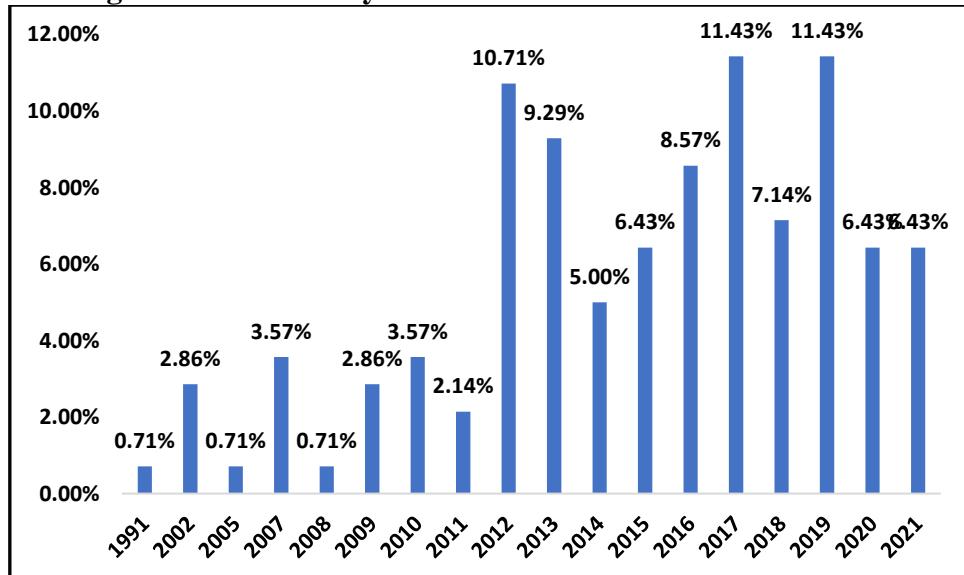
(Source: Researcher's Compilation)

## 2.8 Research Gap

The justification of the present selection of research topic is tried to quantify through various parameters such as the field of the research, usage of keywords, and the sources of literature review etc.

The crux of the reviewed literature is represented through the following charts.

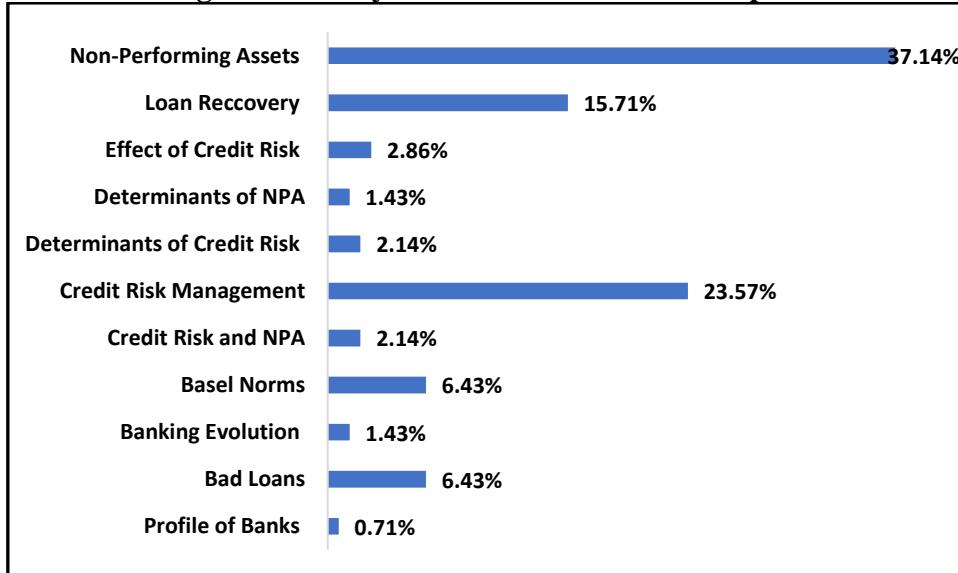
**Figure 2-10 Summary Of The Research In the Field Of NPA**



(Source: Researcher's Output)

It is evident that the maximum papers in the span of thirty years were reviewed and the theme of NPA was reviewed to the maximum possible extent. From the Figure 2-10 it is noted that the research in the area of NPAs in banks is highly fluctuating. From the year 2016 the research in the field of NPA started increasing at least for two years. In the year 2019 the research in the field of NPA gained momentum and it met to the pinnacle of the year 2017. Post 2019, the research in the field of NPA began to decline. A scope for in-depth research existed in the field of NPA from the year 2014 onwards. Thus, the selection of the present research topic, justifies the need for the research in the area of NPA.

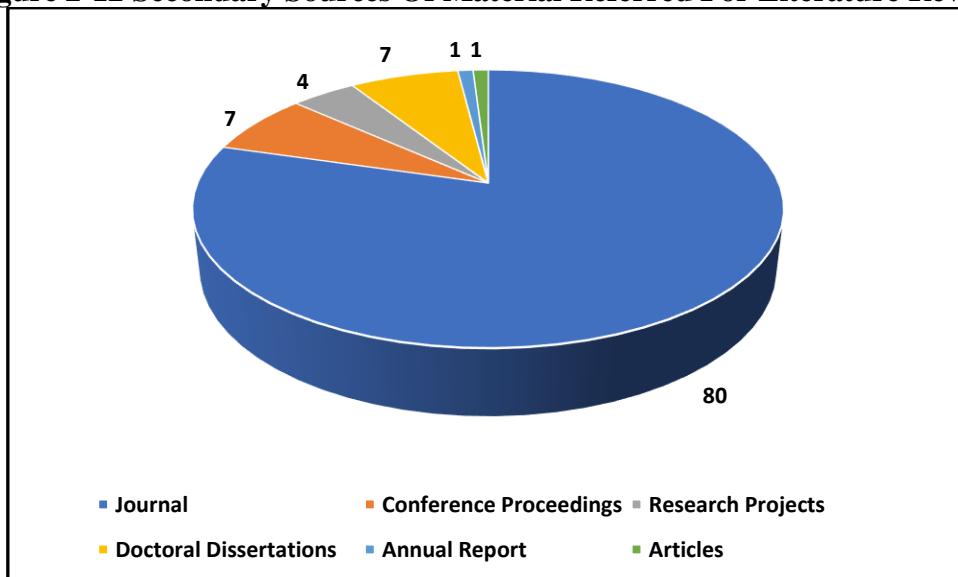
**Figure 2-11 Keywords Of the Reviewed Papers**



(Source: Researcher's Output)

The interlinkage of NPA with other variables were also used in the study. Maximum number of papers with the keyword Non-Performing Assets (NPA) were available in the pool of papers. Credit risk management was identified as a complementary area to study NPA.

**Figure 2-12 Secondary Sources Of Material Referred For Literature Review**



(Source: Researcher's Output)

81% review of literature was conducted using the research papers published in the journal. Seven percent each papers were referred from the conference proceedings and doctoral dissertations. Four percent material on NPA was searched from research projects. One percent each articles and annual reports were referred for the review of literature. It clearly indicates that in the span of 30 years there were few dissertations on the topic of NPA.

The review of the literature indicates that banking activity is as ancient as human civilization. A lot of theoretical studies on the definition of banks and the role of banks have been documented by research scholars. The studies on Indian Banking System, in particular, discusses the role of origin and development of the banking sector. The conceptual studies on the first bank and the subsequent development of nationalized, private, and public sector banks have also been pen down by the researchers. The journey of the entire Indian Banking System has been minutely covered in the literature. Many researchers at the global and Indian levels have attempted to identify the risk faced by banks, through conceptual documentation or empirical studies. The credit risk faced by banks in the general has also been discussed at length by researchers. Many factors influencing credit risk at the macro and micro levels have been theoretically narrated in the literature. An attempt had been made to statistically link various macro factors responsible for influencing credit risk. The literature on Basel norms suggested the measures taken by BCBS to make the banking system strong and transparent. Interlinkages of the implementation of Basel Norms and credit risk management were also identified in the literature. The studies on Credit Risk Management and NPAs were reviewed to identify the statistical significance. Suggestive practices to reduce NPAs were also discussed in the literature. Various determinants on NPAs and its effect were identified from the secondary research. Theoretical studies on NPAs largely focused on identifying the factors responsible for NPAs. Narrative studies on the evolution of recovery mechanism were also discussed in the literature review. Identification of preventive and corrective strategies for NPAs management was discussed by many researchers in the literature. Empirical studies on banker's opinions on NPAs were also reviewed in the literature. The statistical significance on varied causes of NPAs and recovery methods was identified from the literature. Empirical studies on NPAs in relation to the macroeconomic variables, and percentage explanation of variation in the dependent variable (NPAs) due to independent variables such as Gross Advances, Total Assets, and Net Advances were also identified in the literature. Studies on early warning bells of NPAs were also identified in the literature. Theoretical studies on the financial restructuring of NPAs were noted in the literature. Macroeconomic variables affecting the recovery of NPAs and their relationship were discussed in the literature. The effectiveness of various recovery mechanisms across different study periods was identified.

Empirical studies on NPA were largely on time-series data ranging from at least two years to as high as 10 years and above. The studies were based on secondary data published by Central Banks of the respective countries. Comparative studies across years, across banks, and across banks and years were also performed by the researchers. The studies on credit risk

management, NPAs, Determinants of NPAs, and recovery mechanism of NPAs were based on either time-series data or cross-sectional data, or panel data. The literary papers focused on a standalone theme of either credit risk and NPAs, or credit risk and NPAs in the public sector and private sector banks, or credit risk and NPAs across years, or comparative study on NPAs across years, or comparative study on NPAs across various banks, or NPA recovery mechanism across years, or NPA recovery mechanism across banks. Some of the studies focused on cases of NPAs from legal perspectives. Another variety of standalone studies consisted of questionnaire-based studies on themes such as the opinion of bankers on credit risk management, determinants of NPAs, warning signals of NPAs, and recovery mechanisms of NPAs. A lot of secondary-based research at the global level was noted in the literature. The commonality of all global research was that it was performed for a specific time frame, and it was based on secondary data.

Large number of studies pertained to the determinants of NPAs, relationship between NPAs and various profitability ratios, NPAs between all public, private and foreign banks, NPAs between sets of public banks or private banks or foreign banks or cooperative banks. Very limited number of studies were noted in the area of the NPA resolution mechanism. Exhaustive studies on secondary-based data pertaining to NPA, opinions of bankers on NPAs, and the recovery mechanism of NPAs in one study were noted in very few theses level studies. Comprehensive studies in the Indian context were few. Studies at the Indian level on secondary data followed the global pattern. Research papers targeted only one of the elements of the study. None of the present studies reviewed in the literature at the India level, was able to gauge the opinion of Resolution Planners of IBC. Very few primary empirical studies on the opinion of bankers on NPAs and NPAs resolution mechanisms were identified in the literature. Such empirical studies were specific to the region or state. Studies at the Gujarat level pertaining to primary study secondary study on NPAs, and also study of the bankers' opinion on NPA resolution were not found in the literature. The present study is an attempt to bridge this gap. The current study tries to focus on studying the trend of NPAs for selected years from the secondary data. It also tries to take the opinion of Resolution Planners of IBC and Bankers is the first of its kind. The reviewed study had either the secondary data-based analysis or the primary data-based analysis. Present study is a blend of secondary as well as primary data. Present study tries to provide a comprehensive picture of NPA from the four perspectives i.e. analysis of consolidated NPAs occurring at the India level, exhaustive analysis on recovery mechanism of NPA at the macro level, study on opinion of resolution planners and bankers on NPA resolution mechanism, and the NPA cases as well as its recovery specific to Gujarat.

## Chapter 3 Research Methodology

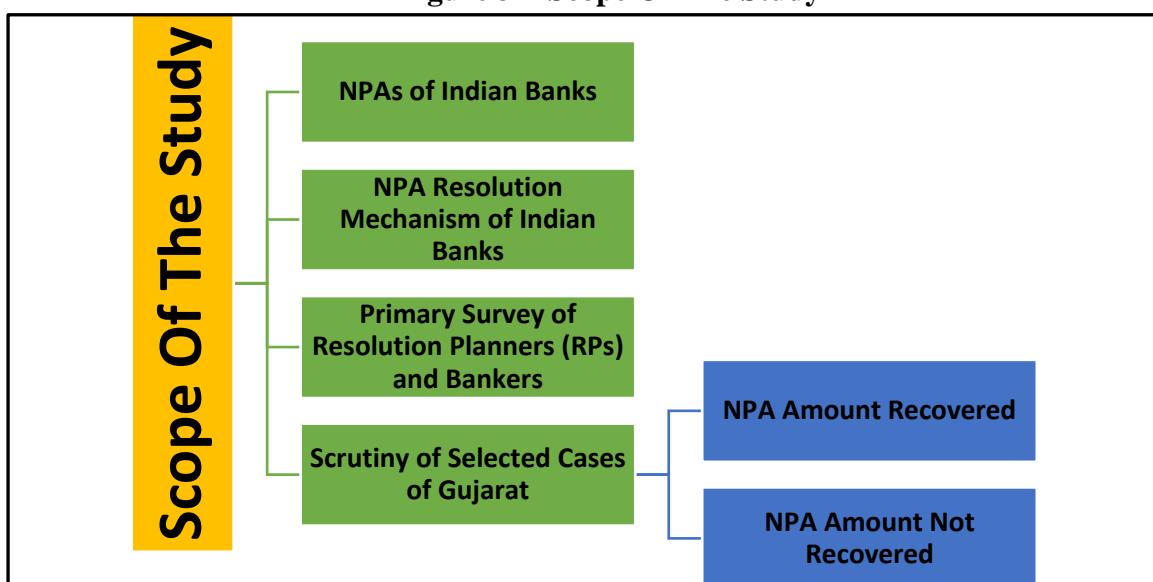
### 3.0 Background

The chapter tries to describe the steps adopted in executing the entire research process. It discusses the scope of the research, the objective of the research, the method of data collection, sources of data collection, processing of the data, analysis of the data, tools used in analyzing the data. The application of descriptive and inferential statistics is also discussed in the chapter. The minutest details are discussed in the chapter so that a proper justification to the work may be accomplished. The chapter provides a 360-degree view to the process of research adopted by the researcher.

### 3.1 Scope of the Study

It tries to describe the depth of the research used by the researcher to execute the study. The study was primarily divided into four broad compartments namely, NPAs of Indian banks, in which the secondary data was used over a pre-defined period. The second part of the research was the NPA Resolution mechanism of Indian Bank, discussed the different tools to address the NPA recovery, over a pre-defined period of time. The third part of the research consisted of the primary survey of the resolution planners (RPs) and bankers, to get the insight on the reasons for NPAs, and mechanism to address the NPA resolution. The last part of the research was based on the scrutiny of selected cases of the Gujarat, which was further divided into NPA amount recovered and NPA amount not recovered. The outline of the research is presented in the Figure 3-1.

**Figure 3-1 Scope Of The Study**



(Source: Researcher's Creation)

The analysis of the data was also conducted in the similar manner. The present research is a blend of the secondary and primary research. The facets of demand and supply, both are covered in the study.

### **3.2 Research Objectives**

The researcher framed the primary and secondary objective of the research. The primary objective the research depicted the general purpose of the study. Based on the gap in the literature review, the research questions were thought off, which led to the formation of primary objectives, which were then contextualized as research framework. The secondary objective reflected the statistical aspect used to attain the objective.

**Table 3-1 Research Settings**

<b>Questions Of Research</b>	<b>Primary Research Objectives</b>	<b>Research Framework Used</b>	<b>Placed In</b>
What risk does the bank face in lending? What is credit risk? What are NPAs? Why do NPAs arise in a bank? How does NPA affect the Profitability of the banks? How can NPA cases be resolved?	To explore the meaning, reasons, impact and resolution mechanism for NPAs.	Review of Literature	Chapter 2
What is the amount of NPAs in Indian banks starting from the year 2010 to 2020?	To study and analyze the NPAs of Indian Banks.	Data Analysis (Secondary Data)	Chapter 4
Which tools did the Indian banks use to recover the NPA amount, starting from the year 2012 to 2021?	To study and compare the tools of NPA resolution of Indian Banks.	Data Analysis (Secondary Data)	Chapter 4
What is the opinion of the RPs and Bankers On NPA? Which tools are preferred for NPA resolution? What is the opinion of the RPs and the Bankers on different NPA resolution tools?	To study the opinion of RPs and Bankers on NPA, NPA resolution mechanism as well as tools of NPA mechanism.	Data Analysis (Primary Data)	Chapter 4
How were the NPA cases resolved in Gujarat, starting from 2017 to November 2022?	To study the NPA resolved cases of Gujarat.	Data Analysis (Secondary Data)	Chapter 4

**(Source: Researcher's Output)**

### **Secondary Research Objectives**

The secondary objectives were framed to statistically test the hypothesis. The list of the secondary objectives are described further.

- To check the difference between the Gross Advances and Net Advances across various categories of public sector banks, private sector banks, foreign banks, and small finance banks.
- To check the difference between the Gross NPAs and Net NPAs across various categories of public sector banks, private sector banks, and foreign banks.
- To check the relationship between Gross Advances and Gross NPAs, Net Advances and Net NPAs.
- To check the difference between the additions in NPA amount across various categories of public sector banks, private sector banks, and foreign banks.
- To check the difference between the reductions in NPA amount across various categories of public sector banks, private sector banks, and foreign banks.
- To check the difference between the write-offs of NPA amounts across various categories of public sector banks, private sector banks, and foreign banks.
- To determine the effect of time on NPA.
- To check the difference between the priority sector's NPA and the non-priority sector's NPA.
- To check the difference between the Gross NPA amounts across various categories of public sector banks, private sector banks, foreign banks, and small finance banks.
- To check the relationship between Interest Income and Gross NPA.
- To check the relationship between Interest Income and Gross NPA of Public Sector Banks.
- To check the relationship between Interest Income and Gross NPA of Private Sector Banks.
- To determine the effect of time on Gross NPA to Interest Income Ratio.
- To check the difference between priority sector's Gross Advances and the non-priority sector's Gross Advances.
- To check the difference between priority sector's Gross NPA and the non-priority sector's Gross NPA.
- To check the relation between Gross Advances and Gross NPA in Priority Sector Lending.
- To check the difference between the Gross Advances across various categories of public sector banks, nationalized banks, SBI group banks and private sector banks.

- To check the difference between the number of cases across various categories of recovery channels i.e. Lok Adalat, DRTs, SARFAESI and IBC.
- To check the difference between the NPA amount recoverable across various categories of recovery channels i.e. Lok Adalat, DRTs, SARFAESI and IBC.
- To check the difference between the NPA Amount Recovered across various categories of recovery channels i.e. Lok Adalat, DRTs, SARFAESI and IBC.
- To check the relation between NPA Recoverable Amount and NPA Amount Recovered.
- To check if males and females differed on the causes and detection of NPA, deficiency in NPA management, and recovery assistance.
- To check if the CAs, CSs, Cost Accountant, Advocate, and Banker differed on the causes and detection of NPA, deficiency in NPA management, and recovery assistance.
- To check if the low level, mediocre level, and high level experienced differed on the causes and detection of NPA, deficiency in NPA management, and recovery assistance.
- To check if males and females differed on Lok Adalat, DRTs, SARFAESI, and IBC.
- To check if CAs, CSs, Cost Accountant, Advocate, and Banker differed on Lok Adalat, DRTs, SARFAESI, and IBC.
- To check if low level, mediocre level, and high level experienced differed on Lok Adalat, DRTs, SARFAESI, and IBC.
- To check if males and females differed on NPA resolution process through Lok Adalat.
- To check if CAs, CSs, Cost Accountant, Advocate, and Banker differed on NPA resolution process through Lok Adalat.
- To check if low level, mediocre level, and high level experienced differed on NPA resolution process through Lok Adalat.
- To check if males and females differed on NPA resolution process through SARFAESI.
- To check if CAs, CSs, Cost Accountant, Advocate, and Banker differed on NPA resolution process through SARFAESI.
- To check if low level, mediocre level, and high level experienced differed on NPA resolution process through SARFAESI.
- To check if males and females differed on NPA resolution process through DRT.
- To check if CAs, CSs, Cost Accountant, Advocate, and Banker differed on NPA resolution process through DRT.

- To check if low level, mediocre level, and high level experienced differed on NPA resolution process through DRT.
- To check if males and females differed on NPA resolution process through IBC.
- To check if CAs, CSs, Cost Accountant, Advocate, and Banker differed on NPA resolution process through IBC.
- To check if low level, mediocre level, and high level experienced differed on NPA resolution process through IBC.
- To check if the Financial Creditor and Operational Creditor differed on total claims admitted.
- To check if the Financial Creditor and Operational Creditor differed on liquidation value.
- To check if the Financial Creditor and Operational Creditor differed on total realizable value.
- To check if Financial Creditor and Operational Creditor differed on total claims admitted.

### **3.3 Research Design**

Chawla and Sondhi (2011) explained that the research design provides a roadmap and direction to the research, so that the research is conducted in the most well-organized manner. The two broad categories of research are exploratory and conclusive research. Malhotra and Dash (2011) explained that the best type of research is conclusive because it helps to limit, assess and first-rate the best course of action. One can easily take the managerial decisions in conclusive research. The conclusive research is further categorized as either descriptive or causal research. As pointed out by Malhotra and Dash (2011) the descriptive research design describes something or market features or functions. To sharpen it further the descriptive research design may be further treated as single cross-sectional design, in which the information from the sample is collected only once. It is very cost-effective and less time-consuming research method (Thomas, 2021). The research design adopted for all the four compartments of the study was descriptive research design.

### **3.4 Data Sources**

There are two sources of data, namely the Primary Sources and the Secondary Sources. Primary data is a first-hand information directly collected by the researcher from the respondent. As stated by Hox and Boeije (2005) primary collection of the data helps the researcher to collect complete information pertaining to the research questions. The secondary data provides the

researcher to keep away from the hassles of collecting data from the field. It provides an easy access to the earlier collected, recorded and neatly formatted data (Chawla and Sondhi, 2011). The researcher had used the secondary data published by RBI for the three parts of the research viz., the NPAs in Indian Banks, NPA Resolution in Indian Banks, and cases in Gujarat. For the RPs and bankers the primary data was gathered for the research. The writing of literature review was primarily conducted from the secondary data sources only, which helped to come up with the right kind of research questions, research objectives and questionnaire designing. Johnston (2017) had appreciated the usage of secondary data. The complied, collected, and archived secondary data can be easily assessed due to the technological advances such as internet, web sources, and also data base repositories.

### **3.4.1 Primary Data**

By using the structured questionnaire, the primary data was gathered. Exhaustive literature review was conducted and the theme of the present research was discussed with the subject expert academic faculty in Banking and also it was discussed with the industry expert. The complete literature review helped the researcher to fix up the appropriate theme of questions and the content of the questionnaire. The researcher tried to cover the maximum aspects in the questionnaire to justify the essences of the research. A care was taken to relate the objective of research with the questions being asked in the questionnaire. For the study of NPAs in Indian banks, NPA resolution in Indian banks, and cases in Gujarat the primary data method was not used, instead the secondary method of data was used.

### **3.4.2 Secondary Data**

Papers published in the online journals, offline journals, papers from the edited book, papers from the conference proceedings, articles in newspaper, articles from reputed blogs, internet web pages were referred for the literature review. Doctoral thesis and annual reports were also referred for the writing the literature review.

For referring the secondary data the website of Reserve Bank of India was used the highest. From the RBI's website the data was collected pertaining to the theme such as Movement of NPAs of Scheduled Commercial Banks (Annexure-1); Bank Wise And Bank Group-Wise Gross Non-Performing Assets, Gross Advances And Gross NPA Ratio Of Scheduled Commercial Banks (Annexure-2); Composition Of NPAs Of Public Sector Banks (Annexure-3); Advances and NPAs of Domestic Banks by Priority and Non-Priority Sectors (Annexure-4); NPAs of Scheduled Commercial Banks Recovered through Various Channels (Annexure-5); Gross And Net NPAs Of Scheduled Commercial Banks Bank Group-Wise (Annexure-6); and Earnings And Expenses Of Scheduled Commercial Banks (Annexure-7). The secondary

data was reshuffled, and then analyzed on different aspects such as analysis of the consolidated data, year wise analysis, bank-wise analysis, within the specific bank sector etc. The data pertaining to NPAs in Indian banks and NPA resolution in Indian banks were collected from the website of RBI. To collect the data on the cases specific to Gujarat, the Insolvency Bankruptcy Board of India's website was surfed. The data pertaining to the cases of companies based in Gujarat which were referred to IBC were used for the analysis. The data was segregated into two parts viz., NPA resolved companies in which the amount was recovered, and the companies which were winded up (Annexure-10). For gathering information from RPs and Bankers, no secondary data was used.

### **3.5 Nature Of The Study**

The present study used the quantitative method of research. The secondary data was collected to study the NPA in Indian Banks, resolution mechanism adopted by banks for NPA, and NPA cases specific to Gujarat. Such secondary data provides in depth data over a period of consecutive years. Thus, a trend may also be identified when there is a pool cross sectional data. Such data is called as pooled data (which provides information across different categorical variables and across different years). The closed-ended questions were used in the questionnaire. The quantitative method of research works best for the descriptive type of research, where the researcher intends to describe the thing. The quantitative method of research is useful for applying the inferential research, to generalize the truth obtained from samples to the population (Sukamolson, 2007). In all cases the sample data was used to generalize the population results. For the study of RPs and Bankers also the nature of the study was quantitative.

### **3.6 Measurement And Scaling**

In the phenomena of the research if anything is to be measured then a number or a symbol is to be assigned. The abstract ideas may also be measured using such a method. When a researcher measures anything, it is numbers, on which, the relevant statistics analysis can be applied, such as descriptive statistics as well as inferential statistics (Chawla and Sondhi, 2011). There are four types of scale, the researcher can use, viz., the nominal scale which often used as a descriptor to the object. A nominal scale may have a different variant such as single choice question or multiple-choice question. The next type of scale is ordinal, which indicates the relative position of the objects or things in the questionnaire. The interval scale used a continuum to measure the opinion of the respondents on a specific construct. A multiple-item scale was used to elicit information from the respondents. A five-point Likert scale starting from Strongly Agree to Strongly Disagree was used to elicit the opinion. One of the variants

of the non-comparative scale is the Likert scale, where the respondents could independently answer the question without taking any reference of other statements. The group of statements tried to measure the same construct. If the bunch of statements measured the unique construct, then only the Likert-scale could be treated as the Interval scale, otherwise it could be treated as the ordinal scale. The Likert scale was the itemized rating scale, where in the specific number on the continuum clearly explained what it textually tried to describe (Chawla and Sondhi, 2011). The secondary data used the ratio scale, where in the zero had a meaningful interpretations. In Statistical Software for Social Sciences (SPSS) the interval and ratio scale are treated as Scale.

**Table 3-2 Description Of Data Files And Nature Of Scale**

Variables	Description	Category Count	Nature of Scale
<b>NPAs in Indian Banks</b>			
<i>Data Categorized: Additions, Reductions, Write-Offs</i>			
Number Of Cases: 40			
Year	2011 to 2020	10 Years	Nominal
Type of the Bank	Public, Private, Foreign and Small	4 Types	Nominal
Gross NPA Additions	Rupees	33	Ratio/Scale
Gross NPA Reductions	Rupees	33	Ratio/ Scale
Gross NPA Write-Offs	Rupees	33	Ratio/Scale
Number Of Cases: 40		Total Data Size: 165 Cell Counts	
<i>Data Categorized: Domestic Percent NPA</i>			
Domestic Data	2013 to 2017	5 Years	Nominal
Type of Banks	Public, Nationalized, SBI Group, Private	4 Types	Nominal
Sector	Priority, Non-Priority	2 Types	Nominal
NPA (%)	Percent	40	Ratio
Number Of Cases: 40		Total Data Size: 200 Cell Counts	
<i>Data Categorized: Domestic Data</i>			
Year	2013 to 2017	5 Years	Nominal
Type of Banks	Public, Nationalized, SBI Group, Private	4 Types	Nominal
Sector	Priority, Non-Priority	2 Types	Nominal
Gross Advances	Rupees	40	Ratio/Scale
Gross NPA	Rupees	40	Ratio/ Scale
Number Of Cases :40		Total Data Size:200 Cell Counts	
<i>Data Categorized: Gross and Net NPA</i>			
Year	2018-19 to 2020-2021	3 Years	Nominal
Type of Bank	Public, Private, Foreign, Small Finance	4 Types	Nominal

<b>Variables</b>	<b>Description</b>	<b>Category Count</b>	<b>Nature of Scale</b>
Gross NPA	Rupees	12	Ratio/ Scale
Net NPA	Rupees	12	Ratio/ Scale
Number Of Cases :40		Total Data Size:200 Cell Counts	
<b>Data Categorized: Gross and Net NPA (Rs.)</b>			
Type of Bank	Public, Private, Foreign	3 Types	Nominal
Gross NPA	Rupees	30	Ratio/Scale
Net NPA	Rupees	30	Ratio/Scale
Number Of Cases :30		Total Data Size:90 Cell Counts	
<b>Data Categorized: Gross Net Advances and NPAs</b>			
Year	2011 To 2021	11 Years	Nominal
Gross Advances	Rupees	50	Ratio/Scale
Net Advances	Rupees	50	Ratio/Scale
Gross NPA	Rupees	50	Ratio/Scale
Net NPA	Rupees	50	Ratio/Scale
Bank Type	Scheduled, Public, Private, Old Private, Foreign, Small Finance	6	Nominal
Number Of Cases :50		Total Data Size:300 Cell Counts	
<b>Data Categorized: Interest Income and Gross NPA</b>			
Interest Income	Rupees	88	Ratio/Scale
Gross NPA	Rupees	88	Ratio/Scale
Number Of Cases :88		Total Data Size:176 Cell Counts	
<b>Data Categorized: Priority And Non-Priority</b>			
Year	2011 to 2021	11 Years	Nominal
Lending Type	Priority and Non-Priority	2 Types	Nominal
NPA Amount	Rupees	22	Ratio/Scale
Number of Cases : 22		Total Data Size: 66 Cell Counts	
<b>Data Categorized: Private Sector Bank, Gross Advances and Gross NPA</b>			
Bank Name	Private Sector Bank's Name	17 Names	Nominal
Gross NPA	Rupees	29	Ratio/Scale
Gross Advances	Rupees	29	Ratio/Scale
GNPA Ratio	Ratio	29	Ratio/Scale
Type of Bank	Public, Private	2	Nominal
Number of Cases : 29		Total Data Size: 145 Cell Counts	
<b>Data Categorized: Public Private Interest and Gross NPA</b>			
Year	2011 to 2021	String	Nominal
Type of Bank	Public, Private, Foreign, Small Finance	4 Types	Nominal
Interest Income	Rupees	33	Ratio/Scale
Gross NPA	Rupees	33	Ratio/Scale

<b>Variables</b>	<b>Description</b>	<b>Category Count</b>	<b>Nature of Scale</b>
Ratio	Ratio	33	Ratio/Scale
Number of Cases: 33		Total Data Size: 145 Cell Counts	
<b>Data Categorized: Public Sector Banks, Gross Advances and Gross NPA</b>			
Bank Name	Name of Public Sector Banks	12 Names	String
Gross NPA	Rupees	12	Ratio/Scale
Gross Advances	Rupees	12	Ratio/Scale
Number of Cases: 12		Total Data Size: 36 Cell Counts	
<b>Data Categorized: Year wise Net NPA of Public Banks</b>			
Year	2011 to 2021	11	Nominal
Net NPA	Rupees	215	Ratio/Scale
Number of Cases: 215		Total Data Size: 430 Cell Counts	
<b>NPA Resolution in Indian Banks</b>			
Year	2012 to 2021	10 Years	Nominal
Recovery Tools	Lok Adalat, DRT, SARFAESI, IBC	4 Types	Nominal
Number of Cases Referred	Count	40	Ratio/Scale
Amount Involved	Rupees	40	Ratio/Scale
Amount Recovered	Rupees	40	Ratio/Scale
Percentage of Number of Cases Referred	Percent	40	Ratio/Scale
Percentage of Amount Recovered	Percent	40	Ratio/Scale
Percentage of Amount Not Recovered	Percent	40	Ratio/Scale
Number of Cases: 40		Total Data Size: 320 Cell Counts	
<b>RPs and Bankers</b>			
Gender	Male, Female	2 Types	Nominal
Work Location	Vadodara, Surat, Ahmedabad	3 Types	Nominal
Profession	Chartered Accountant, Company Secretary, Cost Accountant, Advocate, Banker	5 Types	Nominal
Designation	Resolution Planners, Banker	2 Types	Nominal
Work Experience	10-20 Years; 20-30 Years and Above 30 Years	3 Types	Nominal
Opinion on NPA	17 Statements	5: Strongly Agree to 1: Strongly Disagree	Interval/Scale
Resolution through Lok Adalat	1 Item	5: Strongly Agree to 1: Strongly Disagree	Interval/Scale

<b>Variables</b>	<b>Description</b>	<b>Category Count</b>	<b>Nature of Scale</b>
Resolution through DRT	1 Item	5: Strongly Agree to 1: Strongly Disagree	Interval/Scale
Resolution through SARFAESI	1 Item	5: Strongly Agree to 1: Strongly Disagree	Interval/Scale
Resolution through IBC	1 Item	5: Strongly Agree to 1: Strongly Disagree	Interval/ Scale
Opinion on Lok Adalat's Process	9 Items	5: Strongly Agree to 1: Strongly Disagree	Interval/Scale
Opinion on DRT's Process	9 Items	5: Strongly Agree to 1: Strongly Disagree	Interval/Scale
Opinion on SARFAESI's Process	9 Items	5: Strongly Agree to 1: Strongly Disagree	Interval/Scale
Opinion on IBC's Process	9 Items	5: Strongly Agree to 1: Strongly Disagree	Interval/Scale
Number of Cases: 100		Total Data Size: 6,200 Cell Counts	

### Cases In Gujarat

#### Amount Recovered Cases

Name of the Corporate Debtor	Company Names	48 Names	String
Resolution Process Initiator	Financial Creditor, Operational Creditor, Corporate Debtor	3 Types	Nominal
Status of the company	Defunct, Non-Defunct	2 Types	Nominal
Time Taken	Days	48 Items	Ratio/Scale
Total Admitted Claims	Rupees	48	Ratio/Scale
Admitted Claims by FC	Rupees	48	Ratio/Scale
Admitted Claims by OC	Rupees	48	Ratio/Scale
Liquidation Value	Rupees	48	Ratio/Scale
Realizable Value by FC	Rupees	48	Ratio/Scale
Realizable Value by OC	Rupees	48	Ratio/Scale
Total Realizable Value	Rupees	48	Ratio/Scale
Number of Cases: 48		Total Data Size: 528 Cell Counts	

#### Amount Not Recovered

Name of the Corporate Debtor	Company Names	179 Names	String
Resolution Process Initiator	Financial Creditor, Operational Creditor, Corporate Debtor	3 Types	Nominal

<b>Variables</b>	<b>Description</b>	<b>Category Count</b>	<b>Nature of Scale</b>
Status of the company	Defunct, Non-Defunct	2 Types	Nominal
Time Taken	Days	179 Items	Ratio/Scale
Total Admitted Claims	Rupees	179	Ratio/Scale
Admitted Claims by FC	Rupees	179	Ratio/Scale
Admitted Claims by OC	Rupees	179	Ratio/Scale
Number of Resolution Plans Received	Count	179	Ratio/Scale
Proposed Resolution Value	Rupees	179	Ratio/Scale
Number of Cases: 179		Total Data Size: 1,611 Cell Counts	

**(Source: Researcher's Compilation)**

Thus, where-ever possible, the researcher tried to use the different types of scales. For quick collection of the data, the closed-ended questionnaire was preferred. For the study of NPAs in Indian banks, NPA resolution in Indian banks and cases in Gujarat, the ratio scale data was used. For the study of RPs and Bankers a mixed type of scaling was used in the questionnaire development.

### **3.6.1 Research Instrument Development**

Out of the four compartments of the research, the three categories, were secondary based, on which the researcher had no control on the structure or the format of the data gathered. Researcher tried to rearrange the data as the requirement to derive the meaningful interpretations. The research instrument used for the RPs and bankers was questionnaire. The maximum questions put in the questionnaire was closed-ended, to elicit quick response. The data collected through questionnaire method ensures uniformity in the structure of the data and helps to correlate, compare and contrast the findings of our research with that of the other researchers (Roopa and Rani, 2012). Questionnaire was designed in such a way that it took minimum time to fill up, it was not so lengthy, and the same time the number of questions were sufficient to gather the intended information. To ensure that the questionnaire appears to be neat and proper, the matrix format was prepared in which, the questions or the statements were placed in the row and the response which had to be marked on the continuum was placed in the column (Roopa and Rani, 2012; Chawla and Sondhi, 2011; Malhotra and Dash, 2011). Thus, a pre-determined question and a pred-determined response format was chosen. The close-ended nominal type of questions was either dichotomous or single choice. Open-ended question was

only with respect to location, which was then converted to nominal type. Close-ended questionnaire was preferred so that the respondent did not skip or left the questionnaire midway, as it turned out to be boring. The care was taken that the identical questionnaire with the same formatting settings, same order of the questions, were presented to all the respondents. Due care was taken to keep the place the questions in a logical flow. The language of the questionnaire was kept simple, lucid and unambiguous (Roopa and Rani, 2012; Sukamolson, 2007). The research instrument used in the research of NPAs in Indian banks, NPA resolution in Indian banks, and Cases pertaining to Gujarat, in all the three cases, the standardized Excel sheets and Excel templates were utilized. In fact the data was transferred and reshuffled as per the need of the researcher.

### **3.6.2 Description Of Variables And Questionnaire Design**

Questionnaire was used to collect information from the RPs and the Bankers. The formation of the same is discussed further.

**Table 3-3 Outline Of Questionnaire**

<b>Variables</b>	<b>Number of Questions</b>
RP/Banker's Name (Optional)	1
Gender	1
Location	1
Profession	1
Designation	1
Work-Experience	1
Opinion on NPAs	17
NPA Resolution Tool	1
Opinion on NPA Resolution Process of Lok Adalat	9
Opinion on NPA Resolution Process of SARFAESI	9
Opinion on NPA Resolution Process of DRT	9
Opinion on NPA Resolution Process of IBC	9
<b>Total</b>	<b>60</b>

**(Source: Researcher's Compilation)**

Thus, in total 60 questions were asked to the respondents. As stated in Table 3-2 earlier, many minutest detail on the NPAs in Indian banks, NPA resolution mechanism, and NPA cases in Gujarat were analyzed and incorporated in the study. An attempt was made to include exhaustive pool of information to provide 360 degree perspective in the data analysis. The secondary data was scale or ratio in nature.

### **3.6.3 Pilot Testing, Reliability Testing And Validity Of The Questionnaire**

Pilot testing refers to the testing the questionnaire by administering the same on a small group of people or respondent (Chawla and Sondhi, 2011). Pilot testing helps to check if the questionnaire is effective or not. It ensures whether the language of the question was proper or not, did the respondent understand the meaning of the questions or not, did the questionnaire actually capture the information, that it intended too. It also checks if the wordings, instructions, and logical sequencing of the question were maintained or not (Roopa and Rani, 2012). For a sample of 12 RPs and Bankers a pilot testing was conducted (Bell *et al.*, 2018 and Moore *et al.*, 2011). Pre-testing of the questionnaire was also carried out. Once the questionnaire was pilot tested it, the reliability of the questionnaire was assessed. The reliability testing was conducted using the Cronbach Alpha in SPSS. The reliability values obtained were more than 0.60, which indicated the reliability of the instrument was good (Chawla and Sondhi, 2011). The validity refers to the aspect that whether the questionnaire intends to measure what it was supposed to measure (Chawla and Sondhi, 2011; Malhotra and Dash, 2011; and Roopa and Rani, 2012). Content validity tries to check whether the questionnaire measures all the aspects of a given concept. This validity may be measured by considering the opinion of the expert. The researcher in consultation with the guide, had taken the opinion of the experts appointed as a member of Doctoral Progress Committee (DPC) by Gujarat Technological University (GTU). The opinion of the DPC members mattered a lot, because both the members are experts and in finance domain (Roopa and Rani, 2012). Face validity tries to measure the exactness in the items of the questionnaire. The researcher's colleague who are working in the banks were approached for executing the face validity. Assistance from five such colleagues were taken during the pre-testing stage, to ensure that the understanding of each item so the questionnaire proved to be correct. An in-depth and detailed discussion was carried out with the colleagues. Their suggestions were incorporated before the pilot-testing of the questionnaire. The face validity was assessed through the interview method when conducted a point-wise discussion with the knowledgeable and experienced colleague (Roopa and Rani, 2012). After the pretesting procedure got completed, the researcher made necessary modification and then only conducted the pilot testing. Post pilot testing, the necessary editing was carried out and then only the full-fledged survey was conducted. This criteria was applicable only for the primary survey.

### **3.7 Research Approach**

The plan for research approach starts with the broad assumptions, to comprehensive method of data collection, data analysis and interpretation (Creswell and Creswell, 2017). For the study

of NPAs in Indian banks, NPA resolution in Indian Banks and Cases specific to Gujarat a desk research approach was utilized. Desk research refers to the use of material published in the reports or other general domain. Its accessibility is too high. The latest and archived files were downloaded for the secondary study on NPAs in Indian bank, NPA resolution mechanism in Indian banks, and Cases in Gujarat. In the survey, an email was sent to the targeted sample. The RPs and Bankers were provided a structured questionnaire to gather a specific information, which is known as survey (Chawla and Sondhi, 2011). In the formal questionnaire, the logical flow, and proper structure was designed to collect standardized information. The researchers were made aware about the purpose of the research, so that they cooperated in filling up the questionnaire. Thus, a direct and non-disguised approach was used conducting the survey. The respondents who were targeted for the survey, were sent the questions through email. Such method was termed as mail interviews. Such method wherein the respondent directly fills the questionnaire himself or herself without any aid or intervention of the researcher, is called as Self-Administered Survey (Chawla and Sondhi, 2011). Statistical Tables pertaining to the Indian banks were used the secondary research of NPAs in Indian banks, NPA resolution in Indian banks and NPA cases in Gujarat.

The questionnaire was sent to the target group through a link created on a free and user-friendly online survey platform i.e. Google Forms. The entire word document of the questionnaire was transformed into online form, using the personal laptop. The Google form was favoured because, it consumed very less memory space of the laptop, consumed little time, required less manpower and involved on monetary cost (Mondal *et al.*, 2018). Google form has a unique option of a star marked-“required” field, which insisted that the respondent must answer to all the questions compulsorily, without which the respondent will not be able to submit the response. This option facilitated the researcher to collect complete information from all the respondents. The advantage of using Google form is that is available free of cost, has a facility of automatic response recording in the form of spreadsheet, which can later be downloaded and converted to regular Excel file for analysis (Narayanaswamy and Harinarayana, 2016). Google form was a blessing, to gather data from the busy bank officials and RPs, by just sending the link, and the counterparty would fill up the data at their ease, without researcher visiting the respondent’s place personally. Moreover, the respondent may get sufficient time to think and edit the responses before hitting the final submission button on the screen. The online mode of collecting data helped the researcher to gather the data even in the pandemic situation (Sukamolson, n.d.). The contact method for RPs and Bankers was email, whereas the connect

point for data download was the dedicated and exclusive website of RBI and Insolvency Bankruptcy Board of India website.

### **3.8 Sampling Design**

Sampling design is a method under which the right kind of the samples are chosen from the population, to conduct the research (Chawla and Sondhi, 2011). It provides a direction on sample selection. The discussion to its sub-parts is narrated further.

#### **3.8.1 Population**

It is the group of people from whom the information is required for the survey and such group is similar in one or more ways (Chawla and Sondhi, 2011). At Gujarat level, the population of RPs and bankers who were involved in the NPA resolution mechanism were approximately 150. For the secondary data the population consisted of the public sector banks, private sector banks, foreign banks and small finance banks etc.

#### **3.8.2 Sampling Element And Sampling Unit**

Sampling element refers to the person from whom the information is to be collected. The respondent is considered to be the sampling element. A single member of the sample is called as sampling unit (Malhotra and Dash, 2011). Many a times the sampling element and the sampling unit are same. The researcher had sampled the respondent directly for the data collection, so the sampling unit and sampling element were same in this study. The data cells used in the Excel sheet was treated as sampling element and sampling unit for the secondary based research.

#### **3.8.3 Sampling Procedure**

The non-probability sampling techniques involves the unit of the population do not get an equal chance of selection. The sampling procedure adopted for the primary survey was also non-probability sampling. For the secondary study on NPAs in Indian banks, NPA resolution mechanism in Indian banks, and Cases in Gujarat, the sampling procedure adopted was non-probability sampling. When contact details of the respondents are missing or there is an incomplete information of the population under study then non-probability sampling is considered to be the best type of sampling technique (Chawla and Sondhi, 2011).

#### **3.8.4 Sampling Technique**

For the secondary study on NPAs in Indian banks, NPA resolution mechanism in Indian banks, and Cases in Gujarat, the sampling procedure adopted was non-probability sampling, which was judgemental in nature. The researcher based on his experience and the guidance from the mentor decided to select the range of certain years for the analysis of the data pertaining to the three elements of the research based on the three secondary data. Snowball technique, a variant to the non-Probability sampling was adopted for conducting the primary research. A chain of

contacts from one respondent to the other respondent is built in the snowball sampling (Ayhan 2011). This technique is more preferred when it is difficult to trace the respondent from the identified set of population (Chawla and Sondhi, 2011).

### **3.8.5 Sample Size**

The count or number of elements included in the study is defined as sample size (Chawla and Sondhi, 2011). The sample size for the secondary data on NPAs in Indian banks consisted of minimum two banks, viz., Public Sector banks and Private Sector banks, and maximum four banks viz., Public, Private, Foreign and Small Finance banks. In the case of NPA resolution in Indian banks namely four types of tools viz., Lok Adalat, DRT, SARFAESI and IBC were used. In the primary survey of RPs and bankers, 100 respondents were surveyed. With respect to the cases in Gujarat, 48 cases from whom the amount was recovered were used in the study, and 179 cases from whom the amount was not recovered were referred in the study.

### **3.8.6 Sample Size Determination**

The most popular method adopted for sample size determination is based on the confidence interval approach (Chawla and Sondhi, 2011). With the facility of online sample size calculator one, can easily estimate the sample size by feeding the appropriate data such as confidence level, confidence interval and population size. Confidence interval is a margin of error or a range in which the population parameter would fall, based on the assumed level of confidence (Malhotra and Dash, 2011). Confidence level means the surety level of the researcher's findings that may be applied to the population. 95% confidence level means the researcher is 95% confident about the applicability of his or her findings from the sample to be generalized to the whole population. 95% is treated as the ideal level of confidence (Creative Research Systems, n.d.). As the population of RPs and bankers who deal in the NPA resolution mechanism was known, the requisite details were fed in the sample size calculator and the sample size determined was 108, the screenshot of the same is shown in Figure 3-2. With pre-determined sample size of 108, the researcher had shared the online questionnaire link to the couple of respondents. These respondents were then requested to share the same with their known RPs and bankers working the domain of NPA resolution. Time and again the researcher persuaded the chain of respondents to fill the questionnaire and also circulate the same in the known professional circle. With lot of urging and follow-up, the final number of questionnaires that were filled were 100. A response rate of approximately 93% may be considered with the final sample size of 100. Considering the arrangement of pooled data in excel sheet and SPSS, in the study of NPA in Indian banks, NPA resolution in Indian banks, and cases of Gujarat, a sample size in terms of data cells may be counted larger than 100.

**Figure 3-2 Sample Size Determination For RPs And Bankers**

The screenshot shows a web-based calculator for determining sample size. The title is 'Determine Sample Size'. The 'Confidence Level' is set to 95% (selected radio button). The 'Confidence Interval' is 5. The 'Population' is 150. Below these inputs are two buttons: 'Calculate' and 'Clear'. To the right of the 'Calculate' button is a text box showing the calculated 'Sample size needed' as 108.

**(Source: Output from Survey Systems Calculator)**

Thus, the sample size was estimated using the online sample size determination calculator.

### **3.8.7 Sampling Area**

The sampling area refers to the places from which the data was gathered for the study. In the case of secondary data, the sampling area was Indian banks in which NPA had occurred. In the case of NPA resolution mechanism, it was again the Indian banks. For the NPA resolved cases, only those companies in which the NPA had occurred were taken from the territory of Gujarat. The survey of RPs and Bankers were conducted across Gujarat.

### **3.8.8 Sampling Duration**

Sampling duration describes the time slots during which the survey was conducted. For the research based on secondary data of NPAs in Indian banks the duration of the study adopted was from 2011 to 2020. For the study on NPA resolution in Indian banks the duration was 2012 to 2021. In the year 2020 the survey of RPs and Bankers was completed. For the last part of the secondary data, based on the cases in Gujarat, the data was used starting from the year 2017 to November 2022.

### **3.9 Data Processing**

Data processing includes fieldwork validation, editing of the data, coding of the data, classification of the data, tabulation of the data and analysis of the data. The data processing starts with the completion of the data collection from the field.

#### **3.9.1 Field Work Validation**

It is applicable only to the questionnaire-based study. The purpose of field work validation is to ensure that the questionnaires are properly filled (Chawla and Sondhi, 2011). For the survey of the RPs and Bankers, the Google forms were used, and before circulating the questionnaire link, it was ensured by the researcher that the ‘Required’ field was marked, which in way made

a compulsion on the respondents to fill all the necessary details in the questionnaire, before submitting. In case if the respondent did not fill or forgot to fill any field then the submit button would not be activated, and the respondent was automatically directed to the field which was incomplete. Thus, the Google Form's feature of 'Required' facilitated the respondent to fill all the details and assisted the researcher to get the complete information to the questions asked in the questionnaire.

### **3.9.2 Data Editing**

It refers to the necessary corrections in the data. As the Google Forms were used to fill the questionnaire, there was no correction needed in the data. Once the 100 questionnaires were filled the respondent downloaded the spreadsheet and exported it to the SPSS-19 version. The spread sheet provided the answers in text format, which was then converted into appropriate format as per the requisite standardization needed in the SPSS for Variable View and Data View. Data editing was not needed for the secondary data-based research. For both the types of data the preliminary sheet was the Excel sheet. Excel sheet acted as a base sheet or input sheet for the SPSS sheet.

### **3.9.3 Data Coding**

Coding is a process of assigning numerical values to the response (Chawla and Sondhi, 2011). The data availed from the survey of RPs and Bankers, were processed properly before the analysis. All the primary data in the spreadsheet was converted from string format to the numerical format, by using the find and replace function in the Excel. The question and the response was matched, to properly code the data. For the data based on nominal scale dichotomous type of question, the coding was 1 and 2. If the number of response option was more than two in the nominal scale then the coding was subsequently increased from 2 to the last response option. The five point Likert scale questions or statements were coded as 1= Strongly Disagree and 5= Strongly Agree. The researcher firstly created the variable view in SPSS after properly matching the question and writing the same as Label and the response was coded as value label. The appropriate scale measure was also chosen. For the dichotomous and multiple choice question the nominal scale was selected. For the Likert-Type question, the scale measure was chosen. Once the variable view was ready, all the data of the spreadsheets, which was pasted in Excel and converted to numeric codes using the Find and Replace function in Excel, after due consideration of the codes, was pasted or exported in the SPSS file under the Data View tab. As the SPSS allows to paste data in the iterations of 40 cases, a care was taken that the data of the respondents were pasted after the first 40 cases were pasted, then other 40 cases, and lastly 20 cases. A care was also taken to rematch the data for double surety.

In the case of the secondary data used for NPA in Indian Bank, NPA Resolution in Indian Banks and Cases specific to Gujarat, were collected from the website of RBI and IBBI. In that secondary data if the blank cell was noted then it was coded under the missing value feature of the variable view as -1000. The missing value was defined, so that the answers to the descriptive statistics provided a correct answer. If the missing values are not defined then the mean, median, mode gets pulled, and the faulty analysis of the data comes up.

#### **3.9.4 Data Classification**

Data classification refers to the reduction in the information availed from the data into homogenous categories (Chawla and Sondhi, 2011). The researcher before initiating the process of data collection had properly classified the same. Manual Reclassification was executed when the 17 statements on the NPA opinion of the Bankers and RPs were taken. Those 17 statements were manually categorized into three factors. The score of these three factors were clubbed in SPSS using the ‘Recode Function into Other variables’. Thus, the 17 statements were pruned to 3 factors. A detailed descriptive and inferential statistics were then applied to these three factors.

#### **3.9.5 Data Tabulation And Charts**

Tabulation refers to proper arrangement of the data which is not only appealing but can also be used for statistical analysis. For all the four compartments of the study, a care was taken that the data was represented in the most appropriate way. The frequency count was available by running the frequency function in SPSS. The filter function was also used at times to get the count of the data. Cross-Tabulation, Layered Cross-Tabulation was also used to draw meaningful information from the data. Pie Chart, Bar Chart, Column Chart, Line Chart, Sunburst, and Funnel Chart were used to represent the data in the most attractive manner.

#### **3.9.6 Usage Of Statistical Package**

The Microsoft Excel and SPSS-19 version was used for conducting proper analysis. The descriptive statistics and the inferential statistics were applied using SPSS for drawing proper insights from the data.

### **3.10 Data Analysis Plan**

The raw collected from the primary sources and secondary sources were analyzed using either univariate, or bivariate or multivariate analysis. Such data analysis helped in drawing meaningful understanding of the data and also helped in better interpretations.

#### **3.10.1 Univariate, Bivariate, And Multivariate Analysis Of Data**

If the analysis pertains to one variable at a time, then it is called univariate. If two variables are analyzed at a time, it is called bivariate. If more than two variables are analyzed at a time, it is

called multivariate (Chawla and Sondhi, 2011). Univariate analysis was undertaken where ever possible for the primary based data as well as the secondary based data. For the univariate analysis mainly charts, percentage and frequency count technique were adopted. For the bivariate data either crosstabs with percentage or without percentage was used. At times to delve deeper into the data, cross-tabulation was layered with the third variable. The multivariate analysis was applied using one dependent and many independent variables.

### **3.10.2 Descriptive Analysis Of The Data**

It provides the summary analysis of the sample data, for a cursory understanding (Chawla and Sondhi). Mean (X), Median (M), Mode (Z), Standard Deviation (SD), Range, Percentile, Rank Analysis, Garett Rank Analysis was applied to the secondary and primary data, as applicable. The appropriate measures of Central Tendency were applied based on the scale of data. Percentage, Frequency Count and Mode was applied on the nominal scale-based data. On the ordinal scale-based data Median, Percentile, Rank Analysis, Garett Rank Analysis was applied. On the interval scale Mean, SD, and Range was applied. The ratio scale being the highest order scale all the relevant measures of central tendency and measures of dispersion were applied.

### **3.10.3 Inferential Analysis Of The Data**

It helps in drawing inferences on population based on the study of the samples. Before applying the statistical test, the first step was to check the normality of the data using the Shapiro Wilk Test. If the data proved to be normal then the researcher moved with the parametric test , and if the data was not normal then non-parametric test were selected. The detailed description of the test, its process and reasons for applications were discussed further for each test applied in the analysis. Broadly, giving the glimpse of the statistical test applied to the study on NPAs in Indian Banks, NPA Resolution in Indian Banks and the survey of RPs and Bankers were Homogeneity Test of Variance, Welch Test, Pearson Correlation Test, Regression, Independent T-Test, ANOVA Test, One Sample Kolmogorov Smirnov Test, Mann-Whitney U Test, and Kruskall Wallis Test were applied. In the study pertaining to the cases of Gujarat, One Sample Kolmogorov Smirnov Test, and Mann-Whitney U Test were applied. The discussion on the reasons and applications of each test were discussed in the respective analysis. Thus, the researcher tried to apply the set of parametric as well as non-parametric test, post-testing the requisite conditions before its applications.

## **3.11 Formation Of Hypothesis**

In the normal parlance the hypothesis is statement, which may or may not be true. The hypothesis are tested on the sample data to derive the overall applicability of the conclusion of the population. The hypothesis has two parts viz., the null hypothesis and the alternate

hypothesis. The null hypothesis is denoted by  $H_0$ , and the alternate hypothesis is denoted by  $H_1$ . The list of the hypothesis framed are discussed further.

**Table 3-4 Details of Hypothesis**

Variables Used	Null Hypothesis	Test Administered
<b>NPAs of Indian Banks</b>		
Gross Advances, Net Advances	$H_{01}$ : Data is normally distributed	Shapiro Wilk Test
Gross Advances, Net Advances	$H_{02}$ : There is homogeneity of variance i.e. Equal Variance assumed.	Homogeneity Test of Variance
Gross Advances, Net Advances	$H_{03}$ : There is no significant difference between the mean scores of Gross Advances and Net Advances across various categories of public sector banks, private sector banks, foreign banks, and small finance banks.	Welch Test
Gross NPA, Net NPA	$H_{04}$ : Data is normally distributed.	Shapiro Wilk Test
Gross NPA, Net NPA	$H_{05}$ : There is homogeneity of variance i.e. Equal Variance assumed.	Homogeneity Test of Variance
Gross NPA, Net NPA	$H_{06}$ : There is no significant difference between the mean scores of Gross NPAs and Net NPAs across various categories of public sector banks, private sector banks, and foreign banks.	Welch Test
Gross Advances and Gross NPAs, Net Advances and Net NPAs	$H_{07}$ : There is no correlation between Gross Advances (Net Advances) and Gross NPAs (Net NPAs).	Pearson Correlation Test
Additions of NPAs	$H_{08}$ : Data is normally distributed.	Shapiro Wilk Test
Additions of NPAs	$H_{09}$ : There is homogeneity of variance i.e. Equal Variance assumed.	Homogeneity Test of Variance
Additions of NPAs	$H_{010}$ : There is no significant difference between the mean scores of additions in NPA amount across various categories of public sector banks, private sector banks, and foreign banks.	Welch Test
Reductions in NPAs	$H_{011}$ : Data is normally distributed.	Shapiro Wilk Test
Reductions in NPAs	$H_{012}$ : There is homogeneity of variance i.e. Equal Variance assumed.	Homogeneity Test of Variance
Reductions in NPAs	$H_{013}$ : There is no significant difference between the mean scores of reductions in NPA amount across various categories of public sector banks, private sector banks, and foreign banks.	Welch Test
Write-Offs of NPAs	$H_{014}$ : Data is normally distributed.	Shapiro Wilk Test

<b>Variables Used</b>	<b>Null Hypothesis</b>	<b>Test Administered</b>
Write-Offs of NPAs	H <sub>015</sub> : There is homogeneity of variance i.e. Equal Variance assumed.	Homogeneity Test of Variance
Write-Offs of NPAs	H <sub>016</sub> : There is no significant difference between the mean scores of write-offs of NPA amounts across various categories of public sector banks, private sector banks, and foreign banks.	Welch Test
Gross Additions in NPA and Gross Reductions in NPA	H <sub>017</sub> : There is no correlation between Gross Additions in NPA and Gross Reductions in NPA.	Pearson Correlation Test
Gross Additions in NPA and Gross Write-offs of NPA	H <sub>018</sub> : There is no correlation between Gross Additions in NPA and Gross Write-Offs of NPA.	Pearson Correlation Test
Gross Reductions in NPA and Gross Write-Offs of NPA	H <sub>019</sub> : There is no correlation between Gross Reductions in NPA and Gross Write-Offs of NPA	Pearson Correlation Test
Time and NPA	H <sub>020</sub> : Time is not a significant predictor of NPA.	Regression Test
Priority Sector NPA and Non-Priority Sector NPA	H <sub>021</sub> : Data is normally distributed.	Shapiro Wilk Test
Priority Sector NPA and Non-Priority Sector NPA	H <sub>022</sub> : The mean scores of the priority sector's NPA and the non-priority sector's NPA do not significantly differ.	Independent T-Test
Gross NPA and Net NPA Across Different Banks	H <sub>023</sub> : Data is normally distributed.	Shapiro Wilk Test
Gross NPA and Net NPA* Across Different Banks	H <sub>024</sub> : There is homogeneity of variance i.e. Equal Variance assumed.	Homogeneity Test of Variance
Gross NPA and Net NPA Across Different Banks	H <sub>025</sub> : There is no significant difference between the mean scores of Gross NPA amounts across various categories of public sector banks, private sector banks, foreign banks, and small finance banks.	ANOVA Test
Gross NPA and Net NPA Across Different Banks	H <sub>026</sub> : There is no significant difference between the mean scores of Net NPA amounts across various categories of public sector banks, private sector banks, foreign banks, and small finance banks.	Welch Test
Interest Income and Gross NPA	H <sub>027</sub> : There is no correlation between Interest Income and Gross NPA.	Pearson Correlation
Interest Income and Gross NPA of Public Sector Banks	H <sub>028</sub> : There is no correlation between Interest Income and Gross NPA of Public Sector Banks.	Pearson Correlation

<b>Variables Used</b>	<b>Null Hypothesis</b>	<b>Test Administered</b>
Interest Income and Gross NPA of Private Sector Banks	H <sub>029</sub> : There is no correlation between Interest Income and Gross NPA of Private Sector Banks.	Pearson Correlation
Time and Gross NPA to Interest Income Ratio	H <sub>031</sub> : Time is not a significant predictor of Gross NPA to Interest Income Ratio.	Regression Test
Gross Advances, Gross NPA	H <sub>032</sub> : The data is normal.	One Sample Kolmogorov Smirnov Test
Gross Advances in different sectors	H <sub>033</sub> : The mean scores of the priority sector's Gross Advances and the non-priority sector's Gross Advances do not significantly differ.	Independent T-Test
Gross NPA in different sectors	H <sub>034</sub> : The mean scores of the priority sector's Gross NPA and the non-priority sector's Gross NPA do not significantly differ.	Independent T-Test
Gross Advances and Gross NPA in Priority Sector Lending	H <sub>035</sub> : There is no correlation between Gross Advances and Gross NPA in Priority Sector Lending.	Pearson Correlation
Gross Advances and Types of Banks	H <sub>036</sub> : There is homogeneity of variance i.e. Equal Variance assumed.	Homogeneity Test of Variance
Gross Advances and Types of Banks	H <sub>037</sub> : There is no significant difference between the mean scores of Gross Advances across various categories of public sector banks, nationalized banks, SBI group banks and private sector banks.	Welch Test
Gross NPA and Types of Banks	H <sub>038</sub> : There is homogeneity of variance i.e. Equal Variance assumed.	Homogeneity Test of Variance
Gross NPA and Sector of Banks	H <sub>039</sub> : There is no significant difference between the mean scores of Gross NPA across various categories of public sector banks, nationalized banks, SBI group banks and private sector banks.	Welch Test
Priority Sector's GNPA (%) and Non-Priority Sector's GNPA (%)	H <sub>040</sub> : Data is normally distributed.	Shapiro Wilk Test
Priority Sector's GNPA (%) and Non-Priority Sector's GNPA (%)	H <sub>041</sub> : The mean scores of the priority sector's GNPA (%) and the non-priority sector's GNPA (%) do not significantly differ.	Independent Sample T-Test
<b>Comparison of the tools of NPA resolution of Indian Banks</b>		
Number of Cases and Channels of Recovery	H <sub>042</sub> : Data is normally distributed.	Shapiro Wilk Test
Number of Cases and Channels of Recovery	H <sub>043</sub> : There is homogeneity of variance i.e. Equal Variance assumed.	Homogeneity Test of Variance

<b>Variables Used</b>	<b>Null Hypothesis</b>	<b>Test Administered</b>
Number of Cases and Channels of Recovery	H <sub>044</sub> : There is no significant difference between the mean scores on number of cases across various categories of recovery channels i.e. Lok Adalat, DRTs, SARFAESI and IBC.	Welch Test
NPA Recoverable Amount and Various Channels	H <sub>045</sub> : Data is normally distributed.	Shapiro Wilk Test
NPA Recoverable Amount and Various Channels	H <sub>046</sub> : There is homogeneity of variance i.e. Equal Variance assumed.	Homogeneity Test of Variance
NPA Recoverable Amount and Various Channels	H <sub>047</sub> : There is no significant difference between the mean scores on NPA amount recoverable across various categories of recovery channels i.e. Lok Adalat, DRTs, SARFAESI and IBC.	Welch Test
NPA Amount Recovered and Various Channels	H <sub>048</sub> : Data is normally distributed.	Shapiro Wilk Test
NPA Amount Recovered and Various Channels	H <sub>049</sub> : There is homogeneity of variance i.e. Equal Variance assumed.	Homogeneity Test of Variance
NPA Amount Recovered and Various Channels	H <sub>050</sub> : There is no significant difference between the mean scores on NPA Amount Recovered across various categories of recovery channels i.e. Lok Adalat, DRTs, SARFAESI and IBC.	Welch Test
NPA Recoverable Amount and NPA Amount Recovered	H <sub>051</sub> : There is no correlation between NPA Recoverable Amount and NPA Amount Recovered.	Pearson Correlation Test
<b>Opinion of RPs and Bankers</b>		
Opinion on NPA (17 Statements)	H <sub>052</sub> : The data is normal.	One Sample Kolmogorov Smirnov Test
Causes and Detection of NPA, Deficiency in NPA Management, Recovery Assistance	H <sub>053</sub> : The data is normal.	One Sample Kolmogorov Smirnov Test
Gender and Opinion On NPA	H <sub>054</sub> : Males and females do not significantly differ in the mean ranks on the causes and detection of NPA, deficiency in NPA management, and recovery assistance.	Mann-Whitney U Test
Profession and causes and detection of NPA, deficiency in NPA management, and recovery assistance	H <sub>055</sub> : CAs, CSs, Cost Accountant, Advocate, and Banker do not significantly differ in the mean ranks on the causes and detection of NPA, deficiency in NPA management, and recovery assistance.	Kruskal Wallis Test

<b>Variables Used</b>	<b>Null Hypothesis</b>	<b>Test Administered</b>
Experience and causes and detection of NPA, deficiency in NPA management, and recovery assistance	$H_{056}$ : The low level, mediocre level, and high level experienced do not significantly differ in the mean ranks on the causes and detection of NPA, deficiency in NPA management, and recovery assistance.	Kruskal Wallis Test
NPA Resolution Tool	$H_{057}$ : The data is normal.	One Sample Kolmogorov Smirnov Test
Gender and Recovery Tools	$H_{058}$ : Males and females do not significantly differ in the mean ranks on Lok Adalat, DRTs, SARFAESI, and IBC.	Mann-Whitney U Test
Profession and Recovery Tools	$H_{059}$ : CAs, CSs, Cost Accountant, Advocate, and Banker do not significantly differ in the mean ranks on the NPA resolution tools.	Kruskal Wallis Test
Experience and causes and Recovery Tools	$H_{060}$ : The low level, mediocre level, and high level experienced do not significantly differ in the mean ranks of NPA resolution tools	Kruskal Wallis Test
Opinion on Lok Adalat	$H_{061}$ : The data is normal.	One Sample Kolmogorov Smirnov Test
Gender and Opinion NPA Resolution Process through Lok Adalat	$H_{062}$ : Males and females do not significantly differ in the mean ranks on NPA resolution process through Lok Adalat.	Mann-Whitney U Test
Professional and NPA resolution process through Lok Adalat	$H_{063}$ : CAs, CSs, Cost Accountant, Advocate, and Banker do not significantly differ in the mean ranks on the NPA resolution process used in Lok Adalat.	Kruskal Wallis Test
Experienced and NPA resolution process through Lok Adalat	$H_{064}$ : The low level, mediocre level, and high level experienced do not significantly differ in the mean ranks of NPA resolution process used in Lok Adalat.	Kruskal Wallis Test
NPA Resolution Process Through SARFAESI	$H_{065}$ : The data is normal.	One Sample Kolmogorov Smirnov Test
Gender and Opinion NPA Resolution Process through SARFAESI	$H_{066}$ : Males and females do not significantly differ in the mean ranks on NPA resolution process through SARFAESI.	Mann-Whitney U Test
Professional and NPA resolution process through SARFAESI	$H_{067}$ : CAs, CSs, Cost Accountant, Advocate, and Banker do not significantly differ in the mean ranks on the NPA resolution process used in SARFAESI	Kruskal Wallis Test
Experienced and NPA resolution process through SARFAESI	$H_{068}$ : The low level, mediocre level, and high level experienced do not significantly differ in	Kruskal Wallis Test

<b>Variables Used</b>	<b>Null Hypothesis</b>	<b>Test Administered</b>
	the mean ranks of NPA resolution process used in SARFAESI.	
NPA Resolution Process Through DRT	$H_{069}$ : The data is normal.	One Sample Kolmogorov Smirnov Test
Gender and Opinion NPA Resolution Process through DRT	$H_{070}$ : Males and females do not significantly differ in the mean ranks on NPA resolution process through DRT.	Mann-Whitney U Test
Professional and NPA resolution process through DRT	$H_{071}$ : CAs, CSs, Cost Accountant, Advocate, and Banker do not significantly differ in the mean ranks on the NPA resolution process used in DRT.	Kruskal Wallis Test
Experienced and NPA resolution process through DRT	$H_{072}$ : The low level, mediocre level, and high level experienced do not significantly differ in the mean ranks of NPA resolution process used in DRT.	Kruskal Wallis Test
NPA Resolution Process Through IBC	$H_{073}$ : The data is normal.	One Sample Kolmogorov Smirnov Test
Gender and Opinion NPA Resolution Process through IBC	$H_{074}$ : Males and females do not significantly differ in the mean ranks on NPA resolution process through IBC.	Mann-Whitney U Test
Professional and NPA resolution process through IBC	$H_{075}$ : CAs, CSs, Cost Accountant, Advocate, and Banker do not significantly differ in the mean ranks on the NPA resolution process used in IBC.	Kruskal Wallis Test
Experienced and NPA resolution process through IBC	$H_{076}$ : The low level, mediocre level, and high level experienced do not significantly differ in the mean ranks of NPA resolution process used in IBC.	Kruskal Wallis Test
<b>NPA Cases in Gujarat</b>		
Total Admitted Claim, Liquidation Value, Total Realizable Value	$H_{077}$ : Data is normal.	One Sample Kolmogorov Smirnov Test
Claim Initiator and Total Claims Admitted	$H_{078}$ : Financial Creditor and Operational Creditor do not significantly differ in the mean ranks on total claims admitted.	Mann-Whitney U Test
Claim Initiator and Liquidation Value	$H_{079}$ : Financial Creditor and Operational Creditor do not significantly differ in the mean ranks on liquidation value.	Mann-Whitney U Test
Claim Initiator and Total Realizable Value	$H_{080}$ : Financial Creditor and Operational Creditor do not significantly differ in the mean ranks on total realizable value.	Mann-Whitney U Test

Variables Used	Null Hypothesis	Test Administered
Total Admitted Claim	H <sub>081</sub> : Data is normal.	One Sample Kolmogorov Smirnov Test
Claim Initiator and Total Admitted Claim	H <sub>082</sub> : Financial Creditor and Operational Creditor do not significantly differ in the mean ranks on total claims admitted.	Mann-Whitney U Test

**(Source: Researcher's Compilation)**

### **3.12 Limitations Of The Research**

The current study is conducted more on the secondary basis restricted to the domain of NPA. The study could have incorporated the impact of NPA on key ratios of the banks. The relationship between credit risk and profitability could have been studied. The relationship between NPA and profitability of the banks may also provide better insights. The primary aspect of only few numbers of RPs and bankers have been studied. The scope of the primary study could have been enlarged by taking the opinion of the credit appraisal department, loan sanctioning officers etc. The case-based research of NPA specific companies could have added more value to the research. The opinion of lawyers and legal mechanism could have been included to get a broader aspect on pros and cons of the NPA resolution mechanism. The legal angle may be explored either through case-study or qualitative study. The sample size for primary research could have been more than 100. The primary research could have been conducted across India, which might have helped in the inter-comparison of opinions of employees of different banks.

### **3.13 Conclusion**

The research methodology chapter tried to cover all the nitty-gritty of the research. The chapter started with the basic purpose of research; the course of action taken to conduct the research etc. It described the entire research process in detail. The exhaustive details for all four compartments of research were explained. The justification for each jargon of research was linked with the practical application. The elaborated research methodology was tried to synchronized in tabular format for cursory glance. The researcher based on the four compartments of research has tried to divide the research methodology also in the four parts.

**Table 3-5 The Curx Of The Research Methodology**

Particulars	NPAs in Indian Banks	NPA Resolution in Indian Banks	RPs and Bankers	Cases in Gujarat
<b>Research Objective</b>	To study and analyze the	To study and compare the tools	To study the opinion of RPs and Bankers on	To study the NPA resolved cases of Gujarat.

<b>Particulars</b>	<b>NPAs in Indian Banks</b>	<b>NPA Resolution in Indian Banks</b>	<b>RPs and Bankers</b>	<b>Cases in Gujarat</b>	
	NPAs of Indian Banks.	of NPA resolution of Indian Banks.	NPA, NPA resolution mechanism as well as tools of NPA mechanism.		
<b>Nature of the Study</b>	Quantitative				
<b>Research Design</b>	Descriptive				
<b>Sub-Type of Research Design</b>	Pooled Data	Pooled Data	Single Cross-Sectional	Pooled Data	
<b>Data Sources</b>	Secondary	Secondary	Primary	Secondary	
<b>Research Approach</b>	Desk Research		Self-Administered Survey	Desk Research	
<b>Research Instrument</b>	Excel Templates		Questionnaire	Excel Templates	
<b>Research Method</b>	Present and Archive Files Downloaded		E-mail	Present and Archive Files Downloaded	
<b>Research Tools</b>	Statistical Tables pertaining to Indian Banks		Google Form Circulation	Statistical Tables pertaining to Indian Banks	
<b>Contact Method</b>	RBI's website surfing		Formal E-Mail	IBBI's website surfing	
<b>Secondary Sources Instrument</b>	Papers from online and offline journals, papers in an edited book, working papers, newspaper articles, books, RBI's Annual Report, RBIs Database on Indian Economy, Reports from the Insolvency Bankruptcy Board of India Webpages, Papers in Conference Proceedings, Papers from Google Scholars etc.				
<b>Sampling Unit</b>	Banks		Resolution Planners and Bankers	Companies	
<b>Sampling Element</b>	Data Cells			Data Cells	
<b>Sampling Procedure</b>	Non-Probability Sampling				
<b>Sampling Technique</b>	Judgemental		Snowball	Judgemental	
<b>Sample Size</b>	Data based on Min: 2 Banks Data based on Max: 4 Banks across selected years	Data based on Four Tools across selected years	100	48 Cases across selected years      179 Cases across selected years	
<b>Sampling Area</b>	Indian Banks		RPs/Bankers of Gujarat	Companies in Gujarat	

<b>Particulars</b>	<b>NPAs in Indian Banks</b>	<b>NPA Resolution in Indian Banks</b>	<b>RPs and Bankers</b>	<b>Cases in Gujarat</b>
<b>Sampling Duration</b>	2011 to 2020	2012 to 2021	2020	Financial Year 2017 To November 2022
<b>Data Processing and Management</b>	Microsoft Excel and SPSS	Microsoft Excel and SPSS	Microsoft Excel and SPSS	Microsoft Excel and SPSS
<b>Pictorial Representation</b>	Pie Chart, Bar Chart, Column Chart, Line Chart, Sunburst Chart, and Funnel chart			NA
<b>Data Analysis</b>	Frequency Tables, Cross Tabs, and Tabulation			
<b>Descriptive Statistics</b>	Mean, Median, Mode, Standard Deviation, Range, Percentile, Rank Analysis, Garett Rank Analysis			
<b>Inferential Statistics</b>	Shapiro Wilk Test, Homogeneity Test of Variance, Welch Test, Pearson Correlation Test, Regression, Independent T-Test, ANOVA Test, One Sample Kolmogorov Smirnov Test, Mann-Whitney U Test, Kruskall Wallis Test.			One Sample Kolmogorov Smirnov Test, and Mann-Whitney U Test

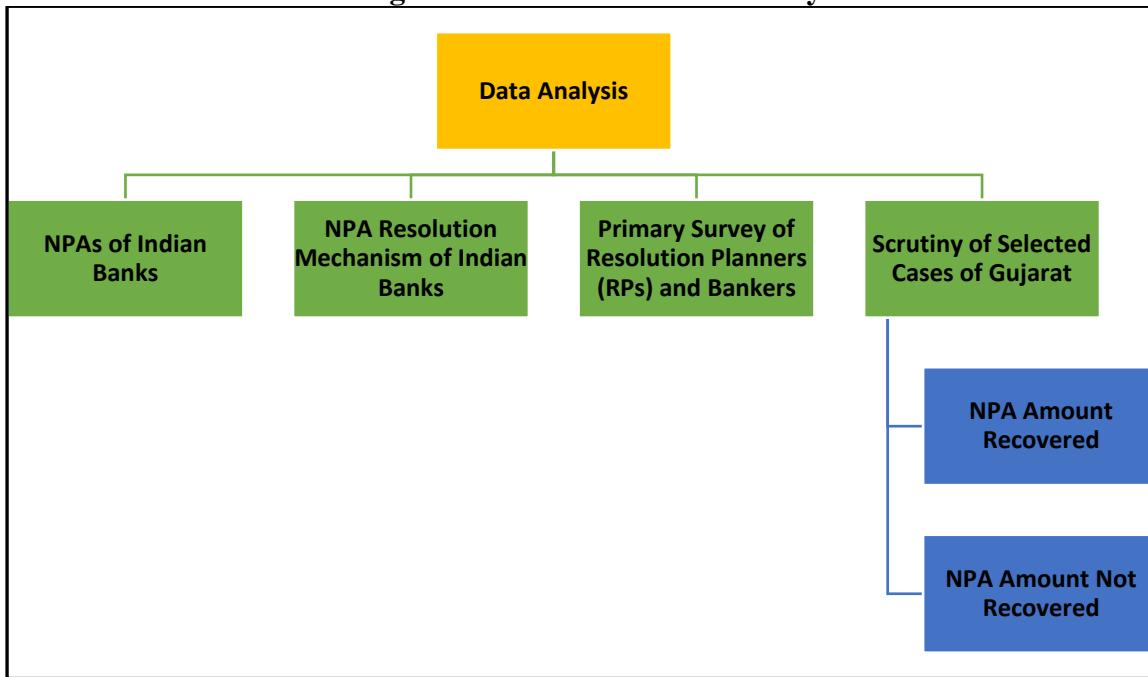
(Source: Researcher's Output)

## Chapter 4 Data Analysis And Interpretation

### 4.0 Background

The chapter deals with the exhaustive discussion on the data analysis and interpretation. The data analysis is segregated into four parts as represented in Figure 4-1.

**Figure 4-1 Scheme Of Data Analysis**



(Source: Researcher's Output)

The following section describes the analysis of the secondary and primary data, based on the separate sub-sections.

### 4.1 NPAs Of Indian Banks

Considering the composition of different types of banks an analysis of gross advances and net advances was conducted on yearly basis. The consolidated data of scheduled commercial banks was also displayed for better understanding. Ten years data commencing from 2011 to 2020 was used for the analysis purpose.

#### 4.1.1 Yearly Gross Advances And Net Advances Of Different Types Of Banks

The standalone data and consolidated data of the different banks are discussed in the forthcoming Table 4-1.

**Table 4-1 Yearly Gross And Net Advances Of Different Types of Banks  
(Rs. Crores)**

Year	Type of Banks	Gross Advances (Rs.)	Ranking	Net Advances (Rs.)	Ranking
2011	Public Sector Banks	3942732	1	3877308	1
	Old Private Sector Banks	232918	4	230079	3

<b>Year</b>	<b>Type of Banks</b>	<b>Gross Advances (Rs.)</b>	<b>Ranking</b>	<b>Net Advances (Rs.)</b>	<b>Ranking</b>
2012	Private Sector Banks	748500	2	736300	2
	Foreign Banks	234727	3	229849	4
	Small Finance Banks	---		---	
	<b>Scheduled Commercial Banks</b>	<b>5158878</b>		<b>5073559</b>	
	Public Sector Banks	4560169	1	4472845	1
	Old Private Sector Banks	273120	3	269937	3
	Private Sector Banks	886023	2	873252	2
2013	Foreign Banks	268966	4	263680	4
	Small Finance Banks	---		---	
	<b>Scheduled Commercial Banks</b>	<b>5988277</b>		<b>5879773</b>	
	Public Sector Banks	5215920	1	5101137	1
	Old Private Sector Banks	---		---	
	Private Sector Banks	1360253	2	1342935	2
	Foreign Banks	299575	3	291142	3
2014	Small Finance Banks	---		---	
	<b>Scheduled Commercial Banks</b>	<b>6875748</b>		<b>6735213</b>	
	Public Sector Banks	5615793	1	5476250	1
	Old Private Sector Banks	---		---	
	Private Sector Banks	1607329	2	1584312	2
	Foreign Banks	336638	3	327599	3
	Small Finance Banks	---		---	
2015	<b>Scheduled Commercial Banks</b>	<b>7559760</b>		<b>7388160</b>	
	Public Sector Banks	5823907	1	5593577	1
	Old Private Sector Banks	---		---	
	Private Sector Banks	1972608	2	1939339	2
	Foreign Banks	376607	3	363551	3
	Small Finance Banks	---		---	
	<b>Scheduled Commercial Banks</b>	<b>8173121</b>		<b>7896467</b>	
2016	Public Sector Banks	5874849	1	5557232	1
	Old Private Sector Banks	---		---	
	Private Sector Banks	2266721	2	2219475	2
	Foreign Banks	343822	3	332335	3
	Small Finance Banks	---		---	

<b>Year</b>	<b>Type of Banks</b>	<b>Gross Advances (Rs.)</b>	<b>Ranking</b>	<b>Net Advances (Rs.)</b>	<b>Ranking</b>
	<b>Scheduled Commercial Banks</b>	<b>8492565</b>		<b>8116109</b>	
2017	Public Sector Banks	6141698	1	5697350	1
	Old Private Sector Banks	---		---	
	Private Sector Banks	2725891	2	2662753	2
	Foreign Banks	363305	3	351016	3
	Small Finance Banks	---		---	
	<b>Scheduled Commercial Banks</b>	<b>9266210</b>		<b>8745997</b>	
2018	Public Sector Banks	6382461	1	5892667	1
	Old Private Sector Banks	---		---	
	Private Sector Banks	3442347	3	3327328	2
	Foreign Banks	406881	2	396726	3
	Small Finance Banks	62775	4	59461	4
	<b>Scheduled Commercial Banks</b>	<b>10294463</b>		<b>9676183</b>	
2019	Public Sector Banks	6615112	1	6158112	1
	Old Private Sector Banks	---		---	
	Private Sector Banks	3776231	2	3625154	2
	Foreign Banks	436066	3	428076	3
	Small Finance Banks	91509	4	90554	4
	<b>Scheduled Commercial Banks</b>	<b>10918918</b>		<b>10301897</b>	
2020	Public Sector Banks	6770363	1	6348758	1
	Old Private Sector Banks	---		---	
	Private Sector Banks	4097040	2	3939292	2
	Foreign Banks	420617	3	423546	3
	Small Finance Banks	111589	4	108613	4
	<b>Scheduled Commercial Banks</b>	<b>11399608</b>		<b>10820208</b>	

(Source: Adapted from Reserve Bank of India, 2020)

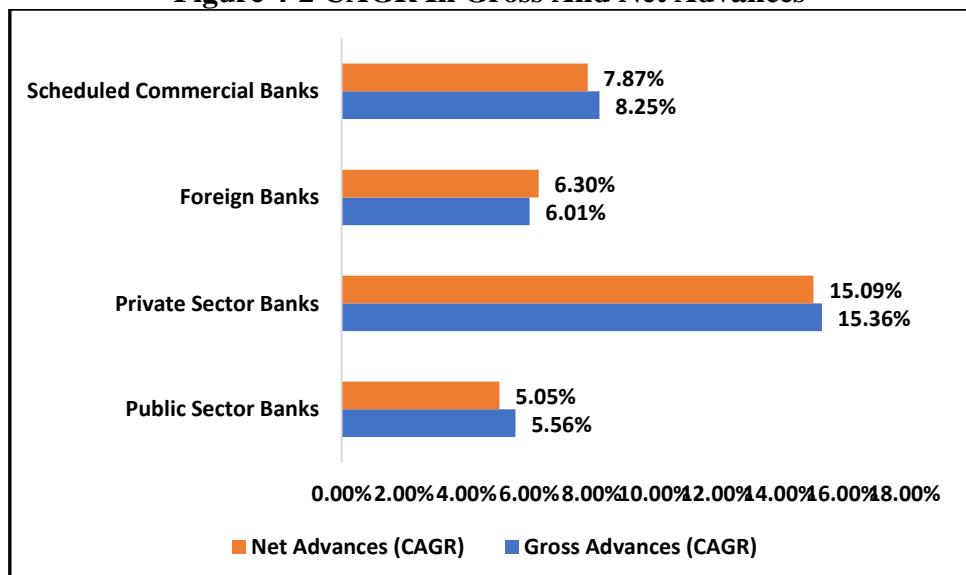
It may be observed that gross advances and net advances of public sector, old private sector, private sector and foreign banks were used in the analysis. A new category of banks-small finance banks emerged from the year 2018. A rank analysis was performed, by the inter-comparison of the yearly data across the different types of banks. First rank was provided to the highest amount, subsequently followed by the next amount. Based on the ranking, it may be inferred that across all the years the gross advances and net advances were highest for public sector banks, followed by either old private sector banks or private banks. Foreign banks stood

at third position in the terms of gross and net advances. Small finance banks also joined the rally for gross and net advances. Advances are an integral part of any banks and the same has been noted even for the newest banks.

#### **4.1.2 Compounded Annual Growth Rate In Gross And Net Advances**

In order to get a better idea on the growth of gross advances and net advances, Compounded Annual Growth Rate (CAGR) was computed for the period of 10 years across the public sector, private sector, foreign banks and also scheduled commercial banks. As the small finance banks started its operations late in the year 2018 onwards, it was excluded from the purview of 10 years' time horizon period for computation of CAGR. The absolute numbers of initial private sector and old private sector banks were clubbed to compute the CAGR.

**Figure 4-2 CAGR In Gross And Net Advances**

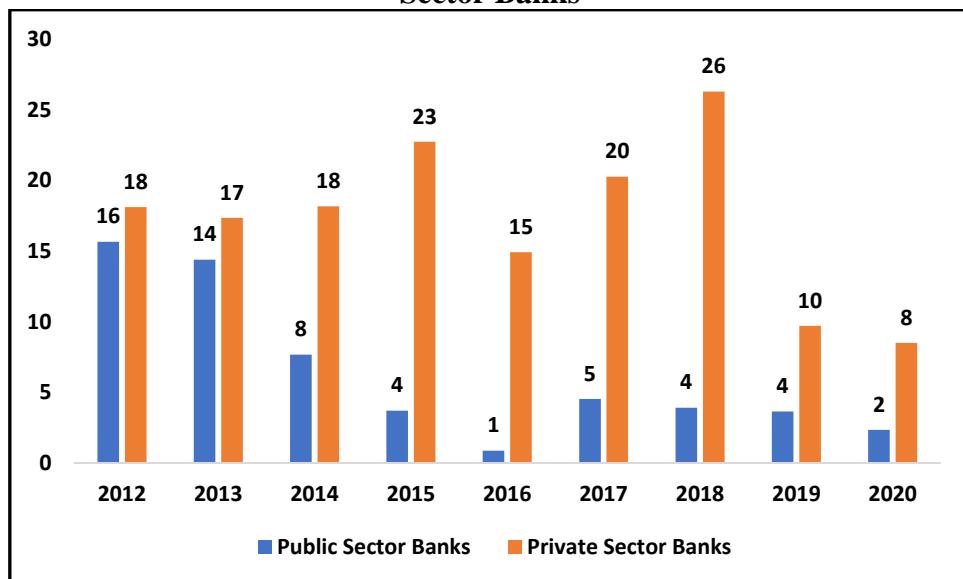


The CAGR of private sector banks was highest for both the gross and the net advances, which was subsequently followed by foreign banks and lastly the public sector banks. The CAGR in gross advances of the scheduled banks for a period of 10 years, was noted at 8.25%. The CAGR in net advances of the scheduled banks was noted at 7.87%. The latest gross advances were Rs. 1,13,99,608 Crores and net advances were Rs. 1,08,20,208. It clearly indicates that all banks have provided loans.

#### **4.1.3 Percentage Growth In Gross Advances Of Public Vs. Private Sector Banks**

For a better understanding the performance of two giants i.e., the public sector and the private sector banks were compared for its gross advances on Year-On-Year basis (YOY).

**Figure 4-3 Year-On-Year Percentage Growth In Gross Advances Of Public Vs. Private Sector Banks**



(Source: Excel Output)

A Y-O-Y comparison indicates that private sector banks had provided more loans as compared to the public sector banks. In the year 2018, the highest growth of 26% was noted in lending by private sector banks. In the year 2012 only the Y-O-Y growth rate for public sector banks was in double digit at 16%, which eventually dropped to only two percent in the year 2020. For the public sector banks, the growth rate of four percent was constant during the two aggressive lending year in 2015 and 2018. It may be inferred that private sector banks always feel the heat of achieving the yearly lending targets, and hence they tend to lend more aggressively than the public sector banks. Thus, public banks face a cut-throat competition from private banks in the lending business. Public banks often involve in in-depth scrutiny before lending and its loan sanction criteria are stringent than the private sector banks, which may be one of the reasons for low growth in the lending percentage. Private banks on the contrary provide loans liberally and charge exorbitant rate of interest. Thus, private banks take higher risk.

#### **4.1.4 Descriptive Statistics On Gross Advances And Net Advances Of Different Banks**

The mean, median and standard deviation was computed on the advances provided by the different banks over a period of 10 years. A missing value function of SPSS was used, in the case of the non-availability of the data either on yearly basis or type of banks. This function was used so that the software did not count the blank spaces as eligible count of observation and calculate a mean, which turned out to be incorrect. Thus, missing function helped to compute the correct value of the mean.

**Table 4-2 Descriptive Statistics On Gross Advances And Net Advances Of Different Banks**

<b>(Rs. Crores)</b>			
<b>Bank Type</b>	<b>Statistics</b>	<b>Gross Advances (Rs.)</b>	<b>Net Advances (Rs.)</b>
<b>Public Sector Banks</b>	Mean	5694300	5417524
	Median	5849378	5575405
	Std. Deviation	901738	755607
<b>Old Private Sector Banks</b>	Mean	253019	250008
	Median	253019	250008
	Std. Deviation	28427	28184
<b>Private Sector Banks</b>	Mean	2288294	2225014
	Median	2119665	2079407
	Std. Deviation	1191231	1136250
<b>Foreign Banks</b>	Mean	348720	340752
	Median	353564	341676
	Std. Deviation	65922	65982
<b>Small Finance Banks</b>	Mean	88624	86209
	Median	91509	90554
	Std. Deviation	24535	24862
<b>Scheduled Commercial Banks</b>	Mean	8412755	8063357
	Median	8332843	8006288
	Std. Deviation	2084092	1874861

**(Source: SPSS Output)**

The average gross advances by public sector banks was Rs.56,94,300 Crore; Old private sector banks average lending was Rs. 2,53,019 Crore. Private sector bank's mean lending was Rs. 22,88,294 Cr. Foreign banks on a average provided loan of Rs. 3,48,720 Cr. Small finance banks provided loans on a average Rs.88,624 Cr. The average lending by scheduled commercial banks turned out to be Rs.84,12,755 Cr. The average net advances across all the banks were lower than the average gross advances. The median lending was above Rs.90,000 Cr. The SD significantly varied across different types of banks, may be due the different size of the loan portfolio under different categories of loan such as priority sector and non-priority sector lending.

#### 4.1.5 Normality Testing Of The Gross Advances And Net Advances Data

In order to apply the statistical test, the normality of the data was ensured using the Kolmogorov Smirnova Test and Shapiro Wilk Test. Shapiro Wilk Test is useful for a sample size less than 50 and the Kolmogorov Smirnova Test is used when the sample size is greater than 50. The hypothesis to test the normality is discussed further. The scheduled commercial banks data represents the holistic picture of all different types of banks taken together. To obtain a better clarity of differences amongst the various types of banks, the data of the scheduled commercial banks was not considered. Normality was checked between different categories of banks and gross advances, and it was also checked between different categories of banks and net advances.

*H<sub>01</sub>: Data is normally distributed.*

*H<sub>11</sub>: Data is not normally distributed.*

**Table 4-3 Shapiro Wilk Test Statistics On Gross Advances And Net Advances**

Bank Type	Gross Advances			Net Advances		
	Statistic	df	Sig.	Statistic	df	Sig.
Public Sector Banks	0.93	10	0.49	0.92	10	0.33
Private Sector Banks	0.94	10	0.57	0.94	10	0.60
Foreign Banks	0.96	10	0.82	0.96	10	0.80
Small Finance Banks	0.99	3	0.81	0.98	3	0.71

(Source: SPSS Output)

It may be inferred that the Sig. P-value for gross advances across public sector banks, private sector banks, foreign banks, and small finance banks was greater than 0.05, hence the null hypothesis is not rejected, i.e. the data is normally distributed. If the data is normally distributed then only the parametric test could be applied.

#### 4.1.6 Homogeneity Of The Variance Of Gross Advances And Net Advances Data

The homogeneity of the variance was checked using the Levene's Test.

*H<sub>02</sub>: There is homogeneity of variance i.e. Equal Variance assumed.*

*H<sub>12</sub>: There is no homogeneity of variance i.e. Equal Variance not assumed.*

**Table 4-4 Levene Test Statistics On Gross Advances And Net Advances (Rs. Crores)**

Type of Banks	N	Gross Advances		Net Advances	
		Mean	SD	Mean	Std. Deviation
Public Sector Banks	10	5694300.40	901738.27	5417523.60	755606.97
Old Private Sector Banks	2	253019.00	28427.11	250008.00	28183.86
Private Sector Banks	10	2288294.30	1191230.65	2225014.00	1136250.45
Foreign Banks	10	348720.40	65922.44	340752.00	65982.43
Small Finance Banks	3	88624.33	24534.52	86209.33	24862.36

Type of Banks		Gross Advances		Net Advances	
	N	Mean	SD	Mean	Std. Deviation
Total	45	3738058.00	3425036.87	3582780.13	3251884.77
Levene Statistic		7.50		7.47	
df1		4.00		4.00	
df2		30.00		30.00	
Sig. (p-value)		0.00		0.00	

(Source: SPSS Output)

It may be inferred that the variance in gross advances and net advances across all the categories of the banks are not the same. The Sig. P-value is 0.00, which is less than 0.05, in such a case the null hypothesis is rejected. In other words, there is no homogeneity of the variance and hence, one way ANOVA is not used, but the Welch Test is applied.

#### 4.1.7 Welch Test Of Gross Advances And Net Advances

In order to check the difference in the mean scores of gross advances and net advances the Welch Test was administered. The hypothesis for the same is discussed further.

*H<sub>03</sub>: There is no significant difference between the mean scores of Gross Advances and Net Advances across various categories of public sector banks, private sector banks, foreign banks, and small finance banks.*

*H<sub>13</sub>: There is a significant difference between the mean scores of Gross Advances and Net Advances across various categories of public sector banks, private sector banks, foreign banks, and small finance banks.*

Table 4-5 Welch Test Statistics On Gross And Net Advances

Particulars	Gross Advances	Net Advances
Welch Statistic	105.07	125.67
df1	4	4
df2	8.29	8.34
Sig. (p-value)	0.00	0.00

(Source: SPSS Output)

As the Sig. P-value is 0.00, which is less than 0.05, it means the null hypothesis is rejected. In other words, it indicates that there is a significant difference between the mean scores of Gross Advances and Net Advances across various categories of public sector banks, private sector banks, foreign banks and small finance banks. At least one of the categories of independent variables differs significantly from the rest in their mean scores. For detailed analysis, the paired comparison shall be conducted by the Post- Hoc analysis using Games Howell Method.

#### 4.1.8 Post-Hoc Analysis On Gross Advances And Net Advances

Post-Hoc Analysis was conducted because the null hypothesis for Welch Test for gross advances and net advances was rejected. In other words, there was a significant difference in the gross advances and net advances when compared in one-to-one pair with all the items in the group. The Welch Test was applied because the equal variances were not assumed, and in such a case, the post-hoc analysis was conducted using the Games Howell Method to check the intra-group differences. The results of the same are discussed further.

**Table 4-6 Post-Hoc Test Statistics On Gross And Net Advances**

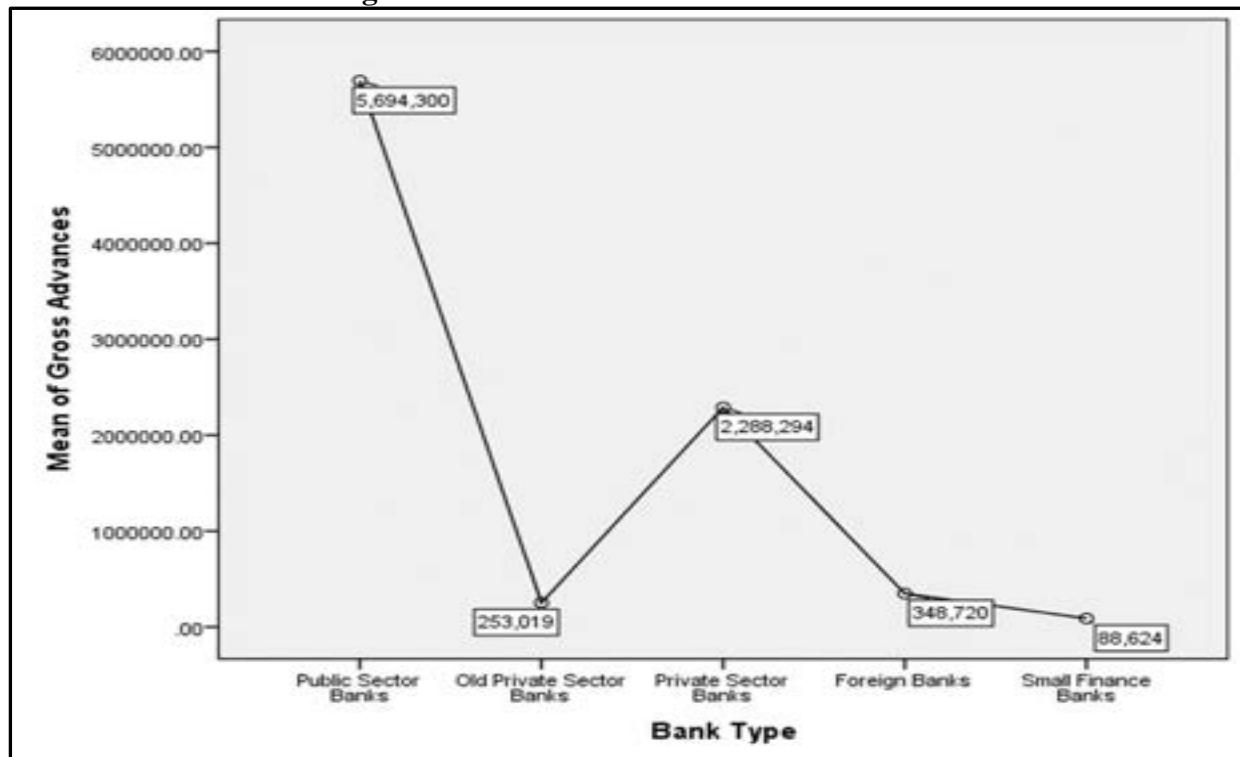
Type of Bank	Comparison	Gross Advances		Net Advances	
		Mean Difference (I-J)	Sig.	Mean Difference (I-J)	Sig.
<b>Public Sector Banks</b>	Old Private Sector Banks	5441281	0.00	5167516	0.00
	Private Sector Banks	3406006	0.00	3192510	0.00
	Foreign Banks	5345580	0.00	5076772	0.00
	Small Finance Banks	5605676	0.00	5331314	0.00
<b>Old Private Sector Banks</b>	Public Sector Banks	-		-5167516	0.00
	Private Sector Banks	5441281	0.00	-1975006	0.00
	Foreign Banks	2035275	0.00	-90744	0.15
	Small Finance Banks	-95701	0.13	163799	0.06
<b>Private Sector Banks</b>	Public Sector Banks	-		-3192510	0.00
	Old Private Sector Banks	3406006	0.00	1975006	0.00
	Foreign Banks	2035275	0.00	1884262	0.00
	Small Finance Banks	1939574	0.00	2138805	0.00
<b>Foreign Banks</b>	Public Sector Banks	-		-5076772	0.00
	Old Private Sector Banks	5345580	0.00	90744	0.15
	Private Sector Banks	95701	0.13	-1884262	0.00
	Small Finance Banks	1939574	0.00	254543	0.00
<b>Small Finance Banks</b>	Public Sector Banks	-		-5331314	0.00

Type of Bank	Comparison	Gross Advances		Net Advances	
		Mean Difference (I-J)	Sig.	Mean Difference (I-J)	Sig.
Type of Bank	Old Private Sector Banks	-164395	0.07	-163799	0.06
	Private Sector Banks	-2199670	0.00	-2138805	0.00
	Foreign Banks	-260096	0.00	-254543	0.00

(Source: SPSS Output)

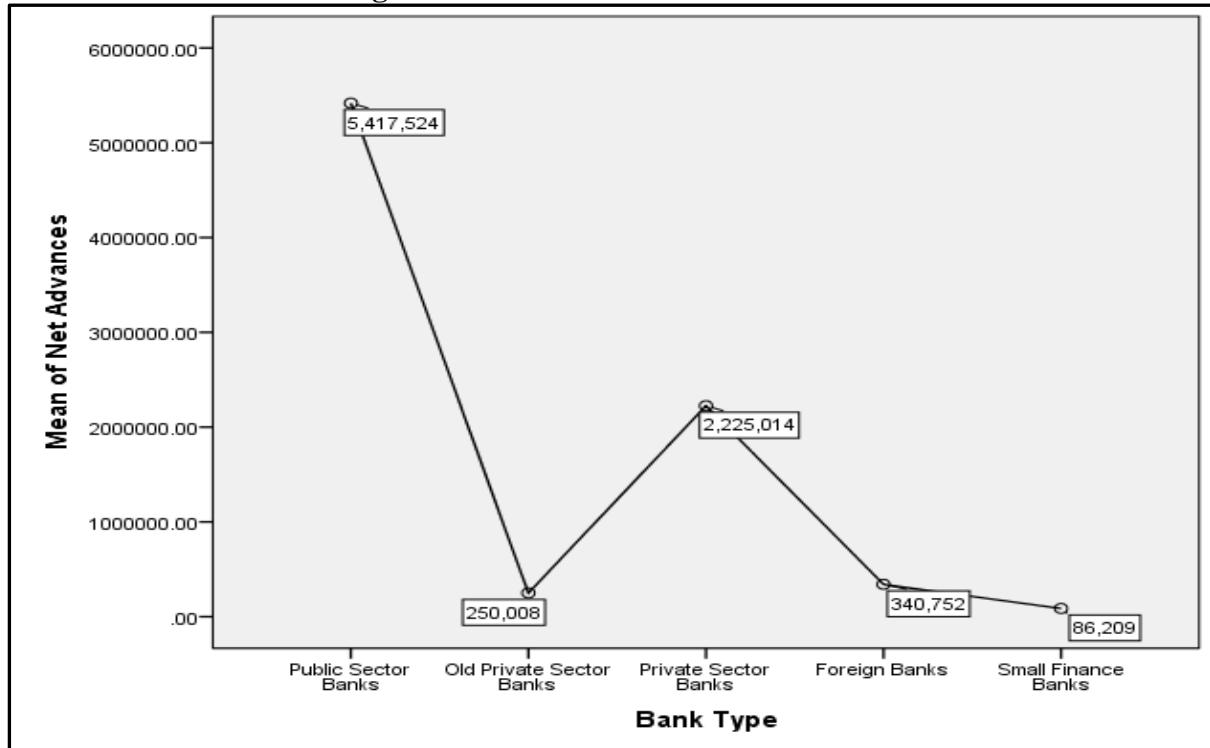
From Table 4-6 it may be inferred that there was a statistically significant difference in majority of the one-to-one paired comparison except for the ones highlighted in the yellow colour. The gross advances and net advances between old private sector banks and foreign banks were statistically non-significant. The net advances between old private sector banks and small finance bank was also not statistically significant.

Figure 4-4 Mean Plot of Gross Advances



(Source: SPSS Output)

**Figure 4-5 Mean Plot Of Net Advances**



(Source: SPSS Output)

It may be inferred that the mean gross advance and the net advance was highest for the public sector banks, which indicated that public sector banks provided loans of higher amount when compared to the private sector banks, old private sector banks, foreign banks and small finance banks. From the earlier discussion it was understood that private sector banks Y-O-Y growth in lending was highest, but in terms of amount of lending the money, the public sector banks was the foremost. In other words the private sector banks catered to the more customers, whereas the public sector on an average provided large amount of loans to the customers.

#### 4.1.9 Gross And Net NPA Status Of Scheduled Commercial Banks

NPAs eat up the profits of the banks and subsequently de-grades the performance of the banks. The consolidated performance of the scheduled commercial banks is represented in Table 4-7.

**Table 4-7 Gross And Net NPA Status Of Scheduled Commercial Banks  
(Rs. Crores)**

Year	Gross NPA	Y-O-Y (%)	Net NPA	Y-O-Y (%)
2011-12	142903	---	65205	---
2012-13	194053	36	98693	51
2013-14	263362	36	142421	44
2014-15	323335	23	175841	23
2015-16	611947	89	349814	99
2016-17	791791	29	433121	24
2017-18	1039679	31	520838	20

Year	Gross NPA	Y-O-Y (%)	Net NPA	Y-O-Y (%)
2018-19	936474	-10	355068	-32
2019-20	899803	-4	289370	-19
2020-21	837771	-7	258228	-11

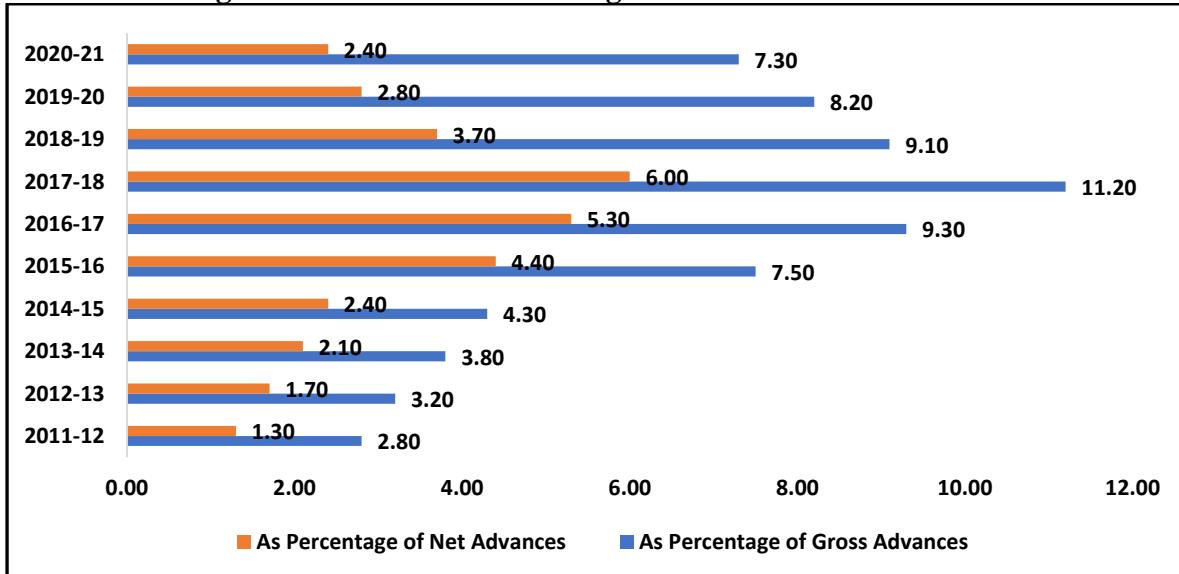
(Source: SPSS Output)

It may be inferred that the amount of Gross NPA and Net NPA kept on increasing till the year 2017-18. In fact in the year 2017-18 the amount of Gross NPA and Net NPA was highest at Rs. 10,39,679 Cr. and Rs. 5,20,838 Cr. From the year 2018-19 the amount of Gross NPA and Net NPA started declining. On a Y-O-Y comparison it may be noted that Gross as well as net NPA was highest in the year 2015-16. The Y-O-Y decline in respective Gross NPA and Net NPA was highest at -10% and -32% in the year 2018-19. In the span of 10 years, a CAGR of 19.35% and 14.76% was noted in Gross NPA and Net NPA respectively.

#### 4.1.10 Scheduled Banks' NPAs As A Percentage Of Gross And Net Advances

NPA as a percentage of Gross Advances or Net Advances highlights the quantum of loans on which the principal repayment or interest payments were due but not paid. In such type of loans the debtor is unable to fulfil his or obligation of timely payment of the money. NPAs as a percentage of Gross and Net Advances are discussed further.

**Figure 4-6 NPA As A Percentage Of Gross And Net Advances**



(Source: Excel Output)

As high as 11.20% of gross advances were treated as NPAs in the year 2017-18. Higher the NPAs poor is the performance of the banks and the economy as a whole. A high level of NPA signals that the economy is gradually deteriorating. Rising inflation and governance issues may be the reasons for a high level of NPAs in the Indian banks.

#### **4.1.11 Gross NPAs And Net NPAs Of Different Banks**

Gross NPA and Net NPA on a time-series data from 2011-2012 to 2020-2021 was considered to compute the CAGR. As the small finance banks started its operations late in the year 2018 onwards, it was excluded from the purview of 10 years' time horizon period for computation of CAGR. The absolute numbers of initial private sector and old private sector banks were clubbed to compute the CAGR. The CAGR of Gross NPAs for public sector banks, private sector banks and foreign banks were respectively 18%, 26.75% and 9.10%. The growth of CAGR for Gross NPA is highest in the case of private sector banks, followed by the public sector banks and foreign banks. The CAGR of Net NPAs for public sector banks, private sector banks and foreign banks were respectively 12.71%, 33.95% and 7.78%. The CAGR for Net NPA is highest for private banks, followed by public banks and foreign banks.

To get an idea on the Gross and Net NPAs of Public, Private and Foreign Banks a tabular comparison is made in Table 4-8, which is discussed further. Small finance banks data was available for just three years, and hence it was dropped from further analysis. Emphasis was made on public sector banks, private sector banks and foreign banks.

**Table 4-8 Yearly Comparison Of Gross NPA And Net NPA Of Public, Private And Foreign Banks**

**(Rs. Crores)**

<b>Year</b>	<b>Gross NPA</b>			<b>Net NPA</b>		
	<b>Public</b>	<b>Private</b>	<b>Foreign</b>	<b>Public</b>	<b>Private</b>	<b>Foreign</b>
2011-12	122039	14500	6297	60691	3000	1412
2012-13	170216	15800	7977	92037	3900	2663
2013-14	227264	24542	11565	130394	8862	3160
2014-15	278468	34106	10761	159951	14128	1762
2015-16	539956	56186	15805	320376	26677	2762
2016-17	684732	93209	13629	383089	47780	2137
2017-18	895601	129335	13849	454473	64380	1548
2018-19	739541	183604	12242	285122	67309	2051
2019-20	678317	209568	10208	230918	55683	2005
2020-21	616616	200141	15044	196451	55809	2987

**(Source: Adapted from Reserve Bank of India, 2020)**

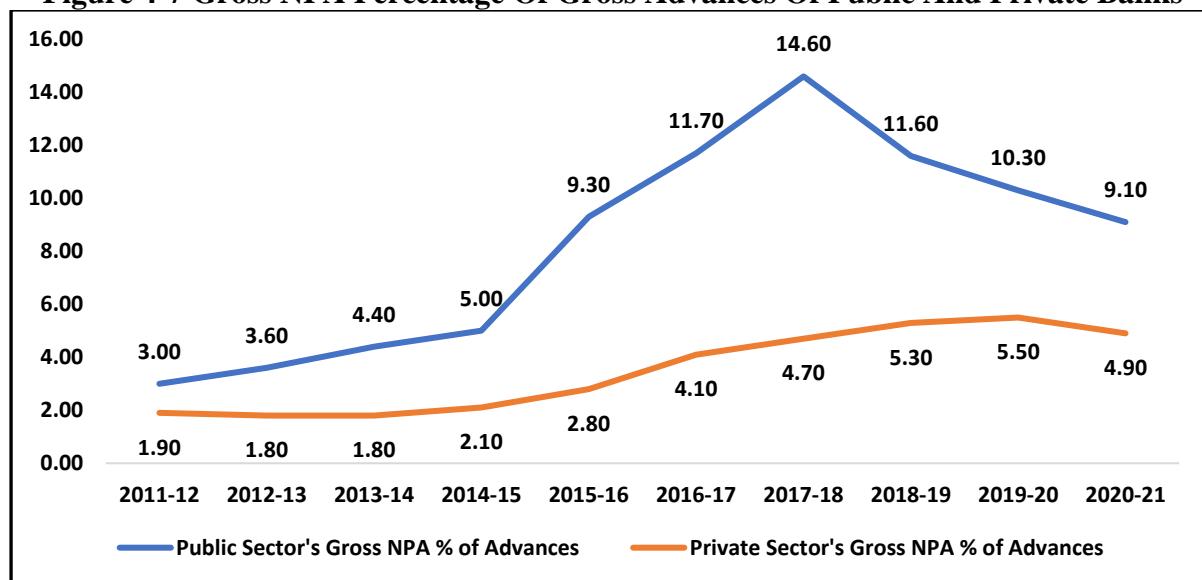
It may be inferred that based on the Y-O-Y data, the Gross NPAs and Net NPAs of Public Sector banks was highest when compared with the private sector banks and foreign banks. In the year 2017-18 all the three types of banks i.e. public sector banks, private sector banks and foreign banks had the highest amount of Gross NPAs and Net NPAs. Post 2017-18 the amount of Gross NPAs and Net NPAs started to decline, but in the inter comparison still public sector

banks had the largest amount of NPAs. The literature also described that public sector banks carried high amount of bad loans either due to poor appraisal policy, or political pressure, or due to mandatory lending to the priority sector lending.

#### **4.1.12 Percentage Of Gross NPAs And Net NPAs To Advances Of Public And Private Banks**

In order to get the better understanding on the percentage of Gross NPAs and Net NPAs to Gross Advances and Net Advances respectively between two rivals a graphical representation was made as described in Figure 4-7 and Figure 4-8. Public sector and Private Sector banks are considered to be the rivals and a slightest hike in the NPA percentage depresses the profits of the banks. From the graph it may be noted that the gross percentage NPA to gross advances, as well as net percentage NPA to net advances of public sector banks have been rising on a continuous basis from 2011 to 2017. For private banks too the numbers are rising, but are still less than the public sector banks.

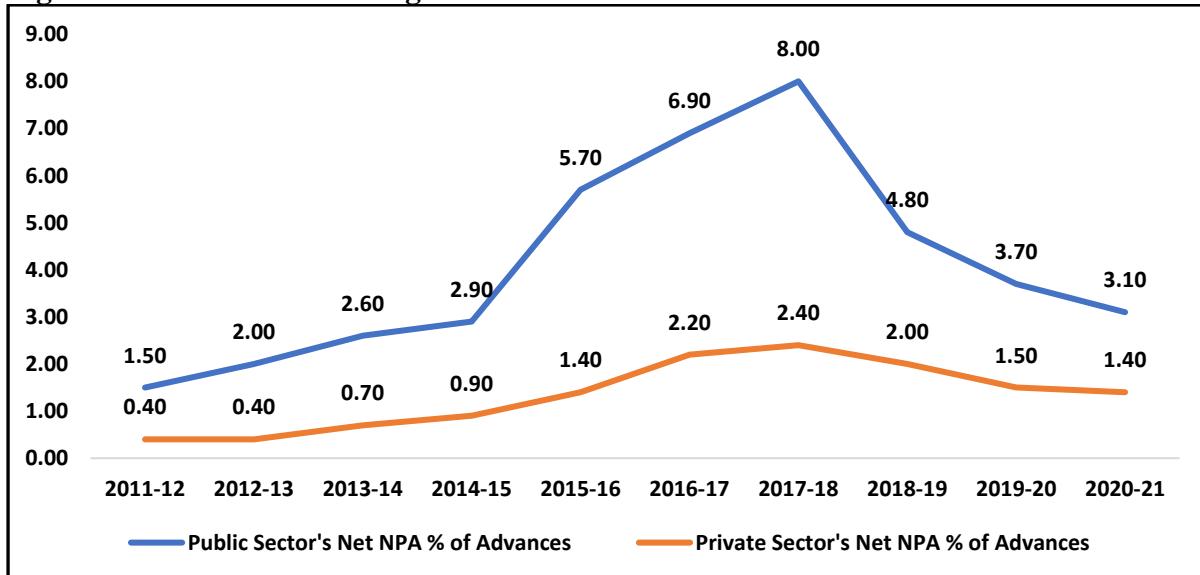
**Figure 4-7 Gross NPA Percentage Of Gross Advances Of Public And Private Banks**



**(Source: Excel Output)**

Thus, it may be inferred that in the public sector banks the percentage of Gross NPA to Gross Advances rises on a yearly basis. It is highest in the year 2017-18. In the case of private sector banks too the percentage is rising.

**Figure 4-8 Net NPA Percentage Of Net Advances Of Public And Private Banks**



(Source: Excel Output)

It may be inferred that the Net NPA percentage of net advances is rising in the case of public sector banks, followed by the private sector banks. The percentage for both the types of banks are highest in the year 2017-18.

#### 4.1.13 Normality Testing Of Gross NPAs And Net NPAs

In order to apply the statistical test, the normality of the data was ensured using the Kolmogorov Smirnova Test and Shapiro Wilk Test. Shapiro Wilk Test is useful for a sample size less than 50 and the Kolmogorov Smirnova Test is used when the sample size is greater than 50. The hypothesis to test the normality is discussed further. The normality of the data was assessed amongst the three major rival types of banks, i.e. the public sector banks, private sector banks, and the foreign banks. The data of old private sector banks was added to the private sector banks and the small finance banks was available for just three years, hence it was also excluded from the analysis. Normality was checked between different categories of banks and gross NPA, and it was also checked between different categories of banks and net NPA.

*H<sub>04</sub>: Data is normally distributed.*

*H<sub>14</sub>: Data is not normally distributed.*

**Table 4-9 Shapiro Wilk Test Statistics On Gross NPA And Net NPA**

Bank Type	Gross NPA			Net NPA		
	Statistic	df	Sig.	Statistic	df	Sig.
Public Sector Banks	0.91	10	0.29	0.97	10	0.86
Private Sector Banks	0.86	10	0.08	0.87	10	0.09
Foreign Banks	0.97	10	0.84	0.94	10	0.56

(Source: SPSS Output)

It may be inferred that the Sig. P-value for gross NPA across public sector banks, private sector banks, and foreign banks, was greater than 0.05, hence the null hypothesis is not rejected, i.e. the data is normally distributed. If the data is normally distributed then only the parametric test could be applied.

#### **4.1.14 Homogeneity Of The Variance Of Gross NPAs And Net NPAs**

The homogeneity of the variance was checked using the Levene's Test.

*H<sub>05</sub>: There is homogeneity of variance i.e. Equal Variance assumed.*

*H<sub>15</sub>: There is no homogeneity of variance i.e. Equal Variance not assumed.*

**Table 4-10 Levene Test Statistics On Gross NPA And Net NPA**

<b>Type of Banks</b>	<b>N</b>	<b>Gross NPAs</b>		<b>Net NPAs</b>	
		<b>Mean</b>	<b>SD</b>	<b>Mean</b>	<b>Std. Deviation</b>
Public Sector Banks	10	495275	272814	231350	128524
Private Sector Banks	10	96099	78974	34752	26055
Foreign Banks	10	11737	3033	2248	610
Total	30	201037	266541	89450	126231
Levene Statistic		32.79		18.76	
df1		2		2	
df2		27		27	
Sig. (p-value)		0.00		0.00	

(Source: SPSS Output)

It may be inferred that the variance in gross NPAs and net NPAs across all the categories of the banks are not the same. The Sig. P-value is 0.00, which is less than 0.05, in such a case the null hypothesis is rejected. In other words, there is no homogeneity of the variance and hence, one way ANOVA is not used, but the Welch Test is applied.

#### **4.1.15 Welch Test Of Gross NPAs And Net NPAs**

In order to check the difference in the mean scores of gross NPAs and net NPAs the Welch Test was administered. The hypothesis for the same is discussed further.

*H<sub>06</sub>: There is no significant difference between the mean scores of Gross NPAs and Net NPAs across various categories of public sector banks, private sector banks, and foreign banks.*

*H<sub>16</sub>: There is a significant difference between the mean scores Gross NPAs and Net NPAs across various categories of public sector banks, private sector banks, and foreign banks.*

**Table 4-11 Welch Test Statistics On Gross NPA And Net NPA**

<b>Particulars</b>	<b>Gross NPA</b>	<b>Net NPA</b>
Welch Statistic	20.27	22.41
df1	2	2

Particulars	Gross NPA	Net NPA
df2	12.02	12.00
Sig. (p-value)	0.00	0.00

(Source: SPSS Output)

As the Sig. P-value is 0.00, which is less than 0.05, it means the null hypothesis is rejected. In other words, it indicates that there is a significant difference between the mean scores of Gross NPA and Net NPA across various categories of public sector banks, private sector banks, and foreign banks. At least one of the categories of independent variables differs significantly from the rest in their mean scores. For detailed analysis, the paired comparison shall be conducted by the Post- Hoc analysis using Games Howell Method.

#### 4.1.16 Post-Hoc Analysis On Gross NPA And Net NPA

Post-Hoc Analysis was conducted because the null hypothesis for Welch Test for gross NPA and net NPA was rejected. In other words, there was a significant difference in the gross NPA and net NPA when compared in one-to-one pair with all the items in the group. The Welch Test was applied because the equal variances were not assumed, and in such a case, the post-hoc analysis was conducted using the Games Howell Method to check the intra-group differences. The results of the same are discussed further.

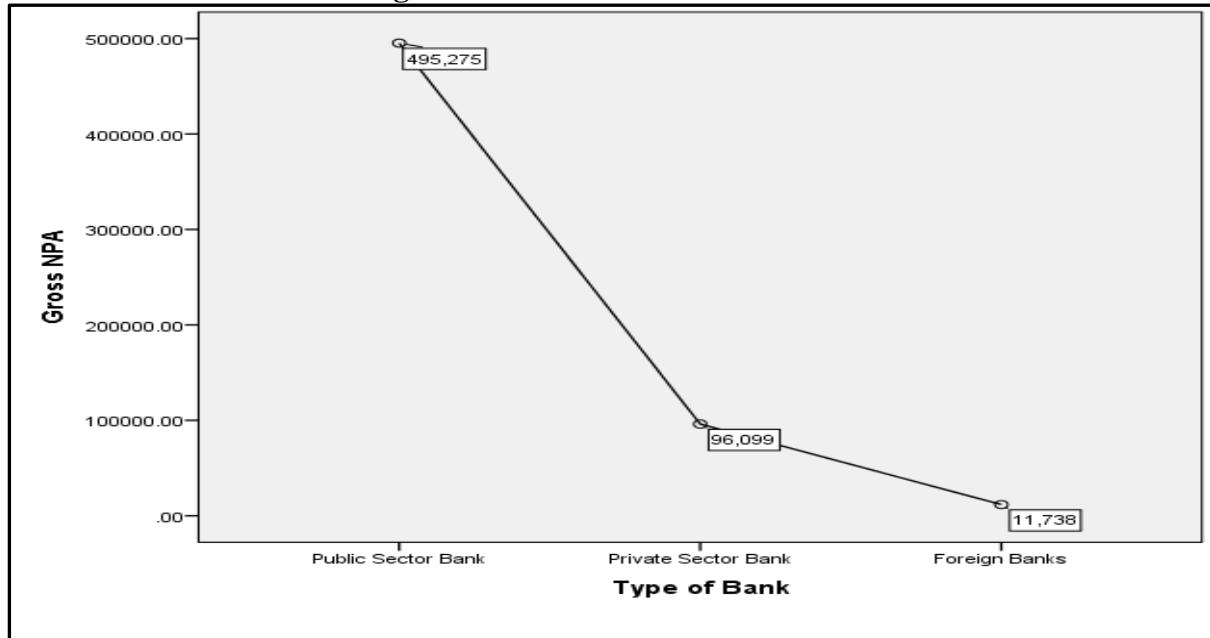
**Table 4-12 Post-Hoc Test Statistics On Gross And Net NPAs**

Type of Bank	Comparison	Mean Difference (I-J)	Sig.	Mean Difference (I-J)	Sig.
Public Sector Bank	Private Sector Bank	399175.90	0.00	196597.40	0.00
	Foreign Bank	483537.30	0.00	229101.50	0.00
Private Sector Bank	Public Sector Bank	-399175.90	0.00	-196597.40	0.00
	Foreign Bank	84361.40	0.02	32504.10	0.01
Foreign Bank	Public Sector Bank	-483537.30	0.00	-229101.50	0.00
	Private Sector Bank	-84361.40	0.02	-32504.10	0.01

(Source: SPSS Output)

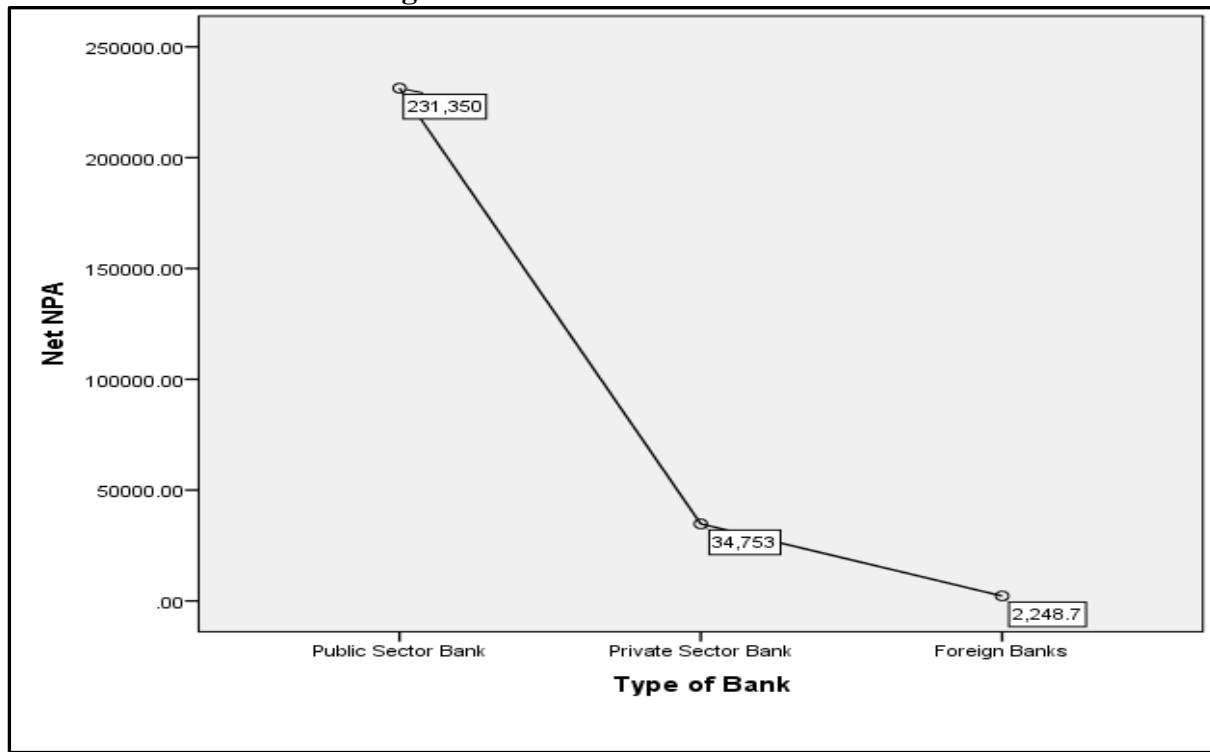
From Table 4-12 it may be inferred that there was a statistically significant difference in all of the one-to-one paired comparison. The gross NPA and net NPA across all the three categories of the banks were different and were also statistically significant.

**Figure 4-9 Mean Plot of Gross NPA**



(Source: SPSS Output)

**Figure 4-10 Mean Plot of Net NPA**



(Source: SPSS Output)

It may be inferred that the mean gross NPA and the net NPA was highest for the public sector banks, which indicated that public sector banks had higher level of gross as well as net NPAs, when compared to the private sector banks, and foreign banks. The scholars had indicated that

public sector banks had highest amount of NPAs. The reasons attributed for the high amount of NPAs in public sector banks were political interference, loan waiver by banks based on the compulsion of government, and the liquidation of assets not fetching the desired amount due to poor valuation at the time of the sanction of the loan. Private banks and foreign banks usually do not feel the heat of the such interferences, and, hence try to ensure that loans do not turn bad, asset valuation is properly conducted and also take stringent actions for recovery of the loans.

#### **4.1.17 Pearson Correlation Between Gross Advances And Gross NPAs And Net Advances And Net NPAs**

Gross advances refer to the total loans provided by the banks under different heads. In other words, it is the credit or money provided by banks to the different types of borrowers. Net advances on the other hand involves deductions of provisions made by the banks (for sub-standard, doubtful, or bad loans) from the gross advances. The net advances numbers are less than the gross advances. Thus, the figure of net advances represents the money that bank would recover from the customers, i.e., the money coming back, to the bank on account of the loan provided by it. From the net advances number, it may be understood that the banks recovers less than the amount it had loaned. Gross NPA is the total amount of debt that the bank has not collected i.e. the principal and the interest. Net NPAs are the total of defaulted loans (bad loans) after deducting the provision for doubtful and unpaid debts. Net NPAs are the real loss to the banks, because, the bank could not recover the bad loans, ever after deducting the provisions.

In the previous section, it was already tested that the data was normal. The data used in the study was a scale data or metric data. Based on normality and metric data, a Pearson correlation test was administered to check if there was relationship between the gross advances and gross NPA and net advances and Net NPA.

***H<sub>07</sub>: There is no correlation between Gross Advances (Net Advances) and Gross NPAs (Net NPAs).***

***H<sub>17</sub>: There is a correlation between Gross Advances (Net Advances) and Gross NPAs (Net NPAs).***

**Table 4-13 Pearson Correlation Test Statistics Between Advances And NPAs**

Variable 2	Statistics	Variable 1	
		Gross Advances	Net Advances
<b>Gross NPA</b>	Pearson Correlation (r)	0.89	---
	Sig. (2-tailed)	0.00	---

Variable 2	Statistics	Variable 1	
		Gross Advances	Net Advances
Net NPA	N	35	---
	Pearson Correlation (r)	---	0.84
	Sig. (2-tailed)	---	0.00
	N	---	35

(Source: SPSS Output)

It may be inferred that the Sig. P-value is  $0.00 < 0.05$ , hence the null hypothesis is rejected. In other words, there is a correlation between gross advances and gross NPAs and net advances and Net NPAs. The results are statistically significant, which means that the results have not just occurred by chance. The r value is greater than +0.70, which further indicates that the relationship is positive and strong. The phenomena of NPA arises only when the banks provide the loans or advances. Thus, for banks, if the level of advances rises the threat of NPAs also rise.

#### 4.1.18 Additions Of NPAs In Public, Private And Foreign Banks

Additions to NPAs refers to the amount of new NPA occurring in the current year. It represents the cumulative impact of NPAs. The additions in NPAs are tested across the three categories of banks namely the public sector banks, private sector banks and foreign banks. The cross-sectional data for three banks and eleven years are taken into consideration for the analysis. The data for small banks are available only for certain number of years, hence it is not included in the analysis. The additions in NPA for State Bank of India and its associates was given separately, which was clubbed with the private sector banks data for deriving the holistic picture.

In order to apply the statistical test, the normality of the data was ensured using the Kolmogorov Smirnova Test and Shapiro Wilk Test. Shapiro Wilk Test is useful for a sample size less than 50 and the Kolmogorov Smirnova Test is used when the sample size is greater than 50. The hypothesis to test the normality is discussed further. The normality of the data was assessed amongst the three major rival types of banks, i.e. the public sector banks, private sector banks, and the foreign banks. Normality was checked between different categories of banks and additions of NPA.

$H_{08}$ : Data is normally distributed.

$H_{18}$ : Data is not normally distributed.

Table 4-14 Shapiro Wilk Test Statistics On Additions Of NPA

Bank Type	Additions Of NPAs		
	Statistic	df	Sig.
Public Sector Banks	0.96	11	0.81
Private Sector Banks	0.88	11	0.11

Bank Type	Additions Of NPAs		
	Statistic	df	Sig.
Foreign Banks	0.85	11	0.06

(Source: SPSS Output)

It may be inferred that the Sig. P-value for additions in NPA across public sector banks, private sector banks, and foreign banks, was greater than 0.05, hence the null hypothesis is not rejected, i.e. the data is normally distributed. If the data is normally distributed then only the parametric test could be applied.

#### 4.1.19 Homogeneity Of The Variance For Net Additions In NPA Amount

The homogeneity of the variance was checked using the Levene's Test.

*H<sub>09</sub>: There is homogeneity of variance i.e. Equal Variance assumed.*

*H<sub>19</sub>: There is no homogeneity of variance i.e. Equal Variance not assumed.*

Table 4-15 Levene Test Statistics On Additions In NPAs (Rs. Crores)

Type of Banks	Additions in NPAs		
	N	Mean	SD
Public Sector Banks	11	231127.54	130680.32
Private Sector Banks	11	58312.18	45530.04
Foreign Banks	11	6396.15	2587.47
Total	33	98611.96	124516.63
Levene Statistic		14.64	
df1		2.00	
df2		30.00	
Sig. (p-value)		0.00	

(Source: SPSS Output)

It may be inferred that the variance in additions to the NPAs across all the categories of the banks are not the same. The Sig. P-value is 0.00, which is less than 0.05, in such a case the null hypothesis is rejected. In other words, there is no homogeneity of the variance and hence, one way ANOVA is not used, but the Welch Test is applied.

#### 4.1.20 Welch Test For Additions In NPA Amount

In order to check the difference in the mean scores of additions in NPA amount the Welch Test was administered. The hypothesis for the same is discussed further.

*H<sub>010</sub>: There is no significant difference between the mean scores of additions in NPA amount across various categories of public sector banks, private sector banks, and foreign banks.*

*H<sub>110</sub>: There is a significant difference between the mean scores of additions in NPA amount across various categories of public sector banks, private sector banks, and foreign banks.*

**Table 4-16 Welch Test Statistics On Additions In NPA**

<b>Particulars</b>	<b>Additions in NPA</b>
Welch Statistic	22.25
df1	2
df2	13.38
Sig. (p-value)	0.00

**(Source: SPSS Output)**

As the Sig. P-value is 0.00, which is less than 0.05, it means the null hypothesis is rejected. In other words, it indicates that there is a significant difference between the mean scores of additions in NPAs across various categories of public sector banks, private sector banks, and foreign banks. At least one of the categories of independent variables differs significantly from the rest in their mean scores. For detailed analysis, the paired comparison shall be conducted by the Post- Hoc analysis using Games Howell Method.

#### **4.1.21 Post-Hoc Analysis On Additions In NPA**

Post-Hoc Analysis was conducted because the null hypothesis for Welch Test for additions in NPAs was rejected. In other words, there was a significant difference in the additions in NPAs when compared in one-to-one pair with all the items in the group. The Welch Test was applied because the equal variances were not assumed, and in such a case, the post-hoc analysis was conducted using the Games Howell Method to check the intra-group differences. The results of the same are discussed further.

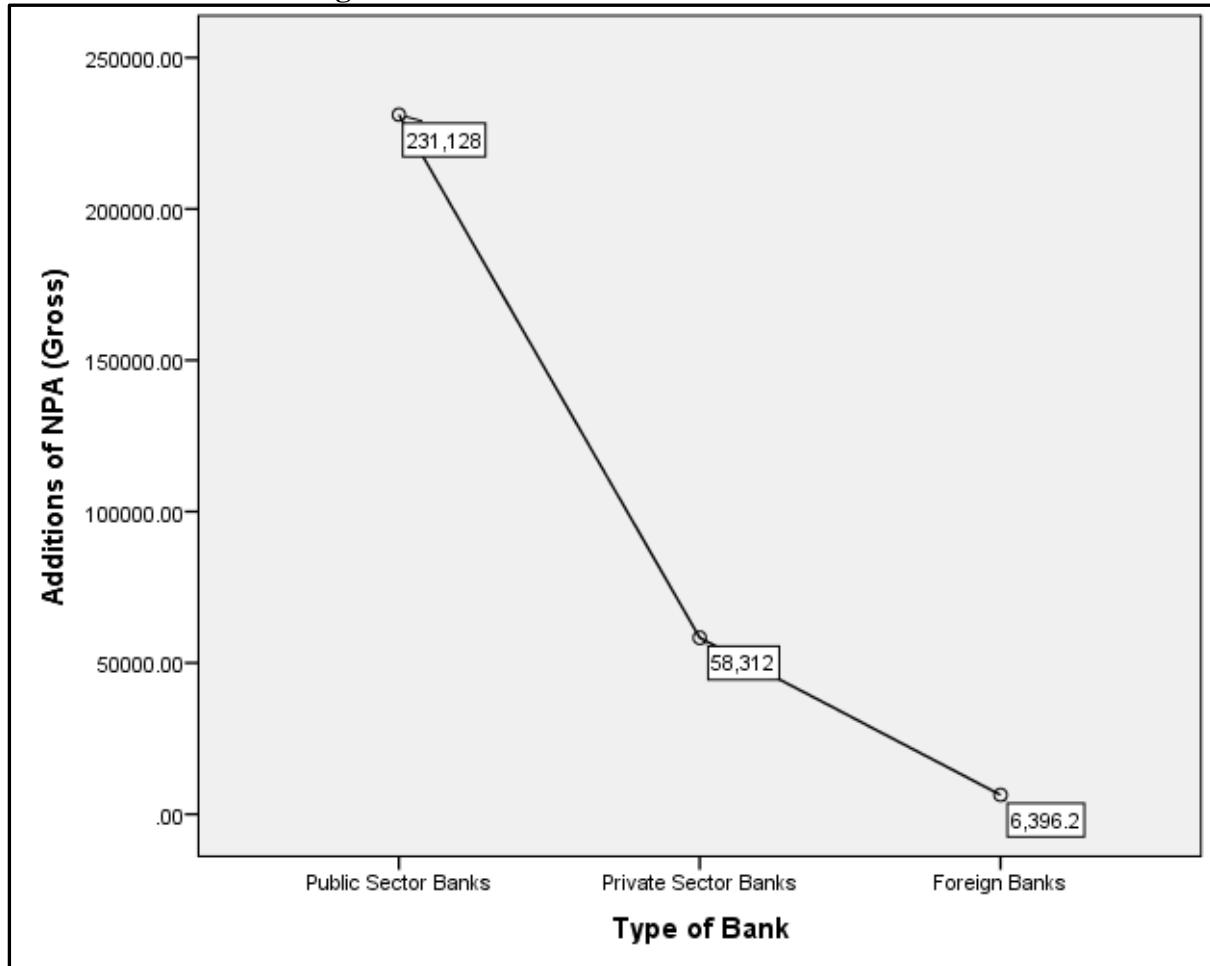
**Table 4-17 Post-Hoc Test Statistics On Additions In NPA**

<b>Type of Bank</b>	<b>Comparison</b>	<b>Mean Difference (I-J)</b>	<b>Sig.</b>
Public Sector Banks	Private Sector Banks	172815.36	0.00
	Foreign Banks	224731.39	0.00
Private Sector Banks	Public Sector Banks	-172815.36	0.00
	Foreign Banks	51916.03	0.01
Foreign Banks	Public Sector Banks	-224731.39	0.00
	Private Sector Banks	-51916.03	0.01

**(Source: SPSS Output)**

From Table 4-17 it may be inferred that there was a statistically significant difference in majority of the one-to-one paired comparison. The additions in NPA amongst different categories of the banks were statistically significant.

**Figure 4-11 Mean Plot Of Additions In NPA**



(Source: SPSS Output)

It may be inferred that the mean additions in NPA was highest for the public sector banks, which indicated that public sector banks had increase in the NPA on Y-O-Y basis. Private sector banks and foreign banks also witnessed the rise in the NPA on a Y-O-Y basis. The average additions in NPA in public sector banks was Rs.2,31,128Cr; for private sector banks it was Rs.58,312 Cr, and for the foreign banks it was Rs.6,396 Cr. The CAGR in additions in NPA for public sector banks for the period of 11 years was 15.30%. The CAGR in additions in NPA for private sector banks for the period of 11 years was 25.28%. The CAGR in additions in NPA for foreign sector banks for the period of 11 years was 12.46%.

#### **4.1.22 Year-On-Year Growth In Additions In NPA**

The Y-O-Y percentage growth in additions in NPA in the public and private sector bank was computed, which is represented in Table 4-18.

**Table 4-18 Y-O-Y Growth In Additions In NPA**

Year	Public Sector Bank	Private Sector Bank
2012	59.98	13.69
2013	28.62	44.24

<b>Year</b>	<b>Public Sector Bank</b>	<b>Private Sector Bank</b>
2014	36.81	36.07
2015	8.51	37.66
2016	117.00	80.91
2017	-15.12	68.51
2018	49.02	32.39
2019	-56.87	-15.93
2020	13.27	44.86
2021	16.88	-20.98

**(Source: Excel Output)**

It may be inferred that the additions in NPA in public sector banks was highest at 117% and highest fall in the additions was at 57%. In the private sector the additions in NPA were highest at 81% and the highest fall in the additions was 21%. In the year 2016 the additions in the NPA in the public and private sector banks was highest. It indicates that the banks face the risk of bad loans due to which the cumulative amount of the NPA has been rising.

#### **4.1.23 Reductions In NPAs Across Public, Private And Foreign Banks**

Reduction in NPAs indicates that either the borrower has paid the money, or the government has made good for the bad loans by providing the refinance to the banks. The reductions in NPAs are tested across the three categories of banks namely the public sector banks, private sector banks and foreign banks. The cross-sectional data for three banks and eleven years are taken into consideration for the analysis. The data for small banks are available only for certain number of years, hence it is not included in the analysis. The additions in NPA for State Bank of India and its associates was given separately, which was clubbed with the private sector banks data for deriving the holistic picture.

In order to apply the statistical test, the normality of the data was ensured using the Kolmogorov Smirnova Test and Shapiro Wilk Test. Shapiro Wilk Test is useful for a sample size less than 50 and the Kolmogorov Smirnova Test is used when the sample size is greater than 50. The hypothesis to test the normality is discussed further. The normality of the data was assessed amongst the three major rival types of banks, i.e. the public sector banks, private sector banks, and the foreign banks. Normality was checked between different categories of banks and reductions of NPA.

*H<sub>0II</sub>: Data is normally distributed.*

*H<sub>I<sub>II</sub></sub>: Data is not normally distributed.*

**Table 4-19 Shapiro Wilk Test Statistics On Reductions of NPA**

Bank Type	Reductions of NPAs		
	Statistic	df	Sig.
Public Sector Banks	0.98	11	0.97
Private Sector Banks	0.84	11	0.06
Foreign Banks	0.96	11	0.77

(Source: SPSS Output)

It may be inferred that the Sig. P-value for reductions in the NPA across public sector banks, private sector banks, and foreign banks, was greater than 0.05, hence the null hypothesis is not rejected, i.e. the data is normally distributed. If the data is normally distributed then only the parametric test could be applied.

#### 4.1.24 Homogeneity Of The Variance For Reductions In NPA Amount

The homogeneity of the variance was checked using the Levene's Test.

*H<sub>012</sub>: There is homogeneity of variance i.e. Equal Variance assumed.*

*H<sub>112</sub>: There is no homogeneity of variance i.e. Equal Variance not assumed.*

**Table 4-20 Levene Test Statistics On Reductions In NPAs (Rs. Crores)**

Type of Banks	N	Reductions in NPA	
		Mean	SD
Public Sector Banks	11	78481.07	25470.22
Private Sector Banks	11	22763.58	17345.04
Foreign Banks	11	3464.99	1139.53
Total	33	34903.21	36610.78
Levene Statistic		10.24	
df1		2.00	
df2		30.00	
Sig. (p-value)		0.00	

(Source: SPSS Output)

It may be inferred that the variance in reductions to the NPAs across all the categories of the banks are not the same. The Sig. P-value is 0.00, which is less than 0.05, in such a case the null hypothesis is rejected. In other words, there is no homogeneity of the variance and hence, one way ANOVA is not used, but the Welch Test is applied.

#### 4.1.25 Welch Test For Reduction In NPA Amount

In order to check the difference in the mean scores of reduction in NPA amount the Welch Test was administered. The hypothesis for the same is discussed further.

*H<sub>013</sub>: There is no significant difference between the mean scores of reductions in NPA amount across various categories of public sector banks, private sector banks, and foreign banks.*

*H<sub>113</sub>: There is a significant difference between the mean scores of reductions in NPA amount across various categories of public sector banks, private sector banks, and foreign banks.*

**Table 4-21 Welch Test Statistics On Reductions In NPA**

Particulars	Reductions in NPA
Welch Statistic	51.72
df1	2
df2	13.42
Sig. (p-value)	0.00

(Source: SPSS Output)

As the Sig. P-value is 0.00, which is less than 0.05, it means the null hypothesis is rejected. In other words, it indicates that there is a significant difference between the mean scores of reductions in NPAs across various categories of public sector banks, private sector banks, and foreign banks. At least one of the categories of independent variables differs significantly from the rest in their mean scores. For detailed analysis, the paired comparison shall be conducted by the Post- Hoc analysis using Games Howell Method.

#### **4.1.26 Post-Hoc Analysis On Reductions In NPA**

Post-Hoc Analysis was conducted because the null hypothesis for Welch Test for reductions in NPAs was rejected. In other words, there was a significant difference in the reductions in NPAs when compared in one-to-one pair with all the items in the group. The Welch Test was applied because the equal variances were not assumed, and in such a case, the post-hoc analysis was conducted using the Games Howell Method to check the intra-group differences. The results of the same are discussed further.

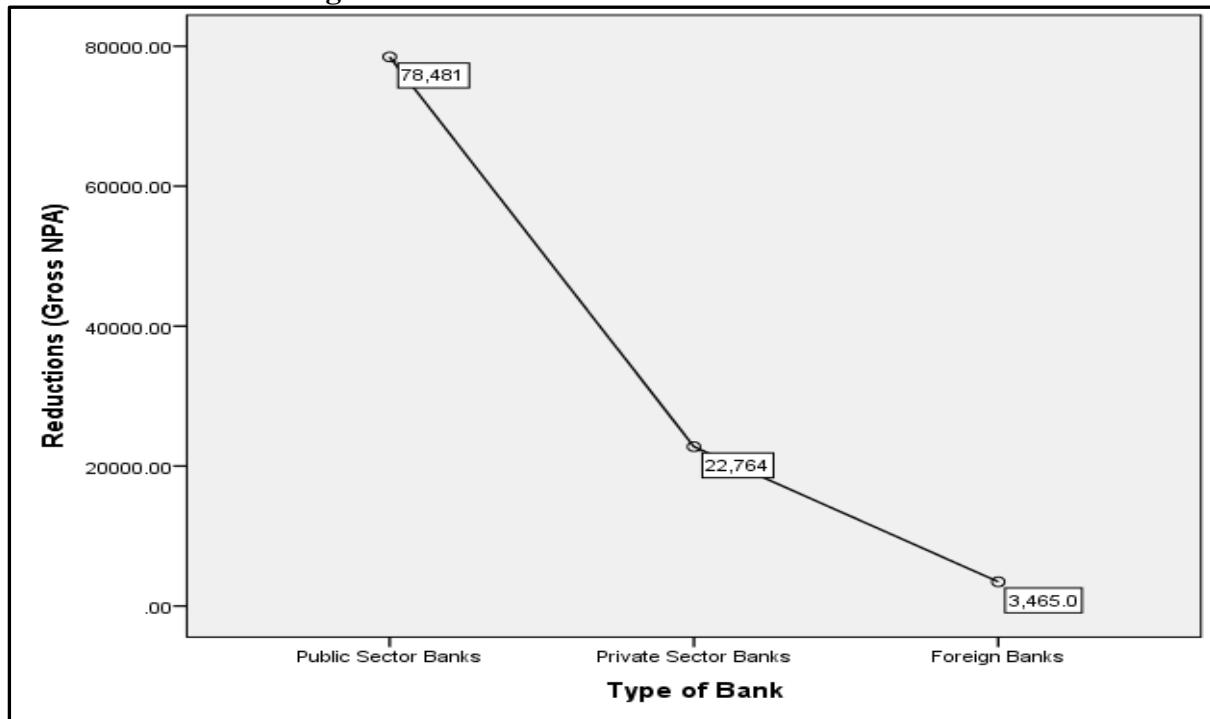
**Table 4-22 Post-Hoc Test Statistics On Reductions In NPA**

Type of Bank	Comparison	Mean Difference (I-J)	Sig.
Public Sector Banks	Private Sector Banks	55717.49	0.00
	Foreign Banks	75016.07	0.00
Private Sector Banks	Public Sector Banks	-55717.49	0.00
	Foreign Banks	19298.59	0.01
Foreign Banks	Public Sector Banks	-75016.07	0.00
	Private Sector Banks	-19298.59	0.01

(Source: SPSS Output)

From Table 4-22 it may be inferred that there was a statistically significant difference in majority of the one-to-one paired comparison. The reductions in NPA amongst different categories of the banks were statistically significant.

**Figure 4-12 Mean Plot Of Reductions In NPA**



(Source: SPSS Output)

It may be inferred that the mean reductions in NPA was highest for the public sector banks. The average reductions in NPA for public sector banks was Rs.78,481 Cr. The reduction in NPA for private sector and foreign banks were Rs. 22,764 Cr and Rs.3,465 Cr respectively. The CAGR in reductions in NPA for public sector banks for the period of 11 years was 6.56%. The CAGR in reductions in NPA for private sector banks for the period of 11 years was 19.55%. The CAGR in reductions in NPA for foreign sector banks for the period of 11 years was 1.45%.

#### 4.1.27 Year-On-Year Growth In Reductions In NPA

The Y-O-Y percentage growth in reductions in NPA in the public and private sector bank was computed, which is represented in Table 4-23.

**Table 4-23 Y-O-Y Growth In Reductions In NPA**

Year	Public Sector Bank	Private Sector Bank
2012	29.05	11.69
2013	36.68	28.63
2014	32.68	31.33
2015	-12.86	-3.79
2016	-14.07	36.70
2017	54.98	75.02
2018	-18.36	72.50
2019	55.37	4.77

Year	Public Sector Bank	Private Sector Bank
2020	-22.02	20.09
2021	-25.08	-24.37

(Source: Excel Output)

It may be inferred that the reductions in NPA in public sector banks was highest at 55%. In the private sector the reductions in NPA were highest at 75%. The reductions in NPA amount may be attributed to the either borrower making the payment or the government providing the refinance to the banks.

#### 4.1.28 Write-Offs Of NPAs Across Public, Private And Foreign Banks

Write-off of NPAs indicates that the banks after a long waiting period and putting in all attempts of recovery decided to write off the amount from the books of the accounts. The basic purpose of the write-off is that there is no recovery of the amount. The bank moves such an amount from the asset column and treats it as a loss. The cross-sectional data for three banks and eleven years are taken into consideration for the analysis. The data for small banks are available only for certain number of years, hence it is not included in the analysis. The additions in NPA for State Bank of India and its associates were given separately, which was clubbed with the private sector banks data for deriving the holistic picture.

In order to apply the statistical test, the normality of the data was ensured using the Kolmogorov Smirnova Test and Shapiro Wilk Test. Shapiro Wilk Test is useful for a sample size less than 50 and the Kolmogorov Smirnova Test is used when the sample size is greater than 50. The hypothesis to test the normality is discussed further. The normality of the data was assessed amongst the three major rival types of banks, i.e. the public sector banks, private sector banks, and the foreign banks. Normality was checked between different categories of banks and write-offs of NPA.

*H<sub>014</sub>: Data is normally distributed.*

*H<sub>114</sub>: Data is not normally distributed.*

**Table 4-24 Shapiro Wilk Test Statistics On Write-Offs Of NPA**

Bank Type	Write-Offs of NPAs		
	Statistic	df	Sig.
Public Sector Banks	0.88	11.00	0.11
Private Sector Banks	0.84	11.00	0.13
Foreign Banks	0.88	11.00	0.11

(Source: SPSS Output)

It may be inferred that the Sig. P-value for reductions in the NPA across public sector banks, private sector banks, and foreign banks, was greater than 0.05, hence the null hypothesis is not

rejected, i.e. the data is normally distributed. If the data is normally distributed then only the parametric test could be applied.

#### **4.1.29 Homogeneity Of The Variance For Write-Offs Of NPA Amount**

The homogeneity of the variance was checked using the Levene's Test.

$H_{015}$ : *There is homogeneity of variance i.e. Equal Variance assumed.*

$H_{115}$ : *There is no homogeneity of variance i.e. Equal Variance not assumed.*

**Table 4-25 Levene Test Statistics On Write-Offs Of NPAs (Rs. Crores)**

Type of Banks	N	Write-Offs	
		Mean	SD
Public Sector Banks	11	76964.23	69317.64
Private Sector Banks	11	23541.66	23991.23
Foreign Banks	11	2109.35	1987.49
Total	33	34205.08	52003.22
Levene Statistic		23.81	
df1		2.00	
df2		30.00	
Sig. (p-value)		0.00	

(Source: SPSS Output)

It may be inferred that the variance in reductions to the NPAs across all the categories of the banks are not the same. The Sig. P-value is 0.00, which is less than 0.05, in such a case the null hypothesis is rejected. In other words, there is no homogeneity of the variance and hence, one way ANOVA is not used, but the Welch Test is applied.

#### **4.1.30 Welch Test For Write-Offs Of NPA Amount**

In order to check the difference in the mean scores of write-off of NPA amount the Welch Test was administered. The hypothesis for the same is discussed further.

$H_{016}$ : *There is no significant difference between the mean scores of write-offs of NPA amounts across various categories of public sector banks, private sector banks, and foreign banks.*

$H_{116}$ : *There is a significant difference between the mean scores of write-offs of NPA amounts across various categories of public sector banks, private sector banks, and foreign banks.*

**Table 4-26 Welch Test Statistics On Reductions In NPA**

Particulars	Write-Offs
Welch Statistic	10.24
df1	2
df2	13.44
Sig. (p-value)	0.00

(Source: SPSS Output)

As the Sig. P-value is 0.00, which is less than 0.05, it means the null hypothesis is rejected. In other words, it indicates that there is a significant difference between the mean scores of reductions in NPAs across various categories of public sector banks, private sector banks, and foreign banks. At least one of the categories of independent variables differs significantly from the rest in their mean scores. For detailed analysis, the paired comparison shall be conducted by the Post- Hoc analysis using Games Howell Method.

#### **4.1.31 Post-Hoc Analysis On Write-Offs Of NPA**

Post-Hoc Analysis was conducted because the null hypothesis for Welch Test for write-offs of NPAs was rejected. In other words, there was a significant difference in the write-offs of NPAs when compared in one-to-one pair with all the items in the group. The Welch Test was applied because the equal variances were not assumed, and in such a case, the post-hoc analysis was conducted using the Games Howell Method to check the intra-group differences. The results of the same are discussed further.

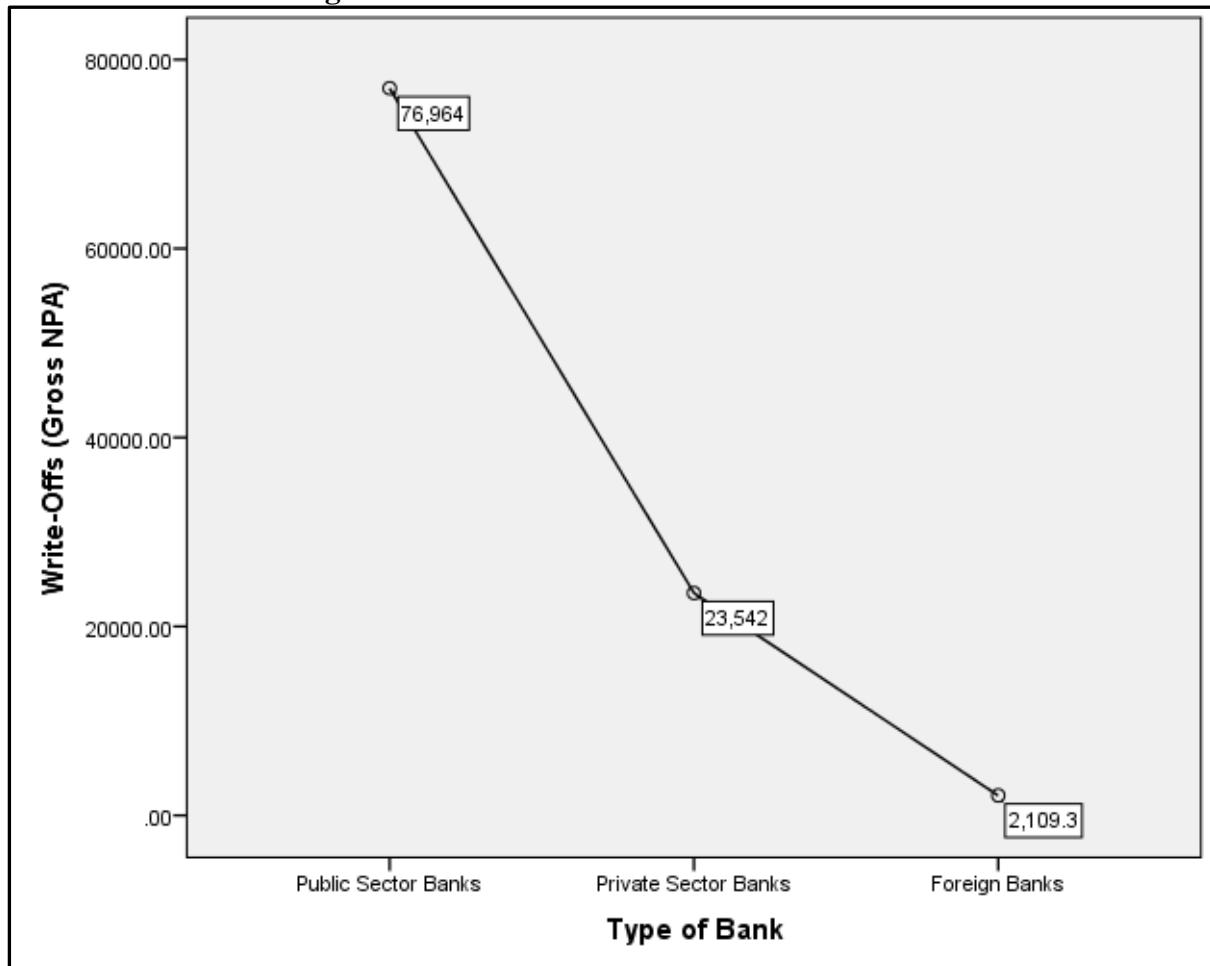
**Table 4-27 Post-Hoc Test Statistics On Write-Offs Of NPA**

Type of Bank	Comparison	Mean Difference (I-J)	Sig.
Public Sector Banks	Private Sector Banks	53422.56	0.08
	Foreign Banks	74854.88	0.01
Private Sector Banks	Public Sector Banks	-53422.56	0.08
	Foreign Banks	21432.32	0.04
Foreign Banks	Public Sector Banks	-74854.88	0.01
	Private Sector Banks	-21432.32	0.04

(Source: SPSS Output)

From Table 4-27 it may be inferred that there was a statistically significant difference in majority of the one-to-one paired comparison, except between the public and private sector banks. The write-off of NPA amongst different categories of the banks was statistically significant.

**Figure 4-13 Mean Plot Of Write-Offs Of NPA**



**(Source: SPSS Output)**

It may be inferred that the mean write-off in NPA was highest for the public sector banks. The average write-offs in NPA for public sector banks was Rs.76,964 Cr. The write-offs in NPA for the private sector and foreign banks were Rs. 23,542 Cr and Rs.2,10,9 Cr respectively.

The CAGR in write-offs of NPA for public sector banks for the period of 11 years was 32.86%. The CAGR in write-offs of NPA for private sector banks for the period of 11 years was 36.20%. The CAGR in write-offs of NPA for foreign sector banks for the period of 11 years was 40.60%.

#### **4.1.32 Year-On-Year Growth In Write-Offs Of NPA**

The Y-O-Y percentage growth in write-offs in NPA in the public and private sector bank was computed, which is represented in Table 4-28.

**Table 4-28 Y-O-Y Growth In Write-Offs Of NPA**

Year	Public Sector Bank	Private Sector Bank
2012	-60.11	39.42
2013	206.13	26.16

Year	Public Sector Bank	Private Sector Bank
2014	91.95	36.87
2015	269.55	28.35
2016	16.61	64.99
2017	37.93	73.22
2018	57.95	48.84
2019	41.44	59.66
2020	-2.66	9.88
2021	-24.85	29.74

(Source: Excel Output)

It may be inferred that the write-offs in NPA in public sector banks were highest at 269.55%. In the private sector, the reductions in NPA were highest at 73.22%. Higher the write-off higher is the loss for the banks.

#### 4.1.33 Pearson Correlation Between Gross Additions, Reductions And Write-Offs Of NPAs

The data used in the study was scale data or metric data. A Pearson correlation test was administered to check if there was a relationship between the Gross additions in NPA and gross reductions in NPA. A relationship was also tested between the Gross additions in NPA and Gross write-offs of NPA. A relationship was also tested between the Gross Reductions and Gross write-offs of NPA.

*H<sub>017</sub>: There is no correlation between Gross Additions in NPA and Gross Reductions in NPA.*

*H<sub>117</sub>: There is a correlation between Gross Additions in NPA and Gross Reductions in NPA.*

*H<sub>018</sub>: There is no correlation between Gross Additions in NPA and Gross Write-Offs of NPA.*

*H<sub>118</sub>: There is a correlation between Gross Additions in NPA and Gross Write-Offs of NPA.*

*H<sub>019</sub>: There is no correlation between Gross Reductions in NPA and Gross Write-Offs of NPA.*

*H<sub>119</sub>: There is no correlation between Gross Reductions in NPA and Gross Write-Offs of NPA.*

**Table 4-29 Pearson Correlation Test Statistics For Additions, Reductions And Write-Offs Of NPA**

Particulars	Statistics	Gross Additions in NPA	Gross Reductions in NPA
Gross Reductions in NPA	Pearson Correlation	0.83	-
	Sig. (2-tailed)	0.00	-

	N	33	-
Gross Write-Offs of NPA	Pearson Correlation	0.76	0.82
	Sig. (2-tailed)	0.00	0.00
	N	33	33

(Source: SPSS Output)

The results are statistically significant, which means that the results have not just occurred by chance. The r value is greater than +0.70 in all the cases, which further indicates that the relationship is positive and strong. It may be inferred that the Sig. P-value is  $0.00 < 0.05$ , hence the null hypothesis is rejected.

In other words, there is a correlation between gross additions in NPA and gross reductions in NPA. When a borrower does not pay the loan it results in NPA and this amount accumulates on a Y-O-Y basis, because the banks provide new loans every year, and out of the loans provided there tend to be NPAs in some cases. When a borrower pays the amount or bank provides refinance the amount of NPAs reduces. If the banks conduct strict follow-ups the NPA accounts of the borrower results in the receipt of the payment. Thus, NPA reduces if the payments are received from the borrowers. The advances of money by banks occur every year, likewise, the receipt of money on account of NPA arises every year, thus, there is a correlation is established between the two. There is also a correlation between gross additions in NPAs and Gross write-offs of NPAs. As explained earlier the additions to NPA occur every year, likewise, write-offs also take place every year. Banks carry out write-offs to clean up their books of accounts. There is also a correlation between Gross reductions in NPAs and Gross Write-Offs of NPAs. If the borrower pays the money, the NPA reduces and there is no necessity for the banks to write off.

#### **4.1.34 Bank Specific CAGR Of Gross NPA Additions And Gross NPA Reductions**

The latest existing public and private sector banks as per the year 2021 was taken as a base for comparison of the data for the year 2011. If the public sector bank or the private sector bank did not happen to be in the list for the year 2011 or 2021, then it was not dropped for further analysis. The CAGR was computed for the Gross NPA additions and Gross NPA Reductions. In the case of public sector banks, it was noted that in the year 2011, write-offs were carried out by only two public sector banks i.e. the UCO Bank and the Union Bank. Only six banks namely Axis Bank, HDFC Bank, IndusInd Bank, Jammu and Kashmir Bank, Kotak Mahindra Bank, and Yes Bank in the private sector conducted the write-off the NPAs in the year 2011. In the year 2021 all the public sector banks and almost all private sector banks except Nainital Bank conducted write-off of the NPAs. For computation of the CAGR, the data for the year

2011 and 2021 was required, and in the case of write off of NPA, due to no write-off, the variable was dropped from the further analysis.

**Table 4-30 Bank Wise Ranking Of CAGR On Gross NPA Additions And Reductions**

Name of the Bank	Gross NPA Additions		Gross NPA Reductions	
	CAGR (%)	Rank	CAGR (%)	Rank
<b>Public Sector Banks</b>				
Bank Of Baroda	23.88	5	18.33	3
Bank Of India	10.29	9	4.48	10
Bank Of Maharashtra	10.99	8	7.59	9
Canara Bank	25.31	4	11.28	6
Central Bank Of India	14.32	6	8.08	8
Indian Bank	39.55	2	18.18	4
Indian Overseas Bank	3.52	10	-2.03	12
Punjab And Sind Bank	13.58	7	18.06	5
Punjab National Bank	51.99	1	51.99	1
State Bank Of India & Its Associates	2.11	11	3.80	11
UCO Bank	1.17	12	8.52	7
Union Bank Of India	32.67	3	22.47	2
<b>Private Sector Bank</b>				
Axis Bank Limited	25.26	8	29.07	4
Catholic Syrian Bank Ltd	5.39	18	2.09	16
City Union Bank Limited	22.38	12	7.85	14
DCB Bank Limited	26.72	7	0.14	17
Dhanlaxmi Bank	22.73	11	8.11	13
Federal Bank	7.41	17	-1.73	18
HDFC Bank	24.41	10	24.00	5
ICICI Bank	16.96	14	9.90	11
IndusInd Bank	39.92	3	40.69	3
Jammu & Kashmir Bank Ltd	12.98	16	13.01	8
Karnataka Bank Ltd	13.83	15	8.13	12
Karur Vysya Bank	30.00	6	18.97	7
Kotak Mahindra Bank Ltd	34.11	4	23.91	6
Nainital Bank	24.94	9	12.38	10
RBL	80.16	1	50.81	2
South Indian Bank	32.43	5	12.67	9
Tamilnad Mercantile Bank Ltd	17.23	13	4.39	15
Yes Bank Ltd.	64.68	2	63.82	1

(Source: Researcher's Computation)

It may be inferred that the Punjab National Bank had the highest additions of Gross NPA amount. Oriental Bank of Commerce and United Bank of India had merged with the Punjab National Bank. Allahabad bank had merged with the Indian Bank. Andhra Bank and Corporation Bank had merged with the Union Bank of India. Syndicate bank had merged with the Canara Bank. Dena Bank and Vijaya Bank had merged with the Bank of Baroda. State Bank of India had merged with its associates namely State Bank of Bikaner and Jaipur, State Bank of Hyderabad, State Bank of Mysore, State Bank of Patiala, State Bank of Travancore and Bharatiya Mahila Bank. Recently many mergers occurred to face-lift the balance-sheet and abolish the NPA of smaller public sector banks, this was the reason for additions of NPAs in public sector banks. Poor management and governance issues were the major reasons responsible for higher level of NPAs in public banks. From 2011 to 2016, the rise in the NPA of the public sector banks happened because, it had leveraged its loan portfolio to companies which had high level of exposure in commodities and the prices of commodities at the international level fell. The companies input cost had fallen, but resulted in disproportionate decline in sales, accompanied with fixed higher labour cost, due to which the profits of the companies were depressed, companies were unable to repay the loan, which ultimately led to the NPA in the banks (Kumar, Mohan, Srinivasan, 2022). In private sector RBL bank had the highest additions in Gross NPA, followed by Yes Bank. Punjab National Bank had highest reductions of Gross NPA, followed by Union Bank of India. Yes Bank had highest reductions in Gross NPA, followed by RBL bank.

The average CAGR for Gross NPA Additions for public sector banks and private sector banks were 19.12% and 27.86% respectively. 58% banks i.e. Seven banks namely Bank of India, Bank of Maharashtra, Indian Overseas Bank, Punjab and Sind Bank, State Bank of India and UCO Bank had below average NPA additions. Rest 42% banks had Gross NPA additions less than the average. 61% private banks had Gross NPA additions less than the average. 39% private banks had Gross NPA more than the average. IndusInd Bank, Karur Vysya Bank, Kotak Mahindra Bank, Nainital Bank, RBL Bank, South Indian Bank, and Yes Bank had above average additions in Gross NPA.

Average reductions in NPA for public sector bank was 14.23% and it was 18.23% for private sector banks. Private sector banks had highest average in terms of Gross additions and Gross reductions in NPA when compared to the public sector banks.

#### 4.1.35 Net NPA And Public Sector Banks

The time frame starting from 2011 to 2021 i.e. 11 years have been taken as independent variable and NPA of the corresponding years of public sector banks have been taken as dependent variable to perform the regression analysis.

$H_{020}$ : Time is not a significant predictor of NPA.

$H_{120}$ : Time is a significant predictor of NPA.

**Table 4-31 Model Summary Of Regression For Public Sector Bank**

R	R Square	Adjusted R Square	Std. Error of the Estimate	F-Value	P-Value
0.47	0.22	0.22	10637.05	60.26	0.00
Particulars	Beta -Coefficient		Std. Error	t-value	P-value
(Constant)	-3743225.28		483426.68	-7.74	0.00
Time (Years)	1861.67		239.82	7.76	0.00

(Source: SPSS Output)

The model summary indicates that the R-Square and Adjusted R-Square is 22%, with F-value of 60.26 and p-value of 0.00, which is statistically significant. The R value explains the correlation between NPA and time in years. The value of r is  $0.47 > 0.30$ , but less than 0.70, so it indicates positive and moderate correlation between the two variables. Further it is also known that the correlation is significant, because the p-value is  $0.00 < 0.05$ . R-Square provides the explanatory power of the regression model. It represents the percentage of variance in the NPA (dependent variable) explained by the time (independent variable). The R-Square is 22%, which means the variation in Net NPA is explained to the extent of 22% by time. The beta is 1861.67, with t-value (7.76) indicates a positive trend across the years used in the study. As the time rises, the level of NPA also rises.

#### 4.1.36 Composition Of NPA As Per Priority And Non-Priority Sector

Commercial banks are directed by RBI to mandatorily devote funds to lend to the priority sector such as agriculture and its associated activities, micro-small and medium enterprises, housing for poor, education, scheduled caste, scheduled tribe, women etc. The objective behind the priority sector lending is to promote inclusive growth.

**Table 4-32 Priority Vs Non-Priority Sector NPA Of Public Sector Banks**

(Rs. Cr)

Year	Priority Sector		Non-Priority Sector		Total NPA
	Amount	Percentage	Amount	Percentage	
2011	40186	53.82	34235	45.85	74664.04
2012	55780	47.57	58826	50.17	117262.44
2013	67276	40.91	96031	58.39	164461.41

Year	Priority Sector		Non-Priority Sector		Total NPA
	Amount	Percentage	Amount	Percentage	
2014	79899	35.16	147235	64.79	227264.15
2015	96611	34.69	181598	65.21	278468.41
2016	125809	23.30	414148	76.70	539957.00
2017	160942	23.50	523791	76.50	684732.31
2018	187511	20.94	708090	79.06	895601.00
2019	197334	26.68	542207	73.32	739541.00
2020	236212	34.82	442105	65.18	678317.00
2021	258228	41.88	358388	58.12	616615.56

(Source: Adapted from Reserve Bank of India, 2020)

It may be inferred that the average NPA amount in priority sector lending was Rs. 1,36,889.82 Cr, with a SD of Rs. 75,598.94 Cr. The average NPA amount in non-priority sector lending was Rs. 3,18,786.73 Cr with a SD of Rs.2,27,110.10 Cr. It clearly indicates that the average NPA is more in non-priority sector when compared to the priority sector. The SD of NPA for non-priority sector lending is also high when compared to the priority sector. The CAGR in NPA in priority sector was 18.43%. The CAGR in NPA in non-priority sector was 23.80%. It is generally believed that the banks are forced to go for priority sector lending as per the mandate by RBI. Commercial banks often lend the money to priority sector without following strict credit appraisal norms. As a result, the belief is that NPA rises. But the contradiction is noted when the level of NPA is noticed higher in case of non-priority sector lending. Highest percentage of NPA was noted in the year 2011 for priority sector lending. In the year 2018, highest percentage of NPA was noted for the non-priority sector lending. Overall growth in NPA including the priority sector and non-priority sector lending was 21.16%. On a Y-O-Y comparison basis it is noted that the NPA in absolute amount and in percentage in non-priority sector has always been higher than the priority sector.

#### 4.1.37 Normality Test For Per Priority And Non-Priority Sector NPA

In order to apply the statistical test, the normality of the data was ensured using the Kolmogorov Smirnova Test and Shapiro Wilk Test. Shapiro Wilk Test is useful for a sample size less than 50 and the Kolmogorov Smirnova Test is used when the sample size is greater than 50. The hypothesis to test the normality is discussed further. The normality of the data was assessed between the priority sector and Net NPA, and also between non-priority sector and Net NPA.

$H_{021}$ : Data is normally distributed.

$H_{121}$ : Data is not normally distributed.

**Table 4-33 Shapiro Wilk Test Statistics On Priority Sector And Non-Priority Sector NPA**

Bank Type	Net NPA		
	Statistic	df	Sig.
Priority Sector	0.94	11	0.47
Non-Priority Sector	0.93	11	0.42

(Source: SPSS Output)

It may be inferred that the Sig. P-value for NPA across priority sector and non-priority sector lending, was greater than 0.05, hence the null hypothesis is not rejected, i.e. the data is normally distributed. If the data is normally distributed then only the parametric test could be applied.

#### 4.1.38 Independent Sample T-Test On Priority And Non-Priority Sector NPA

*H<sub>022</sub>: The mean scores of the priority sector's NPA and the non-priority sector's NPA do not significantly differ.*

*H<sub>122</sub>: The mean scores of the priority Sector's NPA and the non-priority sector's NPA significantly differ.*

**Table 4-34 Independent T-Test Statistics For Priority And Non-Priority Sector Lending**

Particulars	Levene's Test for Equality of Variances		t-test for Equality of Means		
	F	Sig.	t	df	Sig.
Equal variances assumed	17.81	0.00	2.52	20.00	0.02
Equal variances not assumed			- 2.52	12.19	0.03

(Source: SPSS Output)

The Sig. value for Levene's Test for equality of variances is  $0.00 < 0.05$ , the equal variances are not assumed and the statistics used for Independent T-Test will be with the assumption of equal variances not assumed. The Sig. value is  $0.03 < 0.05$ , hence the null hypothesis is rejected. In other words, there is a significant difference in the mean score of the priority sector NPA and non-priority sector NPA. The average NPA amount in priority sector lending was Rs. 1,36,889.82 Cr, with a SD of Rs. 75,598.94 Cr. The average NPA amount in non-priority sector lending was Rs. 3,18,786.73 Cr with a SD of Rs. 2,27,110.10 Cr. The independent T-Test indicates that the difference is statistically significant.

#### 4.1.39 Gross NPA And Net NPA Across Different Types Of Banks

For comparison purpose, the Gross NPA and Net NPA for three years starting from 2018-19 to 2020-2021 was taken for public sector banks, private sector banks, foreign banks, and small finance banks. In previous years, the data was available only for the public sector and private banks only, so for parity purposes, only three years of data were taken into consideration.

Normality was checked between Gross NPA and different types of banks, and also between Net NPA and different types of banks.

*H<sub>023</sub>: Data is normally distributed.*

*H<sub>123</sub>: Data is not normally distributed.*

**Table 4-35 Shapiro Wilk Test Statistics On Gross NPA And Net NPA Of Different Banks**

Bank Type	Gross NPA			Net NPA		
	Statistic	df	Sig.	Statistic	df	Sig.
Public Sector	1.00	3	0.10	0.98	3	0.76
Private Sector	0.98	3	0.70	0.76	3	0.06
Foreign Banks	0.99	3	0.83	0.76	3	0.08
Small Finance Banks	0.84	3	0.22	0.81	3	0.13

(Source: SPSS Output)

It may be inferred that the Sig. P-value for Gross NPA and Net NPA across different sectors of banks, was greater than 0.05, hence the null hypothesis is not rejected, i.e. the data is normally distributed. If the data is normally distributed then only the parametric test could be applied.

#### **4.1.40 Homogeneity Of The Variance For Gross NPA And Net NPA**

The homogeneity of the variance was checked using the Levene's Test.

*H<sub>024</sub>: There is homogeneity of variance i.e. Equal Variance assumed.*

*H<sub>124</sub>: There is no homogeneity of variance i.e. Equal Variance not assumed.*

**Table 4-36 Levene Test Statistics On Gross NPA And Net NPA (Rs. Crores)**

Type of Banks	N	Gross NPA		Net NPA	
		Mean	SD	Mean	SD
Public Sector Banks	3	678158	61462	237497	44700
Private Sector Banks	3	197771	13143	59600	6676
Foreign Banks	3	12498	2428	2347	554
Small Finance Banks	3	2922	2658	1444	1334
<b>Total</b>	<b>12</b>	<b>222837</b>	<b>287556</b>	<b>75222</b>	<b>102727</b>
Levene Statistic		3.23		5.44	
df1		3		3	
df2		8		8	
Sig. (p-value)		0.08		0.03	

(Source: SPSS Output)

It may be inferred that the variance in Gross NPA across all the categories of the banks is the same. The Sig. P-value is 0.08, which is more than 0.05, in such a case the null hypothesis is not rejected. In other words, there is a homogeneity of the variance and hence, one-way

ANOVA is used. The highest amount of NPA was noted for public sector banks, followed by the private sector banks, then foreign banks, and lastly the small finance banks.

It may be inferred that the variance in Net NPA across all the categories of the banks is not same. The Sig. P-value is 0.03, which is less than 0.05, in such a case the null hypothesis is rejected. In other words, there is no homogeneity of the variance and hence, one-way ANOVA is not used, but the Welch Test is applied.

#### **4.1.41 ANOVA Test For Gross Amount of NPAs**

In order to check the difference in the mean scores of the Gross NPA the ANOVA was administered. The hypothesis for the same is discussed further.

*H<sub>025</sub>: There is no significant difference between the mean scores of Gross NPA amounts across various categories of public sector banks, private sector banks, foreign banks, and small finance banks.*

*H<sub>125</sub>: There is a significant difference between the mean scores of Gross NPA amounts across various categories of public sector banks, private sector banks, foreign banks, and small finance banks.*

**Table 4-37 One-Way ANOVA On Gross NPA**

Particulars	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	901651418798	3.00	300550472933	303.33	0.00
Within Groups	7926732479	8.00	990841560		
<b>Total</b>	<b>909578151277</b>	<b>11.00</b>			

(Source: SPSS Output)

As the Sig. P-value is 0.00, which is less than 0.05, it means the null hypothesis is rejected. In other words, it indicates that there is a significant difference between the mean scores of Gross NPAs across various categories of public sector banks, private sector banks, foreign banks, and small finance banks. At least one of the categories of independent variables differs significantly from the rest in their mean scores. For detailed analysis, the paired comparison shall be conducted by the Post- Hoc analysis using Tukey's HSD Method.

#### **4.1.42 Post-Hoc Analysis On Gross NPA**

Post-Hoc Analysis was conducted because the null hypothesis for ANOVA Test for Gross NPAs was rejected. In other words, there was a significant difference in the Gross NPAs when compared in one-to-one pair with all the items in the group. The ANOVA Test was applied because equal variances were assumed, and in such a case, the post-hoc analysis was conducted using Tukey's Test to check the intra-group differences. The results of the same are discussed further.

**Table 4-38 Post-Hoc Test Statistics On Gross NPA**

<b>Particulars</b>	<b>Comparison</b>	<b>Mean Difference (I-J)</b>	<b>Sig.</b>
Public Sector	Private Sector	480387.00	0.00
	Foreign	665660.00	0.00
	Small Finance Bank	675235.67	0.00
Private Sector	Public Sector	-480387.00	0.00
	Foreign	185273.00	0.00
	Small Finance Bank	194848.67	0.00
Foreign Banks	Public Sector	-665660.00	0.00
	Private Sector	-185273.00	0.00
	Small Finance Bank	9575.67	0.98
Small Finance Bank	Public Sector	-675235.67	0.00
	Private Sector	-194848.67	0.00
	Foreign	-9575.67	0.98

(Source: SPSS Output)

From Table 4-36 it may be inferred that there was a statistically significant difference in the majority of the one-to-one paired comparison, except between the foreign banks and the small finance banks. The Gross NPA amongst different categories of the banks was statistically significant, and it was not by chance. There existed a significant difference in the Gross NPA between the public sector bank and private sector bank, between the public sector bank and the foreign bank, and also between the public sector bank and the small finance bank. There was no difference in the Gross NPA between foreign banks and small finance banks.

#### 4.1.43 The Homogenous Subsets Analysis Of Gross NPA

The Homogenous Subsets analysis also indicated that there was no significant difference between the Gross NPA of small finance banks and foreign banks. The difference in Gross NPA was significant for the private sector banks and the public sector banks.

**Table 4-39 Homogeneous Subsets**

Type of Banks	N	1	2	3
Small Finance Bank	3	2922.33		
Foreign Bank	3	12498		
Private Sector Bank	3		197771	
Public Sector Bank	3			678158
Sig.		0.98	1.00	1.00

(Source: SPSS Output)

#### 4.1.44 Welch Test For Net Amount of NPAs

In order to check the difference in the mean scores of Net NPA the Welch Test was administered. The hypothesis for the same is discussed further.

*H<sub>026</sub>: There is no significant difference between the mean scores of Net NPA amounts across various categories of public sector banks, private sector banks, foreign banks, and small finance banks.*

*H<sub>126</sub>: There is a significant difference between the mean scores of Net NPA amounts across various categories of public sector banks, private sector banks, foreign banks, and small finance banks.*

**Table 4-40 Welch Test Statistics On Net NPA**

Particulars	Net NPA
Welch Statistic	74.32
df1	3
df2	3.65
Sig. (p-value)	0.00

(Source: SPSS Output)

As the Sig. P-value is 0.00, which is less than 0.05, it means the null hypothesis is rejected. In other words, it indicates that there is a significant difference between the mean scores of Net NPAs across various categories of public sector banks, private sector banks, foreign banks, and small finance banks. At least one of the categories of independent variables differs significantly from the rest in their mean scores. For detailed analysis, the paired comparison shall be conducted by the Post- Hoc analysis using Games Howell Method.

#### **4.1.45 Post-Hoc Analysis On Net NPA**

Post-Hoc Analysis was conducted because the null hypothesis for Welch Test for Net NPAs was rejected. In other words, there was a significant difference in the Net NPAs when compared in one-to-one pair with all the items in the group. The Welch Test was applied because the equal variances were not assumed, and in such a case, the post-hoc analysis was conducted using the Games Howell Test to check the intra-group differences. The results of the same are discussed further.

**Table 4-41 Post-Hoc Test Statistics On Write-Offs Of NPA**

Type of Banks	Comparison	Mean Difference (I-J)	Sig.
Public Sector Bank	Private Sector	177896.67	0.05
	Foreign	235149.33	0.03
	Small Finance Bank	236053.00	0.03
Private Sector Bank	Public Sector	-177896.67	0.05
	Foreign	57252.67	0.01
	Small Finance Bank	58156.33	0.01
Foreign Bank	Public Sector	-235149.33	0.03
	Private Sector	-57252.67	0.01

	Small Finance Bank	903.67	0.73
Small Finance Bank	Public Sector	-236053.00	0.03
	Private Sector	-58156.33	0.01
	Foreign	-903.67	0.73

(Source: SPSS Output)

From Table 4-41 it may be inferred that there was a statistically significant difference in majority of the one-to-one paired comparison, except between the public and private sector banks. The Net NPA amongst different categories of the banks was statistically significant. There existed a significant difference in the Net NPA between the public sector bank and private sector bank, between the public sector bank and the foreign bank, and also between the public sector bank and the small finance bank. There was no difference in the Net NPA between foreign banks and small finance banks.

#### 4.1.46 Gross NPA And Gross Advances Of Public And Private Sector Banks

The latest banks existing in the public sector and private sector in the year 2020-2021 was taken into account for computing the CAGR. The names of the public sector banks in the year 2004 and 2021 were matched. Those public sector banks which existed in the year 2004, but were not existing in the year 2021 list either due to merger or closure were removed from the list. Thus, only those banks which were operational in the year 2004 as well as 2021 were considered for computing the CAGR. Similarly, the names of the private sector banks in the year 2004 and 2021 were matched. New banks which were recently added, but were not present in the year 2004 were dropped from the list. Finally, 12 public sector banks and 17 private sector banks were considered for computing the CAGR. A period of 17 years i.e., beginning year 2004 and the ending year 2021 was considered for computing the CAGR. The data used in the analysis were Gross NPA and Gross Advances. CAGR for NPA and Advances were computed and later it was ranked separately in the case of public sector banks and the private sector banks.

**Table 4-42 CAGR In Gross NPA and Gross Advances Across Public Vs Private Sector Banks**

Bank Name	CAGR NPA	Rank	CAGR Advances	Rank
<b>Public Sector Banks</b>				
Bank Of Baroda	18.36%	6	20.57%	3
Bank Of India	17.88%	7	15.29%	7
Bank Of Maharashtra	13.14%	10	13.56%	9
Canara Bank	19.04%	5	16.70%	6
Central Bank Of India	14.14%	9	12.30%	10
Indian Bank	22.83%	3	21.71%	2

<b>Bank Name</b>	<b>CAGR NPA</b>	<b>Rank</b>	<b>CAGR Advances</b>	<b>Rank</b>
Indian Overseas Bank	14.87%	8	12.18%	11
Punjab And Sind Bank	12.81%	12	14.66%	8
Punjab National Bank	20.06%	4	17.18%	5
State Bank Of India	23.87%	2	24.03%	1
UCO Bank	12.87%	11	11.02%	12
Union Bank Of India	23.91%	1	19.66%	4
<b>Private Sector Banks</b>				
Axis Bank	29.64%	3	28.08%	3
City Union Bank Limited	15.34%	13	20.23%	6
DCB Bank Limited	10.08%	15	14.83%	15
Federal Bank	12.72%	14	18.01%	9
HDFC Bank	25.31%	6	27.64%	4
ICICI Bank	16.49%	11	15.74%	13
IDBI Bank Limited	39.41%	2	19.84%	7
IndusInd Bank	20.05%	9	21.55%	5
Jammu & Kashmir Bank Ltd	20.64%	7	12.83%	16
Karnataka Bank Ltd	9.00%	16	14.84%	14
Karur Vysya Bank	18.26%	10	16.22%	12
Kotak Mahindra Bank Ltd	41.65%	1	31.71%	2
Lakshmi Vilas Bank	20.05%	8	11.98%	17
Nainital Bank	28.11%	4	18.01%	8
RBL	28.06%	5	34.99%	1
South Indian Bank	16.08%	12	16.67%	10
Tamilnad Mercantile Bank Ltd	7.46%	17	16.60%	11

**(Source: Excel Output)**

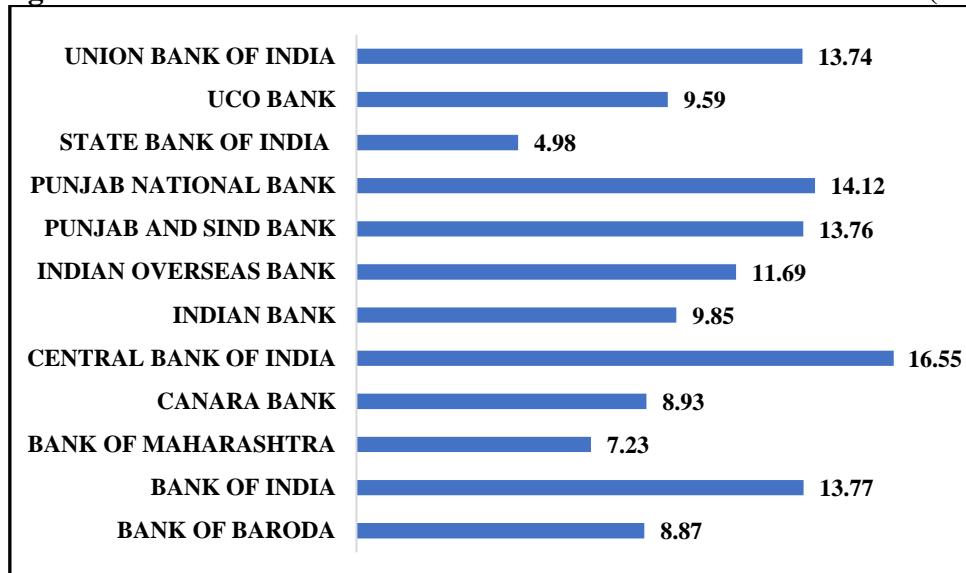
It may be inferred that in the case of public sector banks, highest advances were provided by State Bank of India, Indian Bank and Bank of Baroda. Union Bank of India had higher level of NPA, followed by State Bank of India and Indian Bank. The lending mechanism and loan application scrutiny of State Bank of India, may be not so well-established and developed, due to which the level CAGR in NPA was at the second position when compared with the CAGR level of advances. Many associates of the State bank of India had recently merged with itself, due to which the overall level of NPA might have increased in the surviving bank. At the same time the CAGR in NPA for Union Bank of India may highlight that its loan appraisal and recovery mechanism were not so robust. Other reason may be attributed to the merger of Corporation Bank and Andhra Bank with Union Bank of India, which might have increased the amount of NPA in the existing bank. Lowest advances were noted for UCO Bank and the lowest level of NPA was noted for Punjab and Sind Bank. In the case of private sector bank

highest advances were provided by RBL, followed by Kotak Mahindra Bank, and Axis Bank. The highest level of NPA was for Kotak Mahindra bank, followed by IDBI Bank and Axis Bank. In the public sector banks and private sector banks, no such pattern of highest advances and highest NPA was noted.

#### **4.1.47 Gross NPA To Gross Advances Ratio Of Public Sector Banks**

Based on the 2021, public sector bank's data, the Gross NPA to Gross Advances ratio was computed. The ratio was computed for 12 public sector banks.

**Figure 4-14 Gross NPA To Gross Advances Of Public Sector Banks (%)**



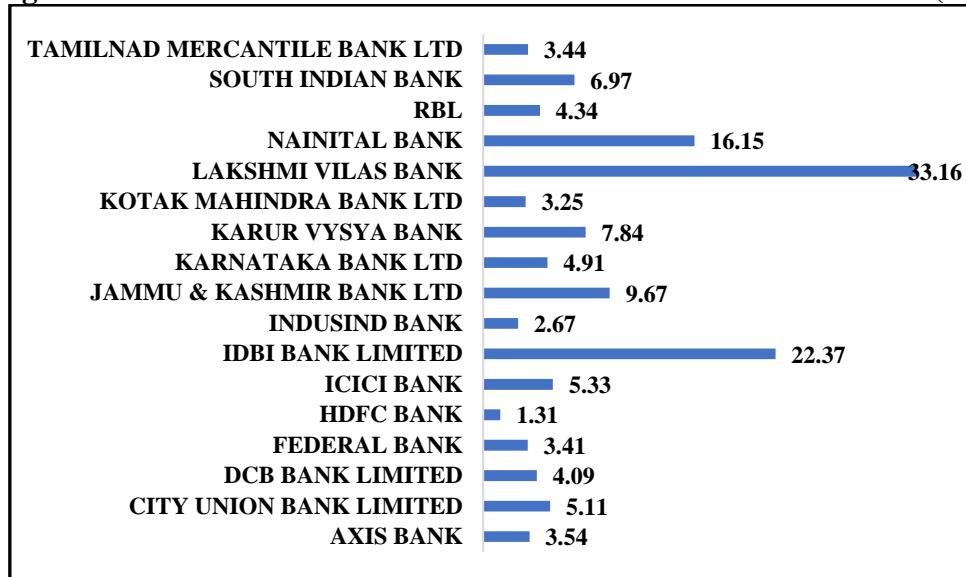
**(Source: Excel Output)**

The ratio indicates that Central Bank of India had highest 16.55% of Gross NPA to Gross Advances ratio, which was followed by 14.12% for Punjab National Bank; 13.77%, 13.76% of Punjab And Sind Bank; for Bank of India; 13.74% for Union Bank of India; 11.69% for Indian Overseas Bank; 9.85% of Indian Bank; 9.59% for UCO Bank; 8.93% for Canara Bank; 8.87% for Bank of Baroda; 7.23% for Bank of Maharashtra; and lastly 4.98% for State Bank of India.

#### **4.1.48 Gross NPA To Gross Advances Ratio Of Private Sector Banks**

Based on the 2021, public sector bank's data, the Gross NPA to Gross Advances ratio was computed. The ratio was computed for 17 private sector banks.

**Figure 4-15 Gross NPA To Gross Advances Of Private Sector Banks (%)**



(Source: Excel Output)

It may be inferred that the highest Gross NPA to Gross Advances ratio was noted for Lakshmi Vilas Bank, followed by IDBI Bank at 22.37%; Nainital Bank at 16.15%; Jammu and Kashmir Bank at 9.67%; Karur Vysya bank at 7.84%; South Indian Bank at 6.97%; ICICI Bank at 5.33%; City Union Bank at 5.11%; Karnataka Bank at 4.91%; RBL bank at 4.34%; DCB Bank at 4.09%; Axis Bank at 3.54%; Tamilnad Mercantile Bank at 3.44%; Federal Bank at 3.41%; Kotak Mahindra Bank at 3.25%; IndusInd Bank at 2.67%, and lastly HDFC Bank at 1.31%.

#### 4.1.49 Correlation Between Interest Income And Gross NPA

The data included in the study was with respect to the three types of banks, namely the public sector bank, private sector bank and the foreign bank. The data on interest income and Gross NPA was considered for the time frame between 2011 to 2021, thus a time period of 11 years was taken into consideration. The consolidated data of interest income and Gross NPA was taken into account. For public sector bank, the interest income and the Gross NPA of State Bank of India and its associates were added to the interest income and the Gross NPA of the nationalized bank, to arrive at the consolidated number. The data used in the study was scale data or metric data. A correlation was checked between the Interest Income of all the Banks and the Gross NPA of the bank for the period of 11 years.

The split file function was used to test the correlation of Interest Income and Gross NPA for public sector banks, private sector banks and foreign banks.

*H<sub>027</sub>: There is no correlation between Interest Income and Gross NPA.*

*H<sub>127</sub>: There is a correlation between Interest Income and Gross NPA.*

*H<sub>028</sub>: There is no correlation between Interest Income and Gross NPA of Public Sector Banks.*

*H<sub>128</sub>: There is a correlation between Interest Income and Gross NPA of Public Sector Banks.*

*H<sub>029</sub>: There is no correlation between Interest Income and Gross NPA of Private Sector Banks.*

*H<sub>129</sub>: There is a correlation between Interest Income and Gross NPA of Private Sector Banks.*

*H<sub>030</sub>: There is no correlation between Interest Income and Gross NPA of Foreign Banks.*

*H<sub>130</sub>: There is a correlation between Interest Income and Gross NPA of Foreign Banks.*

**Table 4-43 Test Statistics For Correlation Between Interest Income And Gross NPA**

Particulars	Statistics	Interest Income and Gross NPA
All Banks	Pearson Correlation	0.85
	Sig. (2-tailed)	0.00
	N	22
Public Sector Banks	Pearson Correlation	0.76
	Sig. (2-tailed)	0.00
	N	11
Private Sector Banks	Pearson Correlation	0.98
	Sig. (2-tailed)	0.00
	N	11
Foreign Banks	Pearson Correlation	0.58
	Sig. (2-tailed)	0.06
	N	11

(Source: SPSS Output)

In most of the cases, the results are statistically significant, which means that the results have not just occurred by chance. The r value is greater than +0.70 in all the cases, which further indicates that the relationship is positive and strong. It may be inferred that the Sig. P-value is  $0.00 < 0.05$  for overall banking sector, public sector banks, and private sector banks, hence the null hypothesis is rejected. It indicates that as the level of Gross NPA rises the interest income also rises. Such a phenomena is noticed because, the banks take time to write-off the NPA. Banks estimate the interest income on the loans it had provided, even if the borrower fails to regularly pay the interest amount. Due to cumulative effect the interest portion increases. Till the NPAs are written-off from the books of accounts, it also rises on a cumulative basis every year. Thus, a positive relationship is noted between the two. In the case of foreign banks, the r value is 0.58, which indicates a moderate positive association, and the Sig. value is 0.06, which is greater than 0.05, hence the null hypothesis is rejected. In other words, there exists no

correlation between interest income and the Gross NPA of the foreign banks. Thus, the results are not statistically significant.

#### **4.1.50 Ratio Of Gross NPA To Interest Income**

The time frame starting from 2011 to 2021 i.e. 11 years have been taken as independent variable and the ratio of Gross NPA to Interest Income of the corresponding years of public sector banks, private sector banks, and foreign banks have been taken as dependent variable to perform the regression analysis.

*H<sub>031</sub>: Time is not a significant predictor of Gross NPA to Interest Income Ratio.*

*H<sub>131</sub>: Time is a significant predictor of Gross NPA to Interest Income Ratio.*

**Table 4-44 Model Summary Of Regression For Gross NPA to Interest Income Ratio**

R	R Square	Adjusted R Square	Std. Error of the Estimate	F-Value	P-Value
0.47	0.23	0.20	0.28	8.80	0.00
Particulars	Beta -Coefficient	Std. Error	t-value	P-value	
(Constant)	-94.70	31.74	-2.98	0.00	
Time (Years)	0.05	0.02	2.10	0.00	

**(Source: SPSS Output)**

The model summary indicates that the R-Square is 23% and Adjusted R-Square is 20%, with F-value of 8.80 and p-value of 0.00, which is statistically significant. The R value explains the correlation between the Gross NPA to Interest Income ratio with the time in years. The value of r is 0.47 >0.30, but less than 0.70, so the it indicates positive and moderate correlation between the two variables. Further it is also known that the correlation is significant, because the p-value is 0.00<0.05. R-Square provides the explanatory power of the regression model. It represents the percentage of variance in the Gross NPA to Interest Income ratio (dependent variable) explained by the time (independent variable). The R-Square is 20%, which means the variation in Gross NPA to Interest Income ratio is explained to the extent of 20% by time. The beta is 0.05, with t-value (2.10) indicates a positive trend across the years used in the study. As the time rises, the level of Gross NPA to Interest Income ratio also rises.

#### **4.1.51 Normality Check On Domestic Banks Data**

Overall normality of the data was checked using One Sample Kolmogorov Smirnov Test.

*H<sub>032</sub>: The data is normal.*

*H<sub>132</sub>: The data is not normal.*

**Table 4-45 One Sample Kolmogorov Smirnov Test Results**

Particulars	Gross Advances	Gross NPA
Mean	1375606	93836

Particulars	Gross Advances	Gross NPA
Std. Deviation	848812	106988
Absolute Difference	0.12	0.21
Positive Difference	0.12	0.21
Negative Difference	-0.11	-0.20
Kolmogorov-Smirnov Z	0.77	1.30
Asymp. Sig. (2-tailed)	0.59	0.07

(Source: SPSS Output)

As the Sig p-value for Gross Advances is 0.59 and for Gross NPA is 0.07, which are greater than 0.05 in both the cases, the null hypothesis is not rejected. In other words, the data is normal. When the normality was checked according to the category of the bank i.e. the priority sector and the non-priority sector wise, the assumptions of normality were violated.

For a period of five years the starting from 2013 to 2017, the Gross advances and Gross NPA incurred by the domestic banks of India (categorized as Public Sector Banks, Nationalized Banks, SBI Group and Private Banks) in the priority sector lending and non-priority sector lending were taken for the study. The data summary is indicated in Table 4-45.

**Table 4-46 Data Summary**

Type of Bank	Frequency	Percent	Sector	Frequency	Percent
Public	10	25	Priority	20	50
Nationalized	10	25			
SBI Group	10	25	Non-Priority	20	50
Private Sector Banks	10	25			
<b>Total</b>	<b>40</b>	<b>100</b>	<b>Total</b>	<b>40</b>	<b>100</b>

(Source: SPSS Output)

It clearly indicates that the spread of the data according to the type of bank and the sector is equally distributed, and hence a case of quota sampling may be considered. The normality test using Shapiro Wilk's Test was administered, but unfortunately, it violated the normality test. As per the video discussion of Kaushik (2015), the normality may be assumed even in the case of violation, provided the quota sampling aspect is adhered in the data collection. It clearly indicates that one can go with the parametric test even if the normality assumptions are not met.

#### **4.1.52 Independent T-Test On Gross Advances In Different Sectors**

*H<sub>033</sub>: The mean scores of the priority sector's Gross Advances and the non-priority sector's Gross Advances do not significantly differ.*

*H<sub>133</sub>: The mean scores of the priority sector's Gross Advances and the non-priority sector's Gross Advances significantly differ.*

**Table 4-47 Independent T-Test Statistics For Gross Advances In Priority And Non-Priority Sector**

<b>Particulars</b>	Levene's Test for Equality of Variances		t-test for Equality of Means		
	<b>F</b>	<b>Sig.</b>	<b>t</b>	<b>df</b>	<b>Sig.</b>
Equal variances assumed	7.95	0.00	-3.64	38	0.00
Equal variances not assumed			-3.64	31.53	0.00

(Source: SPSS Output)

The Sig. value for Levene's Test for equality of variances is  $0.00 < 0.05$ , the equal variances are not assumed and the statistics used for Independent T-Test will be with the assumption of equal variances not assumed. The Sig. value is  $0.00 < 0.05$ , hence the null hypothesis is rejected. In other words, there is a significant difference in the mean score of the priority sector Gross Advances and non-priority sector Gross Advances. The average Gross Advances amount in priority sector lending was Rs. 9,49,566.47 Cr, with a SD of Rs. 5,47,731.39 Cr. The average Gross Advances amount in non-priority sector lending was Rs. 18,01,645.80 Cr with a SD of Rs. 8,92,607.42 Cr. The independent T-Test indicates that the difference is statistically significant. The lending to non-priority sector was more than the priority sector.

#### **4.1.53 Independent T-Test On Gross NPA In Different Sectors**

*H<sub>034</sub>: The mean scores of the priority sector's Gross NPA and the non-priority sector's Gross NPA do not significantly differ.*

*H<sub>134</sub>: The mean scores of the priority sector's Gross NPA and the non-priority sector's Gross NPA significantly differ.*

**Table 4-48 Independent T-Test Statistics For Gross NPA In Priority And Non-Priority Sector**

<b>Particulars</b>	Levene's Test for Equality of Variances		t-test for Equality of Means		
	<b>F</b>	<b>Sig.</b>	<b>t</b>	<b>df</b>	<b>Sig.</b>
Equal variances assumed	9.99	0.00	-2.49	38	0.02
Equal variances not assumed			-2.49	23.27	0.02

(Source: SPSS Output)

The Sig. value for Levene's Test for equality of variances is  $0.00 < 0.05$ , the equal variances are not assumed and the statistics used for Independent T-Test will be with the assumption of equal variances not assumed. The Sig. value is  $0.00 < 0.05$ , hence the null hypothesis is rejected. In other words, there is a significant difference in the mean score of the priority sector Gross NPA and non-priority sector Gross NPA. The average Gross NPA amount in priority sector lending was Rs. 54,311.83 Cr, with a SD of Rs.45,428.32 Cr. The average Gross NPA amount in non-priority sector lending was Rs. 1,33,361.08 Cr with a SD of Rs.1,34,695.09Cr. The independent T-Test indicates that the difference is statistically significant. The Gross NPA in non-priority sector was more than the priority sector.

#### **4.1.54 Sector Wise Correlation Between Gross Advances And Gross NPA**

The domestic banks data was used to test the correlation between the Gross Advances and Gross NPA. The split file function was used to test the correlation of between Priority Sector and Non-Priority Sector Banks' Gross Advances and Gross NPA.

***$H_{035}$ : There is no correlation between Gross Advances and Gross NPA in Priority Sector Lending.***

***$H_{135}$ : There is a correlation between Gross Advances and Gross NPA in Priority Sector Lending.***

**Table 4-49 Test Statistics For Correlation Between Gross Advances And Gross NPA**

Particulars	Statistics	Gross Advances and Gross NPA
Priority Sector Lending	Pearson Correlation	0.95
	Sig. (2-tailed)	0.00
	N	20
Non-Priority Sector Lending	Pearson Correlation	0.70
	Sig. (2-tailed)	0.00
	N	20

(Source: SPSS Output)

In both the cases, the results are statistically significant, which means that the results have not just occurred by chance. The r value is greater than +0.70 in all the cases, which further indicates that the relationship is positive and strong. It may be inferred that the Sig. P-value is  $0.00 < 0.05$ , the null hypothesis is rejected. It indicates that as the level of Gross Advances rises the Gross NPA also rises in the both the cases of lending i.e. the priority sector and the non-priority sector. It indicates that as the advances rises the risk of NPA also rises. As noted in the literature, the risk of rise in the NPA may be attributed either to the macro-economic depressed factors or to the personal reasons of the borrowers.

#### **4.1.55 Gross Advances Across Public, Nationalized, SBI Group and Private Sector Banks**

To check the significant difference in the mean gross advances across public sector banks, nationalized banks, SBI group banks and private sector banks a statistical test was administered. The data used in the study was of domestic banks operating in India during 2013 to 2017 i.e. five years. As discussed in the previous section, the normality test was violated across the different categories of banks and the gross advances, but still the data was assumed to be normal based on the video explanation given by (Kaushik, 2015).

#### **4.1.56 Homogeneity Of The Variance For Gross Advances Across Different Types Of Banks**

The homogeneity of the variance was checked using the Levene's Test.

*H<sub>036</sub>: There is homogeneity of variance i.e. Equal Variance assumed.*

*H<sub>136</sub>: There is no homogeneity of variance i.e. Equal Variance not assumed.*

**Table 4-50 Levene Test Statistics On Gross Advances (Rs. Crores)**

Type of Banks	N	Gross Advances	
		Mean	SD
Public Sector Banks	10	2371600.74	777409.50
Nationalized Banks	10	1634288.01	491461.65
SBI Group Banks	10	737312.62	292634.94
Private Sector Banks	10	759223.14	373018.97
Total	40	1375606.13	848811.96
Levene Statistic		13.46	
df1		3	
df2		36	
Sig. (p-value)		0.00	

**(Source: SPSS Output)**

It may be inferred that the variance in Gross Advances across all the categories of the banks are not the same. The Sig. P-value is 0.00, which is less than 0.05, in such a case the null hypothesis is rejected. In other words, there is no homogeneity of the variance and hence, one way ANOVA is not used, but the Welch Test is applied.

#### **4.1.57 Welch Test For Gross Advances Across Different Sectors Of Banks**

In order to check the difference in the mean scores of Gross Advances the Welch Test was administered. The hypothesis for the same is discussed further.

*H<sub>037</sub>: There is no significant difference between the mean scores of Gross Advances across various categories of public sector banks, nationalized banks, SBI group banks and private sector banks.*

*H<sub>137</sub>: There is a significant difference between the mean scores of Gross Advances across various categories of public sector banks, nationalized banks, SBI group banks and private sector banks.*

**Table 4-51 Welch Test Statistics On Gross Advances Across Different Sectors Of Banks**

Particulars	Gross Advances
Welch Statistic	18.70
df1	3
df2	19.22
Sig. (p-value)	0.00

(Source: SPSS Output)

As the Sig. P-value is 0.00, which is less than 0.05, it means the null hypothesis is rejected. In other words, it indicates that there is a significant difference between the mean scores of Gross Advances across various categories of public sector banks, nationalized banks, SBI group banks and private sector banks. At least one of the categories of independent variables differs significantly from the rest in their mean scores. For detailed analysis, the paired comparison shall be conducted by the Post- Hoc analysis using Games Howell Method.

#### **4.1.58 Post-Hoc Analysis On Gross Advances Across Different Sectors Of Banks**

Post-Hoc Analysis was conducted because the null hypothesis for Welch Test for Gross Advances was rejected. In other words, there was a significant difference in the Gross Advances when compared in one-to-one pair with all the items in the group. The Welch Test was applied because the equal variances were not assumed, and in such a case, the post-hoc analysis was conducted using the Games Howell Method to check the intra-group differences. The results of the same are discussed further.

**Table 4-52 Post-Hoc Test Statistics On Gross Advances Across Different Sectors Of Banks**

Sectors Of Banks	Comparison	Mean Difference (I-J)	Sig.
Public Sector Banks	Nationalized Banks	737312.72	0.09
	SBI Group Banks	1634288.11	0.00
	Private Sector Banks	1612377.60	0.00
Nationalized Banks	Public Sector Banks	-737312.72	0.09
	SBI Group Banks	896975.39	0.00
	Private Sector Banks	875064.88	0.00
SBI Group Banks	Public Sector Banks	-1634288.11	0.00
	Nationalized Banks	-896975.39	0.00
	Private Sector Banks	-21910.52	1.00
Private Sector Banks	Public Sector Banks	-1612377.60	0.00
	Nationalized Banks	-875064.88	0.00
Private Sector Banks	SBI Group Banks	21910.52	1.00

**(Source: SPSS Output)**

From Table 4-52 it may be inferred that there was a statistically significant difference in majority of the one-to-one paired comparison. The Gross Advances amongst different categories of the banks were statistically significant. The difference of Gross Advances was not statistically significant between public sector banks and nationalized banks. The same was the case with the Gross Advances between private sector banks and the SBI group banks.

#### **4.1.59 Gross NPA Across Public, Nationalized, SBI Group and Private Sector Banks**

To check the significant difference in the mean gross NPA across public sector banks, nationalized banks, SBI group banks and private sector banks a statistical test was administered. The data used in the study was of domestic banks operating in India during 2013 to 2017 i.e. five years. As discussed in the previous section, the normality test was violated across the different categories of banks and the gross advances, but still the data was assumed to be normal based on the video explanation given by (Kaushik, 2015).

#### **4.1.60 Homogeneity Of The Variance For Gross NPA Across Different Types Of Banks**

The homogeneity of the variance was checked using the Levene's Test.

*H<sub>038</sub>: There is homogeneity of variance i.e. Equal Variance assumed.*

*H<sub>138</sub>: There is no homogeneity of variance i.e. Equal Variance not assumed.*

**Table 4-53 Levene Test Statistics On Gross NPA (Rs. Crores)**

Type of Banks	N	Gross NPA	
		Mean	SD
Public Sector Banks	10	177850.82	139700.41
Nationalized Banks	10	128642.03	104371.40
SBI Group Banks	10	49198.79	36997.24
Private Sector Banks	10	19654.19	17486.84
Total	40	93836.46	106988.06
Levene Statistic		5.11	
df1		3	
df2		36	
Sig. (p-value)		0.00	

**(Source: SPSS Output)**

It may be inferred that the variance in Gross NPA across all the categories of the banks are not the same. The Sig. P-value is 0.00, which is less than 0.05, in such a case the null hypothesis is rejected. In other words, there is no homogeneity of the variance and hence, one way ANOVA is not used, but the Welch Test is applied.

#### 4.1.61 Welch Test For Gross NPA Across Different Sectors Of Banks

In order to check the difference in the mean scores of Gross NPA the Welch Test was administered. The hypothesis for the same is discussed further.

*H<sub>039</sub>: There is no significant difference between the mean scores of Gross NPA across various categories of public sector banks, nationalized banks, SBI group banks and private sector banks.*

*H<sub>139</sub>: There is a significant difference between the mean scores of Gross NPA across various categories of public sector banks, nationalized banks, SBI group banks and private sector banks.*

**Table 4-54 Welch Test Statistics On Gross Advances Across Different Sectors Of Banks**

Particulars	Gross NPA
Welch Statistic	8.13
df1	3
df2	16.95
Sig. (p-value)	0.00

(Source: SPSS Output)

As the Sig. P-value is 0.00, which is less than 0.05, it means the null hypothesis is rejected. In other words, it indicates that there is a significant difference between the mean scores of Gross NPA across various categories of public sector banks, nationalized banks, SBI group banks and private sector banks. At least one of the categories of independent variables differs significantly from the rest in their mean scores. For detailed analysis, the paired comparison shall be conducted by the Post- Hoc analysis using Games Howell Method.

#### 4.1.62 Post-Hoc Analysis On Gross NPA Across Different Sectors Of Banks

Post-Hoc Analysis was conducted because the null hypothesis for Welch Test for Gross NPA was rejected. In other words, there was a significant difference in the Gross NPA when compared in one-to-one pair with all the items in the group. The Welch Test was applied because the equal variances were not assumed, and in such a case, the post-hoc analysis was conducted using the Games Howell Method to check the intra-group differences. The results of the same are discussed further.

**Table 4-55 Post-Hoc Test Statistics On Gross NPA Across Different Sectors Of Banks**

Sectors Of Banks	Comparison	Mean Difference (I-J)	Sig.
Public Sector Banks	Nationalized Banks	49208.79	0.81
	SBI Group Banks	128652.03	0.07
	Private Sector Banks	158196.63	0.03
Nationalized Banks	Public Sector Banks	-49208.79	0.81
	SBI Group Banks	79443.25	0.16

Sectors Of Banks	Comparison	Mean Difference (I-J)	Sig.
SBI Group Banks	Private Sector Banks	108987.85	0.04
	Public Sector Banks	-128652.03	0.07
	Nationalized Banks	-79443.25	0.16
	Private Sector Banks	29544.60	0.15
	Public Sector Banks	-158196.63	0.03
	Nationalized Banks	-108987.85	0.04
Private Sector Banks	SBI Group Banks	-29544.60	0.15

(Source: SPSS Output)

From Table 4-55 it may be inferred that there was no statistically significant difference in majority of the one-to-one paired comparison. The Gross NPA amongst different categories of the banks were not statistically significant. The statistically significant difference in the Gross NPA was between the public sector banks and private sector banks; between nationalized banks and private sector banks; between SBI Group banks and private sector banks, and between SBI Group banks and Nationalized banks.

#### 4.1.63 Comparison Of GNPA In Priority Vs. Non-Priority Sector In Domestic Banks

Based on the five years data of domestic banks from 2013 to 2017 the total NPA in public sector banks, nationalized banks, SBI Group banks and private sector banks was taken as a base for computing the percentage of GNPA across priority sector and non-priority sector for each type of banks.

**Table 4-56 Comparison Of Percentage GNPA In Priority Vs. Non-Priority Sector**

Sector of Bank	Year	GNPA of Total GNPA in Priority Sector (%)	GNPA of Total GNPA in Non-Priority Sector (%)
Public Sector Banks	2017	24	76
	2016	26	75
	2015	36	64
	2014	37	63
	2013	43	57
Nationalized Banks	2017	26	74
	2016	26	75
	2015	35	65
	2014	38	62
	2013	42	58
SBI Group Banks	2017	18	82
	2016	26	74
	2015	36	64
	2014	34	66
	2013	44	56
	2017	18	82

<b>Sector of Bank</b>	<b>Year</b>	<b>GNPA of Total GNPA in Priority Sector (%)</b>	<b>GNPA of Total GNPA in Non-Priority Sector (%)</b>
<b>Private Sector Banks</b>	2016	21	79
	2015	23	77
	2014	27	73
	2013	26	74

**(Source: Excel Output)**

It may be inferred that in the case of the public sector banks on the Y-O-Y basis GNPA as a percentage of total NPA was highest in the non-priority sector. The percentage of GNPA in the non-priority sector was more than 50%. It was highest at 76% in the year 2017. The percentage of GNPA has been increasing every year. In the case of the Nationalized banks, SBI Group Banks and Private Sector Banks, on the Y-O-Y basis GNPA as a percentage of GNPA was highest in the non-priority sector. The percentage of GNPA has been rising in the non-priority sector on yearly basis. For all the year the percentage of GNPA is more than 50%.

The percentage of GNPA in the non-priority sector in the year 2017 was as high as 82% for both the SBI group banks and the private sector banks. In the same year the GNPA percentage in the public sector banks (76%), and nationalized banks (74%) was almost same, with a marginal difference of two percent. For the year 2016 the GNPA percentage in all the types of banks for non-priority sector was more than 70%. In the year 2015 and 2014 the percentage of GNPA in the non-priority sector was more than 60% across all the types of the banks. In the year 2013, as high as 74% GNPA was noted in the non-priority sector lending by private sector banks.

In the year 2017, the GNPA percent in priority sector across all banks were more than 15%. It was highest in the nationalized banks at 26%. In the year 2016, the GNPA percent in priority sector was 26% for all banks except the private sector banks (21%). In the year 2015 the GNPA percent in priority sector was as low as 23% for the private sector bank and it was more than 30% for rest of the banks. In the year 2014, the private sector bank had only 27% GNPA when compared with the other types of banks, which had a percentage more than 30. In the year 2013, the percentage of GNPA was more than 40% for all the types of banks except the private sector banks.

In public sector banks the GNPA percent in the priority sector, kept on reducing from 43% to 24%. The same scenario was noted in the case of nationalized banks (from 42% to 26%); SBI Group Banks (from 44% to 18%), and for private sector banks (from 26% to 18%). Thus, it be concluded that the percent of GNPA declined to almost half from the base year's number of

GNPA. The profits of the banks were severely impacted by the GNPA occurring in the non-priority sector.

#### **4.1.64 Normality Test For Per Priority And Non-Priority Sector Percent GNPA In Domestic Banks**

In order to apply the statistical test, the normality of the data was ensured using the Kolmogorov Smirnova Test and Shapiro Wilk Test. Shapiro Wilk Test is useful for a sample size less than 50 and the Kolmogorov Smirnova Test is used when the sample size is greater than 50. The hypothesis to test the normality is discussed further. The normality of the data was assessed between the priority sector and Gross NPA percentage, and also between non-priority sector and Gross NPA percentage.

*H<sub>040</sub>: Data is normally distributed.*

*H<sub>140</sub>: Data is not normally distributed.*

**Table 4-57 Shapiro Wilk Test Statistics On Priority Sector And Non-Priority Sector GNPA (%)**

Bank Type	GNPA (%)		
	Statistic	df	Sig.
Priority Sector	0.93	20	0.13
Non-Priority Sector	0.93	20	0.13

(Source: SPSS Output)

It may be inferred that the Sig. P-value for GNPA (%) across priority sector and non-priority sector lending, was greater than 0.05, hence the null hypothesis is not rejected, i.e. the data is normally distributed. If the data is normally distributed then only the parametric test could be applied.

#### **4.1.65 Independent Sample T-Test On Priority And Non-Priority Sector GNPA (%)**

*H<sub>041</sub>: The mean scores of the priority sector's GNPA (%) and the non-priority sector's GNPA (%) do not significantly differ.*

*H<sub>141</sub>: The mean scores of the priority sector's GNPA (%) and the non-priority sector's GNPA (%) significantly differ.*

**Table 4-58 Independent T-Test Statistics For Priority And Non-Priority Sector GNPA (%)**

Particulars	Levene's Test for Equality of Variances		t-test for Equality of Means		
	F	Sig.	t	df	Sig.
Equal variances assumed	0.00	1.00	-15.1 2	38	0.00
Equal variances not assumed			-15.1 2	38	0.00

(Source: SPSS Output)

The Sig. value for Levene's Test for equality of variances is  $0.00 > 0.05$ , the equal variances are assumed and the statistics used for Independent T-Test will be with the assumption of equal variances assumed. The Sig. value is  $0.00 < 0.05$ , hence the null hypothesis is rejected. In other words, there is a significant difference in the mean score of the priority sector GNPA percent and non-priority sector GNPA percent. The average GNPA percent in priority sector was 30%, with a SD of 8.28%. The average GNPA percent in non-priority sector was 69% with a SD of 8.28%. The independent T-Test indicates that the difference is statistically significant.

#### **4.2 NPA Resolution Mechanism Of Indian Banks**

When the borrower fails to repay the loan amount despite multiple reminders, banks as per the norms of the RBI recognizes such loans as NPA. Banks still try to recover the money from such NPA accounts by adopting a resolution mechanism. The four main types of NPA resolution mechanism are referring the cases to Lok Adalat, or referring the cases to DRT, or managing recovery using the SARFAESI or managing recovery through IBC.

##### **4.2.1 Yearly Number Of NPA Cases**

A period of 10 years starting from 2012 to 2021 was taken for the study. The number of cases which were declared NPA on the Y-O-Y basis are discussed further.

**Table 4-59 Total Number Of NPA Cases And YOY Change**

Year	Number of Cases Referred	% YOY Change
2012	1044636	---
2013	1859922	78
2014	3155672	70
2015	4654753	48
2016	2261873	-51
2017	3787485	67

<b>Year</b>	<b>Number of Cases Referred</b>	<b>% YOY Change</b>
2018	3439276	-9
2019	4375823	27
2020	6127438	40
2021	2035299	-67
<b>Grand Total</b>	<b>32742177</b>	

(Source: Excel Output)

It may be inferred that the total number of cases referred in the year 2012 across the three categories of resolution mechanism namely the Lok Adalat, DRT, and SARFAESI were 10,44,636, which kept on increasing till the year 2015 for all the three categories. In the year 2016 the number of cases dropped to 22,61,873 considering the total of three types of resolution mechanism. In the year 2017, a fourth resolution tool of IBC was also referred for recovery. Post 2016, it was a mixed trend of increase then decrease in the number of cases. In the year 2021 the number of cases were 20,35,299. Over a period of ten year, the total number of cases referred for NPA resolution were 3,27,42,177. A CAGR of 6.90% was noted in the number of cases. Considering the YoY change it may be inferred that highest number of cases increased by 78% in the year 2013. In the year 2021, highest decline of 67% cases was noted. In the period of ten year the highest number of cases were 61,27,438 in the year 2020. Thus, number of cases increased due to strict monitoring mechanism adopted by IBC.

#### **4.2.2 Yearly Amount Involved In NPA**

A period of 10 years starting from 2012 to 2021 was taken for the study. The yearly amount involved in NPA is discussed further.

**Table 4-60 Yearly Amount Involved In NPA And YOY Change**

<b>Year</b>	<b>Amount Involved (Rs. Crores)</b>	<b>% YOY Change</b>
2012	105700	---
2013	173800	64
2014	248200	43
2015	221400	-11
2016	285976	29
2017	278300	-3
2018	270631	-3
2019	725996	168
2020	694350	-4
2021	456094	-34
<b>Grand Total</b>	<b>3460447</b>	

(Source: Excel Output)

The total amount of NPA involved in the year 2012 for all the three verticals of Lok Adalat, DRT and SARFAESI were Rs.1,05,700 Cr. Higher amount of NPA at Rs.7,25,996 Cr was

noted in the year 2019 for all three verticals, plus the fourth one i.e., IBC. The banks had large amount of stressed assets, due to which the amount of NPA was highest. A decline of four percent and 34% in the year 2020 and 2021 respectively. The percentage positive YOY change indicated the increase in the amount of NPA and the negative YOY change indicated the decline in the amount of NPA. A CAGR of 15.74% was noted in the amount being referred to NPA over a period of 10 years. A sharp decline in the NPA amount was noted in the year 2021 due to the implementation of various types of recognition, recapitalization, and resolution reforms declared by the government. During the year 2017-18, IBC based on the stringent guidelines from RBI, pressurized commercial banks for compulsory reporting of NPA, due to which the whooping increase in the NPA was noted in the year 2019.

#### **4.2.3 Yearly NPA Amount Recovered**

A period of 10 years starting from 2012 to 2021 was taken for the study. The yearly NPA amount recovered under the resolution mechanism is discussed further.

**Table 4-61 Yearly Amount Recovered Against NPA And YOY Change**

Year	Amount Recovered (Rs. Crores)	% YOY Change
2012	23300	---
2013	32000	37
2014	30800	-4
2015	22800	-26
2016	27954	23
2017	38500	38
2018	40352	5
2019	118647	194
2020	152597	29
2021	64229	-58
<b>Grand Total</b>	<b>551179</b>	

**(Source: Excel Output)**

It may be inferred that the amount recovered in the year 2012 was Rs.23,300 Cr. The recovery is quite fluctuating. Highest amount was recovered in the year 2019. Lowest amount was recovered in the year 2021. 10.67% CAGR was noted in the period of ten years in terms of the recovery of the NPA amount. In the year 2019 the YOY change indicated a recovery at 194%, which eventually reduced to 58% on YOY basis in the year 2021. An amount as low as Rs.22,800 Cr was recovered in the year 2015. Considering the period of 10 years an amount as high as Rs.1,52,597 Cr was recovered in the year 2020. The recovery rate increased in the year 2019, because IBC pressurized commercial banks to reveal the NPA. The commercial banks, in order to portray themselves as very good administrator, good bankers, with good type of loan books, timely did the follow-up and recovered the money which were treated as NPA from

the clients. Thus, there was a huge recovery of NPA amount in the year 2019. The recovery in the year 2020 and 2021 was not so huge, because as per the RBI directives, a moratorium period on all loans were declared by the commercial banks, and it was voluntary for the borrower to exercise the option or not. This move was made by RBI on account of rampant COVID pandemic in the year 2019 and 2020. The pandemic had depressed the revenues of many borrowers, due to which they were not able to pay their Equated Monthly Instalment (EMIs) on timely basis. RBI supported the borrowers, with the voluntary moratorium scheme, so that borrowers get some time till the things becomes normal.

#### **4.2.4 Descriptive Statistics On Number of Cases, Amount Involved And Amount Recovered**

Based on the consolidated data of 10 years a descriptive statistic was performed to get a cursory view on the number of cases, amount involved (in Cr) and amount recovered (in Cr).

**Table 4-62 Descriptive Statistics On Number Of Cases, Amount Involved And Amount Recovered**

Particular s	Number of Cases Referred	Amount Involved (Rs. Crores)	Amount Recovered (Rs. Crores)
Mean	935491	98870	15748
Median	91330	72000	7758
Std. Deviation	1592944	73076	20943
Maximum	5986790	268413	104117

**(Source: Excel Output)**

It may be inferred that in the period of 10 years, 9,35,491 average cases were referred and maximum number of cases were 59,86,790. In the tenure of 10 years, the amount involved in NPA on an average was Rs.98,870 Cr. The maximum amount involved in NPA was Rs.2,68,413 Cr. The average amount recovered was Rs.15,748 Cr in the duration of 10 years. Maximum Rs.1,04,117 Cr was recovered on account of NPA in the time span of 10 years. The average percentage of amount recovered to amount involved was 16%. On an average 39% was the maximum amount recovered to the total amount recoverable.

#### **4.2.5 Year-Wise Descriptive Statistics On Number Of Cases, Amount Involved And Amount Recovered**

To get a better insight of the data, a descriptive statistic was run on the year-wise data of number of cases referred, NPA amount involved and amount recovered.

**Table 4-63 Year Wise Descriptive Statistics On Number Of Cases, Amount Involved And Amount Recovered**

<b>Year</b>	<b>Particulars</b>	<b>Number of Cases Referred</b>	<b>Amount Involved (in Cr)</b>	<b>Amount Recovered (in Cr)</b>
2012	X	348212	35233	7767
	M	190537	31000	4400
	SD	435598	30968	9508
	Mini	13408	6600	400
	Maxi	840691	68100	18500
2013	X	619974	57933	10667
	M	194707	55300	5300
	SD	884657	36122	12822
	Mini	28258	23200	1400
	Maxi	1636957	95300	25300
2014	X	1051891	82733	10267
	M	175355	60400	4200
	SD	1652790	65806	13375
	Mini	22004	31000	1000
	Maxi	2958313	156800	25600
2015	X	1551584	73800	7600
	M	173582	72000	6400
	SD	2516950	5620	5107
	Mini	24537	69300	3200
	Maxi	4456634	80100	13200
2016	X	753958	95325	9318
	M	80076	105787	7758
	SD	1211785	24725	6438
	Mini	28902	67089	3803
	Maxi	2152895	113100	16393
2017	X	946871	69575	9625
	M	115885	68450	6300
	SD	1741396	63496	11714
	Mini	37	0	0
	Maxi	3555678	141400	25900
2018	X	859819	67658	10088
	M	60338	63804	6081
	SD	1639155	52592	11086
	Mini	704	9929	1811
	Maxi	3317897	133095	26380
2019	X	1093956	181499	29662
	M	143558	202050	24729
	SD	1998270	101967	29026

<b>Year</b>	<b>Particulars</b>	<b>Number of Cases Referred</b>	<b>Amount Involved (in Cr)</b>	<b>Amount Recovered (in Cr)</b>
	Mini	1152	53484	2750
	Maxi	4087555	268413	66440
2020	X	1531860	173588	38149
	M	69331	200807	22135
	SD	2970270	71519	45868
	Mini	1986	67801	4211
	Maxi	5986790	224935	104117
2021	X	508825	114024	16057
	M	42757	101325	17712
	SD	960563	86393	13517
	Mini	537	28084	1119
	Maxi	1949249	225361	27686

**(Source: SPSS Output)**

In the year 2012, the average number of cases referred were 3,48,212, minimum number of cases were 13,408, and maximum 8,40,691 cases were referred. The median number of cases were 1,90,537. The SD was as high as 4,35,598 cases. The amount of NPA involved on an average was Rs.35,233 Cr; with a median value of Rs.31,000 Cr; SD as Rs.30,968 Cr. Minimum recovery was Rs.400 Cr, and maximum was Rs. 18,500 Cr. The average recovery was Rs. 7,767 Cr, with a SD of Rs. 9,508 Cr.

In the year 2013, the average number of cases referred were 6,19,974, minimum number of cases were 28,258, and maximum 16,36,957 cases were referred. The median number of cases were 1,94,707. The SD was as high as 8,84,657 cases. The amount of NPA involved on an average was Rs.57,933 Cr; with a median value of Rs.55,300 Cr; SD as Rs.36,122 Cr. Minimum recovery was Rs.1,400 Cr, and maximum was Rs. 25,300 Cr. The average recovery was Rs. 10,667 Cr, with a SD of Rs. 12,822 Cr.

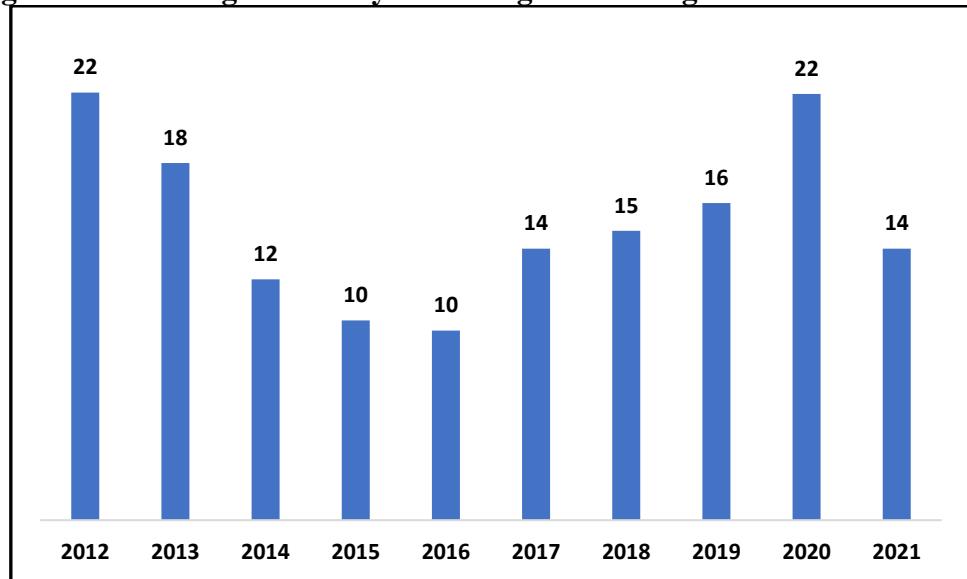
In the year 2014, the average number of cases referred were 10,51,891, minimum number of cases were 22,004, and maximum 29,58,313 cases were referred. The median number of cases were 1,75,355. The SD was as high as 16,52,790 cases. The amount of NPA involved on an average was Rs. 82,733Cr; with a median value of Rs. 60,400Cr; SD as Rs. 65,806 Cr. Minimum recovery was Rs.1,000 Cr, and maximum was Rs. 25,600 Cr. The average recovery was Rs. 10,267 Cr, with a SD of Rs. 13,357 Cr.

In the year 2015, the average number of cases referred were 15,51,584, minimum number of cases were 24,537, and maximum 44,56,634 cases were referred. The median number of cases were 1,73,582. The SD was as high as 25,16,950 cases. The amount of NPA involved on an average was Rs. 73,800 Cr; with a median value of Rs. 72,000Cr; SD as Rs. 5,620 Cr. Minimum

recovery was Rs.3,200 Cr, and maximum was Rs. 13,200 Cr. The average recovery was Rs. 7,600 Cr, with a SD of Rs. 6,400 Cr.

In the year 2016, the average number of cases were 7,53,958 and the maximum cases were 21,52,895. 50% of the cases referred for NPA recovery had amount more than Rs.1,05,787 and the 50% of the cases had recovery amount less than Rs.1,05,787. Maximum amount for recovery was Rs.1,13,100 Cr. Maximum recovery was Rs.16,393 Cr. Average recovery was Rs.9,318 Cr. In the year 2017, maximum 35,55,678 cases were referred. The maximum recovery amount was Rs.1,41,400 Cr. The maximum amount recovered was Rs.25,900 Cr. In the year 2018, on an average 8,59,819 Cr cases were referred. Average collection was Rs.67,658 Cr and the average recovery was Rs.10,088 Cr. In the year 2019, average number of cases referred were 10,93,956 Cr, with an average amount of NPA of Rs.1,81,499 Cr. The average recovery was Rs.29,662 Cr. The average number of cases in the year 2020 was 15,31,860. The average amount of NPA was Rs.1,73,588 Cr., and the average amount recovered was Rs.38,149 Cr. In the year 2021, maximum number of cases that referred were 19,49,249. The maximum amount involved in NPA was Rs. 2,25,361 Cr., and the maximum amount recovered was Rs.27,686 Cr. In the year 2015, average number of largest cases i.e. 15,51,584 were referred. Highest average amount for recovery towards NPA was Rs.1,81,499 Cr, in the year 2019. Highest average amount of Rs.38,149 Cr was recovered in the year 2020.

**Figure 4-16 Average Recovery Percentage Of Average Amount Recoverable**



(Source: Excel Output)

Average amount recovered as a percentage of amount recoverable was computed and graphically presented. The highest recovery as a percentage of amount recoverable was as high as 22% in the year 2012 and 2020. The percentage of average amount recovered to amount

recoverable was 18% in the year 2013, followed by 16% in 2019; 15% in the year 2018; 14% each in the year 2017 and 2021, and 10% each in the year 2015 and 2016.

#### **4.2.6 NPA Resolution Across Four Channels**

The mechanism of NPA resolution are Lok Adalat, DRTs, SARFAESI and IBC. Over a period of ten years, the data on number of cases referred, amount involved and amount recovered were taken into account.

**Table 4-64 NPA Resolution Across Four Channels**

Channels	Number of Cases Referred	Amount Involved (in Cr)	Amount Recovered (in Cr)	Percentage of Recovery to Recoverable
Lok Adalat	30942659	469784	21994	5
DRTs	291872	1215790	82879	7
SARFAESI	1503230	1259413	243512	19
IBC	4416	515460	202794	39

(Source: SPSS Output)

Over a period of ten years, in Lok Adalat the total number of cases referred were 3,09,42,659. The amount involved for recovery under NPA was Rs.4,69,784 Cr and the amount recovered was Rs.21,994 Cr. The percentage of amount recovered to the amount recoverable was just five percentage, over the span of ten years. In DRTs the number of cases referred were 2,91,872; amount involved was Rs.12,15,790 Cr and the amount recovered was Rs.82,879 Cr. The percentage of amount recovered to the amount recoverable was seven percent. As per SARFAESI channel 15,03,230 cases were referred for NPA settlement mechanism, the amount recoverable from these cases were Rs.12,59,413 Cr and the amount recovered was Rs.2,43,512 Cr. The percentage of amount recovered to the amount recoverable was 19%, over the span of ten years. Under IBC the number of cases referred in the time span of five years were 4,416, with the total recovery amount of Rs.5,15,460 Cr and the recovered amount was Rs.2,02,794 Cr. The percentage of amount recovered to the amount recoverable was 39%, over the span of five years. Considering the long-period of ten years maximum recovery was possible under SARFAESI channel. Based on the short-period of five years IBC channel had outperformed other three channels, with the maximum recovery rate of 39%.

#### **4.2.7 YOY Status Of Cases, Amount and Recovery By Lok Adalat**

For the in-depth understanding the YOY data was compared across the period of 10 years.

**Table 4-65 YOY Comparison And Descriptive Statistics On Cases, Amount And Recovery In Lok Adalat**

<b>Year</b>	<b>No. of Cases Referred</b>	<b>Amount Involved (Rs. Crores)</b>	<b>Amount Recovered (Rs. Crores)</b>
<b>2012</b>	840691	6600	400
<b>2013</b>	1636957	23200	1400
<b>2014</b>	2958313	31000	1000
<b>2015</b>	4456634	72000	3200
<b>2016</b>	2152895	105787	3803
<b>2017</b>	3555678	36100	2300
<b>2018</b>	3317897	45728	1811
<b>2019</b>	4087555	53484	2750
<b>2020</b>	5986790	67801	4211
<b>2021</b>	1949249	28084	1119
<b>Total</b>	<b>30942659</b>	<b>469784</b>	<b>21994</b>
<b>X</b>	3094266	46978	2199
<b>M</b>	3138105	40914	2056
<b>SD</b>	1523532	28845	1272
<b>Mini</b>	840691	6600	400
<b>Maxi</b>	5986790	105787	4211
<b>CAGR</b>	8.77%	15.58%	10.84%

**(Source: SPSS cum Excel Output)**

It may be inferred that in the year 2012, a minimum number of 8,40,691 cases were referred which increased to 19,49,249 cases in the year 2021. In the year 2020 the number of cases were 59,86,790 which highest amongst the ten-year time span. In the year 2021 the number of cases being referred to Lok Adalat had reduced by 67%. Total number of cases referred in Lok Adalat over 10 years were 3,09,42,659. On an average 30,94,266 cases were dealt by Lok Adalat. The SD in the number of cases were 15,23,532. The maximum number of cases that were referred was 59,86,790. The CAGR in the number of cases were 8.77%.

It may be noted that in the year 2012, as low as Rs.6,600 Cr was to be recovered, which increased to Rs.28,084 Cr in the year 2021. Rs.1,05,787 Cr was the highest amount to be recovered in the year 2016. In the span of 10 years the total recoverable amount was Rs.4,69,784 Cr. Average recovery was Rs.46,978 Cr. The SD in recovery amount was Rs.28,845 Cr. The CAGR in the growth of the amount recoverable was 15.58%.

It was observed that an amount as low as Rs.400 Cr was recovered in the year 2012. In the year 2021 the recovered amount was Rs. 1,119 Cr. The highest recovery was in the year 2020 at Rs. 4,211 Cr. Total recovery over a period of ten-years was Rs. 21,994 Cr. Average amount recovered was Rs. 2,199 Cr. The CAGR in the recovery was 10.84%. On comparison of CAGR across number of cases, amount involved, and amount recovered it was noted that percentage growth in the number of cases was lowest, in other words, the number of cases being referred

were decreasing. The amount involved in recovery was increasing, but the amount being recovered was decreasing, which is a worrisome thing.

#### **4.2.8 YOY Status Of Cases, Amount and Recovery By DRT**

For the in-depth understanding the YOY data was compared across the period of 10 years.

**Table 4-66 YOY Comparison And Descriptive Statistics On Cases, Amount And Recovery In DRT**

<b>Year</b>	<b>No. of Cases Referred</b>	<b>Amount Involved (Rs. Crores)</b>	<b>Amount Recovered (Rs. Crores)</b>
<b>2012</b>	13408	31000	4400
<b>2013</b>	28258	55300	5300
<b>2014</b>	22004	60400	4200
<b>2015</b>	24537	69300	6400
<b>2016</b>	28902	67089	16393
<b>2017</b>	32418	100800	10300
<b>2018</b>	29345	133095	7235
<b>2019</b>	51679	268413	10552
<b>2020</b>	33139	205032	9986
<b>2021</b>	28182	225361	8113
<b>Total</b>	<b>291872</b>	<b>1215790</b>	<b>82879</b>
<b>X</b>	29187	121579	8288
<b>M</b>	28580	85050	7674
<b>SD</b>	9753	82934	3700
<b>Mini</b>	13408	31000	4200
<b>Maxi</b>	51679	268413	16393
<b>CAGR</b>	7.71%	21.94%	6.31%

**(Source: SPSS cum Excel Output)**

It may be inferred that in the year 2012 the number of cases referred to DRT was 13,408, which were the lowest across the ten-year period. The number of cases increased to 28,182 in the year 2021. The highest number of 51,679 cases were reported in the year 2019. The SD for the number of cases being referred were 9,753. The CAGR for number of cases were 7.71%. With respect to the amount recovered, in the year 2012, the highest amount recoverable was Rs.31,000 Cr, which grew to Rs.2,25,361 Cr. Rs.2,68,413 Cr was the highest amount to be recovered in the year 2019. Total amount recoverable under DRT over a period of ten-years was Rs.12,15,790 Cr. On an average Rs.1,21,579 Cr was recoverable from NPA accounts under DRT. The SD was noted at Rs.82,934 Cr. 21.94% CAGR was noted in the growth of the amount to be recoverable under DRT. The amount of recovery from those cases which were referred under DRT was Rs. 4,400 Cr in 2012. Rs.8,113 Cr were recovered in the year 2021. A minimum recovery was Rs.4,200 Cr in the year 2014. Highest recovered amount was Rs.16,393

Cr in the year 2016. Average recovery was Rs.8,288 Cr, with a SD of Rs.3,700 Cr, and median of Rs.7,674 Cr. Total amount recovered over a period of ten-years was Rs.82,879 Cr. A CAGR of 6.31% was noted in the amount recovered, over a period of ten-years.

#### **4.2.9 YOY Status Of Cases, Amount and Recovery By SARFAESI**

For the in-depth understanding the YOY data was compared across the period of 10 years.

**Table 4-67 YOY Comparison And Descriptive Statistics On Cases, Amount And Recovery In SARFAESI**

<b>Year</b>	<b>No. of Cases Referred</b>	<b>Amount Involved (Rs. Crores)</b>	<b>Amount Recovered (Rs. Crores)</b>
<b>2012</b>	190537	68100	18500
<b>2013</b>	194707	95300	25300
<b>2014</b>	175355	156800	25600
<b>2015</b>	173582	80100	13200
<b>2016</b>	80076	113100	7758
<b>2017</b>	199352	141400	25900
<b>2018</b>	91330	81879	26380
<b>2019</b>	235437	258642	38905
<b>2020</b>	105523	196582	34283
<b>2021</b>	57331	67510	27686
<b>Total</b>	<b>1503230</b>	<b>1259413</b>	<b>243512</b>
<b>X</b>	150323	125941	24351
<b>M</b>	174469	104200	25750
<b>SD</b>	60985	62979	9216
<b>Mini</b>	57331	67510	7758
<b>Maxi</b>	235437	258642	38905
<b>CAGR</b>	-11.32%	-0.09%	4.11%

**(Source: SPSS cum Excel Output)**

It may be inferred that number of cases referred under SARFAESI was 1,90,537. Total number of cases reported under SARFAESI was 15,03,230. Average cases referred were 1,50,323, with a median number of 1,74,469, SD of 60,985. The minimum number of cases referred in the year 2021 i.e. 57,331. As high as 2,35,437 cases were referred to SARFAESI in the year 2019. A negative CAGR of -11.32% indicated that the number of cases referred to SARFAESI were gradually declining. 68,100 Cr was to be recovered in the year 2012 under SARFAESI. Minimum amount to be recovered was Rs.67,510 Cr in the year 2021. Rs.2,58,642 Cr was recoverable in the year 2019. Total recoverable amount was Rs.12,59,413 Cr, with an average amount recoverable at Rs.1,25,941 Cr, median value at Rs.1,04,200 Cr with a SD of Rs.62,979 Cr. A CAGR of -0.09%; indicated that there was a marginal decline in the amount to be recovered over a period of ten-years. A minimum of Rs.7,758 Cr was recovered in the year

2015 under SARFAESI. In the year 2019, as high as Rs.38,905 Cr was recovered through SARFAESI mechanism. Rs.18,500 Cr was recovered in the year 2012, and Rs.27,686 Cr was recovered in the year 2021. Total amount recovered over a period of ten-years was Rs.2,43,512 Cr. Average recovery was Rs.24,351 Cr, with a median value of Rs.25,750Cr and the SD of Rs.9,216Cr. A CAGR of 4.11% was noted in the recovery of the amount under SARFAESI mechanism. The statistics indicates that the CAGR in the number of cases was reducing, the amount involved in the recovery had marginally decreased and the amount recovered had increased, which means the SARFAESI mechanism was quite successful.

#### **4.2.10 YOY Status Of Cases, Amount and Recovery By IBC**

For the in-depth understanding the YOY data was compared across the period of 10 years.

**Table 4-68 YOY Comparison And Descriptive Statistics On Cases, Amount And Recovery In IBC**

<b>Year</b>	<b>No. of Cases Referred</b>	<b>Amount Involved (Rs. Crores)</b>	<b>Amount Recovered (Rs. Crores)</b>
<b>2017</b>	37	0	0
<b>2018</b>	704	9929	4926
<b>2019</b>	1152	145457	66440
<b>2020</b>	1986	224935	104117
<b>2021</b>	537	135139	27311
<b>Total</b>	<b>4416</b>	<b>515460</b>	<b>202794</b>
<b>X</b>	883	103092	40559
<b>M</b>	704	135139	27311
<b>SD</b>	734	96144	44158
<b>Min</b>	37	0	0
<b>Max</b>	1986	224935	104117
<b>CAGR</b>	-5.27%	92.07%	53.45%

**(Source: SPSS cum Excel Output)**

It may be inferred that minimum 37 cases were referred to IBC in the year 2017. 537 cases were referred in the year 2021. As high as 1,986 cases were referred to IBC in the year 2020. A total of 4,416 cases were referred in the period of five years. The average number of cases referred were 883, with a median value of 704 cases and the SD of 734 cases. A negative CAGR of -5.27% was noted in the number of cases over a period of four years, indicating that the number of cases had declined in the four years period. Four years period was taken because in the year 2017 only 37 cases were referred, but there was neither any amount indicated for recovery nor any amount was recovered. Total amount recoverable was Rs.5,15,460 Cr, over a period of five year. The average amount recoverable was Rs.1,03,092 Cr, with a median value of Rs.1,35,139 Cr and the SD of Rs.96,144 Cr. Maximum amount recoverable was Rs.2,24,935

Cr in the year 2020. A CAGR of 92.07% indicated that amount to be recovered had increased drastically over a period of four year. The total amount recovered over a period of four years was Rs.2,02,794 Cr. In the year 2018 the amount recovered was Rs.4,926 Cr. As high as Rs.1,04,117 Cr was recovered in the year 2020. Average recovery was Rs.40,559 Cr, with a median recovery of Rs.27,311 Cr, and a SD of Rs.44,158 Cr. There was a CAGR increase of 53.45% in the amount of recovery over a period of four years. It may be inferred that the highest recovery was made by IBC when compared with the mechanism of recovery.

#### **4.2.11 YOY Ranking On Number Of Cases Under Each Recovery Mechanism**

The absolute number of cases across the four categories and ten-years period was taken into consideration for the rank purpose. All the four mechanism of each year was compared against each other and then rank was provided. First rank was provided to the highest alternative, second rank was provided to the next alternative, and so on. The fourth rank was applied to the last alternative. The criteria of three ranks were used till 2016. The fourth ranking criteria was used because IBC mechanism was introduced from the year 2017.

**Table 4-69 Rank Analysis On Number Of Cases**

Year	Lok Adalat	SARFAESI	DRT	IBC
2012	1	2	3	---
2013	1	2	3	---
2014	1	2	3	---
2015	1	2	3	---
2016	1	2	3	---
2017	1	2	3	4
2018	1	2	3	4
2019	1	2	3	4
2020	1	2	3	4
2021	1	2	3	4

**(Source: Excel Output)**

It may be inferred that over a period of ten years, first rank was achieved by Lok Adalat i.e. the highest number of cases were referred to Lok Adalat. At the second position, the SARFAESI mechanism had the next highest level of cases being referred. Consistently, DRT was at the third position in terms of the number of cases being referred. IBC was at the fourth position with respect to the number of cases being referred. In the year 2021, highest number of cases were reported in Lok Adalat, followed by SARFAESI, DRT, and IBC.

#### **4.2.12 YOY Ranking On Amount Of Recovery Under Each Recovery Mechanism**

The absolute number of cases across the four categories and ten-years period was taken into consideration for the rank purpose. All the four mechanism of each year was compared against

each other and then rank was provided. First rank was provided to the highest alternative, second rank was provided to the next alternative, and so on. The fourth rank was applied to the last alternative. The criteria of three ranks were used till 2016. The fourth ranking criteria was used because IBC mechanism was introduced from the year 2017.

**Table 4-70 Rank Analysis On Amount Of Recovery**

Year	Lok Adalat	SARFAESI	DRT	IBC
2012	3	2	1	---
2013	3	2	1	---
2014	3	2	1	---
2015	2	3	1	---
2016	2	3	1	---
2017	3	2	1	---
2018	3	1	2	4
2019	4	1	2	3
2020	4	2	3	1
2021	4	1	3	2

**(Source: Excel Output)**

It may be inferred that consecutively for the period of six years, the cases under DRT had highest amount due to be recovered. For the year 2018 and 2019 the due amount was at second ranking. For the year 2020 and 2021 the due amount was at third position. The second highest recoverable amount for 2012 to 2014 was under SARFAESI mechanism. In the year 2015 and 2016 the due amount of NPA was at third position. It was the second position for the year 2017. In the year 2018 and 2019 the recoverable amount was the highest under SARFAESI. In the year 2020 it was at second position, and in the year 2021, the recoverable amount was at first position. Amount to be recovered under Lok Adalat was either at second, or third or fourth position based on the different years. Highest level of recoverable amount was not noted in Lok Adalat. Amount recoverable under IBC was highest in the year 2020, which turned to the second position in the year 2021. In the year 2021, highest amount recoverable due to NPA was reported under SARFAESI mechanism, followed by IBC, then DRT, and lastly Lok Adalat.

#### **4.2.13 YOY Ranking On Recovery Of Amount Under Each Recovery Mechanism**

The absolute number of cases across the four categories and ten-years period was taken into consideration for the rank purpose. All the four mechanism of each year was compared against each other and then rank was provided. First rank was provided to the highest alternative, second rank was provided to the next alternative, and so on. The fourth rank was applied to the

last alternative. The criteria of three ranks were used till 2016. The fourth ranking criteria was used because IBC mechanism was introduced from the year 2017.

**Table 4-71 Rank Analysis On Recovery Of Amount**

Year	Lok Adalat	DRT	SARFAESI	IBC
2012	3	2	1	
2013	3	2	1	
2014	3	2	1	
2015	3	2	1	
2016	3	1	2	
2017	3	2	1	
2018	4	2	1	3
2019	4	3	2	1
2020	4	3	2	1
2021	4	3	1	2

**(Source: Excel Output)**

During the period of ten years, in the seven years SARFAESI mechanism was at the first position for the recovery of the amount. For the consecutive six years DRT channel was at the second position for the recovery of the amount. Similarly, for the six consecutive years Lok Adalat channel was at the third position for the recovery of the amount. From the year 2018 to 2021 Lok Adalat was consistently at the fourth place in terms of recovery of NPA amount. In the year 2019 and 2020 IBC occupied first position in terms of recovering the NPA dues. In the year 2021, it was observed that highest amount was collected through SARFAESI, followed by IBC, DRT, and lastly Lok Adalat.

**Table 4-72 Ranking On Latest Details Of Cases, Amount Of Recovery And Amount Recovered (2021)**

Details	Lok Adalat	SARFAESI	DRT	IBC
Cases	1	2	3	4
Amount of Recovery	4	1	3	2
Amount Recovered	4	3	1	2

**(Source: Excel Output)**

It may be inferred that in the year 2021, highest number of cases were reported under Lok Adalat. Highest recoverable amount was reported under SARFAESI, and Highest amount was recovered by DRT. Lok Adalat deals with the NPA amount of up to Rs.20 lakh. The count of loans which would have been less than Rs.20 lakh, would not only be more, but the amount of NPA would also be more, as a result the number of cases were noted highest in the Lok Adalat. Lok Adalat is the easiest and cost-effective option to recover the unsecured loans of up to Rs.20 lakh. The highest recoverable amount was filed under SARFAESI. The NPA on secured loans

on fixed assets, on which the mortgage charge is created, is easy to recover through the SARFAESI. If the banks while providing the loans, have taken a collateral of a value, higher than the loan amount, then bankers can easily recover the NPA amount by selling the collateral. SARFAESI is an internal instrument of banks, which provides it with the veto to recover the NPA amount without the interference of the court of law and realize the money on quick basis. Hence, the highest amount of NPA recovery was noted under SARFAESI, which would be recovered through the sale of the high value collateral asset.

For the NPA amount above Rs.20 lakh are dealt in the DRT. DRT is a less costly process, in which the bank routes the application to the court of law, to initiate the process of recovery. DRT is a court. All hypothecation on moveable assets such as stock, debtors, capital are routed through DRT. Banks generally, prefer the DRT route when the value of the collateral is less against the loan amount offered. In the analysis it was noted that highest amount was recovered through DRT route.

Under the IBC mechanism, the resolution planner (RP) takes the charge of ownership in the defaulters' company. The RP tries to resolve the monetary issue in the company in the period of 180 days, either, by restructuring the loan of the company, or bring the company back to the running condition, eventually for the sales. RPs are managed by Chartered Accountant (CAs), who are authorized, and possess autonomy, to resolve the financial disputes; sell the assets or scrap; waive-off the long-term government dues; discount the value of the asset to sell the company; or may also sell-off the company at the nominal percentage of the default amount. RPs may completely dissolve the company, if there is no chance of revival. The operative creditors, financial creditors, and employees of the company are intimated for the dissolution. NPA cases of up to Rs.10 lakh were referred under IBC, the limit has been recently revised to Rs.1Cr.

#### **4.2.14 Success Rate In Recovery**

The success rate of recovery under four channels were computed after giving the effect of GNPA reductions. The total amount to be recovered on a yearly basis, was taken as the base. From the total amount recoverable, the GNPA amount was reduced, which provided the likely amount to be recovered. The likely amount to be recovered was then compared with the actual recovery. The actual recovery was subtracted from the amount to be recovered, to arrive at the success rate.

**Table 4-73 Computation of Success Rate Recovery Under Four Channels**

Year	Total Amount	GNPA Reductions	Amount to be Recovered	Actual Recovery	Success Rate
2012	105700	57238	48462	23300	48
2013	173800	75702	98098	32000	33
2014	248200	99933	148267	30800	21
2015	221400	88468	132932	22800	17
2016	285976	80334	205642	27954	14
2017	278300	128175	150125	38500	26
2018	270631	128301	142330	40352	28
2019	725996	173703	552293	118647	21
2020	694350	155865	538485	152597	28
2021	456094	118584	337510	64229	19

(Source: Excel Output)

It may be inferred that highest success recovery rate was 48% in the year 2012. Lowest recovery success rate was in the year 2016 at 14%. In the year 2021 the recovery success rate was 19%. In the year 2015, the recovery success rate was 17%. More than 20% recovery rate was noted in the year 2013, 2014, 2017, 2018, 2019 and 2020. More than 30% recovery rate was noted in the year 2013.

#### 4.2.15 YOY Recovery Amount Across All Channels

The year wise amount of recovery against four channels namely Lok Adalat, DRTs, SARFAESI and IBC were analyzed.

**Table 4-74 Year Wise Recovery Across Four Channels (Rs. Crores)**

Year	Amount Recovered through Lok Adalat	Amount Recovered through DRTs	Amount recovered through SARFAESI	Amount recovered through IBC	Total Recovered
2012	400	4400	18500	---	23300
2013	1400	5300	25300	---	32000
2014	1000	4200	25600	---	30800
2015	3200	6400	13200	---	22800
2016	3803	16393	7758	---	27954
2017	2300	10300	25900	0	38500
2018	1811	7235	26380	4926	40352
2019	2750	10552	38905	66440	118647
2020	4211	9986	34283	104117	152597
2021	1119	8113	27686	27311	64229

(Source: Excel Output)

It may be inferred that highest amount of Rs.4,211 Cr was recovered in the year 2020 through Lok Adalat. The recovery was lowest in the year 2012 at Rs.400 Cr. A lowest amount of Rs.4,200 Cr was recovered through DRT. Rs.16,393 Cr was the highest amount recovered

through DRT in the year 2016. An amount as low as Rs.7,758 Cr was recovered through SARFAESI in the year 2016. Rs.38,905 Cr was the highest amount recovered through SARFAESI in the year 2019. As low as Rs.4,926 Cr was the amount recovered through IBC in the year 2018. Rs.1,04,117 Cr, the highest amount was recovered through IBC in the year 2020. Rs.22,800 Cr was the lowest recovery across all four channels in the year 2015. The amount as high as Rs.1,52,597 Cr was recovered across all four channels in the year 2020.

#### **4.2.16 YOY Percentage Recovery Amount Across All Channels**

The recovery made across all four channels were converted into the percentage format for better comparison. The summation of year wise percentage across the four channels totalled up to 100.

**Table 4-75 Year Wise Percentage Recovery**

<b>Year</b>	<b>Lok Adalat's Recovery as % of Total Recovered</b>	<b>DRT's Recovery as a % of Recovered</b>	<b>SARFAESI's Recovery as a % of Recovered</b>	<b>IBC's Recovery as a % of Recovered</b>
2012	2	19	79	---
2013	4	17	79	---
2014	3	14	83	---
2015	14	28	58	---
2016	14	59	28	---
2017	6	27	67	---
2018	4	18	65	12
2019	2	9	33	56
2020	3	7	22	68
2021	2	13	43	43

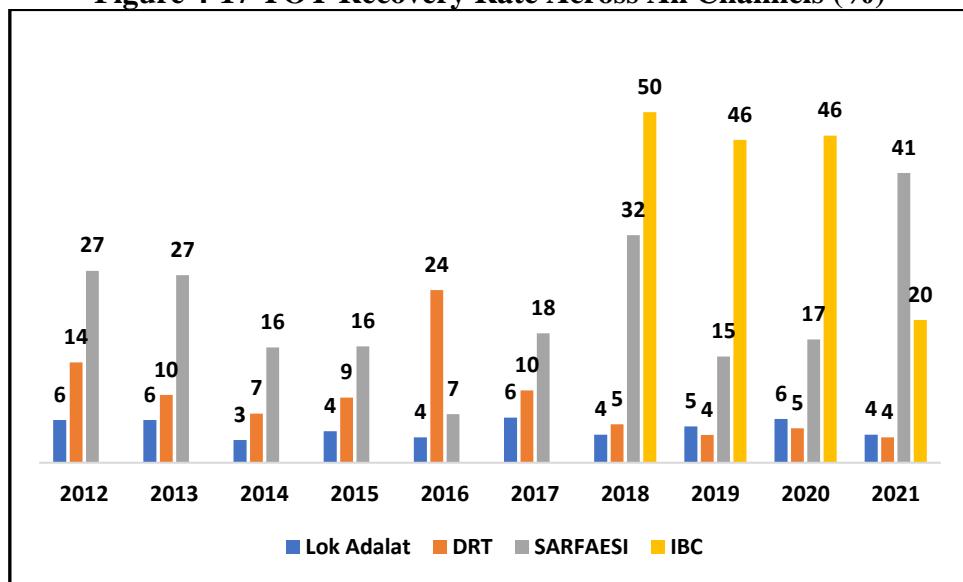
**(Source: SPSS Output)**

It may be inferred that in the year 2012 the highest recovery was made via SARFAESI at 83% in the year 2014; 79% in the year 2012 and 2013 each. 58% recovery through SARFAESI, took place in the year 2015. In the year 2016, 59% recovery took place through DRT. In the year 2017, and 2018 it was noted that 67% and 65%, respectively collected through SARFAESI. For the year 2019 and 2020 as high as 56% and 68% respectively was collected through IBC. SARFAESI Act has been a powerful NPA resolution scheme. As per 2021 data, the recovery happening through Lok Adalat drastically decreased to two percent from the highest 14%. 43% each was the recovery percentage for IBC, and SARFAESI (the next best alternative for NPA resolution). As per 2021 computed percentage, the recovery statistics just stood at 13%. SARFAESI and IBC tools of NPA resolution, were at par.

#### **4.2.17 YOY Recovery Rate Of Specific Channel Against Itself**

A percentage of recovery was computed on a YOY basis by comparing the amount recovered from the specific channel, as a percentage of amount recoverable for that specific channel. If the percentage of recovery against the specific channel is deducted from 100 then the balance percentage indicates the amount that is not recovered. The year wise percentage indicates the recovery under each specific channel only, hence, the summation of percentage across the four channels will not be 100.

**Figure 4-17 YOY Recovery Rate Across All Channels (%)**



**(Source: Excel Output)**

It may be inferred that highest amount was recovered through SARFAESI for four consecutive years starting from 2012 to 2015. In the year 2016, the recovery under the DRT route was highest at 24%. In the year 2017, SARFAESI also showed the highest recovery at 18%. In the year 2018, the recovery rate was 50% under IBC and 32% under SARFAESI. In the year 2019, 46% recovery was under IBC, and 15% was under SARFAESI. Similarly, in the year 2020, the highest recovery at 46% was through IBC, and 17% through SARFAESI. As high as 41% amount was recovered through SARFAESI, and 20% was through IBC. In the period of ten years, seven times the highest recovery happed through SARFAESI. Three times highest recovery happened through IBC. Thus, SARFAESI, and IBC may be treated as the best tool for recovery of NPA.

#### **4.2.18 Comparison Of Total Amount For Recovery And Total Recovered**

A percentage of total recovered to the total amount for recovery was calculated for the period of then years, starting from 2012 to 2021.

**Table 4-76 Year Wise Percentage Recovery**

<b>Year</b>	<b>Total Amount for Recovery</b>	<b>Total Recovered</b>	<b>Recovery as a % of Total Recoverable Amount</b>
2012	105700	23300	22
2013	173800	32000	18
2014	248200	30800	12
2015	221400	22800	10
2016	285976	27954	10
2017	278300	38500	14
2018	270631	40352	15
2019	725996	118647	16
2020	694350	152597	22
2021	456094	64229	14

(Source: SPSS Output)

It may be inferred that recovery percentage was more than five percentage for all years. Lowest recovery was noted at ten percent each for the two consecutive years, i.e. 2015 and 2016. Highest recovery rate of 22% was noted for 2012 and 2020. 18% was the recovery rate in the year 2013. In the year 2014 the recovery rate was 12%. Each 14% recovery rate was noted for the year 2017 and 2021. A recovery rate of 15% was noted in the year 2018, and it was 16% in the year 2019. Thus, the recovery rate across ten years period was in double digit.

#### **4.2.19 Normality Test On Number Of Cases Referred To Various Channels**

In order to apply the statistical test, the normality of the data was ensured using the Kolmogorov Smirnova Test and Shapiro Wilk Test. Shapiro Wilk Test is useful for a sample size less than 50 and the Kolmogorov Smirnova Test is used when the sample size is greater than 50. The hypothesis to test the normality is discussed further. The data on the number of cases across various channels were taken into consideration. Normality was checked between different channels of recovery and number of cases.

$H_{042}$ : Data is normally distributed.

$H_{142}$ : Data is not normally distributed.

**Table 4-77 Shapiro Wilk Test Statistics On Number Of Cases Across Different Channels Of Recovery**

<b>Channels</b>	<b>Number of Cases</b>		
	<b>Statistic</b>	<b>df</b>	<b>Sig.</b>
Lok Adalat	0.98	10	0.97
DRTs	0.88	10	0.14
SARFAESI	0.91	10	0.25
IBC	0.97	5	0.85

(Source: SPSS Output)

It may be inferred that the Sig. P-value for number of cases across the four channels of recovery i.e. Lok Adalat, DRTs, SARFAESI and IBC, was greater than 0.05, hence the null hypothesis is not rejected, i.e. the data is normally distributed. If the data is normally distributed then only the parametric test could be applied.

#### **4.2.20 Homogeneity Of The Variance On Number Of Cases**

The homogeneity of the variance was checked using the Levene's Test.

*H<sub>043</sub>: There is homogeneity of variance i.e. Equal Variance assumed.*

*H<sub>143</sub>: There is no homogeneity of variance i.e. Equal Variance not assumed.*

**Table 4-78 Levene Test Statistics On Number Of Cases**

Recovery Channels	Number Of Cases		
	N	Mean	SD
Lok Adalat	10	3094266	1523532
DRTs	10	29187	9753
SARFAESI	10	150323	60985
IBC	5	883	734
Total	35	935491	1592944
Levene Statistic		14.67	
df1		3	
df2		31	
Sig. (p-value)		0.00	

(Source: SPSS Output)

It may be inferred that the variance in number of cases across all the categories of the recovery channels are not the same. The Sig. P-value is 0.00, which is less than 0.05, in such a case the null hypothesis is rejected. In other words, there is no homogeneity of the variance and hence, one way ANOVA is not used, but the Welch Test is applied.

#### **4.2.21 Welch Test Of Number Of Cases**

In order to check the difference in the mean scores on number of cases the Welch Test was administered. The hypothesis for the same is discussed further.

*H<sub>044</sub>: There is no significant difference between the mean scores on number of cases across various categories of recovery channels i.e. Lok Adalat, DRTs, SARFAESI and IBC.*

*H<sub>144</sub>: There is a significant difference between the mean scores on number of cases across various categories of recovery channels i.e. Lok Adalat, DRTs, SARFAESI and IBC.*

**Table 4-79 Welch Test Statistics On Number Of Cases**

Particulars	Number Of Cases
Welch Statistic	56.44
df1	3

Particulars	Number Of Cases
df2	15.11
Sig. (p-value)	0.00

(Source: SPSS Output)

As the Sig. P-value is 0.00, which is less than 0.05, it means the null hypothesis is rejected. In other words, it indicates that there is a significant difference between the mean scores on the number of cases across various channels of recovery i.e. Lok Adalat, DRTs, SARFAESI and IBC. At least one of the categories of independent variables differs significantly from the rest in their mean scores. For detailed analysis, the paired comparison shall be conducted by the Post- Hoc analysis using Games Howell Method.

#### 4.2.22 Post-Hoc Analysis On Number Of Cases

Post-Hoc Analysis was conducted because the null hypothesis for Welch Test for number of cases was rejected. In other words, there was a significant difference in the number of cases when compared in one-to-one pair with all the items in the group. The Welch Test was applied because the equal variances were not assumed, and in such a case, the post-hoc analysis was conducted using the Games Howell Method to check the intra-group differences. The results of the same are discussed further.

Table 4-80 Post-Hoc Test Statistics On Number Of Cases

Recovery Channels	Comparison	Number Of Cases	
		Mean Difference (I-J)	Sig.
<b>Lok Adalat</b>	DRT	3065079	0.00
	SARFAESI	2943943	0.00
	IBC	3093383	0.00
<b>DRT</b>	Lok Adalat	-3065079	0.00
	SARFAESI	-121136	0.00
	IBC	28304	0.00
<b>SARFAESI</b>	Lok Adalat	-2943943	0.00
	DRTs	121136	0.00
	IBC	149440	0.00
<b>IBC</b>	Lok Adalat	-3093383	0.00
	DRTs	-28304	0.00
	SARFAESI	-149440	0.00

(Source: SPSS Output)

From Table 4-80 it may be inferred that there was a statistically significant difference in the one-to-one paired comparison. The number of cases referred between Lok Adalat and DRT was statistically significant. Similarly, number of cases between Lok Adalat and SARFAESI was also statistically significant. Number of cases referred between Lok Adalat and IBC was

also statistically significant. Cases being referred between DRT and SARFAESI; and between DRT and IBC was also statistically significant. Thus, the cases being referred to all the four different types of channels were statistically significant, and the difference was not by chance.

#### **4.2.23 Normality Test On The NPA Recoverable Amount Under Different Recovery Channels**

In order to apply the statistical test, the normality of the data was ensured using the Kolmogorov Smirnova Test and Shapiro Wilk Test. Shapiro Wilk Test is useful for a sample size less than 50 and the Kolmogorov Smirnova Test is used when the sample size is greater than 50. The hypothesis to test the normality is discussed further. The data on the number of cases across various channels were taken into consideration. Normality was checked between different channels of recovery and NPA recoverable amount.

*H<sub>045</sub>: Data is normally distributed.*

*H<sub>145</sub>: Data is not normally distributed.*

**Table 4-81 Shapiro Wilk Test Statistics On The NPA Recoverable Amount Under Different Recovery Channels**

Channels	NPA Recoverable Amount		
	Statistic	df	Sig.
Lok Adalat	0.96	10	0.74
DRTs	0.87	10	0.11
SARFAESI	0.87	10	0.10
IBC	0.99	5	0.40

(Source: SPSS Output)

It may be inferred that the Sig. P-value for NPA amount recoverable across the four channels of recovery i.e. Lok Adalat, DRTs, SARFAESI and IBC, was greater than 0.05, hence the null hypothesis is not rejected, i.e. the data is normally distributed. If the data is normally distributed then only the parametric test could be applied.

#### **4.2.24 Homogeneity Of The Variance On NPA Amount Recoverable**

The homogeneity of the variance was checked using the Levene's Test.

*H<sub>046</sub>: There is homogeneity of variance i.e. Equal Variance assumed.*

*H<sub>146</sub>: There is no homogeneity of variance i.e. Equal Variance not assumed.*

**Table 4-82 Levene Test Statistics On NPA Amount Recoverable (Rs. Crores)**

Recovery Channels	NPA Recoverable Amount		
	N	Mean	SD
Lok Adalat	10	46978	28845
DRTs	10	121579	82934
SARFAESI	10	125941	62979

Recovery Channels		NPA Recoverable Amount	
	N	Mean	SD
IBC	5	103092	96144
Total	35	98870	73076
Levene Statistic		4.72	
df1		3	
df2		31	
Sig. (p-value)		0.00	

(Source: SPSS Output)

It may be inferred that the variance in NPA amount recoverable across all the categories of the recovery channels are not the same. The Sig. P-value is 0.00, which is less than 0.05, in such a case the null hypothesis is rejected. In other words, there is no homogeneity of the variance and hence, one way ANOVA is not used, but the Welch Test is applied.

#### 4.2.25 Welch Test On NPA Amount Recoverable

In order to check the difference in the mean scores on amount of NPA recovery the Welch Test was administered. The hypothesis for the same is discussed further.

*H<sub>047</sub>: There is no significant difference between the mean scores on NPA amount recoverable across various categories of recovery channels i.e. Lok Adalat, DRTs, SARFAESI and IBC.*

*H<sub>147</sub>: There is a significant difference between the mean scores on NPA amount recoverable across various categories of recovery channels i.e. Lok Adalat, DRTs, SARFAESI and IBC.*

Table 4-83 Welch Test Statistics On Number Of Cases

Particulars	NPA Recoverable Amount
Welch Statistic	5.59
df1	3
df2	12.07
Sig. (p-value)	0.01

(Source: SPSS Output)

As the Sig. P-value is 0.01, which is less than 0.05, it means the null hypothesis is rejected. In other words, it indicates that there is a significant difference between the mean scores on the NPA amount recoverable across various channels of recovery i.e. Lok Adalat, DRTs, SARFAESI and IBC. At least one of the categories of independent variables differs significantly from the rest in their mean scores. For detailed analysis, the paired comparison shall be conducted by the Post- Hoc analysis using Games Howell Method.

#### 4.2.26 Post-Hoc Analysis On NPA Amount Recoverable

Post-Hoc Analysis was conducted because the null hypothesis for Welch Test for NPA amount recoverable was rejected. In other words, there was a significant difference in the NPA amount recoverable when compared in one-to-one pair with all the items in the group. The Welch Test was applied because the equal variances were not assumed, and in such a case, the post-hoc analysis was conducted using the Games Howell Method to check the intra-group differences. The results of the same are discussed further.

**Table 4-84 Post-Hoc Test Statistics On NPA Recovery Amount**

Recovery Channels	Comparison	Gross Advances	
		Mean Difference (I-J)	Sig.
<b>Lok Adalat</b>	DRT	-74601	0.08
	SARFAESI	-78963	0.02
	IBC	-56114	0.62
<b>DRT</b>	Lok Adalat	74601	0.08
	SARFAESI	-4362	1.00
	IBC	18487	0.98
<b>SARFAESI</b>	Lok Adalat	78963	0.02
	DRTs	4362	1.00
	IBC	22849	0.96
<b>IBC</b>	Lok Adalat	56114	0.62
	DRTs	-18487	0.98
	SARFAESI	-22849	0.96

(Source: SPSS Output)

From Table 4-84 it may be inferred that there was no statistically significant difference in the one-to-one paired comparison in all cases except the one highlighted in the yellow colour. The amount of NPA recovery was statistically significant between Lok Adalat and SARFAESI. The statistical significance indicated that the difference was not by chance.

#### 4.2.27 Normality Test On NPA Amount Recovered From Various Channels

In order to apply the statistical test, the normality of the data was ensured using the Kolmogorov Smirnova Test and Shapiro Wilk Test. Shapiro Wilk Test is useful for a sample size less than 50 and the Kolmogorov Smirnova Test is used when the sample size is greater than 50. The hypothesis to test the normality is discussed further. The data on the amount recovered across various channels were taken into consideration. Normality was checked between different channels of recovery and amount recovered across various channel.

$H_{048}$ : Data is normally distributed.

$H_{148}$ : Data is not normally distributed.

**Table 4-85 Shapiro Wilk Test Statistics On NPA Amount Recovered Across Different Channels Of Recovery**

Channels	NPA Amount Recovered		
	Statistic	df	Sig.
Lok Adalat	0.96	10	0.79
DRTs	0.91	10	0.26
SARFAESI	0.95	10	0.64
IBC	0.91	5	0.44

(Source: SPSS Output)

It may be inferred that the Sig. P-value on NPA amount recovered across the four channels of recovery i.e. Lok Adalat, DRTs, SARFAESI and IBC, was greater than 0.05, hence the null hypothesis is not rejected, i.e. the data is normally distributed. If the data is normally distributed then only the parametric test could be applied.

#### **4.2.28 Homogeneity Of The Variance On Amount Recovered**

The homogeneity of the variance was checked using the Levene's Test.

*H<sub>049</sub>: There is homogeneity of variance i.e. Equal Variance assumed.*

*H<sub>149</sub>: There is no homogeneity of variance i.e. Equal Variance not assumed.*

**Table 4-86 Levene Test Statistics On Amount Recovered (Rs in Cr)**

Recovery Channels	Amount Recovered		
	N	Mean	SD
Lok Adalat	10	2199	1272
DRTs	10	8288	3700
SARFAESI	10	24351	9216
IBC	5	40559	44158
Total	35	15748	20943
Levene Statistic		27.14	
df1		3	
df2		31	
Sig. (p-value)		0.00	

(Source: SPSS Output)

It may be inferred that the variance in amount recovered across all the categories of the recovery channels are not the same. The Sig. P-value is 0.00, which is less than 0.05, in such a case the null hypothesis is rejected. In other words, there is no homogeneity of the variance and hence, one way ANOVA is not used, but the Welch Test is applied.

#### **4.2.29 Welch Test Of NPA Amount Recovered**

In order to check the difference in the mean scores on NPA amount recovered the Welch Test was administered. The hypothesis for the same is discussed further.

$H_{050}$ : There is no significant difference between the mean scores on NPA Amount Recovered across various categories of recovery channels i.e. Lok Adalat, DRTs, SARFAESI and IBC.

$H_{150}$ : There is a significant difference between the mean scores on NPA Amount Recovered across various categories of recovery channels i.e. Lok Adalat, DRTs, SARFAESI and IBC.

**Table 4-87 Welch Test Statistics On NPA Amount Recovered**

Particulars	NPA Amount Recovered
Welch Statistic	24.22
df1	3
df2	11.16
Sig. (p-value)	0.00

(Source: SPSS Output)

As the Sig. P-value is 0.00, which is less than 0.05, it means the null hypothesis is rejected. In other words, it indicates that there is a significant difference between the mean scores on the NPA amount recovered across various channels of recovery i.e. Lok Adalat, DRTs, SARFAESI and IBC. At least one of the categories of independent variables differs significantly from the rest in their mean scores. For detailed analysis, the paired comparison shall be conducted by the Post-Hoc analysis using Games Howell Method.

#### 4.2.30 Post-Hoc Analysis On NPA Amount Recovered

Post-Hoc Analysis was conducted because the null hypothesis for Welch Test for NPA was rejected. In other words, there was a significant difference in the NPA amount recovered when compared in one-to-one pair with all the items in the group. The Welch Test was applied because the equal variances were not assumed, and in such a case, the post-hoc analysis was conducted using the Games Howell Method to check the intra-group differences. The results of the same are discussed further.

**Table 4-88 Post-Hoc Test Statistics On Amount Recovered**

Recovery Channels	Comparison	Amount Recovered	
		Mean Difference (I-J)	Sig.
Lok Adalat	DRT	-6088	0.00
	SARFAESI	-22152	0.00
	IBC	-38359	0.34
DRT	Lok Adalat	6088	0.00
	SARFAESI	-16063	0.00
	IBC	-32271	0.46
SARFAESI	Lok Adalat	22152	0.00
	DRTs	16063	0.00
	IBC	-16208	0.85
IBC	Lok Adalat	38359	0.34

Recovery Channels	Comparison	Amount Recovered	
		Mean Difference (I-J)	Sig.
	DRTs	32271	0.46
	SARFAESI	16208	0.85

(Source: SPSS Output)

From Table 4-88 it may be inferred that there was a statistically significant difference in the one-to-one paired comparison. The p-value highlighted in yellow colour explained that the paired comparison had no statistically significant difference. The amount recovered through Lok Adalat and IBC was not statistically significant. The amount recovered through DRT and IBC was also not statistically significant. The amount recovered through SARFAESI and IBC was also not statistically significant. In other words, there was no statistically significant difference in the amount recovered between IBC and other three recovery channels. The NPA amount recovered between Lok Adalat and DRT was statistically significant. Similarly, the NPA amount recovered between Lok Adalat and SARFAESI was statistically significant. The NPA amount recovered between DRT and SARFAESI was statistically significant. The statistically significant difference was not by chance.

#### 4.2.31 Pearson Correlation Between NPA Recoverable Amount And NPA Amount

##### Recovered

NPA recoverable amount refers to the amount for which the cases have been filed. NPA amount recovered refers to the actual recovery of money by the banks from those borrowers whose loan accounts were earlier treated as NPA.

In the previous section, it was already tested that the data was normal. The data used in the study was a scale data or metric data. Based on normality and metric data, a Pearson correlation test was administered to check if there was relationship between the NPA recoverable amount and NPA amount recovered.

*H<sub>051</sub>: There is no correlation between NPA Recoverable Amount and NPA Amount Recovered.*

*H<sub>151</sub>: There is a correlation between NPA Recoverable Amount and NPA Amount Recovered.*

Table 4-89 Pearson Correlation Test Statistics Between Advances And NPAs

Variable	Statistics	NPA Recoverable Amount (in Cr)
NPA Amount Recovered (in Cr)	Pearson Correlation (r)	0.55
	Sig. (2-tailed)	0.00
	N	35

(Source: SPSS Output)

It may be inferred that the Sig. P-value is  $0.00 < 0.05$ , hence the null hypothesis is rejected. In other words, there is a correlation between NPA amount recoverable and NPA amount recovered. The results are statistically significant, which means that the results have not just occurred by chance. The r value is greater than +0.50, which further indicates that the relationship is positive and moderate. The phenomena of NPA recovery occurs when the account had become NPA. Thus, for banks, if the NPA recoverable amount increases, the recovery of NPA amount also increases. No banks would like to have high burden of NPA. As stated earlier, if the banks provide more loans the threat of NPA rises. If NPA rises, banks make an attempt to recover the money from the borrower, so that their profits do not get suppressed. Thus, banks put all mechanism in place to recover the NPA amount from the borrowers. Banks use different channels of recovery, based on the NPA amount and the type of loan provided, to recover the money from the borrowers.

### **4.3 Primary Survey of Resolution Planners And Bankers**

The RPs and bankers are closing involved in the recovery from the irregular borrowers whose account have been declared NPAs. A primary survey of the RPs and Bankers was conducted to gain the insights on their perceptions of financial risk, NPA resolution mechanism, and their opinion on NPA resolution mechanism. Final questionnaires used in the study for analysis was 100.

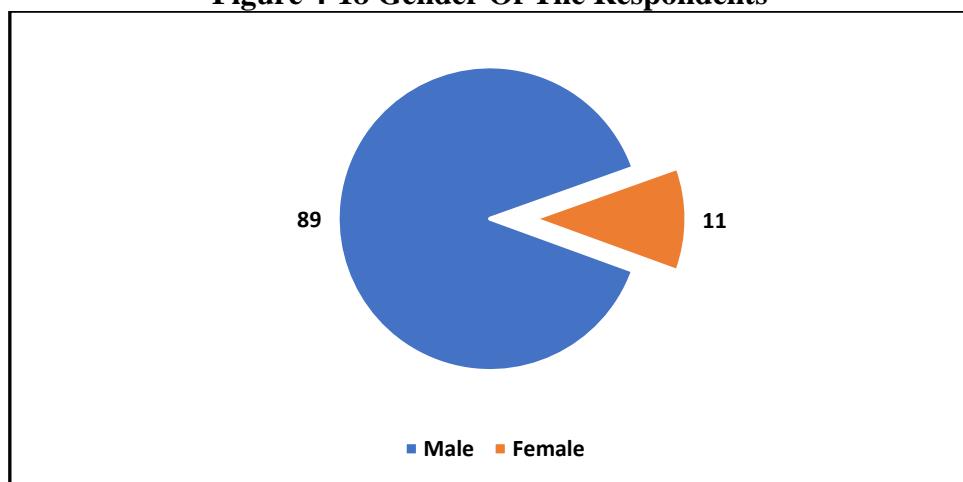
#### **4.3.1 Name Of The Respondent**

To elicit the true information from the respondent, in the questionnaire the name of the respondent was kept optional. A couple of respondents had only revealed the names, majority of them did not disclose the name.

#### **4.3.2 Gender Of The Respondents**

A single choice, dichotomous question was asked to the respondents to know their gender.

**Figure 4-18 Gender Of The Respondents**



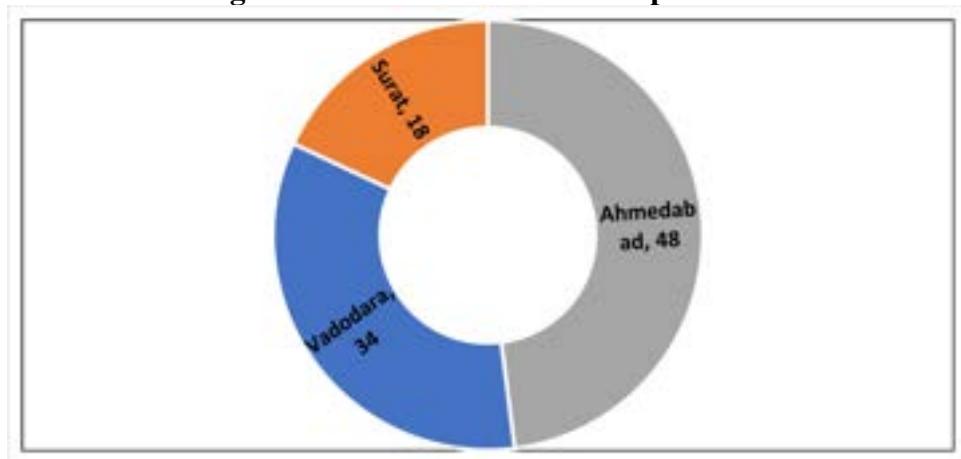
#### (Source: Primary Data)

It may be inferred that 89% respondents were males and 11% were females. Money recovery work involves mental and physical stress, one needs to visit the clients place very often for recovery, needs do constant follow-up etc. It indicates that in the profession of RP the males are more in numbers than females. The cases of recovery are hard to deal with, so fairer gender might have purposely kept away from such career options.

#### 4.3.3 Location Of The Respondents

A question of single choice, with multiple options, was asked to the respondents to identify the location of the respondent.

**Figure 4-19 Location Of The Respondents**



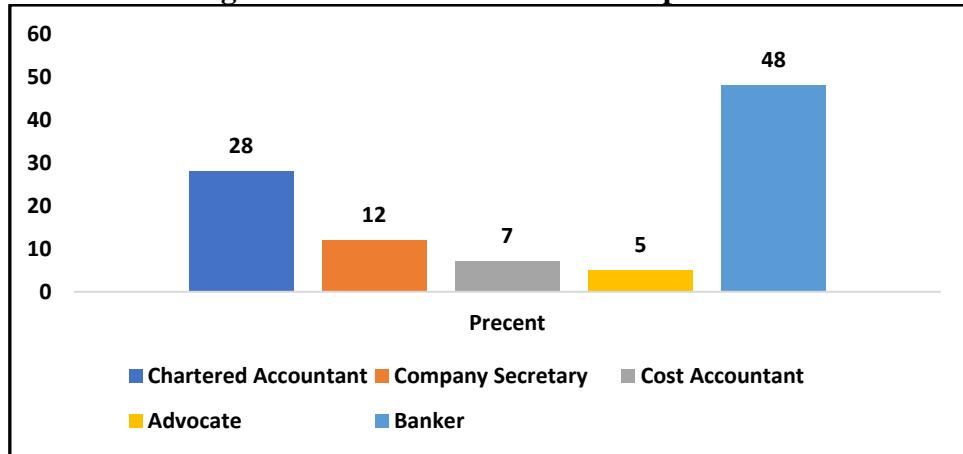
#### (Source: Primary Data)

48% respondents were from Ahmedabad; 34% respondents were from Vadodara, and 18% respondents were from Surat. The researcher tried to cover the three main cities of Gujarat, to get better insights. Major regions of Gujarat i.e. North-Central, East-Central, and South Gujarat were included in the study. An effort was made to check if the RPs based at different locations, significantly differed in their opinion or not.

#### 4.3.4 Profession Of The Respondents

A question of single choice, with multiple options, was asked to the respondents to identify their profession.

**Figure 4-20 Profession Of The Respondents**



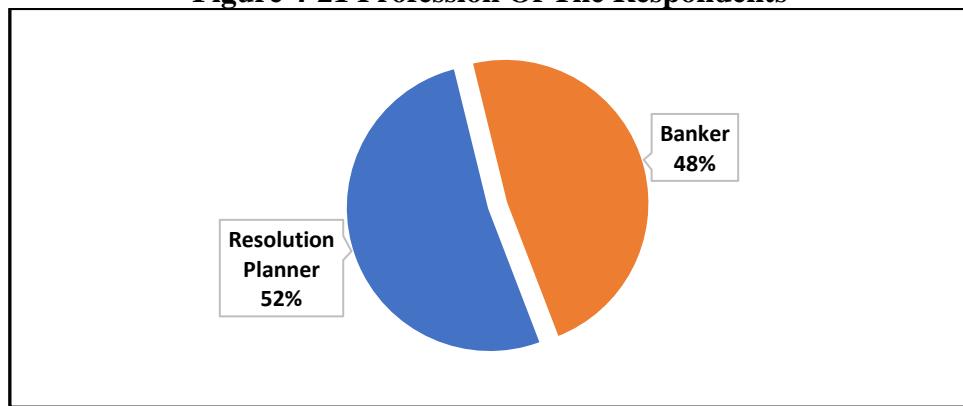
(Source: Primary Data)

It may be inferred that as high as 48% respondents were bankers, 28% were Chartered Accountant (CAs), 12% were Company Secretary (CS), seven percent were Cost Accountants and five percent were Advocates. Bankers primarily are involved in providing loans, and if the account turns out as NPA, it is the part of their duty to initiate the process of recovery. If the channel of NPA is IBC, then the court may appoint CAs, CSs and Cost Accountants to turnaround the company, and then recover the money. Banks may even appoint advocates to comply the legal matters involved in the recovery. The researcher tried to cover all the stakeholders who are involved in the recovery process, to elicit the information on the pre-stated objectives.

#### 4.3.5 Designation Of The Respondents

An open-ended question was asked to the respondents to know their designation.

**Figure 4-21 Profession Of The Respondents**



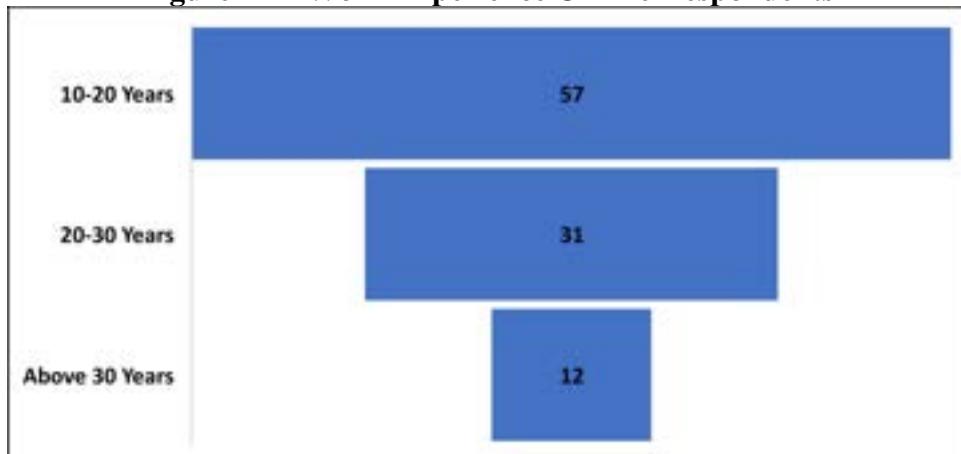
(Source: Primary Data)

52% respondents worked exclusively as RPs, and 48% respondents were bankers. The researcher tried to gather information from the different types of stakeholders involved in the recovery.

#### **4.3.6 Work Experience Of The Respondents**

A single choice, with multiple option was provided to the respondents to tick mark the experience they possess.

**Figure 4-22 Work Experience Of The Respondents**



**(Source: Primary Data)**

It may be inferred that 57% respondents had experience between 10 to 20 years; 31% respondents had experience between 20 to 30 years, and 12% respondents had experience above 30 years. All the respondents possessed the experience in double digit. The researcher tried to include the experienced people in the survey, to elicit the comprehensive information.

#### **4.3.7 Cross Tabulation Of Demographic Information**

In order to derive better understanding the cross tabulation was performed between gender and the experience; gender and profession, and profession and experience.

**Table 4-90 Cross Tabulation Of Gender And Experience**

Gender	Experience (in Years)		
	10-20 Years	20-30 Years	Above 30 Years
Male	49	28	12
Female	08	03	00
Total	57	31	12

**(Source: SPSS Output)**

It may be inferred that 49 males had experience up to 20 years, whereas only eight females had experience up to 20 years. 28 males and three females had experience up to 30 years. Only 12 males had experience more than 30 years. None of the females had experience more than 30 years. At the entrance level the number of females were more, but spending the same time equivalent to the males in the industry was absent amongst females.

**Table 4-91 Cross Tabulation Of Gender And Profession**

Gender	Profession
--------	------------

	<b>Chartered Accountant</b>	<b>Company Secretary</b>	<b>Cost Accountant</b>	<b>Advocate</b>	<b>Banker</b>	<b>Total</b>
<b>Male</b>	26	10	7	4	42	89
<b>Female</b>	2	2	0	1	6	11
<b>Total</b>	<b>28</b>	<b>12</b>	<b>7</b>	<b>5</b>	<b>48</b>	<b>100</b>

(Source: SPSS Output)

It may be inferred that 26 males were CA, 10 males were CS, seven males were Cost accountant; four males were advocate and 42 males were bankers. Two females each were CA and CS, one female was advocate, and only six females were banker. More number of males were active in the banking industry.

**Table 4-92 Cross Tabulation Of Profession And Experience**

<b>Profession</b>	<b>Experience (in Years)</b>			
	<b>10-20 Years</b>	<b>20-30 Years</b>	<b>Above 30 Years</b>	<b>Total</b>
CAs	15	9	4	28
CSs	8	3	1	12
Cost Accountant	4	3	0	7
Advocate	4	0	1	5
Banker	26	16	6	48
<b>Total</b>	<b>57</b>	<b>31</b>	<b>12</b>	<b>100</b>

(Source: SPSS Output)

It may be inferred that 15 CAs had experience up to 20 years; nine CAs had experience up to 30 years, and only four CAs had experience above 30 years. As high as eight CSs possessed experience up to 20 years; and only one CSs had experience above 30 years. Highest number of bankers were spread across the experience level of up to 20 years; up to 30 years and above 30 years.

#### **4.3.8 Overall Opinion On NPA**

A five-point likert scale (5: Strongly Agree to 1: Strongly Disagree) question was asked to the RPs and bankers to get their opinion on detection of NPA, recovery assistance, and deficiency in NPA management. The scale was treated as ordinal in nature. The question consisted of 17 statements, which had a Cronbach Alpha of 0.68, greater than 0.60. To analyze the data the Garrett Ranking Technique was used. The precent position was found using the formula as follows:

$$\text{Percent Position} = 100 (R_{ij}-0.5)/N_j, \text{ where}$$

$R_{ij}$ = The rank provided to the  $i^{th}$  factor by the  $i^{th}$  respondent

$N_j$ = Number of factors ranked by the  $i^{th}$  respondent

For the overall opinion on NPA, the number of respondents were 100 and the number of statements were 17. Thus, on each statement, the respondent provides the five ranks. If the

respondent do not provide any rank, then it is taken as zero. The frequency against each rank is matched to arrive at the sample size total of 100.

For each statement the rank allotted by the respondent was in the range of 5 to 1, where 5= highest (which represents strongly agree) and 1= lowest (which represents strongly disagree).

In order to apply Garrett ranking, the scores in ascending format receive highest importance, so the find and replace function in Excel was used to convert the 5 into 1, 4 into 2, 3 was kept as 3, 2 into 4, and 1 into 5. Such reshuffling was conducted only for the application of the Garrett ranking. For other applying the inferential statistics on the same question, the five-point likert scale was used where 5= Strongly Agree and 1= Strongly Disagree. The ranks were then converted into scores using the Garrett Table. The calculation of the same is represented as follows.

**Table 4-93 Computational Process Of Rank Into Score For Each Statement**

Statements					
Classification of good or bad loans at an early stage.					
Rank	1	2	3	4	5
Frequency	60	35	5	0	0
100 (Rij-0.5)/Nj	10	30	50	70	90
Score	75	60	50	39	24
<b><math>\Sigma X_i = Frequency \times Score</math></b>	4500	2100	250	0	0
Assessment of different types of risks would reduce the chances of NPA.					
Rank	1	2	3	4	5
Frequency	80	20	0	0	0
100 (Rij-0.5)/Nj	10	30	50	70	90
Score	75	60	50	39	24
<b><math>\Sigma X_i = Frequency \times Score</math></b>	6000	1200	0	0	0
Usage of MIS for management of NPA and recovery reviews.					
Rank	1	2	3	4	5
Frequency	70	25	5	0	0
100 (Rij-0.5)/Nj	10	30	50	70	90
Score	75	60	50	39	24
<b><math>\Sigma X_i = Frequency \times Score</math></b>	5250	1500	250	0	0
Preparation of industry-specific credit portfolios for detecting credit loopholes.					
Rank	1	2	3	4	5
Frequency	22	20	32	26	0
100 (Rij-0.5)/Nj	10	30	50	70	90
Score	75	60	50	39	24
<b><math>\Sigma X_i = Frequency \times Score</math></b>	1650	1200	1600	1014	0
Ignoring borrower's credit history leads to NPA					
Rank	1	2	3	4	5

Statements					
Frequency	15	5	75	5	0
100 (Rij-0.5)/Nj	10	30	50	70	90
Score	75	60	50	39	24
<b><math>\Sigma X_i = \text{Frequency} \times \text{Score}</math></b>	1125	300	3750	195	0
Lack of skilled staff for managing asset portfolio.					
Rank	1	2	3	4	5
Frequency	35	18	39	8	0
100 (Rij-0.5)/Nj	10	30	50	70	90
Score	75	60	50	39	24
<b><math>\Sigma X_i = \text{Frequency} \times \text{Score}</math></b>	2625	1080	1950	312	0
Support from Government bodies in the recovery of dues.					
Rank	1	2	3	4	5
Frequency	2	12	21	65	0
100 (Rij-0.5)/Nj	10	30	50	70	90
Score	75	60	50	39	24
<b><math>\Sigma X_i = \text{Frequency} \times \text{Score}</math></b>	150	720	1050	2535	0
Remedial action and implementation of resolution plan at an early stage.					
Rank	1	2	3	4	5
Frequency	65	30	5	0	0
100 (Rij-0.5)/Nj	10	30	50	70	90
Score	75	60	50	39	24
<b><math>\Sigma X_i = \text{Frequency} \times \text{Score}</math></b>	4875	1800	250	0	0
Receipt of good value if borrower company is sold as a going concern.					
Rank	1	2	3	4	5
Frequency	65	30	5	0	0
100 (Rij-0.5)/Nj	10	30	50	70	90
Score	75	60	50	39	24
<b><math>\Sigma X_i = \text{Frequency} \times \text{Score}</math></b>	4875	1800	250	0	0
Implementing OTS for quick NPA settlement.					
Rank	1	2	3	4	5
Frequency	17	17	61	5	0
100 (Rij-0.5)/Nj	10	30	50	70	90
Score	75	60	50	39	24
<b><math>\Sigma X_i = \text{Frequency} \times \text{Score}</math></b>	1275	1020	3050	195	0
Sale of NPA assets to ARC's for quicker resolution.					
Rank	1	2	3	4	5
Frequency	0	0	61	39	0
100 (Rij-0.5)/Nj	10	30	50	70	90
Score	75	60	50	39	24
<b><math>\Sigma X_i = \text{Frequency} \times \text{Score}</math></b>	0	0	3050	1521	0
Change in borrower's management for the effective NPA resolution process.					

Statements					
Rank	1	2	3	4	5
Frequency	60	35	5	0	0
100 (Rij-0.5)/Nj	10	30	50	70	90
Score	75	60	50	39	24
<b><math>\Sigma X_i = \text{Frequency} \times \text{Score}</math></b>	4500	2100	250	0	0
Lack of secondary market for bad loans.					
Rank	1	2	3	4	5
Frequency	8	73	19	0	0
100 (Rij-0.5)/Nj	10	30	50	70	90
Score	75	60	50	39	24
<b><math>\Sigma X_i = \text{Frequency} \times \text{Score}</math></b>	600	4380	950	0	0
Distribution of funds under mandatory schemes leads to higher NPA cases.					
Rank	1	2	3	4	5
Frequency	15	5	75	5	0
100 (Rij-0.5)/Nj	10	30	50	70	90
Score	75	60	50	39	24
<b><math>\Sigma X_i = \text{Frequency} \times \text{Score}</math></b>	1125	300	3750	195	0
Lack of infrastructure and resources to resolve the NPA cases quickly.					
Rank	1	2	3	4	5
Frequency	57	32	11	0	0
100 (Rij-0.5)/Nj	10	30	50	70	90
Score	75	60	50	39	24
<b><math>\Sigma X_i = \text{Frequency} \times \text{Score}</math></b>	4275	1920	550	0	0
Stakeholders' support in the NPA recovery.					
Rank	1	2	3	4	5
Frequency	32	61	7	0	0
100 (Rij-0.5)/Nj	10	30	50	70	90
Score	75	60	50	39	24
<b><math>\Sigma X_i = \text{Frequency} \times \text{Score}</math></b>	2400	3660	350	0	0
Improvisation of Cross Border Insolvency Framework in India.					
Rank	1	2	3	4	5
Frequency	38	53	9	0	0
100 (Rij-0.5)/Nj	10	30	50	70	90
Score	75	60	50	39	24
<b><math>\Sigma X_i = \text{Frequency} \times \text{Score}</math></b>	2850	3180	450	0	0

(Source: Excel Output)

The  $\Sigma X_i$  (Total Garrett Score) = Frequency x Score was divided to find the mean score of each statement, which was then arranged in the descending order of the score to allocate the ranks. The highest mean score was allotted first rank; the second highest mean score was allotted second rank, and so on, the rank was provided till the seventh statement.

**Table 4-94 Garrett Ranking On Overall Opinion On NPA**

<b>Statements</b>	<b><math>\Sigma X_i =</math> Total Garrett Score</b>	<b>Mean Score</b>	<b>Garrett Rank</b>
Assessment of different types of risks would reduce the chances of NPA.	7200	72.00	1
Usage of MIS for management of NPA and recovery reviews.	7000	70.00	2
Remedial action and implementation of resolution plan at an early stage.	6925	69.25	3
Receipt of good value if borrower company is sold as a going concern.	6925	69.25	4
Classification of good or bad loans at an early stage.	6850	68.50	5
Change in borrower's management for the effective NPA resolution process.	6850	68.50	6
Lack of infrastructure and resources to resolve the NPA cases quickly.	6745	67.45	7
Improvisation of Cross Border Insolvency Framework in India.	6480	64.80	8
Stakeholders' support in the NPA recovery.	6410	64.10	9
Lack of skilled staff for managing asset portfolio.	5967	59.67	10
Lack of secondary market for bad loans.	5930	59.30	11
Implementing OTS for quick NPA settlement.	5540	55.40	12
Preparation of industry-specific credit portfolios for detecting credit loopholes.	5464	54.64	13
Ignoring borrower's credit history leads to NPA	5370	53.70	14
Distribution of funds under mandatory schemes leads to higher NPA cases.	5370	53.70	15
Sale of NPA assets to ARC's for quicker resolution.	4571	45.71	16
Support from Government bodies in the recovery of dues.	4455	44.55	17

**(Source: Excel Output)**

It may be inferred that RPs and bankers firstly perceived that assessment of different types of credit risk would reduce the chances of NPA. Secondly, the emphasis was levied on the usage of MIS management of NPA and recovery reviews. Lastly, the importance was provided to the support from government bodies in the recovery of dues.

The 17 statements were manually segregated into three sub-themes viz., causes and detection of NPA, recovery assistance, and deficiency in NPA management, and grouped accordingly as stated further in the analysis.

**Table 4-95 Sub-Grouping Of Opinion**

<b>Recovery Assistance</b>	<b>Causes And Detection of NPA</b>
Usage of MIS for management of NPA and recovery reviews.	Assessment of different types of risks would reduce the chances of NPA.

Remedial action and implementation of resolution plan at an early stage.	Classification of good or bad loans at an early stage.
Receipt of good value if borrower company is sold as a going concern.	Preparation of industry-specific credit portfolios for detecting credit loopholes.
Change in borrower's management for the effective NPA resolution process.	Ignoring borrower's credit history leads to NPA
Improvisation of Cross Border Insolvency Framework in India.	Distribution of funds under mandatory schemes leads to higher NPA cases.
Stakeholders' support in the NPA recovery.	<b>Deficiency in NPA Management</b>
Implementing OTS for quick NPA settlement.	Lack of secondary market for bad loans.
Support from Government bodies in the recovery of dues.	Lack of infrastructure and resources to resolve the NPA cases quickly.
Sale of NPA assets to ARC's for quicker resolution.	Lack of skilled staff for managing asset portfolio.

(Source: Researcher's Output)

It may be inferred that nine statements were grouped under one category i.e. recovery assistance. Five statements were grouped under detection of NPA, and three statements were clubbed under deficiency in NPA Management.

#### 4.3.9 Normality Test On Opinion On NPA

Overall normality of the data was checked using One Sample Kolmogorov Smirnov Test.

$H_{052}$ : *The data is normal.*

$H_{152}$ : *The data is not normal.*

**Table 4-96 One Sample Kolmogorov Smirnov Test Results**

Particulars	Mean	SD	Absolute Diff	Positive Diff	Negative Diff	Kolmogorov-Smirnov Z	Asym p. Sig. (2-tailed)
Classification of good or bad loans at an early stage.	4.55	0.59	0.38	0.22	0.38	3.76	0.00
Assessment of different types of risks would reduce the chances of NPA.	4.80	0.40	0.49	0.31	0.49	4.91	0.00
Usage of MIS for management of NPA and recovery reviews.	4.65	0.58	0.43	0.27	0.43	4.29	0.00
Preparation of industry-specific credit portfolios for detecting credit loopholes.	3.38	1.10	0.22	0.22	0.15	2.15	0.00
Ignoring borrower's credit history leads to NPA	3.30	0.79	0.45	0.45	0.30	4.49	0.00
Lack of skilled staff for managing asset portfolio.	3.80	1.02	0.26	0.26	0.23	2.55	0.00
Support from Government bodies in the recovery of dues.	2.51	0.79	0.39	0.39	0.26	3.92	0.00

<b>Particulars</b>	<b>Mea n</b>	<b>SD</b>	<b>Abs olut e Diff</b>	<b>Posi tive Diff</b>	<b>Neg ativ e Diff</b>	<b>Kolmo gorov- Smirno v Z</b>	<b>Asym p. Sig. (2- tailed)</b>
Remedial action and implementation of resolution plan at an early stage.	4.60	0.59	0.40	0.25	0.40	4.03	0.00
Receipt of good value if borrower company is sold as a going concern.	4.60	0.59	0.40	0.25	0.40	4.03	0.00
Implementing OTS for quick NPA settlement.	3.46	0.83	0.37	0.37	0.24	3.69	0.00
Sale of NPA assets to ARC's for quicker resolution.	2.61	0.49	0.40	0.28	0.40	3.97	0.00
Change in borrower's management for the effective NPA resolution process.	4.55	0.59	0.38	0.22	0.38	3.76	0.00
Lack of secondary market for bad loans.	3.89	0.51	0.40	0.34	0.40	3.95	0.00
Distribution of funds under mandatory schemes leads to higher NPA cases.	3.30	0.79	0.45	0.45	0.30	4.49	0.00
Lack of infrastructure and resources to resolve the NPA cases quickly.	4.46	0.69	0.35	0.22	0.35	3.54	0.00
Stakeholders' support in the NPA recovery.	4.25	0.58	0.35	0.35	0.26	3.48	0.00
Improvisation of Cross Border Insolvency Framework in India.	4.29	0.62	0.30	0.30	0.25	2.99	0.00

(Source: SPSS Output)

As the Sig p-value for all seventeen statements was 0.00, which is less than 0.05, hence, the null hypothesis is rejected. In other words, the data is not normal. When the data is not normal, the non-parametric test are applied for further analysis.

As stated earlier, based on the manual clubbing, the three factors were identified viz., Causes and Detection of NPA, Deficiency in NPA Management, and Recovery Assistance. By using the compute function in SPSS, the mean score was computed for three factors, and the overall normality was further checked on the same.

*H<sub>053</sub>: The data is normal.*

*H<sub>153</sub>: The data is not normal.*

**Table 4-97 One Sample Kolmogorov Smirnov Test Results**

<b>Particulars</b>	<b>Causes and Detection of NPA</b>	<b>Deficiency in NPA Management</b>	<b>Recovery Assistance</b>
Mean	3.87	4.05	3.95

Particulars	Causes and Detection of NPA	Deficiency in NPA Management	Recovery Assistance
Std. Deviation	0.45	0.42	0.38
Absolute Differences	0.18	0.17	0.23
Positive Differences	0.18	0.17	0.10
Negative Differences	-0.10	-0.13	-0.23
Kolmogorov-Smirnov Z	1.79	1.67	2.26
Asymp. Sig. (2-tailed)	0.00	0.01	0.00

(Source: SPSS Output)

As the Sig p-value for all seventeen statements was 0.00, which is less than 0.05, hence, the null hypothesis is rejected. In other words, the data is not normal. When the data is not normal, the non-parametric test are applied for further analysis. Before applying the non-parametric test, normality was checked between the categorical variable (Gender) and the three factors, but the statistical results confirmed that the data was not normal. Hence, the non-parametric test Mann-Whitney U Test, an alternative to Independent T-Test was applied.

#### 4.3.10 Mann-Whitney U Test Between Males' And Females' Opinion On NPA

The opinion on NPA of the respondents were taken on the five-point likert scale (5: Strongly Agree and 1: Strongly Disagree). Considering the two groups, of male and female the test was applied. A Mann-Whitney U Test was applied between males and females to check their differences on the causes and detection of NPA, deficiency in NPA management, and recovery assistance.

*H<sub>054</sub>: Males and females do not significantly differ in the mean ranks on the causes and detection of NPA, deficiency in NPA management, and recovery assistance.*

*H<sub>154</sub>: Males and females significantly differ in the mean ranks on the causes and detection of NPA, deficiency in NPA management, and recovery assistance.*

Table 4-98 Mann-Whitney U Test Results On Gender And Factors

Particulars	Causes and Detection of NPA		Deficiency in NPA Management		Recovery Assistance	
Mann-Whitney U	436.00		417.50		447.00	
Wilcoxon W	502.00		483.50		4452.00	
Z	-0.60		-0.81		-0.47	
Asymp. Sig. (2-tailed)	0.55		0.42		0.64	
Mean Rank	Male	Female	Male	Female	Male	Female
	51.10	45.64	51.31	43.95	50.02	54.36

(Source: SPSS Output)

The Sig. P-value for all the three factors were greater than 0.05, hence the null hypothesis was not rejected. In other words, the males and the females did not significantly differ in their opinion on causes and detection of NPA; deficiency in NPA management, and recovery assistance.

#### **4.3.11 Kruskal Wallis Test Amongst The Professionals On The Opinion On NPA**

The opinion on NPA of the respondents were taken on the five-point likert scale (5: Strongly Agree and 1: Strongly Disagree). The categorical groups consisted of CAs, CSs, Cost Accountant, Advocate, and Banker. The normality was also checked between the type of profession and NPA resolution process. The assumptions of normality were violated and hence, the Kruskal Wallis test was applied to check their differences on the causes and detection of NPA, deficiency in NPA management, and recovery assistance. This test was applied in lieu of the parametric test One-Way ANOVA.

***H<sub>055</sub>: CAs, CSs, Cost Accountant, Advocate, and Banker do not significantly differ in the mean ranks on the causes and detection of NPA, deficiency in NPA management, and recovery assistance.***

***H<sub>155</sub>: CAs, CSs, Cost Accountant, Advocate, and Banker significantly differ in the mean ranks on the causes and detection of NPA, deficiency in NPA management, and recovery assistance.***

**Table 4-99 Kruskall Wallis Test Results On Profession And Factors**

Particulars	Causes and Detection of NPA	Deficiency in NPA Management	Recovery Assistance
Chi-Square	1.87	7.24	5.95
df	4.00	4.00	4.00
Asymp. Sig.	0.76	0.12	0.20
<b>Mean Ranks</b>			
CA	50.16	47.18	47.66
CS	55.25	34.29	45.79
Cost Accountant	61.86	66.21	75.50
Advocate	45.10	52.80	50.50
Banker	48.42	53.96	49.69

**(Source: SPSS Output)**

The Sig. P-value for all the three factors were greater than 0.05, hence the null hypothesis was not rejected. In other words, the CAs, CSs, Cost Accountant, Advocate, and Banker do not significantly differ in their opinion on the causes and detection of NPA, deficiency in NPA management, and recovery assistance.

#### **4.3.12 Kruskal Wallis Test Amongst Experienced Respondents On The Opinion On NPA**

The opinion on NPA of the respondents were taken on the five-point likert scale (5: Strongly Agree and 1: Strongly Disagree). The categorical groups consisted of respondents possessing experience of up to 20 Years (low), up to 30 Years (mediocre) and above 30 years (high). The normality was also checked between the level of experience and NPA resolution process. The assumptions of normality were violated and hence, the Kruskal Wallis test was applied to check their differences on the causes and detection of NPA, deficiency in NPA management, and recovery assistance.

*H<sub>056</sub>: The low level, mediocre level, and high level experienced do not significantly differ in the mean ranks on the causes and detection of NPA, deficiency in NPA management, and recovery assistance.*

*H<sub>156</sub>: The low level, mediocre level, and high level experienced significantly differ in the mean ranks on the causes and detection of NPA, deficiency in NPA management, and recovery assistance.*

**Table 4-100 Kruskall Wallis Test Results On Experience And Factors**

Particulars	Causes and Detection of NPA	Deficiency in NPA Management	Recovery Assistance
Chi-Square	4.66	0.52	3.48
df	2.00	2.00	2.00
Asymp. Sig.	0.10	0.77	0.18
<b>Mean Ranks</b>			
Up to 20 Years	50.74	51.48	47.27
Up to 30 Years	56.05	47.58	58.44
Above 30 Years	35.04	53.38	45.33

(Source: SPSS Output)

The Sig. P-value for all the three factors were greater than 0.05, hence the null hypothesis was not rejected. In other words, low level, mediocre level, and high level experienced do not significantly differ in their opinion on the causes and detection of NPA, deficiency in NPA management, and recovery assistance.

#### **4.3.13 Tool Preferred For NPA Resolution**

The four popular tools for the NPA resolution are Lok Adalat, DRTs, SARFAESI and IBC. A five-point likert scale (5: Strongly Agree to 1: Strongly Disagree) question was asked to the RPs and bankers to get their opinion on which NPA resolution tool they indicated to be important. All the four items represented the NPA resolution tool, indicating a mean score and SD respectively, for Lok Adalat (1.90, 0.84); DRTs (3.25, 0.44); SARFAESI (4.20, 0.60), and IBC (4.80, 0.40). The mean score more than 3 indicates the respondents agree or prefer the

NPA resolution tool and the mean score less than 3 indicates the respondents do not agree or do not prefer the NPA resolution tool. A SD less than one, indicates a strong consensus in the reply of the respondents.

To analyze the data the Garrett Ranking Technique was used. The precent position was found using the formula as follows:

$$\text{Percent Position} = 100 (R_{ij}-0.5)/N_j, \text{ where}$$

$R_{ij}$ = The rank provided to the  $i^{th}$  factor by the  $i^{th}$  respondent

$N_j$ = Number of factors ranked by the  $i^{th}$  respondent

The, 100 respondents ranked 4 options in the order of 5 to 1. For each option the rank allotted by the respondent was in the range of 5 to 1, where 5= highest (which represents strongly agree) and 1= lowest (which represents strongly disagree). In order to apply Garrett ranking, the scores in ascending format receive highest importance, so the find and replace function in Excel was used to convert the 5 into 1, 4 into 2, 3 was kept as 3, 2 into 4, and 1 into 5. Such reshuffling was conducted only for the application of the Garrett ranking. For other applying the inferential statistics on the same question, the five-point likert scale was used where 5= Strongly Agree and 1= Strongly Disagree. The ranks were then converted into scores using the Garrett Table. The calculation of the same is represented as follows.

**Table 4-101 Computational Process Of Rank Into Score For Each NPA Resolution Tool**

Statements					
<b>Lok Adalat</b>					
Rank	1	2	3	4	5
Frequency	0	0	30	30	40
$100 (R_{ij}-0.5)/N_j$	10	30	50	70	90
Score	75	60	50	39	24
$\Sigma X_i = \text{Frequency} \times \text{Score}$	0	0	1500	1170	960
<b>DRT</b>					
Rank	1	2	3	4	5
Frequency	0	25	75	0	0
$100 (R_{ij}-0.5)/N_j$	10	30	50	70	90
Score	75	60	50	39	24
$\Sigma X_i = \text{Frequency} \times \text{Score}$	0	1500	3750	0	0
<b>SARFAESI</b>					
Rank	1	2	3	4	5
Frequency	30	60	10	0	0
$100 (R_{ij}-0.5)/N_j$	10	30	50	70	90
Score	75	60	50	39	24
$\Sigma X_i = \text{Frequency} \times \text{Score}$	2250	3600	500	0	0
<b>IBC</b>					

Statements					
Rank	1	2	3	4	5
Frequency	80	20	0	0	0
100 (Rij-0.5)/Nj	10	30	50	70	90
Score	75	60	50	39	24
$\Sigma X_i = \text{Frequency} \times \text{Score}$	6000	1200	0	0	0

(Source: SPSS Output)

The  $\Sigma X_i$  (Total Garrett Score) = Frequency x Score was divided to find the mean score of each tool, which was then arranged in the descending order of the score to allocate the ranks. The highest mean score was allotted first rank; the second highest mean score was allotted second rank, and so on, the rank was provided till the fourth option. The percentile rank was computed by deducting the percentage position of each tool as per Garrett Score from 100.

**Table 4-102 Garrett Ranking On Tools Of NPA Resolution**

Statements	$\Sigma X_i = \text{Total Garrett Score}$	Mean Score	Garrett Rank	Percentile Rank
IBC	7200	72.00	1	90
SARFAESI	6350	63.50	2	70
DRTs	5250	52.50	3	50
Lok Adalat	3630	36.30	4	30

(Source: SPSS Output)

It may be inferred that respondents preferred IBC (90<sup>th</sup> percentile rank); SARFAESI (70<sup>th</sup> percentile rank); DRTs (50<sup>th</sup> percentile rank) and Lok Adalat (30<sup>th</sup> percentile rank) in terms of NPA resolution mechanism.

#### 4.3.14 Normality Test On NPA Resolution Tools

Overall normality of the data was checked using One Sample Kolmogorov Smirnov Test.

*H<sub>057</sub>: The data is normal.*

*H<sub>157</sub>: The data is not normal.*

**Table 4-103 One Sample Kolmogorov Smirnov Test Results**

Particulars	Mea n	SD	Absol ute Diff	Positi ve Diff	Nega tive Diff	Kolmogorov- Smirnov Z	Asymp. Sig. (2-tailed)
Lok Adalat	1.90	0.84	0.26	0.26	-0.21	2.60	0.00
DRT	3.25	0.44	0.47	0.47	-0.28	4.67	0.00
SARFAESI	4.20	0.60	0.33	0.33	-0.27	3.30	0.00
IBC	4.80	0.40	0.49	0.31	-0.49	4.91	0.00

(Source: SPSS Output)

As the Sig p-value for all seventeen statements was 0.00, which is less than 0.05, hence, the null hypothesis is rejected. In other words, the data is not normal. When the data is not normal,

the non-parametric test are applied for further analysis. Before applying the non-parametric test, normality was checked between the categorical variable (Gender) and the four tools of NPA Resolution, but the statistical results confirmed that the data was not normal. Hence, the non-parametric test Mann-Whitney U Test, an alternative to Independent T-Test was applied.

#### **4.3.15 Mann-Whitney U Test Between Males' And Females' On NPA Resolution Tools**

The opinion of the respondents on NPA resolution tools were taken on the five-point likert scale (5: Strongly Agree and 1: Strongly Disagree). Considering the two groups, of male and female the test was applied. A Mann-Whitney U Test was applied between males and females to check their differences on the NPA resolution tools.

*H<sub>058</sub>: Males and females do not significantly differ in the mean ranks on Lok Adalat, DRTs, SARFAESI, and IBC.*

*H<sub>158</sub>: Males and females significantly differ in the mean ranks on Lok Adalat, DRTs, SARFAESI, and IBC.*

**Table 4-104 Mann-Whitney U Test Results On Gender And NPA Resolution Tools**

Particulars	Lok Adalat		DRTs		SARFAESI		IBC	
Mann-Whitney U	464.50		402.00		399.50		429.50	
Wilcoxon W	530.50		468.00		465.50		4434.50	
Z	-0.29		-1.29		-1.14		-0.95	
Asymp. Sig. (2-tailed)	0.77		0.20		0.25		0.34	
	M	F	M	F	M	F	M	F
Mean Rank	50.78	48.23	51.48	42.55	51.51	42.32	49.83	55.95

(Source: SPSS Output) (M: Male and F: Female)

The Sig. P-value for all the four NPA resolution tools were greater than 0.05, hence the null hypothesis was not rejected. In other words, the males and the females did not significantly differ in the NPA resolution tools.

#### **4.3.16 Kruskal Wallis Test Amongst The Professionals On The NPA Resolution Tools**

The opinion of the respondents on NPA resolution tools were taken on the five-point likert scale (5: Strongly Agree and 1: Strongly Disagree). The categorical groups consisted of CAs, CSs, Cost Accountant, Advocate, and Banker. The normality was also checked between the type of profession and NPA resolution process. The assumptions of normality were violated and hence, the Kruskal Wallis test applied to check their differences on the tools of NPA resolution. This test was applied in lieu of the parametric test One-Way ANOVA.

*H<sub>059</sub>: CAs, CSs, Cost Accountant, Advocate, and Banker do not significantly differ in the mean ranks on the NPA resolution tools.*

*H<sub>159</sub>: CAs, CSs, Cost Accountant, Advocate, and Banker significantly differ in the mean ranks on the NPA resolution tools.*

**Table 4-105 Kruskall Wallis Test Results On Profession And NPA Resolution Tools**

Particulars	Lok Adalat	DRTs	SARFAESI	IBC
Chi-Square	8.15	7.78	10.54	3.74
df	4.00	4.00	4.00	4.00
Asymp. Sig.	0.09	0.10	0.03	0.44
<b>Mean Ranks</b>				
CA	59.79	50.50	43.54	48.00
CS	50.92	63.00	52.58	52.17
Cost Accountant	49.07	59.43	30.50	60.50
Advocate	66.50	38.00	67.50	60.50
Banker	43.52	47.38	55.19	49.04

(Source: SPSS Output)

The Sig. P-value for all the four NPA resolution tools were greater than 0.05, hence the null hypothesis was not rejected. In other words, the CAs, CSs, Cost Accountant, Advocate, and Banker do not significantly differ in their opinion on the NPA resolution tools. The professionals significantly differed in their opinion on NPA resolution. Advocates feel that SARFAESI is more important tool in NPA resolution.

#### **4.3.17 Kruskal Wallis Test Amongst Experienced Respondents On The NPA Resolution Tools**

The opinion of the respondents on NPA resolution tools were taken on the five-point likert scale (5: Strongly Agree and 1: Strongly Disagree). The categorical groups consisted of respondents possessing experience of up to 20 Years (low), up to 30 Years (mediocre) and above 30 years (high). The normality was also checked between the level of experience and NPA resolution process. The assumptions of normality were violated and hence, the Kruskal Wallis test was applied to check their differences on the NPA resolution tools. This test was applied in lieu of the parametric test One-Way ANOVA.

*H<sub>060</sub>: The low level, mediocre level, and high level experienced do not significantly differ in the mean ranks of NPA resolution tools.*

*H<sub>160</sub>: The low level, mediocre level, and high level experienced significantly differ in the mean ranks of NPA resolution tools.*

**Table 4-106 Kruskall Wallis Test Results On Experience And NPA Resolution Tools**

Particulars	Lok Adalat	DRTs	SARFAESI	IBC
Chi-Square	1.41	0.41	4.41	1.54
df	2.00	2.00	2.00	2.00
Asymp. Sig.	0.49	0.81	0.11	0.46

Particulars	Lok Adalat	DRTs	SARFAESI	IBC
<b>Mean Ranks</b>				
Up to 20 Years	49.18	49.40	52.61	51.73
Up to 30 Years	49.53	52.52	43.24	50.82
Above 30 Years	59.25	50.50	59.25	43.83

(Source: SPSS Output)

The Sig. P-value for all the four tools of NPA resolution were greater than 0.05, hence the null hypothesis was not rejected. In other words, low level, mediocre level, and high level experienced do not significantly differ in their opinion on the NPA resolution tools.

#### 4.3.18 Normality Test On NPA Resolution Process Through Lok Adalat

Overall normality of the data was checked using One Sample Kolmogorov Smirnov Test. The same is discussed further. First the hypothesis is discussed and later the statistical information of the same is displayed in the table, immediately after the hypothesis. The results of the test are discussed at length like it is discussed in the other set of hypothesis. Mean, SD, Absolute difference etc are discussed.

$H_{061}$ : *The data is normal.*

$H_{161}$ : *The data is not normal.*

**Table 4-107 One Sample Kolmogorov Smirnov Test Results**

Particulars	Mean	SD	Absolute Diff	Positive Diff	Negative Diff	Kolmogorov-Smirnov Z	Asymp. Sig. (2-tailed)
Small Loan Amount	1.80	0.68	0.27	0.24	-0.27	2.65	0.00
Large Loan Amount	1.11	0.31	0.53	0.53	-0.36	5.27	0.00
Unsecured Loans	3.95	0.76	0.22	0.21	-0.22	2.16	0.00
Secured Loans	2.25	0.77	0.29	0.18	-0.29	2.85	0.00
Long Recovery Time	3.60	0.49	0.39	0.29	-0.39	3.92	0.00
Cost-Effective Tool	3.50	0.50	0.34	0.34	-0.34	3.40	0.00
Best during natural business failure	3.80	0.51	0.40	0.30	-0.40	4.02	0.00
Best against wilful defaulter	1.95	0.74	0.23	0.22	-0.23	2.27	0.00
Supported by authority	3.40	0.49	0.39	0.39	-0.29	3.92	0.00

**(Source: SPSS Output)**

As the Sig p-value for all nine opinion statements was 0.00, which is less than 0.05, hence, the null hypothesis is rejected. In other words, the data is not normal. When the data is not normal, the non-parametric test are applied for further analysis. Before applying the non-parametric test, normality was checked between the categorical variable (Gender) and the nine opinion statements on NPA resolution process through Lok Adalat, but the statistical results confirmed that the data was not normal. Hence, the non-parametric test Mann-Whitney U Test, an alternative to Independent T-Test was applied.

#### **4.3.19 Mann-Whitney U Test Between Males' And Females' On NPA Resolution Process Under Lok Adalat**

The opinion of the respondents on NPA resolution process used in Lok Adalat were taken on the five-point likert scale (5: Strongly Agree and 1: Strongly Disagree). Considering the two groups, of male and female the test was applied. A Mann-Whitney U Test was applied between males and females to check their differences on the NPA resolution process under Lok Adalat.

*H<sub>062</sub>: Males and females do not significantly differ in the mean ranks on NPA resolution process through Lok Adalat.*

*H<sub>162</sub>: Males and females do not significantly differ in the mean ranks on NPA resolution process through Lok Adalat.*

**Table 4-108 Mann-Whitney U Test Results On Gender And NPA Resolution Process Under Lok Adalat**

Particulars	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)	Mean Rank (Male)	Mean Rank (Female)
Small Loan Amount	462.00	528.00	-0.33	0.74	50.81	48
Large Loan Amount	479.00	545.00	-0.21	0.83	50.62	49.55
Unsecured Loans	361.00	4366.00	-1.52	0.13	49.06	62.18
Secured Loans	482.00	548.00	-0.09	0.93	50.58	49.82
Long Recovery Time	369.50	4374.50	-1.56	0.12	49.15	61.41
Cost-Effective Tool	464.50	530.50	-0.32	0.75	50.78	48.23
Best during natural business failure	399.50	465.50	-1.24	0.22	51.51	42.32
Best against wilful defaulter	467.00	4472.00	-0.27	0.79	50.25	52.55
Supported by authority	419.50	485.50	-0.91	0.36	51.29	44.14

**(Source: SPSS Output)**

The Sig. P-value for all the nine statements on NPA resolution process under Lok Adalat were greater than 0.05, hence the null hypothesis was not rejected. In other words, the males and the females did not significantly differ in the NPA resolution process used in Lok Adalat.

#### 4.3.20 Kruskal Wallis Test Amongst The Professionals On The NPA Resolution Process In Lok Adalat

The opinion of the respondents on NPA resolution process used in Lok Adalat were taken on the five-point likert scale (5: Strongly Agree and 1: Strongly Disagree). The categorical groups consisted of CAs, CSs, Cost Accountant, Advocate, and Banker. The normality was also checked between the type of profession and NPA resolution process. The assumptions of normality were violated and hence, the Kruskal Wallis test was applied to check their differences on the NPA resolution process used in Lok Adalat. This test was applied in lieu of the parametric test One-Way ANOVA.

*H<sub>063</sub>: CAs, CSs, Cost Accountant, Advocate, and Banker do not significantly differ in the mean ranks on the NPA resolution process used in Lok Adalat.*

*H<sub>163</sub>: CAs, CSs, Cost Accountant, Advocate, and Banker significantly differ in the mean ranks on the NPA resolution process used in Lok Adalat.*

**Table 4-109 Kruskall Wallis Test Results On Profession And NPA Resolution Process Used In Lok Adalat**

Particulars	Small Loan Amount	Large Loan Amou nt	Unsec ured Loans	Secure d Loans	Long Recov ery Time	Cost-Effect ive Tool	Best during natural busines s failure	Best again st wilful defau lter	Suppor ted by authori ty
Chi-Square	4.05	4.08	3.42	1.13	0.85	6.36	4.62	1.37	7.95
df	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Asymp. Sig.	0.40	0.40	0.49	0.89	0.93	0.17	0.33	0.85	0.09
<b>Mean Ranks</b>									
CA	47.29	53.93	52.46	52.11	47.29	46.93	48.63	49.70	53.71
CS	51.75	53.33	43.33	50.08	53.83	50.50	52.58	55.08	55.50
Cost Accountant	45.50	45.00	42.43	56.93	49.07	32.64	59.07	41.93	66.21
Advocate	33.00	55.00	66.80	56.50	50.50	45.50	68.00	45.00	60.50
Banker	54.61	48.13	50.63	48.10	51.75	55.71	48.00	51.65	44.04

(Source: SPSS Output)

The Sig. P-value for all the nine statements were greater than 0.05, hence the null hypothesis was not rejected. In other words, the CAs, CSs, Cost Accountant, Advocate, and Banker do not significantly differ in their opinion on the process of NPA resolution used in the Lok Adalat.

#### **4.3.21 Kruskal Wallis Test Amongst Experienced Respondents On The NPA Resolution Process Used In Lok Adalat**

The opinion of the respondents on NPA resolution process under Lok Adalat were taken on the five-point likert scale (5: Strongly Agree and 1: Strongly Disagree). The categorical groups consisted of respondents possessing experience of up to 20 Years (low), up to 30 Years (mediocre) and above 30 years (high). The normality was also checked between the level of experience and NPA resolution process. The assumptions of normality were violated and hence, the Kruskal Wallis test was applied to check their differences on the NPA resolution process used in Lok Adalat. This test was applied in lieu of the parametric test One-Way ANOVA.

***H<sub>064</sub>: The low level, mediocre level, and high level experienced do not significantly differ in the mean ranks of NPA resolution process used in Lok Adalat.***

***H<sub>164</sub>: The low level, mediocre level, and high level experienced significantly differ in the mean ranks of NPA resolution process used in Lok Adalat.***

**Table 4-110 Kruskall Wallis Test Results On Experience And NPA Resolution Process Used In Lok Adalat**

Particulars	Small Loan Amount	Large Loan Amou nt	Unsecured Loans	Secure d Loans	Long Recov ery Time	Cost-Effect iv e Tool	Best during natural busines s failure	Best again st wilful defau lter	Suppor ted by authori ty
Chi-Square	2.64	1.13	0.42	0.71	1.40	0.64	4.75	0.24	5.97
df	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Asymp. Sig.	0.27	0.57	0.81	0.70	0.50	0.73	0.09	0.89	0.06
<b>Mean Ranks</b>									
Up to 20 Years	46.77	51.14	49.83	51.60	52.96	50.06	54.62	51.07	51.55
Up to 30 Years	55.50	48.23	49.89	50.82	47.92	52.92	46.71	48.65	54.69
Above 30 Years	55.29	53.33	55.25	44.46	45.50	46.33	40.71	52.58	34.67

**(Source: SPSS Output)**

The Sig. P-value for all the nine statements were greater than 0.05, hence the null hypothesis was not rejected. In other words, low level, mediocre level, and high level experienced do not significantly differ in their opinion on the NPA resolution process used in Lok Adalat.

### 4.3.22 Normality Test On NPA Resolution Process Through SARFAESI

Overall normality of the data was checked using One Sample Kolmogorov Smirnov Test.

$H_{065}$ : *The data is normal.*

$H_{165}$ : *The data is not normal.*

**Table 4-111 One Sample Kolmogorov Smirnov Test Results**

Particulars	Mean	SD	Absolut e Diff	Positiv e Diff	Negative Diff	Kolmogor ov-Smirnov Z	Asymp. Sig. (2-tailed)
Small Loan Amount	3.85	0.58	0.35	0.30	-0.35	3.53	0.00
Large Loan Amount	3.05	0.67	0.28	0.28	-0.27	2.80	0.00
Unsecured Loans	1.44	0.70	0.42	0.42	-0.27	4.15	0.00
Secured Loans	4.55	1.08	0.46	0.34	-0.46	4.62	0.00
Short Recovery Time	4.60	0.59	0.40	0.25	-0.40	4.03	0.00
Cost-Effective Tool	4.70	0.46	0.44	0.26	-0.44	4.43	0.00
Best during natural business failure	3.20	0.51	0.40	0.40	-0.30	4.02	0.00
Best against wilful defaulter	1.65	0.48	0.42	0.26	-0.42	4.17	0.00
Supported by authority	1.25	0.44	0.47	0.47	-0.28	4.67	0.00

(Source: SPSS Output)

As the Sig p-value for all nine opinion statements was 0.00, which is less than 0.05, hence, the null hypothesis is rejected. In other words, the data is not normal. When the data is not normal, the non-parametric test are applied for further analysis. Before applying the non-parametric test, normality was checked between the categorical variable (Gender) and the nine opinion statements on NPA resolution process through SARFAESI, but the statistical results confirmed that the data was not normal. Hence, the non-parametric test Mann-Whitney U Test, an alternative to Independent T-Test was applied.

### 4.3.23 Mann-Whitney U Test Between Males' And Females' On NPA Resolution Process Under SARFAESI

The opinion of the respondents on NPA resolution process used in SARFAESI were taken on the five-point likert scale (5: Strongly Agree and 1: Strongly Disagree). Considering the two groups, of male and female the test was applied. A Mann-Whitney U Test was applied between males and females to check their differences on the NPA resolution process under SARFAESI.

*H<sub>066</sub>: Males and females do not significantly differ in the mean ranks on NPA resolution process through SARFAESI.*

*H<sub>166</sub>: Males and females do not significantly differ in the mean ranks on NPA resolution process through SARFAESI.*

**Table 4-112 Mann-Whitney U Test Results On Gender And NPA Resolution Process Under SARFAESI**

Particulars	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)	Mean Rank (Male)	Mean Rank (Female)
Small Loan Amount	474.50	540.50	-0.20	0.84	50.67	49.14
Large Loan Amount	352.00	418.00	-1.68	0.09	52.04	38.00
Unsecured Loans	417.50	483.50	-0.97	0.34	51.31	43.95
Secured Loans	437.00	4442.00	-0.83	0.41	49.91	55.27
Short Recovery Time	457.00	4462.00	-0.43	0.67	50.13	53.45
Cost-Effective Tool	474.50	4479.50	-0.21	0.84	50.33	51.86
Best during natural business failure	409.50	4414.50	-1.10	0.27	49.60	57.77
Best against wilful defaulter	482.00	548.00	-0.10	0.92	50.58	49.82
Supported by authority	452.00	518.00	-0.55	0.58	50.92	47.09

(Source: SPSS Output)

The Sig. P-value for all the nine statements on NPA resolution process under SARFAESI were greater than 0.05, hence the null hypothesis was not rejected. In other words, the males and the females did not significantly differ in the NPA resolution process used in SARFAESI.

#### **4.3.24 Kruskal Wallis Test Amongst The Professionals On The NPA Resolution Process In SARFAESI**

The opinion of the respondents on NPA resolution process used in SARFAESI were taken on the five-point likert scale (5: Strongly Agree and 1: Strongly Disagree). The categorical groups consisted of CAs, CSs, Cost Accountant, Advocate, and Banker. The normality was also checked between the type of profession and NPA resolution process. The assumptions of normality were violated and hence, the Kruskal Wallis test was applied to check their differences in the NPA resolution process used in SARFAESI. This test was applied in lieu of the parametric test One-Way ANOVA.

*H<sub>067</sub>: CAs, CSs, Cost Accountant, Advocate, and Banker do not significantly differ in the mean ranks on the NPA resolution process used in SARFAESI.*

*H<sub>167</sub>: CAs, CSs, Cost Accountant, Advocate, and Banker significantly differ in the mean ranks on the NPA resolution process used in SARFAESI.*

**Table 4-113 Kruskall Wallis Test Results On Profession And NPA Resolution Process Used In SARFAESI**

Particulars	Small Loan Amount	Large Loan Amount	Unsecured Loans	Secured Loans	Long Recovery Time	Cost-Effective Tool	Best during natural business failure	Best against wilful defaulter	Supported by authority
Chi-Square	3.39	1.69	5.44	2.07	2.66	2.35	3.78	1.13	2.13
df	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Asymp. Sig.	0.50	0.79	0.25	0.72	0.62	0.67	0.44	0.89	0.71
<b>Mean Ranks</b>									
CA	44.61	47.20	46.64	49.25	48.09	45.86	53.09	48.36	54.07
CS	56.75	58.21	44.50	47.58	44.25	53.00	53.21	47.17	54.67
Cost Accountant	45.14	54.43	64.21	60.50	45.14	58.36	55.50	53.71	45.14
Advocate	56.50	48.50	64.10	50.00	58.50	55.50	33.00	58.00	48.00
Banker	52.53	50.14	50.83	50.55	53.42	50.92	49.41	51.33	48.42

(Source: SPSS Output)

The Sig. P-value for all the nine statements were greater than 0.05, hence the null hypothesis was not rejected. In other words, the CAs, CSs, Cost Accountant, Advocate, and Banker do not significantly differ in their opinion on the process of NPA resolution used in the SARFAESI.

#### **4.3.25 Kruskal Wallis Test Amongst Experienced Respondents On The NPA Resolution Process Used In SARFAESI**

The opinion of the respondents on NPA resolution process under SARFAESI were taken on the five-point likert scale (5: Strongly Agree and 1: Strongly Disagree). The categorical groups consisted of respondents possessing experience of up to 20 Years (low), up to 30 Years (mediocre) and above 30 years (high). The normality was also checked between the level of experience and NPA resolution process. The assumptions of normality were violated and hence, the Kruskal Wallis test was applied to check their differences on the NPA resolution process used in SARFAESI. This test was applied in lieu of the parametric test One-Way ANOVA.

*H<sub>068</sub>: The low level, mediocre level, and high level experienced do not significantly differ in the mean ranks of NPA resolution process used in SARFAESI.*

*H<sub>168</sub>: The low level, mediocre level, and high level experienced significantly differ in the mean ranks of NPA resolution process used in SARFAESI.*

**Table 4-114 Kruskall Wallis Test Results On Experience And NPA Resolution Process Used In SARFAESI**

Particulars	Small Loan Amount	Large Loan Amount	Unsecured Loans	Secured Loans	Long Recovery Time	Cost-Effective Tool	Best during natural business failure	Best against wilful defaulter	Supported by authority
Chi-Square	0.05	3.80	4.88	1.78	1.60	3.54	0.72	2.03	2.08
df	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Asymp. Sig.	0.98	0.15	0.09	0.41	0.45	0.17	0.70	0.36	0.35
<b>Mean Ranks</b>									
Up to 20 Years	50.89	48.53	55.06	51.68	49.89	54.10	49.36	53.09	51.16
Up to 30 Years	50.26	57.44	44.05	51.15	48.48	44.53	53.40	48.65	52.52
Above 30 Years	49.25	41.96	45.50	43.21	58.63	48.83	48.42	43.00	42.17

(Source: SPSS Output)

The Sig. P-value for all the nine statements were greater than 0.05, hence the null hypothesis was not rejected. In other words, low level, mediocre level, and high level experienced do not significantly differ in their opinion on the NPA resolution process used in SARFAESI.

#### 4.3.26 Normality Test On NPA Resolution Process Through DRT

Overall normality of the data was checked using One Sample Kolmogorov Smirnov Test.

*H<sub>069</sub>: The data is normal.*

*H<sub>169</sub>: The data is not normal.*

**Table 4-115 One Sample Kolmogorov Smirnov Test Results**

Particulars	Mean	SD	Absolute Diff	Positive Diff	Negative Diff	Kolmogorov-Smirnov Z	Asymp. Sig. (2-tailed)
Small Loan Amount	3.83	0.59	0.34	0.29	-0.34	3.44	0.00
Large Loan Amount	3.84	0.56	0.36	0.30	-0.36	3.62	0.00
Unsecured Loans	3.90	0.54	0.37	0.33	-0.37	3.73	0.00
Secured Loans	2.75	0.89	0.35	0.35	-0.22	3.50	0.00
Long Recovery Time	4.70	0.56	0.45	0.30	-0.45	4.54	0.00
Cost-Effective Tool	2.65	0.73	0.31	0.31	-0.19	3.13	0.00

Best during natural business failure	2.95	0.74	0.23	0.22	-0.23	2.27	0.00
Best against wilful defaulter	3.81	0.60	0.34	0.28	-0.34	3.35	0.00
Supported by authority	4.74	0.51	0.47	0.30	-0.47	4.67	0.00

(Source: SPSS Output)

As the Sig p-value for all nine opinion statements was 0.00, which is less than 0.05, hence, the null hypothesis is rejected. In other words, the data is not normal. When the data is not normal, the non-parametric test are applied for further analysis. Before applying the non-parametric test, normality was checked between the categorical variable (Gender) and the nine opinion statements on NPA resolution process through DRT, but the statistical results confirmed that the data was not normal. Hence, the non-parametric test Mann-Whitney U Test, an alternative to Independent T-Test was applied.

#### 4.3.27 Mann-Whitney U Test Between Males' And Females' On NPA Resolution Process Under DRT

The opinion of the respondents on NPA resolution process used in DRT were taken on the five-point likert scale (5: Strongly Agree and 1: Strongly Disagree). Considering the two groups, of male and female the test was applied. A Mann-Whitney U Test was applied between males and females to check their differences on the NPA resolution process under DRT.

*H<sub>070</sub>: Males and females do not significantly differ in the mean ranks on NPA resolution process through DRT.*

*H<sub>170</sub>: Males and females do not significantly differ in the mean ranks on NPA resolution process through DRT.*

**Table 4-116 Mann-Whitney U Test Results On Gender And NPA Resolution Process Under DRT**

Particulars	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)	Mean Rank (Male)	Mean Rank (Female)
Small Loan Amount	458.00	4463.00	-0.41	0.68	50.15	53.36
Large Loan Amount	304.50	370.50	-2.44	0.02	52.58	33.68
Unsecured Loans	449.50	515.50	-0.55	0.58	50.95	46.86
Secured Loans	427.00	493.00	-0.77	0.44	51.20	44.82
Longer Recovery Time	424.50	490.50	-0.95	0.34	51.23	44.59
Cost-Effective Tool	384.50	450.50	-1.27	0.20	51.68	40.95
Best during natural business failure	367.00	433.00	-1.45	0.15	51.88	39.36
Best against wilful defaulter	449.50	515.50	-0.51	0.61	50.95	46.86
Supported by authority	460.00	4465.00	-0.44	0.66	50.17	53.18

**(Source: SPSS Output)**

The Sig. P-value for all the eight statements on NPA resolution process under DRT were greater than 0.05, hence the null hypothesis was not rejected. In other words, the males and the females did not significantly differ in the NPA resolution process used in DRT. Males and females significantly differed in their opinion on NPA resolution of large loan amount under DRT.

#### **4.3.28 Kruskal Wallis Test Amongst The Professionals On The NPA Resolution Process In DRT**

The opinion of the respondents on NPA resolution process used in DRT were taken on the five-point likert scale (5: Strongly Agree and 1: Strongly Disagree). The categorical groups consisted of CAs, CSs, Cost Accountant, Advocate, and Banker. The normality was also checked between the type of profession and NPA resolution process. The assumptions of normality were violated and hence, the Kruskal Wallis test was applied to check their differences in the NPA resolution process used in DRT. This test was applied in lieu of the parametric test One-Way ANOVA.

***H<sub>071</sub>: CAs, CSs, Cost Accountant, Advocate, and Banker do not significantly differ in the mean ranks on the NPA resolution process used in DRT.***

***H<sub>171</sub>: CAs, CSs, Cost Accountant, Advocate, and Banker significantly differ in the mean ranks on the NPA resolution process used in DRT.***

**Table 4-117 Kruskall Wallis Test Results On Profession And NPA Resolution Process Used In DRT**

Particulars	Small Loan Amount	Large Loan Amou nt	Unsecured Loans	Secure d Loans	Long Recov ery Time	Cost-Effect ive Tool	Best during natural busines s failure	Best again st wilful defau lter	Suppor ted by authori ty
Chi-Square	2.35	4.71	4.28	6.45	4.51	10.83	3.12	4.24	1.86
df	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Asymp. Sig.	0.67	0.32	0.37	0.17	0.34	0.03	0.54	0.37	0.76
<b>Mean Ranks</b>									
CA	50.36	53.05	50.32	50.68	48.09	41.84	47.11	49.68	49.46
CS	57.58	57.17	58.42	51.13	50.08	62.17	61.33	58.42	53.92
Cost Accountant	39.71	45.50	36.21	38.00	63.00	37.64	47.29	34.29	41.21
Advocate	48.30	31.20	45.50	28.00	63.00	73.00	59.50	49.10	50.00

Particulars	Small Loan Amount	Large Loan Amou nt	Unsec ured Loans	Secure d Loans	Long Recov ery Time	Cost-Effect ive Tool	Best during natural busines s failure	Best again st wilful defau lter	Suppor ted by authori ty
Banker	50.61	50.08	51.23	54.41	48.89	52.17	49.30	51.51	51.66

(Source: SPSS Output)

The Sig. P-value for all the eight factors were greater than 0.05, hence the null hypothesis was not rejected. In other words, the CAs, CSs, Cost Accountant, Advocate, and Banker do not significantly differ in their opinion on the process of NPA resolution used in the DRT. The professionals significantly differed in the opinion on DRT being the cost-effective tool under NPA resolution.

#### **4.3.29 Kruskal Wallis Test Amongst Experienced Respondents On The NPA Resolution Process Used In DRT**

The opinion of the respondents on NPA resolution process under SARFAESI were taken on the five-point likert scale (5: Strongly Agree and 1: Strongly Disagree). The categorical groups consisted of respondents possessing experience of up to 20 Years (low), up to 30 Years (mediocre) and above 30 years (high). The normality was also checked between the level of experience and NPA resolution process. The assumptions of normality were violated and hence, the Kruskal Wallis test was applied to check their differences on the NPA resolution process used in DRT. This test was applied in lieu of the parametric test One-Way ANOVA.

*H<sub>072</sub>: The low level, mediocre level, and high level experienced do not significantly differ in the mean ranks of NPA resolution process used in DRT.*

*H<sub>172</sub>: The low level, mediocre level, and high level experienced significantly differ in the mean ranks of NPA resolution process used in DRT.*

**Table 4-118 Kruskall Wallis Test Results On Experience And NPA Resolution Process Used In DRT**

Particulars	Small Loan Amount	Large Loan Amou nt	Unsec ured Loans	Secure d Loans	Long Recov ery Time	Cost-Effect ive Tool	Best during natural busines s failure	Best again st wilful defau lter	Suppor ted by authori ty
Chi-Square	1.33	2.75	1.74	5.50	1.08	2.38	0.66	4.99	1.35
df	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Asymp. Sig.	0.51	0.25	0.42	0.06	0.58	0.31	0.72	0.08	0.51

Particulars	Small Loan Amount	Large Loan Amount	Unsecured Loans	Secured Loans	Long Recovery Time	Cost-Effective Tool	Best during natural business failure	Best against wilful defaulter	Supported by authority
<b>Mean Ranks</b>									
Up to 20 Years	48.63	48.22	48.66	49.27	52.34	51.38	49.75	47.32	48.83
Up to 30 Years	51.19	50.65	50.82	57.76	47.27	53.08	53.40	50.68	54.18
Above 30 Years	57.58	60.96	58.42	37.58	50.08	39.67	46.54	65.13	48.92

(Source: SPSS Output)

The Sig. P-value for all the nine factors were greater than 0.05, hence the null hypothesis was not rejected. In other words, low level, mediocre level, and high level experienced do not significantly differ in their opinion on the NPA resolution process used in the DRT.

#### 4.3.30 Normality Test On NPA Resolution Process Through IBC

Overall normality of the data was checked using One Sample Kolmogorov Smirnov Test.

$H_{073}$ : The data is normal.

$H_{173}$ : The data is not normal.

**Table 4-119 One Sample Kolmogorov Smirnov Test Results**

Particulars	Mean	SD	Absolute Diff	Positive Diff	Negative Diff	Kolmogorov-Smirnov Z	Asymp. Sig. (2-tailed)
Small Loan Amount	1.20	0.40	0.49	0.49	-0.31	4.91	0.00
Large Loan Amount	4.85	0.36	0.51	0.34	-0.51	5.12	0.00
Unsecured Loans	4.64	0.48	0.41	0.27	-0.41	4.12	0.00
Secured Loans	2.70	0.46	0.44	0.26	-0.44	4.43	0.00
Short Recovery Time	4.74	0.44	0.46	0.28	-0.46	4.62	0.00
Cost-Effective Tool	2.35	0.48	0.42	0.42	-0.26	4.17	0.00
Best during natural business failure	2.80	0.68	0.27	0.24	-0.27	2.65	0.00
Best against wilful defaulter	4.83	0.38	0.50	0.33	-0.50	5.04	0.00
Supported by authority	4.67	0.59	0.44	0.29	-0.44	4.43	0.00

(Source: SPSS Output)

As the Sig p-value for all nine opinion statements was 0.00, which is less than 0.05, hence, the null hypothesis is rejected. In other words, the data is not normal. When the data is not normal, the non-parametric test are applied for further analysis. Before applying the non-parametric test, normality was checked between the categorical variable (Gender) and the nine opinion statements on NPA resolution process through IBC, but the statistical results confirmed that the data was not normal. Hence, the non-parametric test Mann-Whitney U Test, an alternative to Independent T-Test was applied.

#### **4.3.31 Mann-Whitney U Test Between Males' And Females' On NPA Resolution Process Under IBC**

The opinion of the respondents on NPA resolution process used in IBC were taken on the five-point likert scale (5: Strongly Agree and 1: Strongly Disagree). Considering the two groups, of male and female the test was applied. A Mann-Whitney U Test was applied between males and females to check their differences on the NPA resolution process under IBC.

*H<sub>074</sub>: Males and females do not significantly differ in the mean ranks on NPA resolution process through IBC.*

*H<sub>174</sub>: Males and females do not significantly differ in the mean ranks on NPA resolution process through IBC.*

**Table 4-120 Mann-Whitney U Test Results On Gender And NPA Resolution Process Under DRT**

Particulars	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)	Mean Rank (Male)	Mean Rank (Female)
Small Loan Amount	479.50	545.50	-0.16	0.87	50.61	49.59
Large Loan Amount	407.00	4412.00	-1.47	0.14	49.57	58.00
Unsecured Loans	487.50	553.50	-0.03	0.98	50.52	50.32
Secured Loans	474.50	4479.50	-0.21	0.84	50.33	51.86
Shorter Recovery Time	482.50	548.50	-0.10	0.92	50.58	49.86
Cost-Effective Tool	432.00	4437.00	-0.77	0.44	49.85	55.73
Best during natural business failure	387.00	453.00	-1.24	0.22	51.65	41.18
Best against wilful defaulter	446.00	4451.00	-0.74	0.46	50.01	54.45
Supported by authority	482.00	4487.00	-0.11	0.92	50.42	51.18

**(Source: SPSS Output)**

The Sig. P-value for all the nine statements on NPA resolution process under IBC were greater than 0.05, hence the null hypothesis was not rejected. In other words, the males and the females did not significantly differ in the NPA resolution process used in IBC.

### 4.3.32 Kruskal Wallis Test Amongst The Professionals On The NPA Resolution Process In IBC

The opinion of the respondents on NPA resolution process used in IBC were taken on the five-point likert scale (5: Strongly Agree and 1: Strongly Disagree). The categorical groups consisted of CAs, CSs, Cost Accountant, Advocate, and Banker. The normality was also checked between the type of profession and NPA resolution process. The assumptions of normality were violated and hence, the Kruskal Wallis test was applied to check their differences in the NPA resolution process used in IBC. This test was applied in lieu of the parametric test One-Way ANOVA.

*H<sub>075</sub>: CAs, CSs, Cost Accountant, Advocate, and Banker do not significantly differ in the mean ranks on the NPA resolution process used in IBC.*

*H<sub>175</sub>: CAs, CSs, Cost Accountant, Advocate, and Banker significantly differ in the mean ranks on the NPA resolution process used in IBC.*

**Table 4-121 Kruskall Wallis Test Results On Profession And NPA Resolution Process Used In IBC**

Particulars	Small Loan Amount	Large Loan Amount	Unsecured Loans	Secured Loans	Long Recovery Time	Cost-Effective Tool	Best during natural business failure	Best against wilful defaulter	Supported by authority
Chi-Square	1.93	3.03	5.08	11.12	4.82	2.33	3.30	4.93	1.02
df	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Asymp. Sig.	0.75	0.55	0.28	0.03	0.31	0.68	0.51	0.30	0.91
<b>Mean Ranks</b>									
CA	51.21	47.29	48.86	47.64	47.43	50.86	49.61	51.86	50.80
CS	53.00	49.67	43.50	44.67	42.67	45.50	57.17	42.33	48.33
Cost Accountant	47.64	58.00	68.50	29.79	63.50	40.14	36.21	59.00	57.29
Advocate	60.50	58.00	48.50	45.50	53.50	53.00	58.50	59.00	54.60
Banker	48.83	50.71	50.79	57.17	52.04	52.79	50.60	49.63	49.45

(Source: SPSS Output)

The Sig. P-value for all the eight factors were greater than 0.05, hence the null hypothesis was not rejected. In other words, the CAs, CSs, Cost Accountant, Advocate, and Banker do not significantly differ in their opinion on the process of NPA resolution used in the IBC. The

professionals significantly differed in their opinion on the IBC resolution process being used for the recovery of secured loans.

#### **4.3.33 Kruskal Wallis Test Amongst Experienced Respondents On The NPA Resolution Process Used In IBC**

The opinion of the respondents on NPA resolution process under IBC were taken on the five-point likert scale (5: Strongly Agree and 1: Strongly Disagree). The categorical groups consisted of respondents possessing experience of up to 20 Years (low), up to 30 Years (mediocre) and above 30 years (high). The normality was also checked between the level of experience and NPA resolution process. The assumptions of normality were violated and hence, the Kruskal Wallis test was applied to check their differences in the NPA resolution process used in IBC. This test was applied in lieu of the parametric test One-Way ANOVA.

*H<sub>076</sub>: The low level, mediocre level, and high level experienced do not significantly differ in the mean ranks of NPA resolution process used in IBC.*

*H<sub>176</sub>: The low level, mediocre level, and high level experienced significantly differ in the mean ranks of NPA resolution process used in IBC.*

**Table 4-122 Kruskall Wallis Test Results On Experience And NPA Resolution Process Used In IBC**

Particulars	Small Loan Amount	Large Loan Amou nt	Unsec ured Loans	Secure d Loans	Long Recov ery Time	Cost-Effect ive Tool	Best during natural busines s failure	Best again st wilful defau lter	Suppor ted by authori ty
Chi-Square	1.78	2.27	0.37	0.39	0.21	3.35	2.59	2.58	0.09
df	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Asymp. Sig.	0.41	0.32	0.83	0.82	0.90	0.19	0.27	0.28	0.96
<b>Mean Ranks</b>									
Up to 20 Years	52.78	52.74	50.08	49.71	51.22	54.05	53.92	52.86	50.92
Up to 30 Years	46.95	48.32	52.37	52.60	48.98	44.29	44.45	46.10	49.48
Above 30 Years	48.83	45.50	47.67	48.83	51.00	49.67	49.88	50.67	51.13

**(Source: SPSS Output)**

The Sig. P-value for all the nine factors were greater than 0.05, hence the null hypothesis was not rejected. In other words, low level, mediocre level, and high level experienced do not significantly differ in their opinion on the NPA resolution process used in the IBC.

#### 4.3.34 Ranking On Opinion On Different NPA Resolution Process

The opinion of the respondents on NPA resolution process under Lok Adalat, SARFAESI, DRT and IBC were taken on the five-point likert scale (5: Strongly Agree and 1: Strongly Disagree). The nine statements of each NPA resolution mechanism were treated as rated on the Ordinal scale, for the computation of Rank Analysis.

**Table 4-123 Computation Of Rank Analysis**

Tool	Details	5	4	3	2	1
<b>Small Loan Amount</b>						
Lok Adalat	Frequency (Fi)	0	0	15	50	35
	Weights (Wi)	1	2	3	4	5
	Fi*Wi	0	0	45	200	175
	$\Sigma F_i W_i$	<b>420</b>				
SARFAESI	Frequency (Fi)	10	65	25	0	0
	Weights (Wi)	1	2	3	4	5
	Fi*Wi	10	130	75	0	0
	$\Sigma F_i W_i$	<b>215</b>				
DRT	Frequency (Fi)	10	63	27	0	0
	Weights (Wi)	1	2	3	4	5
	Fi*Wi	10	126	81	0	0
	$\Sigma F_i W_i$	<b>217</b>				
IBC	Frequency (Fi)	0	0	0	20	80
	Weights (Wi)	1	2	3	4	5
	Fi*Wi	0	0	0	80	400
	$\Sigma F_i W_i$	<b>480</b>				
<b>Large Loan Amount</b>						
Lok Adalat	Frequency (Fi)	0	0	0	11	89
	Weights (Wi)	1	2	3	4	5
	Fi*Wi	0	0	0	44	445
	$\Sigma F_i W_i$	<b>489</b>				
SARFAESI	Frequency (Fi)	10	65	25	0	0
	Weights (Wi)	1	2	3	4	5
	Fi*Wi	10	130	75	0	0
	$\Sigma F_i W_i$	<b>215</b>				
DRT	Frequency (Fi)	9	66	25	0	0
	Weights (Wi)	1	2	3	4	5
	Fi*Wi	9	132	75	0	0
	$\Sigma F_i W_i$	<b>216</b>				
IBC	Frequency (Fi)	85	15	0	0	0
	Weights (Wi)	1	2	3	4	5
	Fi*Wi	85	30	0	0	0
	$\Sigma F_i W_i$	<b>115</b>				

Tool	Details	5	4	3	2	1
<b>Unsecured Loans</b>						
Lok Adalat	Frequency (Fi)	0	0	31	43	26
	Weights (Wi)	1	2	3	4	5
	Fi*Wi	0	0	93	172	130
	$\Sigma F_i W_i$	<b>395</b>				
SARFAESI	Frequency (Fi)	0	0	12	20	68
	Weights (Wi)	1	2	3	4	5
	Fi*Wi	0	0	36	80	340
	$\Sigma F_i W_i$	<b>456</b>				
DRT	Frequency (Fi)	10	70	20	0	0
	Weights (Wi)	1	2	3	4	5
	Fi*Wi	10	140	60	0	0
	$\Sigma F_i W_i$	<b>210</b>				
IBC	Frequency (Fi)	64	36	0	0	0
	Weights (Wi)	1	2	3	4	5
	Fi*Wi	64	72	0	0	0
	$\Sigma F_i W_i$	<b>136</b>				
<b>Secured Loans</b>						
Lok Adalat	Frequency (Fi)	0	0	45	35	20
	Weights (Wi)	1	2	3	4	5
	Fi*Wi	0	0	135	140	100
	$\Sigma F_i W_i$	<b>375</b>				
SARFAESI	Frequency (Fi)	80	0	10	5	5
	Weights (Wi)	1	2	3	4	5
	Fi*Wi	80	0	30	20	25
	$\Sigma F_i W_i$	<b>155</b>				
DRT	Frequency (Fi)	0	30	15	55	0
	Weights (Wi)	1	2	3	4	5
	Fi*Wi	0	60	45	220	0
	$\Sigma F_i W_i$	<b>325</b>				
IBC	Frequency (Fi)	0	0	70	30	0
	Weights (Wi)	1	2	3	4	5
	Fi*Wi	0	0	210	120	0
	$\Sigma F_i W_i$	<b>330</b>				
<b>Recovery Time</b>						
Lok Adalat	Frequency (Fi)	0	60	40	0	0
	Weights (Wi)	1	2	3	4	5
	Fi*Wi	0	120	120	0	0
	$\Sigma F_i W_i$	<b>240</b>				
SARFAESI	Frequency (Fi)	65	30	5	0	0
	Weights (Wi)	1	2	3	4	5

<b>Tool</b>	<b>Details</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
	Fi*Wi	65	60	15	0	0
	$\Sigma F_i W_i$				<b>140</b>	
<b>DRT</b>	Frequency (F <sub>i</sub> )	75	20	5	0	0
	Weights (W <sub>i</sub> )	1	2	3	4	5
	Fi*Wi	75	40	15	0	0
	$\Sigma F_i W_i$				<b>130</b>	
<b>IBC</b>	Frequency (F <sub>i</sub> )	74	26	0	0	0
	Weights (W <sub>i</sub> )	1	2	3	4	5
	Fi*Wi	74	52	0	0	0
	$\Sigma F_i W_i$				<b>126</b>	
<b>Cost Effective Tool</b>						
<b>Lok Adalat</b>	Frequency (F <sub>i</sub> )	0	50	50	0	0
	Weights (W <sub>i</sub> )	1	2	3	4	5
	Fi*Wi	0	100	150	0	0
	$\Sigma F_i W_i$				<b>250</b>	
<b>SARFAESI</b>	Frequency (F <sub>i</sub> )	70	30	0	0	0
	Weights (W <sub>i</sub> )	1	2	3	4	5
	Fi*Wi	70	60	0	0	0
	$\Sigma F_i W_i$				<b>130</b>	
<b>DRT</b>	Frequency (F <sub>i</sub> )	0	15	35	50	0
	Weights (W <sub>i</sub> )	1	2	3	4	5
	Fi*Wi	0	30	105	200	0
	$\Sigma F_i W_i$				<b>335</b>	
<b>IBC</b>	Frequency (F <sub>i</sub> )	0	0	35	65	0
	Weights (W <sub>i</sub> )	1	2	3	4	5
	Fi*Wi	0	0	105	260	0
	$\Sigma F_i W_i$				<b>365</b>	
<b>Best during natural business failure</b>						
<b>Lok Adalat</b>	Frequency (F <sub>i</sub> )	0	25	45	30	0
	Weights (W <sub>i</sub> )	1	2	3	4	5
	Fi*Wi	0	50	135	120	0
	$\Sigma F_i W_i$				<b>305</b>	
<b>SARFAESI</b>	Frequency (F <sub>i</sub> )	0	15	50	35	0
	Weights (W <sub>i</sub> )	1	2	3	4	5
	Fi*Wi	0	30	150	140	0
	$\Sigma F_i W_i$				<b>320</b>	
<b>DRT</b>	Frequency (F <sub>i</sub> )	5	70	25	0	0
	Weights (W <sub>i</sub> )	1	2	3	4	5
	Fi*Wi	5	140	75	0	0
	$\Sigma F_i W_i$				<b>220</b>	
<b>IBC</b>	Frequency (F <sub>i</sub> )	0	25	70	0	5

Tool	Details	5	4	3	2	1
	Weights (Wi)	1	2	3	4	5
	Fi*Wi	0	50	210	0	25
	$\Sigma F_i W_i$				285	
<b>Best against wilful defaulter</b>						
Lok Adalat	Frequency (Fi)	0	0	25	45	30
	Weights (Wi)	1	2	3	4	5
	Fi*Wi	0	0	75	180	150
	$\Sigma F_i W_i$				405	
SARFAESI	Frequency (Fi)	0	0	0	65	35
	Weights (Wi)	1	2	3	4	5
	Fi*Wi	0	0	0	260	175
	$\Sigma F_i W_i$				435	
DRT	Frequency (Fi)	10	61	29	0	0
	Weights (Wi)	1	2	3	4	5
	Fi*Wi	10	122	87	0	0
	$\Sigma F_i W_i$				219	
IBC	Frequency (Fi)	83	17	0	0	0
	Weights (Wi)	1	2	3	4	5
	Fi*Wi	83	34	0	0	0
	$\Sigma F_i W_i$				117	
<b>Supported by authority</b>						
Lok Adalat	Frequency (Fi)	0	40	60	0	0
	Weights (Wi)	1	2	3	4	5
	Fi*Wi	0	80	180	0	0
	$\Sigma F_i W_i$				260	
SARFAESI	Frequency (Fi)	0	0	0	25	75
	Weights (Wi)	1	2	3	4	5
	Fi*Wi	0	0	0	100	375
	$\Sigma F_i W_i$				475	
DRT	Frequency (Fi)	77	20	3	0	0
	Weights (Wi)	1	2	3	4	5
	Fi*Wi	77	40	9	0	0
	$\Sigma F_i W_i$				126	
IBC	Frequency (Fi)	73	21	6	0	0
	Weights (Wi)	1	2	3	4	5
	Fi*Wi	73	42	18	0	0
	$\Sigma F_i W_i$				133	

(Source: Excel Output)

In the rank analysis on the ordinal data, the rank is first rank is provided to the most important statement and so on. Based on the NPA resolution tool, the data was arranged in the ascending

order of the  $\Sigma$ FiWi, and the rank was provided to each statement. First rank was provided to the statement which had the lowest  $\Sigma$ FiWi, the process was repeated till the 9<sup>th</sup> rank.

**Table 4-124 Comparison Of Ranks Across Four Resolution Process Tools**

Statements	Lok Adalat	SARFAESI	DRT	IBC
Small Loan Amount	8	4	5	9
Large Loan Amount	9	4	4	1
Unsecured Loans	6	8	3	5
Secured Loans	5	3	8	7
Recovery Time	1	2	2	3
Cost-Effective Tool	2	1	9	8
Best during natural business failure	4	6	7	6
Best against wilful defaulter	6	7	6	2
Supported by authority	3	9	1	4

**(Source: Researcher's Computation)**

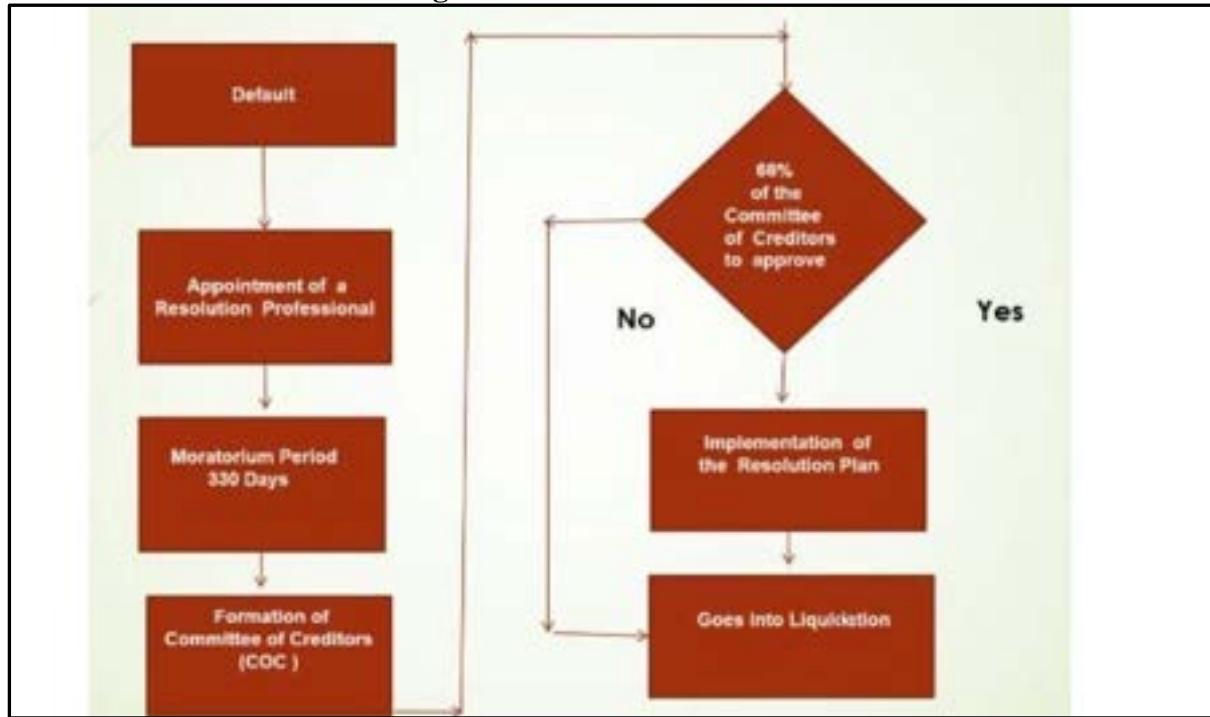
It may inferred that the bankers and RPs highly preferred Lok Adalat for recovery time; SARFAESI was highly preferred for its cost-effective tool; DRT was the important tool supported by the authority; and IBC was preferred for the large amount of loan. The feature which was ranked at the second position was cost-effectiveness of Lok Adalat; Recovery time of SARFAESI and DRT; and IBC was looked upon as the best tool to recover money in case of wilful defaulter. At the third position, Lok Adalat was looked upon as supported by authority; SARFAESI was favoured to recover money against the secured loans; DRT was favoured to collect unsecured loans; and IBC was favoured for its short recovery time feature.

#### **4.4 Scrutiny Of Selected Cases Of Gujarat**

The corporate insolvency resolution plan (CIRP) process, starts with applying to Adjudicating authority (AA) by the corporate debtor itself (CD), operational creditors (OC) or financial Creditors (FC) to initiate the CIRP and end with the order of either approving the Resolution plan or Liquidation of the CD. The data analysis in this section is divided into parts viz., Analysis of those cases in which the NPA amount was recovered, and analysis of those cases in which the NPA amount was not recovered and the company was winded up. The data of such cases, based in Gujarat, were collected from National Company Law Tribunal (NCLT).

The analysis of the same is discussed further.

**Figure 4-23 CIRP Flow Chart**



#### 4.4.1 NPA Amount Recovered

The detailed analysis pertaining to the cases in which the NPA amount was recovered is further discussed point-wise.

##### 4.4.1.1 Initiation Of Resolution Process

After proper scrutiny of the secondary data of NCLT, 48 cases were identified in which the NPA amount was recovered. The analysis of the same is discussed further.

**Table 4-125 NPA Resolution Initiation**

Initiator	Frequency	Percentage
Financial Creditor	24	50
Operational Creditor	23	48
Corporate Debtor	01	02
<b>Total</b>	<b>48</b>	<b>100</b>

(Source: Secondary Data)

It may be inferred that 50% of the NPA resolution mechanism was initiated by FC; 48% of the NPA cases were initiated by OC, and as low as only two percent NPA resolution mechanism was initiated by the corporate debtor itself. The trigger for the NPA resolution may be triggered by any of the initiator.

##### 4.4.1.2 Status Of The Company

After proper scrutiny of the secondary data of NCLT, 48 cases were identified in which the NPA amount was recovered. The analysis of the same is discussed further.

**Table 4-126 NPA Resolution Initiation**

Status	Frequency	Percentage
Defunct	17	35
Not Defunct	31	65
Total	48	100

(Source: SPSS Output)

It may be inferred that 65% cases referred to NCLT were not defunct and 35% cases were defunct. The defunct cases implies that the companies were merged, so it was not in existence. Not Defunct companies were still in the working condition.

#### 4.4.1.3 Time Taken For Approving Resolution

From the records two dates were available i.e. date of commencement of insolvency and the date of NCLT order approving resolution. To count the number of days, the date function in excel was used and the date of approval of resolution was subtracted from the date of insolvency commencement.

**Table 4-127 Time Taken For Approving Resolution**

Descriptive Statistics	Days
Mean	521
Median	543
Mode	637
Std. Deviation	151
Range	697
Minimum	191
Maximum	888

(Source: SPSS Output)

It may be inferred that on an average 521 days were taken to approve the resolution process. In maximum cases 637 days were taken to start the resolution process. Median number of days were 543 days. A SD of 151 days was noted. The fastest approval for resolution was provided in 191 days and the longest time taken for approving the process of resolution was 888 days. In the range of 697 days the process of resolution had started. After proper scrutiny only the resolution process gets initiated.

#### 4.4.1.4 Claims Admitted

The details of the claims admitted by FC, OC and total claims were taken into consideration.

**Table 4-128 Admission of Claims (Rs. Crores)**

Details	FC	OC	Total
Mean	2041.68	191.59	2213.31
Median	81.64	11.82	91.06
Std. Deviation	8204.56	790.04	8914.67

Details	FC	OC	Total
Range	49472.04	5092.06	54564.10
Minimum	1.11	0.01	1.12
Maximum	49473.15	5092.07	54565.22
Sum	98000.44	8238.44	106238.87

(Source: SPSS Output)

It may be inferred that the average amount of claims admitted by FC was Rs.2,041.68 Cr. The median amount of claims was Rs.81.64Cr. The SD of the claim admitted was Rs.8,204.56 Cr. The minimum amount of claim admitted by FC was Rs.1.11 Cr, and the maximum amount of claim admitted by FC was Rs.49,473.15 Cr. The sum total of the claims admitted by FC was Rs.98,000.44 Cr. In the case of OC, the average claim admitted was Rs.191.59Cr; SD was Rs.790.04 Cr; Minimum claim amount was Rs.0.01 Cr, and the maximum claim amount was Rs.5,092.07 Cr. The consolidated claim admitted was Rs.2,213.31 Cr, the median claim was Rs.91.06Cr; the SD was Rs.8,914.67 Cr; minimum claim amount was Rs.1.12Cr, and the maximum claim amount was Rs.54,565.22Cr. The total claim range was Rs.54,564.10, and the total claim admitted was Rs. 1,06,238.87 Cr.

#### 4.4.1.5 Company Wise Claims Admitted

The details of the corporate debtor and the claims admitted in total, and split-up through FCs and OCs are discussed further.

**Table 4-129 Company Wise Admission of Claims (Rs. Crores)**

Name of Corporate Debtor	Total Admitted Claims	Admitted Claims of FCs	Admitted Claims of OCs
Kalptaru Alloys Private Limited	51.23	51.20	0.03
Keti Highway Developers Private Limited	78.71	76.57	2.14
Shakti Nutraceuticals Private Limited	1.12	1.11	0.01
Rainbow Papers Limited	1595.47	1468.25	127.22
Alok Industries Limited	30706.69	29523.86	1182.83
Essar Steel India Limited	54565.22	49473.15	5092.07
Korba West Power Company Limited	5143.61	5032.16	111.45
Jaihind Infra Tech Projects Private Limited	683.42	683.42	0.00
Aum Structbuild Private Limited	1.97	1.97	0.00
A&I Hospitality Private Limited	19.12	13.28	5.84
Maruti Koatsu Cylinders Limited	89.10	86.70	2.40
Shaifali Rolls Limited	345.21	342.75	2.46
V S Texmills Private Limited	17.68	16.31	1.37
Sadbhav Enterprise Private Limited	20.07	15.52	4.55
Madhya Bharat Phosphate Private Limited	43.22	39.74	3.48
Jaihind Projects Limited	1337.84	1002.06	335.78

Name of Corporate Debtor	Total Admitted Claims	Admitted Claims of FCs	Admitted Claims of OCs
B. P. Food Products Private Limited	196.66	159.42	37.24
Digjam Limited	93.02	70.86	22.16
The Dhar Textile Mills Limited	668.1	668.02	0.08
Gopala Polyplast Ltd	232.15	98.84	133.31
Technovaa Plastic Industries Private Limited	151.47	104.69	46.78
Tiger Surgical Disposable Private Limited	28.63	26.49	2.14
Arya Filaments Private Limited	21.30	21.07	0.23
Twenty First Century Castings Private Limited	37.95	26.13	11.82
Garden Silk Mills Limited	2603.01	2090.46	512.55
Nijinoy Trading Private Limited	11.71	1.24	10.47
M.V. Omni Projects (India) Limited	353.84	237.38	116.46
Sungracia Tiles Private Limited	22.87	13.15	9.72
Mahi Corporation Private Limited	6.04	6.04	0.00
Perfect Boring Private Limited	50.63	19.12	31.51
Riddhi Siddhi Cotspin Private Limited	29.93	29.93	0.00
Sanghvi Forging & Engineering Limited	223.7	177.98	45.72
Alps Pharmaceuticals Private Limited	67.66	38.84	28.82
Shriram Cement Limited	24.51	21.04	3.47
Polygold Pre-Cured Systems Private Limited	11.15	6.72	4.43
Vadra Energy (Gujarat) Limited	617.11	593.69	23.42
Poggenamp Nagarsheth Powertronics Private Limited	82.28	53.32	28.96
Raj Rayon Industries Limited	1704.25	1619.45	84.8
GSL Nova Petro Chemicals Limited	14.34	10.42	3.93
Jyoti Power Corporation Private Limited	737.73	678.29	59.44
Khushiya Industries Private Limited	49.78	34.08	15.7
Pradip Overseas Limited	2663.25	2649.7	13.55
Shaifali Steels Limited	116.57	104.89	11.68
Morakhia Copper and Alloys Private Limited	109.26	106.49	2.77
Agarwal Mittal Concast Private Limited	225.31	132.29	93.02
Favourite Fabtech Private Limited	3.03	1.86	1.17
Real Strips Limited	95.04	95.04	0.00
Heavy Metal and Tubes Limited	286.91	275.45	11.46

(Source: Secondary Data)

It may be observed that Essar Steel India Ltd had the highest claim admitted of Rs.54,565.22Cr, next was Alok industries with the claim admitted of Rs.30,706.69 Cr. Korba West Power Company Ltd's claim admission was Rs.5,143.61 Cr, Pradip Overseas Ltd had a claim

admission of Rs.2,663.25 Cr and Garden Silk Mills Ltd had a claim admission of Rs.2,603.01Cr.

#### **4.4.1.6 Comparison Of Realizable Value By FC, OCs And Total**

The amount actually realized by FCs and OCs were totalled to find the consolidated realizable value. The comparison of realizable value by FCs, OCs and Total is discussed further.

**Table 4-130 Admission of Claims (Rs. Crores)**

<b>Name of Corporate Debtor</b>	<b>Realizable Amount by FCs</b>	<b>Realizable Amount by OCs</b>	<b>Total Realizable Value</b>
Kalptaru Alloys Private Limited	31.60	1.90	33.50
Keti Highway Developers Private Limited	18.50	0.28	18.78
Shakti Nutraceuticals Private Limited	1.18	0.01	1.19
Rainbow Papers Limited	564.31	66.36	630.67
Alok Industries Limited	5052.00	63.20	5115.20
Essar Steel India Limited	41017.71	1214.07	42231.78
Korba West Power Company Limited	1166.61	104.28	1270.89
Jaihind Infra Tech Projects Private Limited	0.37	0.00	0.37
Aum Structbuild Private Limited	1.97	0.00	1.97
A&I Hospitality Private Limited	11.91	5.02	16.93
Maruti Koatsu Cylinders Limited	14.21	0.28	14.49
Shaifali Rolls Limited	16.00	1.95	17.95
V S Texmills Private Limited	4.44	0.06	4.50
Sadbhav Enterprise Private Limited	15.52	4.55	20.07
Madhya Bharat Phosphate Private Limited	18.15	0.62	18.77
Jaihind Projects Limited	53.50	0.75	54.25
B. P. Food Products Private Limited	47.16	0.64	47.80
Digjam Limited	70.86	12.71	83.57
The Dhar Textile Mills Limited	23.27	0.04	23.31
Gopala Polyplast Ltd	40.38	40.85	81.23
Technovaa Plastic Industries Private Limited	41.59	1.06	42.65
Tiger Surgical Disposable Private Limited	2.50	0.13	2.63
Arya Filaments Private Limited	6.00	0.79	6.79
Twenty First Century Castings Private Limited	3.90	0.00	3.90
Garden Silk Mills Limited	717.50	29.50	747.00
Nijinoy Trading Private Limited	0.10	0.05	0.15
M.V. Omni Projects (India) Limited	34.67	0.76	35.43
Sungracia Tiles Private Limited	11.21	0.32	11.53
Mahi Corporation Private Limited	1.84	0.00	1.84

Name of Corporate Debtor	Realizable Amount by FCs	Realizable Amount by OCs	Total Realizable Value
Perfect Boring Private Limited	13.59	2.62	16.21
Riddhi Siddhi Cotspin Private Limited	3.38	0.00	3.38
Sanghvi Forging & Engineering Limited	75.00	2.06	77.06
Alps Pharmaceuticals Private Limited	6.18	0.29	6.47
Shriram Cement Limited	6.00	0.13	6.13
Polygold Pre-Cured Systems Private Limited	6.78	4.36	11.14
Vadra Energy (Gujarat) Limited	111.89	0.17	112.06
Poggenamp Nagarsheth Powertronics Private Limited	54.16	0.80	54.96
Raj Rayon Industries Limited	78.49	0.11	78.60
GSL Nova Petrochemicals Limited	0.12	0.03	0.15
Jyoti Power Corporation Private Limited	26.61	0.10	26.71
Khushiya Industries Private Limited	8.61	0.01	8.62
Pradip Overseas Limited	126.00	1.03	127.03
Shaifali Steels Limited	7.75	2.16	9.91
Morakhia Copper and Alloys Private Limited	10.18	0.01	10.19
Agarwal Mittal Concast Private Limited	47.98	0.20	48.18
Favourite Fabtech Private Limited	1.86	0.63	2.49
Real Strips Limited	77.10	0.00	77.10
Heavy Metal and Tubes Limited	45.50	0.16	45.66

(Source: Secondary Data)

It may be inferred that from the claims admitted by FCs the highest amount was realized from Essar Steel India Limited Rs. 41,017.71 Cr; which was followed by Alok Industries Ltd Rs.5,052 Cr, and Korba West Power Company Limited Rs.1,166.61 Cr. From the claims admitted by OCs the highest amount was realized from Essar Steel India Limited Rs. 1,214.07Cr; which was followed by Korba West Power Company Limited Rs.104.28 Cr., and Rainbow Papers Ltd Rs.66.36 Cr.

#### **4.4.1.7 Descriptive Statistics On Liquidation Value And Realizable Value By FCs And OCs**

The descriptive statistics across liquidation value, realizable value by FCs and OCs were computed for 48 companies. The liquidation value was proposed by the competent and authorized legal identity, after considering the market scenario.

**Table 4-131 Descriptive Statistics On Liquidation And Realizable Value (Rs. Crores)**

<b>Particulars</b>	<b>Liquidation Value</b>	<b>Realizable Amount by FCs</b>	<b>Realizable Amount by OCs</b>
Count of Cases	46	48	42
Mean	518.82	1035.34	37.26
Median	14.55	17.08	0.70
Std. Deviation	2408.09	5940.83	187.26
Minimum	0.04	0.10	0.01
Maximum	15838.00	41017.71	1214.07

**(Source: SPSS Output)**

It was noted that liquidation value was available for 46 cases. The amount was realized by FCs in 48 cases, and in 42 cases the amount was realized by OCs. It was observed that the average liquidation value was Rs.518.82 Cr; the median value was Rs.14.55 Cr; SD was Rs.2,408.09 Cr, minimum value was Rs.0.04 Cr, and the maximum value was Rs.15,838 Cr. The average realizable amount by FC was Rs.1,035.34 Cr; median amount was Rs.17.08Cr; SD was Rs.5,940.83Cr, minimum was Rs.0.10 Cr, and the maximum amount was Rs.41,017.71Cr. The average amount realizable by OCs was Rs.37.26 Cr, with a SD of Rs.187.26Cr; Median value was Rs.0.70 Cr, minimum value at Rs.0.01 Cr, and the maximum value was Rs.1,214.07 Cr.

#### **4.4.1.8 Corporate Debtor's Comparison Of Admitted Claim And Realizable Value**

The corporate debtor's comparison of admitted claim and realizable value by FCs was carried out for better interpretations. Admitted claims refers to the amount recoverable from the corporate debtor, whereas the Realizable value refers to the actual amount recovered from the debtor. The banks in order to recover the money from the NPA's borrower's accounts, would try to work out the OTS scheme and fix up the realizable value.

If the recoverable amount is less than the amount to be recovered, then it is a loss for the bank. If both the amounts are at par, then banks have recovered the full outstanding dues from the debtor. As per the law, banks cannot claim the money more than the outstanding dues, so the realizable value will not be more than the claim admitted. The banks prefer to estimate the liquidation value, in case if the debtor does not pay then the bank may liquidate the value of the asset and recover the money. So, to get a fair idea on the amount the bank would receive on liquidation, it tries to obtain the liquidation value from the valuer. The liquidation value in practice would be less than the original outstanding claim on the asset, so bankers generally prefer to work out the settlement and recover the money from the borrower, rather than liquidating the borrower's asset.

**Table 4-132 Comparison Of Total Admitted Claim And Total Realizable Value**

<b>Name of Corporate Debtor</b>	<b>Total Admitted Claim (Rs. Crores)</b>	<b>Realisable Value (Rs. Crores)</b>	<b>Amount Not Recovered (%)</b>
Kalptaru Alloys Private Limited	51.23	33.50	35
Keti Highway Developers Private Limited	78.71	18.78	76
Shakti Nutraceuticals Private Limited	1.12	1.19	-6
Rainbow Papers Limited	1595.47	630.67	60
Alok Industries Limited	30706.69	5115.20	83
Essar Steel India Limited	54565.22	42231.78	23
Korba West Power Company Limited	5143.61	1270.89	75
Jaihind Infra Tech Projects Private Limited	683.42	0.37	100
Aum Structbuild Private Limited	1.97	1.97	0
A&I Hospitality Private Limited	19.12	16.93	11
Maruti Koatsu Cylinders Limited	89.10	14.49	84
Shaifali Rolls Limited	345.21	17.95	95
V S Texmills Private Limited	17.68	4.50	75
Sadbhav Enterprise Private Limited	20.07	20.07	0
Madhya Bharat Phosphate Private Limited	43.22	18.77	57
Jaihind Projects Limited	1337.84	54.25	96
B. P. Food Products Private Limited	196.66	47.80	76
Digjam Limited	93.02	83.57	10
The Dhar Textile Mills Limited	668.10	23.31	97
Gopala Polyplast Ltd	232.15	81.23	65
Technovaa Plastic Industries Private Limited	151.47	42.65	72
Tiger Surgical Disposable Private Limited	28.63	2.63	91
Arya Filaments Private Limited	21.30	6.79	68
Twenty First Century Castings Private Limited	37.95	3.90	90
Garden Silk Mills Limited	2603.01	747.00	71
Nijinoy Trading Private Limited	11.71	0.15	99
M.V. Omni Projects (India) Limited	353.84	35.43	90
Sungracia Tiles Private Limited	22.87	11.53	50
Mahi Corporation Private Limited	6.04	1.84	70
Perfect Boring Private Limited	50.63	16.21	68

<b>Name of Corporate Debtor</b>	<b>Total Admitted Claim (Rs. Crores)</b>	<b>Realisable Value (Rs. Crores)</b>	<b>Amount Not Recovered (%)</b>
Riddhi Siddhi Cotspin Private Limited	29.93	3.38	89
Sanghvi Forging & Engineering Limited	223.70	77.06	66
Alps Pharmaceuticals Private Limited	67.66	6.47	90
Shriram Cement Limited	24.51	6.13	75
Polygold Pre-Cured Systems Private Limited	11.15	11.14	0
Vadraj Energy (Gujarat) Limited	617.11	112.06	82
Poggenamp Nagarsheth Powertronics Private Limited	82.28	54.96	33
Raj Rayon Industries Limited	1704.25	78.60	95
GSL Nova Petrochemicals Limited	14.34	0.15	99
Jyoti Power Corporation Private Limited	737.73	26.71	96
Khushiya Industries Private Limited	49.78	8.62	83
Pradip Overseas Limited	2663.25	127.03	95
Shaifali Steels Limited	116.57	9.91	91
Morakhia Copper and Alloys Private Limited	109.26	10.19	91
Agarwal Mittal Concast Private Limited	225.31	48.18	79
Favourite Fabtech Private Limited	3.03	2.49	18
Real Strips Limited	95.04	77.10	19
Heavy Metal and Tubes Limited	286.91	45.66	84

**(Source: Secondary Data)**

It may be inferred that in the case of Jaihind Infra Tech Projects Private Ltd, no amount was recovered. In the case of Nijinoy Trading Private Ltd, 99% recovery was not availed. In the case of The Dhar Textile Mills Limited 97% amount was not recovered; 96% amount was not recovered from Jaihind Projects Limited, and 95% was not recovered from Raj Rayon Industries Ltd. Shakti Nutraceuticals Private Limited paid six percent more than the admitted claim. It may be inferred that when the OTS is worked out, the borrower has to repay the money in the fixed time-limit, if the deadline is crossed then the bank charges interest or penal interest, as a consequence the realizable amount increases.

#### 4.4.1.9 Comparison Of Percentage Of Recovery Through FCs, OCs And Total

A comparison of recovery made on the claims admitted by FCs, OCs and Total was executed for better interpretations.

**Table 4-133 Percentage Comparison Of Realizable Value Against The Claim Of FCs, OCs And Total**

Name of Corporate Debtor	FCs Recovery %	OCs Recover y %	Total Recovery %
Kalptaru Alloys Private Limited	62	6333	65
Keti Highway Developers Private Limited	24	13	24
Shakti Nutraceuticals Private Limited	106	100	106
Rainbow Papers Limited	38	52	40
Alok Industries Limited	17	5	17
Essar Steel India Limited	83	24	77
Korba West Power Company Limited	23	94	25
Jaihind Infra Tech Projects Private Limited	0	NA	0
Aum Structbuild Private Limited	100	NA	100
A&I Hospitality Private Limited	90	86	89
Maruti Koatsu Cylinders Limited	16	12	16
Shaifali Rolls Limited	5	79	5
V S Texmills Private Limited	27	4	25
Sadbhav Enterprise Private Limited	100	100	100
Madhya Bharat Phosphate Private Limited	46	18	43
Jaihind Projects Limited	5	0	4
B. P. Food Products Private Limited	30	2	24
Digjam Limited	100	57	90
The Dhar Textile Mills Limited	3	50	3
Gopala Polyplast Ltd	41	31	35
Technovaa Plastic Industries Private Limited	40	2	28
Tiger Surgical Disposable Private Limited	9	6	9
Arya Filaments Private Limited	28	343	32
Twenty First Century Castings Private Limited	15	0	10
Garden Silk Mills Limited	34	6	29
Nijinoy Trading Private Limited	8	0	1
M.V. Omni Projects (India) Limited	15	1	10
Sungracia Tiles Private Limited	85	3	50
Mahi Corporation Private Limited	30	NA	30
Perfect Boring Private Limited	71	8	32
Riddhi Siddhi Cotspin Private Limited	11	NA	11
Sanghvi Forging & Engineering Limited	42	5	34
Alps Pharmaceuticals Private Limited	16	1	10
Shriram Cement Limited	29	4	25

Name of Corporate Debtor	FCs Recovery %	OCs Recovery %	Total Recovery %
Polygold Pre-Cured Systems Private Limited	101	98	100
Vadraj Energy (Gujarat) Limited	19	1	18
Poggenamp Nagarsheth Powertronics Private Limited	102	3	67
Raj Rayon Industries Limited	5	0	5
GSL Nova Petrochemicals Limited	1	1	1
Jyoti Power Corporation Private Limited	4	0	4
Khushiya Industries Private Limited	25	0	17
Pradip Overseas Limited	5	8	5
Shaifali Steels Limited	7	18	9
Morakhia Copper and Alloys Private Limited	10	0	9
Agarwal Mittal Concast Private Limited	36	0	21
Favourite Fabtech Private Limited	100	54	82
Real Strips Limited	81	NA	81
Heavy Metal and Tubes Limited	17	1	16

(Source: Excel Output)

It may be inferred that a percentage exceeding 100 depicted that the amount was recovered more than the admitted claim. The recovery exceeding the filed claim would occur, if the banks charged interest on the delay in payment made by the borrower. If the time taken to file the claim and execute the recovery of the dues, was very long then, with the passage of time, the recovery amount increased, and unfortunately the amount of claim was not revised. As the recovery happened based on the latest data and the claim data was not updated, the percentage of recovery was more than the actual claim admitted for the recovery. The status of Not Applicable (NA) indicated that there was no claim admitted and hence no process of recovery. The zero number indicated that there was a claim but, unfortunately there was no recovery.

In three cases namely Aum Structbuild Private Limited, Sadbhav Enterprise Private Limited, and Polygold Pre-Cured Systems Private Limited the recovery was full up to 100%. Shakti Nutraceuticals Private Limited paid more than 100%. There was barely one per cent recovery in the case of Nijinoy Trading Private Limited and GSL Nova Petrochemicals Limited. With respect to the case initiated by OCs in Kalptaru Alloys Private Limited the recoverable amount was Rs.1.90 Cr against the claim amount of Rs. 0.03Cr. Arya Filaments Private Limited had to pay Rs.0.23 Cr, against which it paid Rs.0.79 Cr. It may be observed a drastic increase in percentage exceeding three digits were noted in the deals initiated by OCs, which would have fluctuated.

#### 4.4.1.10 Normality Test On The Data Of NPA Amount Recovered

Overall normality of the data was checked using One Sample Kolmogorov Smirnov Test.

$H_{077}$ : *Data is normal.*

$H_{177}$ : *Data is not normal.*

**Table 4-134 One Sample Kolmogorov Smirnov Test Results**

Particulars	Mean	SD	Abs olut e Diff	Posi tive Diff	Negative Diff	Kolmogor ov- Smirnov Z	Asymp. Sig. (2- tailed)
Total Admitted Claim	2213.31	8914.67	0.42	0.42	-0.40	2.90	0.00
Liquidation Value	518.82	2408.09	0.46	0.46	-0.42	3.10	0.00
Total Realizable Value	1067.94	6115.20	0.46	0.46	-0.43	3.18	0.00

(Source: SPSS Output)

As the Sig p-value for all three items was 0.00, which is less than 0.05, hence, the null hypothesis is rejected. In other words, the data is not normal. When the data is not normal, the non-parametric test are applied for further analysis. Before applying the non-parametric test, normality was checked between the categorical variable (Claim Initiator) and the above three items, but the statistical results confirmed that the data was not normal. Hence, the non-parametric test Mann-Whitney U Test, an alternative to Independent T-Test was applied.

#### 4.4.1.11 Mann-Whitney U Test Between Claim Initiator And Total Claims Admitted, Liquidation Value And Total Realizable Value

The claim was initiated by either by FC or OC. The total claim admitted, liquidation value and total realizable value was a scale variable. Considering the two groups, of FC and OC the test was applied. A Mann-Whitney U Test was applied between FC and OC to check their differences on the total claims admitted; liquidation value, and total realizable value.

$H_{078}$ : *Financial Creditor and Operational Creditor do not significantly differ in the mean ranks on total claims admitted.*

$H_{178}$ : *Financial Creditor and Operational Creditor significantly differ in the mean ranks on total claims admitted.*

$H_{079}$ : *Financial Creditor and Operational Creditor do not significantly differ in the mean ranks on liquidation value.*

$H_{179}$ : *Financial Creditor and Operational Creditor significantly differ in the mean ranks on liquidation value.*

$H_{080}$ : Financial Creditor and Operational Creditor do not significantly differ in the mean ranks on total realizable value.

$H_{180}$ : Financial Creditor and Operational Creditor significantly differ in the mean ranks on total realizable value.

**Table 4-135 Mann-Whitney U Test Results On FCs And OCs Admitted Claims, Liquidation Value And Realizable Value**

Particulars	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)	Mean Rank (FC)	Mean Rank (OC)
Total Admitted Claim	224	500	-1.11	0.27	224	500
Liquidation Value	222	475	-0.70	0.48	222	475
Total Realizable Value	246	522	-0.64	0.52	246	522

(Source: SPSS Output)

The Sig. P-value for all the three items was greater than 0.05, hence the null hypothesis was not rejected. In other words, the FCs and OCs did not significantly differ in the value of total claim admitted, liquidation value, and total realizable value.

#### 4.4.2 NPA Amount Not Recovered

The detailed analysis pertaining to the cases in which the NPA amount was not recovered is further discussed point-wise. The banks first try to recover the NPA amount from the borrowers. In case the money is not recovered then the banks appoint a Resolution Planner (RPs) who invites bid from external parties to financially resolve the company. If the RPs do receive either any bid from the external parties or the bid amount is very low, then RPs instead of initiating the process of resolution in the company, prefer to liquidate the company, recover the possible due, and wind-up the company.

##### 4.4.2.1 Cases Triggered

The resolution cases are either triggered by Financial Creditor (FC), Operational Creditor (OC) or Corporate Debtor (CD).

**Table 4-136 Deal Initiation**

Initiator	Frequency	Percent
Financial Creditor (FC)	65	36
Operational Creditor (OC)	85	48
Corporate Debtor (CD)	29	16
<b>Total</b>	<b>179</b>	<b>100</b>

(Source: Secondary Data)

Total 179 cases were initiated for the resolution process. 85 cases were initiated by OC, 65 cases were initiated by FC, and 29 cases were initiated by CD. It may be inferred that as high

as 48% OCs initiated the resolution process, followed by 36% were by FC, and only 16% were by the CD. The resolution process triggers with the initiation of cases.

#### **4.4.2.2 Status Of The Cases**

The status of defunct cases was discussed in the further point.

**Table 4-137 Defunct Status**

Status	Frequency	Percent
Yes	154	86
No	25	14
<b>Total</b>	<b>179</b>	<b>100</b>

(Source: SPSS Output)

It may be inferred that 154 cases were defunct, and only 25 cases were non-defunct. In other words, as high as 86% cases were defunct, and only 14% cases were non-defunct. In either of the cases the money was not realized by banks. The defunct cases represented that the company was winded up. The non-defunct cases represented that the company had operationally stopped working, and the process of the winding up was in continuation. Thus, till the complete administrative process was not completed, the company could not be declared defunct. The process of recovery, appointment of RPs, and liquidation takes lot of time in India. Thus, if the borrower does not pay the money, and if there is no possibility of resolution, the company in winded-up. In other words, in case of non-recovery, the companies become defunct sooner or later.

#### **4.4.2.3 Duration For Processing Of Cases**

On case-to-case basis, the dates were available for the commencement of the insolvency and also the dates were available for the order of liquidation. The difference between the two dates was computed in order to identify the total time taken in days for the beginning of the resolution process. It may be inferred that on an average it took 387 days to initiate the process; the median number of days were 329; in the maximum cases it took 288 days to initiate the process, and the SD was as high as 203 days. A minimum and maximum of 52 days and 1,334 days, respectively, were taken to kick-start the process of liquidation. Thus, a range of 1,282 days may be fixed to initiate the liquidation process.

#### **4.4.2.4 Claim Admissions**

The process of corporate insolvency resolution plan were admitted either through FCs or OCs or both.

**Table 4-138 Claims Admission**

Particulars	Total Admitted Claims	Admitted Claims of FCs	Admitted Claims of OCs

Count	178	160	131
Missing Data	1	19	48
<b>Rs in Cr.</b>			
Mean	481.14	501.12	41.71
Median	23.33	26.76	2.37
Std. Deviation	1928.58	1968.72	209.51

**(Source: SPSS Output)**

It may be inferred that in total 178 claims were admitted, of which 160 claims were routed through FCs and 131 claims were routed through OCs. The details of 19 claims admitted to FCs and 48 claims admitted to OCs were not available from the database. Only one case with respect to the CIRP was not available. The amount of average claim admitted to FCs was Rs.501.12 Cr; the value of the median claim was Rs.26.76 Cr, and the SD was as high as Rs.1,968.72 Cr. The value of the mean claim amount admitted via OC was Rs.41.71Cr; with a median value of Rs.2.37 Cr, and a SD of Rs.209.51 Cr. The consolidated average claim admitted was Rs.481.14 Cr, with the median value of Rs.23.33 Cr, and the SD of Rs.1,928.58 Cr.

#### **4.4.2.5 Company Wise Claim Admitted Through FCs, OCs And Total**

Case-to-case specific claims admitted by FCs, OCs, and total was discussed further.

**Table 4-139 Company Wise Claims (Rs . In. Cr)**

Name of Corporate Debtor	Total Admitted Claims	Admitted claims by FCs	Admitted Claims by OCs
Oasis Textiles Limited	1.62	1.59	0.03
Pooja Tex-Prints Private Limited	0.19	0.00	0.19
New Tech Forge and Foundary Limited	467.25	445.56	21.69
Micro Forge (India) Limited	97.15	97.15	0.00
New-Tech Fittings Private Limited	11.54	9.17	2.37
Radheshyam Fibres Private Limited	47.64	47.64	0.00
Gujarat Oleo Chem Limited	206.42	206.04	0.38
Somnath Textile Private Limited	47.95	47.95	0.00
Ruby Cables Limited	20.34	20.33	0.01
Dev Cotex Private Limited	12.44	12.44	0.00
Asian Natural Resources India Limited	1363.62	781.46	582.16
Sarthak Creation Private Limited	87.20	87.20	0.00
Diamond Power Transformers Limited	138.16	137.80	0.36
Aarohi Motors Private Limited	35.34	32.87	2.47
Jalaram Cotton & Proteins Limited	79.58	79.58	0.00

Name of Corporate Debtor	Total Admitted Claims	Admitted claims by FCs	Admitted Claims by OCs
Shiv Cotgin Private Limited	39.79	39.79	0.00
Metal Link Alloys Limited	284.24	280.86	3.38
Metal Holdings India Private Limited	103.02	101.70	1.32
Anil Nutrients Limited	105.87	85.58	20.29
Well Pack Papers and Containers Limited	7.84	1.26	6.58
ABXL Retails (India) Private Limited	10.82	10.82	0.00
BCC Estate Private Limited	730.76	730.76	0.00
Anil Tradecom Limited	69.59	0.00	69.59
J.R.Diamonds Private Limited	10.46	0.00	10.46
Meridian Extrusions Private Limited	5.55	4.48	1.07
Anil Limited	1693.53	1338.21	355.32
Kohinoor Diamonds Private Limited	8304.46	8297.31	7.15
Siddhi Vinayak Logistic Limited	2361.29	2358.20	3.09
Today's Writing Instruments Limited	413.13	393.86	19.27
Shreenidhi Woodtech Private Limited	0.67	0.63	0.05
Stratus Foods Private Limited	7.26	1.70	5.56
Logix Express Private Limited	0.87	0.87	0.00
R R Polynet Private Limited	6.01	5.99	0.02
ABG Shipyard Ltd	19316.68	18848.30	468.38
Taj Herberdashery Products Private Limited	2.65	1.10	1.55
Tanisa Denim Private Limited	14.03	14.03	0.00
Gaytech Engineering Pvt Ltd	12.61	12.61	0.00
Danke Electricals Limited	40.51	36.59	3.92
Varia Aluminium Private Limited	203.05	152.22	50.83
Maxroth Impex Private Limited	6.18	6.09	0.09
Ashok Transformers Private Limited	3.06	2.10	0.96
Vaman Fabrics Private Limited	7.54	7.54	0.00
Baffin Engineering Projects Limited	0.27	0.27	0.00
Kasturi Exim Private Limited	0.04	0.00	0.04
Varia Engineering Works Private Limited	628.20	591.30	36.90
Anil Life Sciences Limited	182.31	181.27	1.04
Sarvottam Vegetable Oil Refinery Private Limited	60.33	12.42	47.91
Sai Infosystem (India) Limited	4391.21	2146.69	2244.52
Anil Technoplus Limited	97.43	85.59	11.84

Name of Corporate Debtor	Total Admitted Claims	Admitted claims by FCs	Admitted Claims by OCs
Ardor Global Private Limited	412.73	412.73	0.00
Asis Logistics Limited	115.35	111.66	3.69
Neeru Cotton Private Limited	10.49	10.49	0.00
Gujarat Foils Limited	337.38	328.19	9.19
Mahendrakumar Babulal Jewels Private Limited	24.68	24.68	0.00
Shri Jalaram Rice Industries Private Limited	452.33	452.33	0.00
Sandhya Prakash Limited	218.36	201.88	16.48
API Industries Private Limited	54.74	24.34	30.40
Hardik Industrial Corporation Private Limited	18.74	18.71	0.03
Harsh Polymers (India) Limited	0.05	0.00	0.05
Mekaster Engineering Limited	73.53	54.21	19.32
Osaka Pharmaceuticals Private Limited	38.61	32.49	6.12
Shri Aster Silicates Limited	239.26	198.76	40.50
ALPS Liesure Holidays Private Limited	10.37	8.76	1.61
Khushi Foods Limited	9.43	8.85	0.58
UIC Corporation Private Limited	155.63	155.50	0.13
Shree Vinayak Foods & Fabrics Private Limited	15.14	15.14	0.00
Org Informatics Limited	321.85	294.86	26.99
Shree Padmavati Sortex Private Limited	21.98	21.98	0.00
Oasis Tradelink Limited	58.07	40.29	17.78
Atrium InfOComm Private Limited	452.83	226.28	226.55
Bhoomi Ginning Pressing Private Limited	18.60	18.60	0.00
Snehdaxa Infrastructure Private Limited	5.78	5.52	0.26
Vimal Oil & Foods Ltd	862.16	862.16	0.00
Gupta Dyeing and Printing Mills Private Limited	115.19	92.73	22.46
Collyer Container Terminal Private Limited	4.71	4.71	0.00
Steel Konnect (India) Private Limited	217.65	215.70	1.95
Terrene Pharma Private Limited	16.88	14.64	2.24
Special Prints Ltd	3.11	0.05	3.06
Dhanlaxmi Solvex Private Limited	599.45	594.28	5.17

Name of Corporate Debtor	Total Admitted Claims	Admitted claims by FCs	Admitted Claims by OCs
Ace Tours Worldwide Limited	15.35	5.18	10.17
Ganga Advisory Private Limited	15.03	15.03	0.00
Bhatia Global Trading Limited	1273.93	1266.81	7.12
Tirupati Balaji Polymers Private Limited	18.25	18.05	0.20
Accord Industries Limited	63.09	63.09	0.00
Siddharth Tubes Limited	2146.85	2131.68	15.17
Usha Multipack Private Limited	3.80	3.72	0.08
Orient Spa Limited	1.79	1.79	0.00
VHCL Industries Limited	307.75	299.14	8.61
City Tiles Limited	133.18	68.46	64.72
Brew Berrys Hospitality Private Limited	2.45	2.43	0.02
Ashapuri Metals Private Limited	0.07	0.00	0.07
Kaneria Granito Limited	391.07	345.02	46.05
Shree Narmada Architectural Systems Limited	151.82	151.82	0.00
Peace Infrastructure Private Limited	4.36	4.36	0.00
Swayam Metals Limited*	0.14	0.14	0.00
H Sakhya Fashions Private Limited	12.36	12.36	0.00
Shree Santosh Cotton Spin Private Limited	16.88	16.78	0.10
Aditya Exim Ltd	5.28	0.00	5.28
Bansal International Private Limited	0.05	0.00	0.05
Orbis Infinium Private Limited	0.04	0.00	0.04
Dhorajia Engineering Company Pvt Ltd	2.60	2.04	0.56
Devansh International Private Limited	0.04	0.00	0.04
Goel Agrigreen Fields Private Limited	198.21	198.21	0.00
Winsome Diamonds and Jewellery Limited	8310.51	8295.80	14.71
Forever Precious Jewellery and Diamonds Limited	4456.21	4421.79	34.42
Neuromed Imaging Centre Private Limited	143.01	143.01	0.00
Riddhi Siddhi Cotton Ginning and Pessing Private Limited	50.02	27.56	22.46
PSL Limited	9133.48	8803.35	330.13
Navrang Roadlines Private Limited	55.52	55.52	0.00
Regent Granito (India) Limited	167.66	78.62	89.04

<b>Name of Corporate Debtor</b>	<b>Total Admitted Claims</b>	<b>Admitted claims by FCs</b>	<b>Admitted Claims by OCs</b>
Khusbhu Vinyl Private Limited	116.02	83.07	32.95
Origin Formulations Private Limited	64.13	55.96	8.17
Laxmipati Balaji Infra Private Limited	59.09	48.98	10.11
CLS Enterprises Private Limited	6.97	6.18	0.79
Rutika Creations Private Limited	4.90	4.67	0.23
Jindal Alufoils Private Limited	2.61	2.61	0.00
NPAT Furniture Private Limited	0.73	0.61	0.12
Gangotri Glazed Tiles Private Limited	8.53	8.25	0.28
Pacific Pipe Systems Private Limited	178.45	95.16	83.29
Eagle Cotton Private Limited	28.99	26.55	2.44
Shree Saibaba!spat (India) Private Limited	0.06	NA	0.06
DBS Affordable Home Strategy Limited	0.15	0.00	0.15
Biopac India Corporation Limited	44.62	36.79	7.83
Vijay Timber Industries Private Limited	248.05	248.05	0.00
Aswaraj Infra Private Limited	19.32	19.32	0.00
Pro Eyetech Electrotekniks Private Limited	4.76	3.29	1.47
Baid Narrow Fab Private Limited	80.48	76.87	3.61
Steps Dumsak Waste Processing Services Private Limited	2.60	2.37	0.23
Kanoovi Foods Private Limited	17.49	13.30	4.19
H.Sharda Texfab Private Limited	10.04	10.04	0.00
Silver Proteins Private Limited	44.10	44.10	0.00
Pioneer Globex Private Limited	4.90	0.00	4.90
S.K Masala and Foods Limited	9.48	7.03	2.45
Mehta & Associates Fire Protection Systems Private Limited	6.66	5.45	1.21
Windsor Papers Private Limited	0.01	0.00	0.01
Drupa Suppliers Private Limited	17.71	17.70	0.01
SRK Devbuild Private Limited	2.58	1.58	1.00
Shreem Spa & Resorts Limited	126.09	124.60	1.49
Sonali Energees Private Limited	20.15	19.72	0.43
Shirpur Power Private Limited	2268.64	2219.85	48.79
Vaman Textiles Private Limited	8.83	8.83	0.00
Subhlaxmi Dyeing and Printing Mills Private Limited	0.90	0.07	0.84

Name of Corporate Debtor	Total Admitted Claims	Admitted claims by FCs	Admitted Claims by OCs
K.S. Oils Limited	6257.42	6189.99	67.43
Varad Lifescience Private Limited	9.26	9.05	0.21
Nigo Best Packs Private Limited	0.02	0.00	0.02
Safal Securities Limited	0.71	0.00	0.71
Supreme (India) Impex Limited	318.14	316.33	1.81
Avadh Fibers Private Limited	24.78	24.78	0.00
Electra Accumulators Limited	46.64	26.96	19.68
Shakti Refoils & Agro Foods Products Private Limited	31.25	28.26	2.99
Betain Career Institute Private Limited	3.13	2.07	1.06
Palav Synthetics Private Limited	3.61	3.61	0.00
Rajpal Autolink Private Limited	10.75	10.75	0.00
Brain Master's Classes Private Limited	6.04	1.75	4.29
Maktel Power Limited	29.37	26.03	3.34
Pet Metal Private Limited	1.27	0.98	0.29
Bansal Shipping Private Limited	0.05	0.00	0.05
Sunlight Extrusion Private Limited	32.81	22.07	10.74
Reds Marine Services Limited	122.83	122.83	0.00
FNL AAC Block Private Limited	21.40	21.03	0.37
Kapil Steels Ltd.	53.95	53.77	0.18
Utility Agrotech Industries Private Limited	353.23	353.23	0.00
Supreme Finefab Pvt Ltd	353.23	353.23	0.00
Padmavati Intermediates Private Limited	0.20	0.20	0.00
Maktel Control & Systems Private Limited	29.47	29.09	0.38
SRK Chemicals Limited	0.97	0.39	0.58
RMOL Engineering and Offshore Limited	578.57	555.56	23.01
Gajra Bevel Gears Limited	73.62	71.73	1.89
WSH Private Limited	1.67	1.56	0.11
Suvidha Farming And Allied Limited	1.53	1.53	0.00
Nizamiya Construction Private Limited	0.55	0.14	0.40
Gujarat State Construction Corporation Limited	27.80	27.80	0.00
Raghukul Cottex and Processing Private Limited	42.25	29.81	12.44

Name of Corporate Debtor	Total Admitted Claims	Admitted claims by FCs	Admitted Claims by OCs
Eagle Corporation Private Limited	11.45	10.50	0.94
Vibrant Fab Private Limited	17.46	17.10	0.36
Rainbow Industrial Park Private Limited	0.01	0.00	0.01
Bansal Infracon Private Limited	0.32	0.00	0.32
Gokul Ceramic Private Limited	52.99	25.72	27.28
Texon Global Private Limited	12.36	10.73	1.63

(Source: Secondary Data)

It may be inferred that highest claim was admitted for ABG Shipyard Ltd for Rs.19316.68Cr; followed by PSL Limited at Rs.9,133.48 Cr; Winsome Diamonds and Jewellery Limited at Rs.8,310.51Cr; Kohinoor Diamonds Private Limited at Rs.8,304.46Cr, and K.S. Oils Limited at Rs.6,257.42 Cr. Lowest claim was noted for Orbis Infinium Private Limited at Rs.0.04 Cr; Devansh International Private Limited at Rs.0.04 Cr, Nigo Best Packs Private Limited at Rs.0.02 Cr; Windsor Papers Private Limited at Rs.0.01 Cr, and Rainbow Industrial Park Private Limited at Rs.0.01 Cr.

#### 4.4.2.6 Number Of Resolution Plans Received

The number of resolution plans received is discussed in the further point.

**Table 4-140 Number Of Resolution Plans Received**

Particulars	Frequency
1	17
2	6
3	3
5	1
<b>Total</b>	<b>27</b>
Missing	152
<b>Total</b>	<b>179</b>

(Source: SPSS Output)

It may be inferred that only one resolution plan was received in 17 cases; two resolution plans were received in six cases, three resolution plans were received in three case, and only one case received five resolution plans. In total for 27 cases, the resolution plans were received. For 152 cases, no such resolution plans were received.

#### 4.4.2.7 Details Of Resolution Plans And Proposed Resolution Value

The company wise detailed analysis is discussed further. The details of the corporate debtor, number of resolution plans received and the highest resolution value proposed are discussed in the table.

**Table 4-141 Company Wise Claims (Rs. Crores)**

Name of Corporate Debtor	No. of Resolution Plans Received	Highest Resolution Value Proposed (Rs. Crores)
Pooja Tex-Prints Private Limited	2	0.09
Aarohi Motors Private Limited	1	2.90
Anil Limited	1	419.36
ABG Shipyard Ltd	1	4725.00
Sarvottam Vegetable Oil Refinery Private Limited	1	4.40
Ardor Global Private Limited	1	73.25
Gujarat Foils Limited	5	118.48
Sandhya Prakash Limited	2	74.59
Mekaster Engineering Limited	2	12.25
Shree Vinayak Foods & Fabrics Private Limited	1	2.00
Oasis Tradelink Limited	1	0.33
Vimal Oil & Foods Ltd	3	125.00
Steel Konnect (India) Private Limited	1	103.00
Bhatia Global Trading Limited	2	215.00
Regent Granito (India) Limited	1	21.00
Khusbhu Vinyl Private Limited	1	3.90
CLS Enterprises Private Limited	1	0.12
Rutika Creations Private Limited	2	0.54
Vijay Timber Industries Private Limited	1	4.85
Shreem Spa & Resorts Limited	3	24.00
K.S. Oils Limited	1	451.00
Safal Securities Limited	3	0.25
Electra Accumulators Limited	1	6.35
Sunlight Extrusion Private Limited	1	4.25
Kapil Steels Ltd.	2	1.28
SRK Chemicals Limited	1	0.16
Eagle Corporation Private Limited	1	3.85
<b>Total</b>	<b>43</b>	<b>6397.20</b>
Mean		236.93
SD		904.86
Maximum		4725.00
Minimum		0.09

**(Source: Secondary Data)**

It may be inferred that RPs received as high as five bids for Gujarat Foils Limited; three bids were received for Vimal Oil & Foods Ltd, Shreem Spa & Resorts Limited and Safal Securities Limited. For Pooja Tex-Prints Private Limited, Sandhya Prakash Limited, Mekaster

Engineering Limited, Bhatia Global Trading Limited, Rutika Creations Private Limited, and Kapil Steels Ltd the RPs received two bids. For rest of the companies in the dataset of 43 companies, only one bid was received. The total higher resolution value proposed was Rs. 6,397.20 Cr. The average highest resolution value proposed was Rs. 236.93 Cr. with a SD as high as Rs.904.86Cr. The maximum value proposed in the bid was Rs.4,725 Cr. and the minimum value was Rs.0.09 Cr.

#### **4.4.2.8 Normality Test On The Data Of NPA Amount Not Recovered**

Overall normality of the data was checked using One Sample Kolmogorov Smirnov Test.

*H<sub>081</sub>: Data is normal.*

*H<sub>181</sub>: Data is not normal.*

**Table 4-142 One Sample Kolmogorov Smirnov Test Results**

Particulars	Mean	SD	Abs olut e Diff	Posi tive Diff	Negative Diff	Kolmogor ov- Smirnov Z	Asymp. Sig. (2- tailed)
Total Admitted Claim	481.14	1928.58	0.40	0.40	-0.40	5.36	0.00

(Source: SPSS Output)

As the Sig p-value for total claims admitted was 0.00, which is less than 0.05, hence, the null hypothesis is rejected. In other words, the data is not normal. When the data is not normal, the non-parametric test are applied for further analysis. Before applying the non-parametric test, normality was checked between the categorical variable (Claim Initiator) and the total admitted claim, but the statistical results confirmed that the data was not normal. Hence, the non-parametric test Mann-Whitney U Test, an alternative to Independent T-Test was applied.

#### **4.4.2.9 Mann-Whitney U Test Between Claim Initiator And Total Claims Admitted**

The claim was initiated by either by FC or OC. The total claim admitted was a scale variable. Considering the two groups, of FC and OC the test was applied. A Mann-Whitney U Test was applied between FC and OC to check their differences on the total claims admitted.

*H<sub>082</sub>: Financial Creditor and Operational Creditor do not significantly differ in the mean ranks on total claims admitted.*

*H<sub>182</sub>: Financial Creditor and Operational Creditor significantly differ in the mean ranks on total claims admitted.*

**Table 4-143 Mann-Whitney U Test Results On FCs And OCs Total Admitted Claims**

Particulars	Mann- Whitney U	Wilcoxon W	Z	Asymp. Sig. (2- tailed)	Mean Rank (FC)	Mean Rank (OC)
Total Admitted Claim	1613.50	5183.50	-4.27	0.00	1613.50	5183.50

**(Source: SPSS Output)**

The Sig. P-value for the total claim admitted was less than 0.05, hence the null hypothesis was rejected. In other words, the FCs and OCs did significantly differ in the value of total claim admitted.

## **Chapter 5 Findings, Suggestions And Conclusion**

### **5.0 Background**

The findings of the study are discussed in the four parts viz NPAs of Indian Banks, Comparison of the tools of NPA resolution of Indian Banks, Opinion of RPs and Bankers, and NPA Cases in Gujarat. The details of the same are discussed further.

### **5.1 NPAs of Indian Banks**

- The gross advances and net advances were highest for public sector banks, followed by either old private sector banks or private banks. Advances are an integral part of any banks.
- The CAGR in gross advances of the scheduled banks for a period of 10 years, was noted at 8.25%, and the net advances CAGR was 7.87%.
- In the year 2018, the highest growth of 26% was noted in lending by private sector banks.
- In the year 2012 only the Y-O-Y growth rate for public sector banks was in double digit at 16%, which eventually dropped to only two percent in the year 2020.
- Public banks face a cut-throat competition from private banks in the lending business. Public banks often involve in in-depth scrutiny before lending and its loan sanction criteria are stringent than the private sector banks, which may be one of the reasons for low growth in the lending percentage.
- Private banks on the contrary provide loans liberally and charge exorbitant rate of interest. Thus, private banks take higher risk.
- The SD in lending significantly varied across different types of banks, may be due the different size of the loan portfolio under different categories of loan such as priority sector and non-priority sector lending.
- In the span of 10 years, a CAGR of 19.35% and 14.76% was noted in Gross NPA and Net NPA respectively.
- As high as 11.20% of gross advances were treated as NPAs in the year 2017-18. A high level of NPA signals that the economy is gradually deteriorating. Rising inflation and governance issues may be the reasons for a high level of NPAs in the Indian banks.
- The CAGR of Net NPAs for public sector banks, private sector banks and foreign banks were respectively 12.71%, 33.95% and 7.78%. The CAGR for Net NPA is highest for private banks, followed by public banks and foreign banks.

- Public sector banks had the largest amount of NPAs. The literature also described that public sector banks carried high amount of bad loans either due to poor appraisal policy, or political pressure, or due to mandatory lending to the priority sector lending.
- In the public sector banks the percentage of Gross NPA to Gross Advances rises on a yearly basis, highest in 2017-18.
- Net NPA percentage of net advances is rising in the case of public sector banks, followed by the private sector banks.
- The banks face the risk of bad loans due to which the cumulative amount of the NPA has been rising.
- The reductions in NPA amount may be attributed to the either borrower making the payment or the government providing the refinance to the banks.
- The write-offs in NPA in public sector banks were highest at 269.55%. In the private sector, the reductions in NPA were highest at 73.22%. Higher the write-off higher is the loss for the banks.
- Punjab National Bank had the highest additions of Gross NPA amount. Oriental Bank of Commerce and United Bank of India had merged with the Punjab National Bank.
- Recently many mergers occurred to face-lift the balance-sheet and abolish the NPA of smaller public sector banks, this was the reason for additions of NPAs in public sector banks. Poor management and governance issues were the major reasons responsible for higher level of NPAs in public banks.
- In private sector RBL bank had the highest additions in Gross NPA, followed by Yes Bank. Punjab National Bank had highest reductions of Gross NPA, followed by Union Bank of India. Yes Bank had highest reductions in Gross NPA, followed by RBL bank.
- The average CAGR for Gross NPA Additions for public sector banks and private sector banks were 19.12% and 27.86% respectively.
- Bank of India, Bank of Maharashtra, Indian Overseas Bank, Punjab and Sind Bank, State Bank of India and UCO Bank had below average NPA additions.
- 61% private banks had Gross NPA additions less than the average.
- 39% private banks had Gross NPA more than the average.
- Average reductions in NPA for public sector bank was 14.23% and it was 18.23% for private sector banks.
- The average NPA is more in non-priority sector when compared to the priority sector.

- The CAGR in NPA in priority sector was 18.43%. The CAGR in NPA in non-priority sector was 23.80%.
- It is generally believed that the banks are forced to go for priority sector lending as per the mandate by RBI. Commercial banks often lend the money to priority sector without following strict credit appraisal norms. As a result, the belief is that NPA rises. But the contradiction is noted when the level of NPA is noticed higher in case of non-priority sector lending. The NPA in absolute amount and in percentage in non-priority sector has always been higher than the priority sector.
- Highest advances were provided by State Bank of India, Indian Bank and Bank of Baroda. Union Bank of India had higher level of NPA, followed by State Bank of India and Indian Bank.
- Many associates of the State bank of India had recently merged with itself, due to which the overall level of NPA might have increased in the surviving bank. At the same time the CAGR in NPA for Union Bank of India may highlight that its loan appraisal and recovery mechanism were not so robust. Other reason may be attributed to the merger of Corporation Bank and Andhra Bank with Union Bank of India, which might have increased the amount of NPA in the existing bank.
- In the case of private sector bank highest advances were provided by RBL, followed by Kotak Mahindra Bank, and Axis Bank. The highest level of NPA was for Kotak Mahindra bank, followed by IDBI Bank and Axis Bank.
- In the public sector banks and private sector banks, no such pattern of highest advances and highest NPA was noted.
- Central Bank of India had highest 16.55% of Gross NPA to Gross Advances ratio, which was followed by 14.12% for Punjab National Bank; 13.77%.
- The highest Gross NPA to Gross Advances ratio was noted for Lakshmi Vilas Bank, followed by IDBI Bank at 22.37%.
- In the case of the public sector banks on the Y-O-Y basis GNPA as a percentage of total NPA was highest in the non-priority sector. The percentage of GNPA in the non-priority sector was more than 50%.
- The percentage of GNPA in the non-priority sector in the year 2017 was as high as 82% for both the SBI group banks and the private sector banks. In the same year the GNPA percentage in the public sector banks (76%), and nationalized banks (74%) was almost same, with a marginal difference of two percent.

- The profits of the banks were severely impacted by the GNPA occurring in the non-priority sector.

**Table 5-1 Major Findings from the Testing Of the Hypothesis For Part I**

Null Hypothesis	Test Administered	Statistical Significance	Outcome
There is no significant difference between the mean scores of Gross Advances and Net Advances across various categories of public sector banks, private sector banks, foreign banks, and small finance banks.	Welch Test	Significant	Mean gross advance and the net advance was highest for the public sector banks, which indicated that public sector banks provided loans of higher amount when compared to the private sector banks, old private sector banks, foreign banks and small finance banks. The private sector banks catered to the more customers, whereas the public sector on an average provided large amount of loans to the customers.
There is no significant difference between the mean scores of Gross NPAs and Net NPAs across various categories of public sector banks, private sector banks, and foreign banks.	Welch Test	Significant	Mean gross NPA and the net NPA was highest for the public sector banks, which indicated that public sector banks had higher level of gross as well as net NPAs, when compared to the private sector banks, and foreign banks. Private banks and foreign banks usually do not feel the heat of the interferences, and, hence try to ensure that loans do not turn bad, asset valuation is properly conducted and also take stringent actions for recovery of the loan
There is no correlation between Gross Advances (Net Advances) and Gross NPAs (Net NPAs).	Pearson Correlation Test	Significant	The r value is greater than +0.70, which further indicates that the relationship is positive and strong. The phenomena of NPA arises only when the banks provide the loans or advances. Thus, for banks, if the level of advances rises the threat of NPAs also rise.
There is no significant difference between the mean scores of additions in NPA amount across various categories of public sector banks, private sector banks, and foreign banks.	Welch Test	Significant	Mean additions in NPA was highest for the public sector banks, which indicated that public sector banks had increase in the NPA on Y-O-Y basis. Over the 11 years period the CAGR in NPA additions was 15.30%, 25.28% and 12.46% for public, private and foreign banks respectively.
There is no significant difference between the mean scores of reductions	Welch Test	Significant	The mean reductions in NPA was highest for the public sector banks. The average reductions in NPA for public sector banks was Rs.78,481 Cr. The

<b>Null Hypothesis</b>	<b>Test Administered</b>	<b>Statistical Significance</b>	<b>Outcome</b>
in NPA amount across various categories of public sector banks, private sector banks, and foreign banks.			reduction in NPA for private sector and foreign banks were Rs. 22,764 Cr and Rs.3,465 Cr respectively. In the 11 years period, the reduction in NPA was 6.56%, 19.55%, and 1.45% for public, private and foreign banks respectively.
There is no significant difference between the mean scores of write-offs of NPA amounts across various categories of public sector banks, private sector banks, and foreign banks.	Welch Test	Significant	The average write-offs in NPA for public sector banks was Rs.76,964 Cr. The write-offs in NPA for the private sector and foreign banks were Rs. 23,542 Cr and Rs.2,10,9 Cr respectively. 32.86%, 36.20%, and 40.60% was the CAGR in write-offs of NPAs in public, private and foreign banks respectively.
There is no correlation between Gross Additions in NPA and Gross Reductions in NPA.	Pearson Correlation Test	Significant	When a borrower does not pay the loan it results in NPA and this amount accumulates on a Y-O-Y basis, because the banks provide new loans every year, and out of the loans provided there tend to be NPAs in some cases. When a borrower pays the amount or bank provides refinance the amount of NPAs reduces. If the banks conduct strict follow-ups the NPA accounts of the borrower results in the receipt of the payment. Thus, NPA reduces if the payments are received from the borrowers.
There is no correlation between Gross Additions in NPA and Gross Write-Offs of NPA.	Pearson Correlation Test	Significant	The additions to NPA occur every year, likewise, write-offs also take place every year. Banks carry out write-offs to clean up their books of accounts.
There is no correlation between Gross Reductions in NPA and Gross Write-Offs of NPA	Pearson Correlation Test	Significant	If the borrower pays the money, the NPA reduces and there is no necessity for the banks to write off.
Time is not a significant predictor of NPA.	Regression Test	Significant	The R-Square and Adjusted R-Square is 22%. The variation in Net NPA is explained to the extent of 22% by time. The beta is 1861.67, with t-value (7.76) indicates a positive trend across the years used in the study. As the time rises, the level of NPA also rises.

<b>Null Hypothesis</b>	<b>Test Administered</b>	<b>Statistical Significance</b>	<b>Outcome</b>
The mean scores of the priority sector's NPA and the non-priority sector's NPA do not significantly differ.	Independent T-Test	Significant	The average NPA amount in priority sector lending was Rs. 1,36,889.82 Cr, with a SD of Rs. 75,598.94 Cr. The average NPA amount in non-priority sector lending was Rs. 3,18,786.73 Cr with a SD of Rs.2,27,110.10 Cr.
There is no significant difference between the mean scores of Gross NPA amounts across various categories of public sector banks, private sector banks, foreign banks, and small finance banks.	ANOVA Test	Significant	There existed a significant difference in the Gross NPA between the public sector bank and private sector bank, between the public sector bank and the foreign bank, and also between the public sector bank and the small finance bank. There was no difference in the Gross NPA between foreign banks and small finance banks. There was no significant difference between the Gross NPA of small finance banks and foreign banks. The difference in Gross NPA was significant for the private sector banks and the public sector banks
There is no significant difference between the mean scores of Net NPA amounts across various categories of public sector banks, private sector banks, foreign banks, and small finance banks.	Welch Test	Significant	There existed a significant difference in the Net NPA between the public sector bank and private sector bank, between the public sector bank and the foreign bank, and also between the public sector bank and the small finance bank. There was no difference in the Net NPA between foreign banks and small finance banks.
There is no correlation between Interest Income and Gross NPA.	Pearson Correlation	Significant, Not Significant for foreign banks	The level of Gross NPA rises the interest income also rises. Such a phenomena is noticed because, the banks take time to write-off the NPA. Banks estimate the interest income on the loans it had provided, even if the borrower fails to regularly pay the interest amount. Due to cumulative effect the interest portion increases. Till the NPAs are written-off from the books of accounts, it also rises on a cumulative basis every year. Thus, a positive relationship is noted between the two. The r value is greater than +0.70 in all the cases, which further indicates that the relationship is positive and strong. There exists no correlation
There is no correlation between Interest Income and Gross NPA of Public Sector Banks.	Pearson Correlation	Significant	
There is no correlation between Interest Income and Gross NPA of Private Sector Banks.	Pearson Correlation	Significant	

<b>Null Hypothesis</b>	<b>Test Administered</b>	<b>Statistical Significance</b>	<b>Outcome</b>
			between interest income and the Gross NPA of the foreign banks.
Time is not a significant predictor of Gross NPA to Interest Income Ratio.	Regression Test	Significant	The Adjusted R-Square is 20%, which means the variation in Gross NPA to Interest Income ratio is explained to the extent of 20% by time. The beta indicates a positive trend across the years used in the study. As the time rises, the level of Gross NPA to Interest Income ratio also rises.
The mean scores of the priority sector's Gross Advances and the non-priority sector's Gross Advances do not significantly differ.	Independent T-Test	Significant	The lending to non-priority sector was more than the priority sector. The average Gross Advances amount in priority sector lending was Rs. 9,49,566.47 Cr, with a SD of Rs. 5,47,731.39 Cr. The average Gross Advances amount in non-priority sector lending was Rs. 18,01,645.80 Cr with a SD of Rs.8,92,607.42 Cr.
The mean scores of the priority sector's Gross NPA and the non-priority sector's Gross NPA do not significantly differ.	Independent T-Test	Significant	The Gross NPA in non-priority sector was more than the priority sector. The average Gross NPA amount in priority sector lending was Rs. 54,311.83 Cr, with a SD of Rs.45,428.32 Cr. The average Gross NPA amount in non-priority sector lending was Rs. 1,33,361.08 Cr with a SD of Rs.1,34,695.09Cr.
There is no correlation between Gross Advances and Gross NPA in Priority Sector Lending.	Pearson Correlation	Significant	As the level of Gross Advances rises the Gross NPA also rises in the both the cases of lending i.e. the priority sector and the non-priority sector. It indicates that as the advances rises the risk of NPA also rises. As noted in the literature, the risk of rise in the NPA may be attributed either to the macro-economic depressed factors or to the personal reasons of the borrowers.
There is no significant difference between the mean scores of Gross Advances across various categories of public sector banks, nationalized banks,	Welch Test	Significant	The Gross Advances amongst different categories of the banks were statistically significant. The difference of Gross Advances was not statistically significant between public sector banks and nationalized banks. The same was the case with the Gross Advances between private sector banks and the SBI group banks.

Null Hypothesis	Test Administered	Statistical Significance	Outcome
SBI group banks and private sector banks.			
There is no significant difference between the mean scores of Gross NPA across various categories of public sector banks, nationalized banks, SBI group banks and private sector banks.	Welch Test	Significant	The Gross NPA amongst different categories of the banks were not statistically significant. The statistically significant difference in the Gross NPA was between the public sector banks and private sector banks; between nationalized banks and private sector banks; between SBI Group banks and private sector banks, and between SBI Group banks and Nationalized banks.
The mean scores of the priority sector's GNPA (%) and the non-priority sector's GNPA (%) do not significantly differ.	Independent Sample T-Test	Significant	The average GNPA percent in priority sector was 30%, with a SD of 8.28%. The average GNPA percent in non-priority sector was 69% with a SD of 8.28%. There is a significant difference in the mean score of the priority sector GNPA percent and non-priority sector GNPA percent.

(Source: Researcher's Analysis)

## 5.2 Comparison Of The Tools Of NPA Resolution Of Indian Banks

- The total number of cases referred in the year 2012 across the three categories of resolution mechanism namely the Lok Adalat, DRT, and SARFAESI were 10,44,636, which kept on increasing till the year 2015 for all the three categories.
- In the year 2017, a fourth resolution tool of IBC was also referred for recovery. Post 2016, it was a mixed trend of increase then decrease in the number of cases. In the year 2021 the number of cases were 20,35,299.
- A CAGR of 6.90% was noted in the number of cases. The highest number of cases increased by 78% in the year 2013. In the year 2021, highest decline of 67% cases was noted.
- The number of cases increased due to strict monitoring mechanism adopted by IBC.
- The total amount of NPA involved in the year 2012 for all the three verticals of Lok Adalat, DRT and SARFAESI were Rs.1,05,700 Cr. Higher amount of NPA at Rs.7,25,996 Cr was noted in the year 2019 for all three verticals, plus the fourth one i.e., IBC.
- The banks had large amount of stressed assets, due to which the amount of NPA was highest.

- A CAGR of 15.74% was noted in the amount being referred to NPA over a period of 10 years. A sharp decline in the NPA amount was noted in the year 2021 due to the implementation of various types of recognition, recapitalization, and resolution reforms declared by the government.
- During the year 2017-18, IBC based on the stringent guidelines from RBI, pressurized commercial banks for compulsory reporting of NPA, due to which the whooping increase in the NPA was noted in the year 2019.
- 10.67% CAGR was noted in the period of ten years in terms of the recovery of the NPA amount.
- The recovery rate increased in the year 2019, because IBC pressurized commercial banks to reveal the NPA. The commercial banks, in order to portray themselves as very good administrator, good bankers, with good type of loan books, timely did the follow-up and recovered the money which were treated as NPA from the clients. Thus, there was a huge recovery of NPA amount in the year 2019.
- The recovery in the year 2020 and 2021 was not so huge, because as per the RBI directives, a moratorium period on all loans were declared by the commercial banks, and it was voluntary for the borrower to exercise the option or not. This move was made by RBI on account of rampant COVID pandemic in the year 2019 and 2020.
- The pandemic had depressed the revenues of many borrowers, due to which they were not able to pay their Equated Monthly Instalment (EMIs) on timely basis. RBI supported the borrowers, with the voluntary moratorium scheme, so that borrowers get some time till the things becomes normal.
- In the tenure of 10 years, the amount involved in NPA on an average was Rs.98,870 Cr.
- The maximum amount involved in NPA was Rs.2,68,413 Cr. The average amount recovered was Rs.15,748 Cr in the duration of 10 years.
- The average percentage of amount recovered to amount involved was 16%. On an average 39% was the maximum amount recovered to the total amount recoverable.
- The highest recovery as a percentage of amount recoverable was as high as 22% in the year 2012 and 2020.
- The percentage of average amount recovered to amount recoverable was 18% in the year 2013, followed by 16% in 2019; 15% in the year 2018; 14% each in the year 2017 and 2021, and 10% each in the year 2015 and 2016.

- In Lok Adalat, the percentage of amount recovered to the amount recoverable was just five percentage, over the span of ten years.
- In DRT, the percentage of amount recovered to the amount recoverable was seven percent.
- The percentage of amount recovered to the amount recoverable was 19%, over the span of ten years, under SARFAESI.
- For IBC, the percentage of amount recovered to the amount recoverable was 39%, over the span of five years.
- Based on the short-period of five years IBC channel had outperformed other three channels, with the maximum recovery rate of 39%.
- In Lok Adalat, the maximum number of cases that were referred was 59,86,790. The CAGR in the number of cases were 8.77%. The CAGR in the growth of the amount recoverable was 15.58%. The CAGR in the recovery was 10.84%.
- In Lok Adalat, the number of cases being referred were decreasing. The amount involved in recovery was increasing, but the amount being recovered was decreasing, which is a worrisome thing.
- In DRT, the CAGR for number of cases were 7.71%. 21.94% CAGR was noted in the growth of the amount to be recoverable under DRT. A CAGR of 6.31% was noted in the amount recovered, over a period of ten-years.
- A negative CAGR of -11.32% indicated that the number of cases referred to SARFAESI were gradually declining. A CAGR of -0.09%; indicated that there was a marginal decline in the amount to be recovered over a period of ten-years. A CAGR of 4.11% was noted in the recovery of the amount under SARFAESI mechanism.
- The CAGR in the number of cases was reducing, the amount involved in the recovery had marginally decreased and the amount recovered had increased, which means the SARFAESI mechanism was quite successful.
- In IBC, a negative CAGR of -5.27% was noted in the number of cases over a period of four years, indicating that the number of cases had declined in the four years period. A CAGR of 92.07% indicated that amount to be recovered had increased drastically over a period of four year. There was a CAGR increase of 53.45% in the amount of recovery over a period of four years.
- The highest recovery was made by IBC when compared with the mechanism of recovery.

- Over a period of ten years, first rank was achieved by Lok Adalat i.e. the highest number of cases were referred to Lok Adalat. At the second position, the SARFAESI mechanism had the next highest level of cases being referred. Consistently, DRT was at the third position in terms of the number of cases being referred. IBC was at the fourth position with respect to the number of cases being referred.
- Consecutively for the period of six years, the cases under DRT had highest amount due to be recovered.
- Highest level of recoverable amount was not noted in Lok Adalat. Amount recoverable under IBC was highest in the year 2020, which turned to the second position in the year 2021. In the year 2021, highest amount recoverable due to NPA was reported under SARFAESI mechanism, followed by IBC, then DRT, and lastly Lok Adalat.
- During the period of ten years, in the seven years SARFAESI mechanism was at the first position for the recovery of the amount. In the year 2021, it was observed that highest amount was collected through SARFAESI, followed by IBC, DRT, and lastly Lok Adalat.
- Highest number of cases were reported under Lok Adalat. Highest recoverable amount was reported under SARFAESI, and Highest amount was recovered by DRT.
- Lok Adalat is the easiest and cost-effective option to recover the unsecured loans of up to Rs.20 lakh.
- The highest recoverable amount was filed under SARFAESI. The NPA on secured loans on fixed assets, on which the mortgage charge is created, is easy to recover through the SARFAESI. If the banks while providing the loans, have taken a collateral of a value, higher than the loan amount, then bankers can easily recover the NPA amount by selling the collateral. SARFAESI is an internal instrument of banks, which provides it with the veto to recover the NPA amount without the interference of the court of law and realize the money on quick basis.
- The highest amount of NPA recovery was noted under SARFAESI, which would be recovered through the sale of the high value collateral asset.
- DRT is a less costly process, in which the bank routes the application the court of law, to initiate the process of recovery. Banks generally, prefer the DRT route when the value of the collateral is less against the loan amount offered. In the analysis it was noted that highest amount was recovered through DRT route.

- The RP tries to resolve the monetary issue in the company in the period of 180 days, either, by restructuring the loan of the company, or bring the company back to the running condition, eventually for the sales.
- NPA cases of up to Rs.10 lakh were referred under IBC, the limit has been recently revised to Rs.1Cr.
- The highest success recovery rate was 48% in the year 2012. Lowest recovery success rate was in the year 2016 at 14%. More than 20% recovery rate was noted in the year 2013, 2014, 2017, 2018, 2019 and 2020.
- The amount as high as Rs.1,52,597 Cr was recovered across all four channels in the year 2020.
- As per 2021 data, the recovery happening through Lok Adalat drastically decreased to two percent from the highest 14%. 43% each was the recovery percentage for IBC, and SARFAESI (the next best alternative for NPA resolution). As per 2021 computed percentage, the recovery statistics just stood at 13%. SARFAESI and IBC tools of NPA resolution, were at par.
- As high as 41% amount was recovered through SARFAESI, and 20% was through IBC. In the period of ten years, seven times the highest recovery happened through SARFAESI. Three times highest recovery happened through IBC. Thus, SARFAESI, and IBC may be treated as the best tool for recovery of NPA.
- Highest recovery rate of 22% was noted for 2012 and 2020. The recovery rate across ten years period was in double digit.

**Table 5-2 Major Findings from the Testing Of the Hypothesis For Part II**

Null Hypothesis	Test Administered	Statistical Significance	Outcome
There is no significant difference between the mean scores on number of cases across various categories of recovery channels i.e. Lok Adalat, DRTs, SARFAESI and IBC.	Welch Test	Significant	The cases being referred to all the four different types of channels were statistically significant, and the difference was not by chance.
There is no significant difference between the mean scores on NPA amount recoverable across various categories of recovery channels i.e. Lok	Welch Test	Significant	The amount of NPA recovery was statistically significant between Lok Adalat and SARFAESI. The statistical significance indicated that the difference was not by chance.

Null Hypothesis	Test Administered	Statistical Significance	Outcome
Adalat, DRTs, SARFAESI and IBC.			
There is no significant difference between the mean scores on NPA Amount Recovered across various categories of recovery channels i.e. Lok Adalat, DRTs, SARFAESI and IBC.	Welch Test	Significant	There was no statistically significant difference in the amount recovered between IBC and other three recovery channels. The statistically significant difference was not by chance.
There is no correlation between NPA Recoverable Amount and NPA Amount Recovered.	Pearson Correlation Test	Significant	The r value is greater than +0.50, which further indicates that the relationship is positive and moderate. The phenomena of NPA recovery occurs when the account had become NPA. If NPA rises, banks make an attempt to recover the money from the borrower, so that their profits do not get suppressed. Thus, banks put all mechanism in place to recover the NPA amount from the borrowers. Banks use different channels of recovery, based on the NPA amount and the type of loan provided, to recover the money from the borrowers.

(Source: Researcher's Analysis )

### 5.3 Opinion Of RPs And Bankers

- 89% respondents were males and 11% were females. Money recovery work involves mental and physical stress, one needs to visit the clients place very often for recovery, needs do constant follow-up etc. The cases of recovery are hard to deal with, so fairer gender might have purposely kept away from such career options.
- 48% respondents were from Ahmedabad; 34% respondents were from Vadodara, and 18% respondents were from Surat. Major regions of Gujarat i.e. North-Central, East-Central, and South Gujarat were included in the study. An effort was made to check if the RPs based at different locations, significantly differed in their opinion or not.
- 48% respondents were bankers, 28% were Chartered Accountant (CAs), 12% were Company Secretary (CS), seven percent were Cost Accountants and five percent were Advocates. The researcher tried to cover all the stakeholders who are involved in the recovery process, to elicit the information on the pre-stated objectives.

- 52% respondents worked exclusively as RPs, and 48% respondents were bankers.
- 57% respondents had experience between 10 to 20 years; 31% respondents had experience between 20 to 30 years, and 12% respondents had experience above 30 years. All the respondents possessed the experience in double digit.
- At the entrance level the number of females were more, but spending the same time equivalent to the males in the industry was absent amongst females.
- More number of males were active in the banking industry.
- Highest number of bankers were spread across the experience level of up to 20 years; up to 30 years and above 30 years.
- RPs and bankers firstly perceived that assessment of different types of credit risk would reduce the chances of NPA. Secondly, the emphasis was levied on the usage of MIS management of NPA and recovery reviews. Lastly, the importance was provided to the support from government bodies in the recovery of dues.
- The main factors identified from the research were causes and detection of NPA, recovery assistance, and deficiency in NPA management.
- RPs and Bankers preferred IBC (90<sup>th</sup> percentile rank); SARFAESI (70<sup>th</sup> percentile rank); DRTs (50<sup>th</sup> percentile rank) and Lok Adalat (30<sup>th</sup> percentile rank) in terms of NPA resolution mechanism.
- Bankers and RPs highly preferred Lok Adalat for recovery time; SARFAESI was highly preferred for its cost-effective tool; DRT was the important tool supported by the authority; and IBC was preferred for the large amount of loan.
- The feature which was ranked at the second position was cost-effectiveness of Lok Adalat; Recovery time of SARFAESI and DRT; and IBC was looked upon as the best tool to recover money in case of wilful defaulter.
- At the third position, Lok Adalat was looked upon as supported by authority; SARFAESI was favoured to recover money against the secured loans; DRT was favoured to collect unsecured loans; and IBC was favoured for its short recovery time feature.

**Table 5-3 Major Findings from the Testing Of the Hypothesis For Part III**

Null Hypothesis	Test Administered	Statistical Significance	Outcome
Males and females do not significantly differ in the mean ranks on the causes and detection of NPA, deficiency in NPA	Mann-Whitney U Test	Not Significant	Males and females share the same opinion on detection of NPA, deficiency in NPA management, and recovery

<b>Null Hypothesis</b>	<b>Test Administered</b>	<b>Statistical Significance</b>	<b>Outcome</b>
management, and recovery assistance.			assistance. The procedure for NPA detection to recovery is standardized.
CAs, CSs, Cost Accountant, Advocate, and Banker do not significantly differ in the mean ranks on the causes and detection of NPA, deficiency in NPA management, and recovery assistance.	Kruskal Wallis Test	Not Significant	The benchmark procedure is followed to treat the borrower's account as NPA. There is an agreement on the fact that bad loans cannot be recovered quickly, and the lack of trained staff fails to appraise the loan proposal correctly. A similar set of problems are encountered in detecting NPAs. The recovery issues faced are also similar.
The low level, mediocre level, and high level experienced do not significantly differ in the mean ranks on the causes and detection of NPA, deficiency in NPA management, and recovery assistance.	Kruskal Wallis Test	Not Significant	
Males and females do not significantly differ in the mean ranks on Lok Adalat, DRTs, SARFAESI, and IBC.	Mann-Whitney U Test	Not Significant	Banks are more concerned with the recovery of the NPA amount, irrespective of the channel of the recovery.
CAs, CSs, Cost Accountant, Advocate, and Banker do not significantly differ in the mean ranks on the NPA resolution tools.	Kruskal Wallis Test	Not Significant, Significant* (SARFAESI)	Banker do not significantly differ in their opinion on the NPA resolution tools. The professionals significantly differed in their opinion on NPA resolution. Advocates feel that SARFAESI is more important tool in NPA resolution.
The low level, mediocre level, and high level experienced do not significantly differ in the mean ranks of NPA resolution tools	Kruskal Wallis Test	Not Significant	The opinion of the bankers are identical when it comes to recovery of the money from whatsoever tool applied.
Males and females do not significantly differ in the mean ranks on NPA resolution process through Lok Adalat.	Mann-Whitney U Test	Not Significant	Males and females are aware that a predefined steps are to be followed if the case is taken to Lok Adalat for resolution and recovery of NPA.
CAs, CSs, Cost Accountant, Advocate, and Banker do not significantly differ in the mean ranks on the NPA resolution process used in Lok Adalat.	Kruskal Wallis Test	Not Significant	All the professionals are aware about the process of Lok Adalat.
The low level, mediocre level, and high level experienced do not significantly differ in the mean	Kruskal Wallis Test	Not Significant	Freshers and experienced are aware that the set process has

<b>Null Hypothesis</b>	<b>Test Administered</b>	<b>Statistical Significance</b>	<b>Outcome</b>
ranks of NPA resolution process used in Lok Adalat.			to be followed to resolve the case through Lok Adalat.
Males and females do not significantly differ in the mean ranks on NPA resolution process through SARFAESI.	Mann-Whitney U Test	Not Significant	Males and females are aware that a predefined steps are to be followed if the case is taken to SARFAESI for resolution and recovery of NPA.
CAs, CSs, Cost Accountant, Advocate, and Banker do not significantly differ in the mean ranks on the NPA resolution process used in SARFAESI	Kruskal Wallis Test	Not Significant	All the professionals are aware about the process of SARFAESI.
The low level, mediocre level, and high level experienced do not significantly differ in the mean ranks of NPA resolution process used in SARFAESI.	Kruskal Wallis Test	Not Significant	Freshers and experienced are aware that the set process has to be followed to resolve the case through SARFAESI.
Males and females do not significantly differ in the mean ranks on NPA resolution process through DRT.	Mann-Whitney U Test	Not Significant, Significant (Large Loan Amount)	Males and females significantly differed in their opinion on NPA resolution of large loan amount under DRT. For the rest of the things they had a common understanding.
CAs, CSs, Cost Accountant, Advocate, and Banker do not significantly differ in the mean ranks on the NPA resolution process used in DRT.	Kruskal Wallis Test	Not Significant, Significant (Cost-Effective Tool)	CAs, CSs, Cost Accountant, Advocate, and Banker do not significantly differ in their opinion on the process of NPA resolution used in the DRT. The professionals significantly differed in the opinion on DRT being the cost-effective tool under NPA resolution.
The low level, mediocre level, and high level experienced do not significantly differ in the mean ranks of NPA resolution process used in DRT.	Kruskal Wallis Test	Not Significant	The highly experienced and less experienced officers involved in the recovery process were aware about the resolution process used in DRT.
Males and females do not significantly differ in the mean ranks on NPA resolution process through IBC.	Mann-Whitney U Test	Not Significant	The process followed by IBC to resolve the cases were clearly understood by the males and females.
CAs, CSs, Cost Accountant, Advocate, and Banker do not significantly differ in the mean ranks on the NPA resolution process used in IBC.	Kruskal Wallis Test	Not Significant, Significant (Secured Loans)	The CAs, CSs, Cost Accountant, Advocate, and Banker do not significantly differ in their opinion on the process of NPA resolution used

Null Hypothesis	Test Administered	Statistical Significance	Outcome
			in the IBC. The professionals significantly differed in their opinion on the IBC resolution process being used for the recovery of secured loans.
The low level, mediocre level, and high level experienced do not significantly differ in the mean ranks of NPA resolution process used in IBC.	Kruskal Wallis Test	Not Significant	The NPA resolution process adopted by IBC was not treated differently by the respondents.

**(Source: Researcher's Analysis)**

#### **5.4 NPA Cases in Gujarat**

The findings were further divided into cases where the NPA amount was recovered and where the NPA amount was not recovered.

##### **NPA Amount Recovered**

- 50% of the NPA resolution mechanism was initiated by FC; 48% of the NPA cases were initiated by OC, and as low as only two percent NPA resolution mechanism was initiated by the corporate debtor itself. The trigger for the NPA resolution may be triggered by any of the initiator.
- 65% cases referred to NCLT were not defunct and 35% cases were defunct. The defunct cases implies that the companies were merged, so it was not in existence. Not Defunct companies were still in the working condition.
- On an average 521 days were taken to approve the resolution process.
- The fastest approval for resolution was provided in 191 days and the longest time taken for approving the process of resolution was 888 days. After proper scrutiny only the resolution process gets initiated.
- The average amount of claims admitted by FC was Rs.2,041.68 Cr. The average claim admitted was Rs.191.59Cr.
- The consolidated claim admitted was Rs.2,213.31 Cr, the median claim was Rs.91.06Cr; the SD was Rs.8,914.67 Cr; minimum claim amount was Rs.1.12Cr, and the maximum claim amount was Rs.54,565.22Cr.
- Essar Steel India Ltd had the highest claim admitted of Rs.54,565.22Cr, next was Alok industries with the claim admitted of Rs.30,706.69 Cr. Korba West Power Company Ltd's claim admission was Rs.5,143.61 Cr, Pradip Overseas Ltd had a claim admission of Rs.2,663.25 Cr and Garden Silk Mills Ltd had a claim admission of Rs.2,603.01Cr.

- From the claims admitted by FCs the highest amount was realized from Essar Steel India Limited Rs. 41,017.71 Cr; which was followed by Alok Industries Ltd Rs.5,052 Cr, and Korba West Power Company Limited Rs.1,166.61 Cr. From the claims admitted by OCs the highest amount was realized from Essar Steel India Limited Rs. 1,214.07Cr; which was followed by Korba West Power Company Limited Rs.104.28 Cr., and Rainbow Papers Ltd Rs.66.36 Cr.
- The average realizable amount by FC was Rs.1,035.34 Cr. The average amount realizable by OCs was Rs.37.26 Cr.
- In the case of Jaihind Infra Tech Projects Private Ltd, no amount was recovered. In the case of Nijinoy Trading Private Ltd, 99% recovery was not availed. In the case of The Dhar Textile Mills Limited 97% amount was not recovered.
- Shakti Nutraceuticals Private Limited paid six percent more than the admitted claim. It may be inferred that when the OTS is worked out, the borrower has to repay the money in the fixed time-limit, if the deadline is crossed then the bank charges interest or penal interest, as a consequence the realizable amount increases.
- In three cases namely Aum Structbuild Private Limited, Sadbhav Enterprise Private Limited, and Polygold Pre-Cured Systems Private Limited the recovery was full up to 100%.
- With respect to the case initiated by OCs in Kalptaru Alloys Private Limited the recoverable amount was Rs.1.90 Cr against the claim amount of Rs. 0.03Cr. Arya Filaments Private Limited had to pay Rs.0.23 Cr, against which it paid Rs.0.79 Cr.
- A drastic increase in percentage exceeding three digits were noted in the deals initiated by OCs, which would have fluctuated.

#### **NPA Amount Not Recovered**

- 48% OCs initiated the resolution process, followed by 36% were by FC, and only 16% were by the CD. The resolution process triggers with the initiation of cases.
- 86% cases were defunct, and only 14% cases were non-defunct. In either of the cases the money was not realized by banks. The defunct cases represented that the company was winded up. The non-defunct cases represented that the company had operationally stopped working, and the process of the winding up was in continuation.
- On an average it took 387 days to initiate the process. A minimum and maximum of 52 days and 1,334 days, respectively, were taken to kick-start the process of liquidation. Thus, a range of 1,282 days may be fixed to initiate the liquidation process.

- The amount of average claim admitted to FCs was Rs.501.12 Cr. The value of the mean claim amount admitted via OC was Rs.41.71Cr. The consolidated average claim admitted was Rs.481.14 Cr, with the median value of Rs.23.33 Cr, and the SD of Rs.1,928.58 Cr.
- The highest claim was admitted for ABG Shipyard Ltd for Rs.19316.68Cr; followed by PSL Limited at Rs.9,133.48 Cr; Winsome Diamonds and Jewellery Limited at Rs.8,310.51Cr; Kohinoor Diamonds Private Limited at Rs.8,304.46Cr, and K.S. Oils Limited at Rs.6,257.42 Cr.
- RPs received as high as five bids for Gujarat Foils Limited; three bids were received for Vimal Oil & Foods Ltd, Shreem Spa & Resorts Limited and Safal Securities Limited. For Pooja Tex-Prints Private Limited, Sandhya Prakash Limited, Mekaster Engineering Limited, Bhatia Global Trading Limited, Rutika Creations Private Limited, and Kapil Steels Ltd the RPs received two bids. For rest of the companies in the dataset of 43 companies, only one bid was received.
- The total higher resolution value proposed was Rs. 6,397.20 Cr. The average highest resolution value proposed was Rs. 236.93 Cr. with a SD as high as Rs.904.86Cr.

**Table 5-4 Major Findings from the Testing Of the Hypothesis For Part IV**

Null Hypothesis	Test Administered	Statistical Significance	Outcome
Financial Creditor and Operational Creditor do not significantly differ in the mean ranks on total claims admitted.	Mann-Whitney U Test	Not Significant	The FCs and OCs did not significantly differ in the value of total claim admitted, liquidation value, and total realizable value. The RPs and Bankers work as per the guidelines, for admitting the NPA claim, and also its recovery.
Financial Creditor and Operational Creditor do not significantly differ in the mean ranks on liquidation value.	Mann-Whitney U Test	Not Significant	
Financial Creditor and Operational Creditor do not significantly differ in the mean ranks on total realizable value.	Mann-Whitney U Test	Not Significant	
Financial Creditor and Operational Creditor do not significantly differ in the mean ranks on total claims admitted.	Mann-Whitney U Test	Significant	The FCs and OCs did significantly differ in the value of total claim admitted. The process of liquidation takes time and hence FC and OC are aware for the same.

(Source: Researcher's Analysis)

## **5.5 Suggestions And Research Utility**

The existing recovery ecosystem is fairly well diversified and is currently used for resolving NPA issues. This ecosystem has been gradually strengthened by a slew of effective regulatory measures to ensure a swift resolution of stressed assets.

Some of the important suggestions for improving the system are given below :

- First and most important while on boarding new clients the banks should carefully go through a financial assessment, for proper assessment. Any manipulations in the financial statements, if detected at the early stage, will save the banks from not lending to the client with poor financials.
- Banks fail to take immediate time-bound rectification action in spite if it observes the financial non-viability, and detection of weaknesses in accounts. Application of proper Management Information System (MIS) system in banks would help the banks to identify the poor account quickly.
- Banks should periodically make credit calls, undertake periodic visit and review the NPAs cases, such actions would help the banks to avoid NPAs before it becomes a serious issue.
- The individual's past borrowing history and Credit Information Bureau India Ltd (CIBIL) Score must be checked before lending the company to his or her venture. If the borrower had failed earlier, then there exists a high probability of his failure in the coming time too.
- Financial institutes need to update and strengthen their internal controls and credit risk management systems to enhance the quality of their loan portfolio. Regularly update the credit appraisal system as per Business Risk, Industry Risk, and Project Risk parameter changes.
- Various government bodies like The Confederation of Indian Industry (CII), Federation of Indian Chambers of Commerce and Industry (FICCI), Federation of India Exporters Association (FIEO), Chambers of Commerce and Industry (CCI), needs to enhance more support to financial institutes and borrowers to recover their dues. Each default case is different hence joint efforts from expert groups would provide different solutions to recover the loss amount.
- RBI recently introduces a Pre-pack resolution plan, this is advisable then going through the insolvency process in case of early recognition of Special Mention Accounts (SMA).

- During the NPA recovery process the preference should be given to reviving the account instead of just winding it up.
- The Asset Reconstruction Companies (ARC) model for stressed assets has witnessed significant activity with banks off-loading their stressed assets to ARCs to clean up their balance sheets. Around 24 ARCs registered with RBI are currently operating in the market for stressed assets which needs to be increased.
- In India development of the secondary market for stressed assets for facilitating the creation of a pool of prospective buyers through an auction process which results in a market-determined price discovery mechanism has received high success. So such mechanism should be used for get rid-off the bad assets.
- RBI may set up a special court for just resolving the NPA cases on a fast-track basis.
- The bank officials lack the necessary training on appraising the projects which had requested the credit. The banks often relies on CAs for the appraisal. The internal stakeholders working in the bank such as Managers and Credit Appraisal Executives must be provided rigorous training to access the projects.
- Banks should time and again invest in the training of its employees during the induction or during the service period, so that the employees picks up the skill of in-depth project appraisal.
- In case of natural and genuine business failure, the banks should not be penalizing the entrepreneur, otherwise he or she would be demotivated to conduct the business.
- Banks should devise its own formats of key ratios and loan appraisal performa to scrutinize the loan proposals in the effective manner. Such formats should differ from one sector to the other.
- Banks with help of Psychologist must devise a psychological test, which can be used to test the borrowing and repaying intentions of the borrower and promoters of the company. Such test would help banks to identify the intentions behind the borrowing.
- Banks should strictly evaluate the 5 Cs namely the Character, Capacity, Capital, Collateral and Conditions of the borrower before providing the loan.
- The IBC and SARFAESI mechanism of NPA resolution should be used to the maximum for effective recovery of the amount.
- The legal system in India takes lot of time in resolving the NPA cases. Banks in consultation with the court must try to provide quick hearings and verdict on the

cases. As the time passes by the borrowers get an encouragement that nothing would happen to them. The gravity of the issue gets diluted, and instead of borrower becoming helpless, the banks become helpless, so this needs to be corrected.

- If the borrower at the sanction stage itself tries to provide a political reference, then banks should be alert that such borrowers would also try to use such reference in the non-payment of the money. Hence, banks can exercise a caution in not providing the loans to such borrowers. It is better to be cautious than to be sorry at a later stage.
- For the wilful defaulters there should be stringent punishments, such that it becomes a lesson for prospective wilful borrowers.
- An interview should be taken of the borrowers, to get a clarity on how he or she understands the business model, what are risk factors involved in the project, estimation of the cost of the product/service, working capital need assessment, profitability aspect etc, if the entrepreneur is clear on such crude concepts, then he would manage the business well and there would be less chances of financial crunch. This would help to recover the Equated Monthly Instalments (EMIs) on regular basis, and the threat of NPA may be removed.
- NPA cases and wilful defaulter history may be provided to the RBI. RBI may maintain the repository of the same. Banks before providing the loans may request RBI to share such data, so that the new banks do not fall in the trap of the borrower.
- Banks may provide handholding support to the entrepreneur who is honest, but unable to pay the loans due to the disruptions caused in the business because of the external macro unfavourable factors. Such genuine entrepreneurs must be supported and banks may help him to come back.
- The bank officials who sanction the bank loan for the borrower whose credit score was poor and whose psychological score also indicated his wilful default intentions, then such bank officials should be held responsible for providing loans to such cases, which was eventually likely to turn bad. The private properties of bank officials may be disposed off to recover the bad loans. Such illustrations, would automatically lead to strong credit appraisal and also stop the rampant corruption undertaken by the bank officials at the cost of the depositor's money.
- A bank branch with zero NPA should be provided recognition by the head office of that bank. The officials of such branch should be awarded with the medals and

excellence appraisal certificate to boost their morale of working in a proper way. Such examples would be a roadmap and also motivation for employees of other branches and banks to work in the cautious manner and avoid NPA.

- A case study on the same may be developed and shared with the other banks and branches of the same bank to get a good idea, on the modus operandi followed by the officials in practical appraisal of the project.
- Such case studies should be discussed in the subject of Banking or Credit appraisal, so that at the student-level itself, a practical feel of credit appraisal and strategies adopted by bankers may be discussed. Thus, the students may be sensitized and they practically learn the skills of project appraisal.
- In classes of accounts and banking the industry experts from the banks may be called to discuss the case on how the officials performed the credit appraisal and also what were the bold steps taken by them for recovery of the NPA amount.
- Student may be sensitized with the practical knowledge on Credit appraisal, NPA resolution mechanism and NPA recovery methodology.
- Students should also be provided the complete skills of project appraisal, so that when they get into the banking profession, they have the proper skills to appraise the projects and they do not lend up giving loan to the borrower who had produced manipulated accounts and might have a wilful intention. The basic understanding and interlinkage of liquidity ratios, solvency ratios, profitability ratios and turnover ratios must be strong amongst the students.
- The branch of Forensic Accounting may be used by the bankers by undertaking the surprise audit of the borrowers books of accounts to detect the fraudulent practices carried out by the borrower. Such sudden interventions by banks, would help them to sense the chances of fraud, and the banks may take proper steps before it is too late to recover the money.
- The student at the college level itself must be taught the lesson of ethics and responsibility of repaying the borrowed money, so that when they turn into entrepreneurs, they grow with the moral values of collective good and not the wilful default.
- If the politicians are involved in promoting the wilful default, then the help of Enforcement Directorate (ED) and Supreme court may be availed to recover the money from the politicians. Such bold steps are the need of the hour, to inculcate

the fear level in the politicians, so that they keep away from promoting the wilful default.

- The case study of the borrower who had paid the money despite the business was badly affected by the natural calamities or unfavourable macro conditions. Such stories of the genuine and ethical borrowers should be highlighted in the media such as newspapers, magazines, journals, website of the banks, in the RBI's database, so that the other borrowers may draw lessons from the same. The wilful repayments by the borrowers, by taking all possible pains to revamp the business should be highlighted. Such cases should also be discussed in the classroom. The prospective bankers should be taught the way of appreciating the ethical borrowers. A small appreciation acts as a big boost to motivate, change or continue with the behaviour of wilful repayment at any cost. Such initiatives may appear small in nature, but is big in impact.
- The time for initiating the resolution process and the actual sanction of the process is too long, this may be reduced, to have quick recovery of the money. The time-value of the money gets eroded, if it takes years to resolve the NPA cases. The administrative process must be speeded up for quick realization of the money.
- Fast track resolution and recovery mechanism should be adopted for NPA cases. Money delayed is money denied, and this sends a wrong message amongst the defaulters. So such practices should be avoided and the bankers and courts must become very active in resolving the NPA cases.

### **Research Utility**

This study will be useful to bankers for choosing an appropriate and effective NPA resolution mechanism. Adopting of proper NPA resolution mechanism would help the banks to recover the bad loans as soon as possible. The recovery of bad loans, would provide liquidity to the banks, and thereby increase their profitability of the banks. Bankers will be able to standardize the selection of proper tools, to address the recovery of NPAs. The research would suggest measures for strengthening the NPA recovery mechanism. This study will be helpful to the academicians, to practically discuss the significance of the tools for NPA resolution. Such research would act as a roadmap for conducting the research of banks' loan portfolio of retail loans.

## **5.6 Conclusion**

The rising level of NPA in the banks is an alarming situation for the economy. If the businesses are unable to pay the borrowed money the vicious circle of pain and sufferings start, in which the depositors lose faith in the banks, the people lose employment, there is a social unrest and the growth of the economy comes to a standstill. The level of NPA is directly proportional to the advances. If banks provide more loans, it faces the risk of higher NPA. Rising inflation and governance were the important reasons behind the rise of NPA. Public sector banks had higher level of NPA. Recent mergers in the public sector banks may be attributed to the concealment of NPA. Poor appraisal policy, political pressure, mandatory lending to the priority sector lending led to the issues of NPA. The ratio of Gross NPA to Gross Advances kept on rising for public as well as private sector banks. The year-on-year additions in NPA of the public sector banks was a serious issue. Private sector banks had larger increase in additions in NPA when compared to the public sector banks and the foreign banks. The write-off of NPA amount was highest in public sector banks, this was no sign of healthy growth. Private sector banks and foreign banks also carried out huge amount of write-off. NPA increased over a period of time. The NPA amount was more in non-priority sector lending when compared to the priority sector lending, which further indicates that the banks credit appraisal mechanism is faulty. Due to accrual concept adopted in writing books of accounts, banks estimate interest income on the NPA account on a yearly basis, but the recovery of the amount does not happen, thus a positive relationship was noted between Gross NPA and interest income. On a yearly basis the number of cases being referred to the NPA resolution mechanism was increasing. Lok Adalat was preferred for recovery of cases up to Rs.10 lakh. SARFAESI and IBC were looked upon as the best tool to recover NPA dues. IBC was very effective in the recovery of the NPA amount. Lok Adalat was DRT also assisted in good recovery of the NPA amount. SARFAESI is an internal instrument of banks, which provides it with the veto to recover the NPA amount without the interference of the court of law. Banks actively persuaded the recovery from borrowers. Banks used different channels of recovery, based on the NPA amount and the type of loan provided, to recover the money from the borrowers. Advocates preferred SARFAESI tool for NPA recovery. DRTs were preferred for recovery of large amount. DRT and Lok Adalat were considered as cost-effective tool. Bankers and RPs highly preferred Lok Adalat for its recovery time, SARFAESI was highly preferred for its cost-effective tool; DRT was the important tool supported by the authority; and IBC was preferred for the large amount of loan.

RPs and Bankers required a recovery assistance in terms of strict laws, IT infrastructure, sale of NPA assets etc. Bankers and RPs admitted that if the different types of risk were assessed

then the chances of NPA would be low. Political pressures and mandatory lending to selected sector was treated as the biggest cause of NPA. Bankers wished that there should be secondary market for bad loans, and the proper training to catch the loopholes during the appraisal was the need of the hour. The process time taken for NPA resolution was very long. Banks suffered losses when the realizable amount received was less than the actual admitted claim amount. The liquidation value was very low when compared to the total claim, thus banks would resort to last step of liquidation, if it does not recover any bids for revival of sick units. All banks would first try to recover money from the NPA account of the borrower, by motivating the borrower to avail the benefit of attractive one-time settlement scheme. Thus, the burning problem of NPAs must be addressed before the disbursement of the loan itself, so that the banks need not get into the hassle of lengthy process and recover a meagre amount against the outstanding dues. A safe and strict appraisal approach would be far better than the regret of providing a loan to the wrong client.

## Bibliography, References And Webography

- A Profile of Banks (2013). *Annual Report 2012-13*. Retrieved from <https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/APB30091213F.pdf>
- Abiola, I., & Olausi, A. S. (2014). The impact of credit risk management on the commercial banks performance in Nigeria. *International Journal of Management and sustainability*, 3(5), 295-306.<https://doi.org/10.18488/journal.11/2014.3.5/11.5.295.306>
- Adusei, C. (2018). Determinants of non-performing loans in the banking sector of Ghana between 1998 and 2013. *Asian Development Policy Review*, 6(3), 142-154. Retrieved on 2<sup>nd</sup> October from <https://archive.aessweb.com/index.php/5008/article/view/262>
- Agarwal, P., Arora, D., Kashiramka, S., & Jain, P. K. (2021). The Impact Of Non-Performing Assets On Bank Performance Under Basel Regime-Empirical Evidence From India. *Journal of Commerce & Accounting Research*, 10(3). 36-45
- Alamelumangai, R., & Sudha, B. (2019). Recovery of NPAs through Debt Recovery Channels in Indian Banks-An Analysis. *Restaurant Business*, 15(8), 245-254. Retrieved on 19<sup>th</sup> September 2022 from <http://rbjournal.org/index.php/rb>
- Al-Tamimi, H. Hussian, A. (2002). Risk management practices: an empirical analysis of the UAE commercial banks. *Finance India*, 16(3), 1045.
- Amin, A. S., Chernykh, L., & Imam, M. O. (2014). Resolution of bad loan problem: Bank-level evidence from a low-income country. *WCBT Faculty Publications*. 370. [https://digitalcommons.sacredheart.edu/wcob\\_fac/370](https://digitalcommons.sacredheart.edu/wcob_fac/370)
- Angel One (n.d.). NPA: Impact on Banking & Economy. Retrieved on 4<sup>th</sup> September 2022 from <https://www.angelone.in/knowledge-center/share-market/impact-of-npa-on-banking-and-economy>
- An-Shi, X., Li-huang, H., & Zhong-de, C. (2007, November). Research on multi-attribute auction based on rough set in non-performing asset disposal. In *2007 IEEE International Conference on Grey Systems and Intelligent Services* (pp. 910-914). IEEE. Retrieved on 18<sup>th</sup> September 2022 from <https://ijsrst.com/>
- Arora, A., & Kohli, H. K. (2015). Managing Risks in Banks via compliance of Basel Norms (A study of selected Private Sector Banks in India). Paper presented at National Conference on Recent Trends in Engineering, Sciences & Management. Retrieved on 31<sup>st</sup> August 2022 from [www.srcem.ac.in](http://www.srcem.ac.in)
- Arora, R. (2021). Driving excellence in credit risk management practices in commercial lending-an empirical analysis of Indian public sector banks. *International Journal of Business Continuity and Risk Management*, 11(1), 1-24. Retrieved from <https://www.inderscienceonline.com/doi/epdf/10.1504/IJBCRM.2021.113946>
- Arora, R., & Singh, A. (2014). Problems and obstacles in credit risk management in Indian public sector banks. *Annals of the University of Petroşani. Economics*, 14, 353-362.<https://www.upet.ro/annals/economics/pdf/2014/part1/Z.%20Arora-Singh.pdf>
- Attigeri, G., MM, M. P., & Pai, R. M. (2019). Framework to predict NPA/Willful defaults in corporate loans: a big data approach. *International Journal of Electrical & Computer Engineering*, 9(5), 3786-3797. DOI: 10.11591/ijece.v9i5.pp3786-3797
- Ayhan, H. (2011, July). *Non-Probability Sampling Survey Methods*. doi:10.1007/978-3-642-04898-2\_41
- Bad Loans Lowest. (2022, July 11). ET Now. Retrieved from <https://www.timesnownews.com/business-economy/economy/bad-loans-lowest-in-6-years-but-indias-npa-ratio-still-higher-than-comparable-economies-article-92796283>
- Bajaj, R. V., Sanati, G., & Lodha, C. (2021). *Impact Assessment Study of NPAs and Rate of Recovery: Are Private Sector Banks in India Better off? Global Business Review*, 097215092098030. doi:10.1177/0972150920980305

- Balasubramaniam, C. S. (2012). Non-performing assets and profitability of commercial banks in India: assessment and emerging issues. *Abhinav-Journal of Research in Commerce & Management*, 1(7), 41-52. Retrieved on 15<sup>th</sup> September 2022 from www.abhinavjournal.com
- Banana, K., & Chepuri, R. V. (2016). Role of recovery channels in managing non-performing assets in scheduled commercial banks. *International Journal for Innovative Research in Multidisciplinary Field*, 2(10), 355-359. Retrieved on 18<sup>th</sup> September 2022 from https://www.ijirmf.com/
- Bank Credit to MSMEs (2022). *Reserve Bank of India-Annual Report 2021-22*. Retrieved from https://rbidocs.rbi.org.in/rdocs/AnnualReport/PDFs/0RBIAR2021226AD1119FF6674A13865C988DF70B4E1A.PDF
- Barge, A. (2012). NPA Management in Banks: An Indian Perspective, *Innovation in Banking and Finance*, 88-91. Retrieved on 12<sup>th</sup> September 2022 from www.ibmrd.org
- Basu, S., & Satsangi, A. (2019). A Study on Credit Risk Management Practices in Indian Banks. *IOSR Journal of Business and Management*, 21(5), 01-03. Retrieved on 31<sup>st</sup> August 2022 from https://www.iosrjournals.org/
- Bawa, J. K., Goyal, V., Mitra, S. K., & Basu, S. (2019). An analysis of NPAs of Indian banks: Using a comprehensive framework of 31 financial ratios. *IIMB Management Review*, 31(1), 51-62. Retrieved on 2<sup>nd</sup> October 2022 from https://www.sciencedirect.com/science/article/pii/S0970389618304579
- Beattie, A. (2021). *The Evolution of Banking Over Time*. Retrieved on 23<sup>rd</sup> August, 2022 from https://www.investopedia.com/articles/07/banking.asp
- Bell, M., Whitehead, A., & Julious, S. (2018). Guidance for using pilot studies to inform the design of intervention trials with continuous outcomes. *Clin Epidemiol*, 153-157. doi:https://doi.org/10.2147/CLEP.S146397
- Bhadury, S. and Pratap, B. (2018), "India's Bad Loan Conundrum: Recurrent Concern for Banking System Stability and the Way Forward", *Banking and Finance Issues in Emerging Markets (International Symposia in Economic Theory and Econometrics, Vol. 25)*, Emerald Publishing Limited, Bingley, 123-161. https://doi.org/10.1108/S1571-038620180000025007
- Bhardwaj, P., & Chaudhary, I. (2018). A study of non-performing assets of commercial banks and its recovery in India. *International Journal of Research and Analytical Reviews*, 5(2), 13651373. Retrieved on 18<sup>th</sup> September 2022 from http://ijrar.com/.
- Bhaskaran, R., Bhalla, L., Sarin, V., Kaur, S., Rahman, A., Singh, G., ... & Verma, P. (2016). Non-performing assets of public and private sector banks in India-a comparative study. *International Journal of Services and Operations Management*, 25(2), 155-172. Retrieved on 18<sup>th</sup> September 2022 from https://www.inderscience.com/jhome.php?jcode=ijsom
- Bhatia, A. (2019). *Management of Non-Performance Assets and Its Impact on Profitability: An Empirical Study of Selected Banks in India* (Doctoral dissertation). Available from Shodhganga-a reservoir of Indian theses @ INFLIBNET, (<http://hdl.handle.net/10603/259802>)
- Boahene, S. H., Dasah, J., & Agyei, S. K. (2012). Credit risk and profitability of selected banks in Ghana. *Research Journal of finance and accounting*, 3(7), 6-14. Retrieved from https://core.ac.uk/download/pdf/234629317.pdf
- Boddu, S. N. (2019). Prevention of NPAs: A Comparative Study on Indian Banks. *International Journal of Scientific Research Publications*, 9(1), 618-622. Retrieved on 19<sup>th</sup> September 2022 from https://www.bhu.ac.in/research\_pub/jsr/
- Bodla, B. S., & Verma, R. (2009). Credit risk management framework at banks in India. *The IUP Journal of Bank Management*, 8(1), 47-72. Retrieved on 31<sup>st</sup> August 2022 from https://www.iupindia.in/TheIUPJournalofBankManagementfull.asp
- Borse, N. B. (2016). The Study of the Effect of Non Performing Assets (NPA) on Return on Assets (ROA) of Major Indian Commercial banks. *International Journal in Management & Social Science*, 4(1), 222-227. Retrieved on 2<sup>nd</sup> October 2022 from https://www.indianjournals.com/ijor.aspx?target=ijor:ijmss&volume=4&issue=1&article=026

- Cavallo, M., Majnoni, G. (2002). Do Banks Provision for Bad Loans in Good Times? Empirical Evidence and Policy Implications. In: Levich, R.M., Majnoni, G., Reinhart, C.M. (eds) Ratings, Rating Agencies and the Global Financial System. The New York University Salomon Center Series on Financial Markets and Institutions, vol 9. Springer, Boston, MA. [https://doi.org/10.1007/978-1-4615-0999-8\\_19](https://doi.org/10.1007/978-1-4615-0999-8_19)
- Chary, S. N., & Fasi, M. (2019). Non-Performing Assets in Public Sector Banks—A Study. *Srusti Management Review*, 12(1), 24-32.
- Chaudhuri, D. T. (2005). Resolution Strategies for Maximising Value of Non-Performing Assets (NPAs). SSRN Electronic Journal. doi:10.2139/ssrn.871038
- Chaudhuri, D. T. (2005) Resolution Strategies for Maximising Value of Non-Performing Assets (NPAs). Retrieved on 3<sup>rd</sup> October 2022 from <http://dx.doi.org/10.2139/ssrn.871038>
- Chawla, D., & Sodhi, N. (2011). *Research methodology: Concepts and cases*. Mumbai: Vikas Publishing House.
- Chawla, S., & Rani, S. (2022). Resolution of Non-performing Assets of Commercial Banks: The Evidence from Banker's Perspective in Indian Banking Sector. *The Indian Economic Journal*, 0(0). <https://doi.org/10.1177/00194662221118318>
- Chen, J. X., & Liu, W. (2010, August). Study on Commercial Banks' Nonperforming Assets Securitization Selection Model. In *2010 International Conference of Information Science and Management Engineering* (Vol. 2, pp. 414-419). IEEE.10.1109/ISME.2010.75
- Chipalkatti, N., & Rishi, M. (2007). Do Indian banks understate their bad loans?. *The Journal of Developing Areas*, 75-91, 40(2), 75–91. <http://www.jstor.org/stable/4193031>
- Collins, J., Ng'etich and Wanjau, K. (2011). The effects of interest rate spread on the level of non-performing assets: A case of commercial banks in Kenya. *International Journal of Business and Public Management*, Vol, 1(1), 58-65. Retrieved on 16<sup>th</sup> September 2022 from <http://www.journals.mku.ac.ke>
- Corporate Finance Institute (n.d.). Non-Performing Asset. Retrieved on 4<sup>th</sup> September 2022 from <https://corporatefinanceinstitute.com/resources/knowledge/finance/non-performing-asset/>
- Creative Research Systems. (n.d.). *The Survey System*. Retrieved December 19, 2021, from Creative Research Systems Web site: <https://www.surveysystem.com/sscalc.htm#one>
- Creswell, J., & Creswell, D. (2017). The Selection of a Research Approach. In *Research Design* (pp. 3-23). Sage. Retrieved December 11, 2021, from [https://in.sagepub.com/sites/default/files/upm-binaries/55588\\_Chapter\\_1\\_Sample\\_Creswell\\_Research\\_Design\\_4e.pdf](https://in.sagepub.com/sites/default/files/upm-binaries/55588_Chapter_1_Sample_Creswell_Research_Design_4e.pdf)
- Cucinelli, D., Di Battista, M. L., Marchese, M., & Nieri, L. (2018). Credit risk in European banks: The bright side of the internal ratings based approach. *Journal of Banking & Finance*, 93, 213-229. <https://doi.org/10.1016/j.jbankfin.2018.06.014>
- Dadhich, M., Pahwa, M. S., Goswami, S., & Rao, S. S. (2021, May). Analytical study of financial wellbeing of selected public and private sector banks: a CAMEL approach. In *2021 Emerging Trends in Industry 4.0 (ETI 4.0)* (pp. 1-6). IEEE. Retrieved on 18<sup>th</sup> September 2022 from <https://ijsrst.com/>
- Dadhich, M., Rao, S. S., Sharma, R., & Meena, R. (2021, December). Analytical Study of Stochastic Trends of Non-Performing Assets of Public and Private Commercial Banks in India. In *2021 3rd International Conference on Advances in Computing, Communication Control and Networking (ICAC3N)* (pp. 71-76). IEEE. Retrieved on 18<sup>th</sup> September 2022 from <https://ijsrst.com/>
- Das, A. and Ghosh, S. (2007): *Determinants of Credit Risk in Indian State-owned Banks: An Empirical Investigation*. Published in: Economic Issues , Vol. 12, No. 2 (September 2007): 48-66. Retrieved from <https://mpra.ub.uni-muenchen.de/id/eprint/17301>
- Das, S.K. (2022). NPA Resolution and Bad Bank, Economic and Political Weekly, 57 (20). Retrieved on 7<sup>th</sup> September 2022 from <https://www.epw.in/journal/2022/20/commentary/npa-resolution-and-bad-bank.html>
- Dave, J. R. (2019). *A Study on Non-Performing Assets and its Impact on Profitability of Regional Rural Banks in State of Gujarat* (Doctoral dissertation). Available from Shodhganga-a reservoir of

- Deloitte (2020). *The trend in Indian Banking NPA*. Retrieved from <https://www2.deloitte.com/content/dam/Deloitte/in/Documents/finance/in-fa-bad-bank-note-noexp.pdf>
- Desai, V. (1976). Role of Banks in Economic Growth. *Economic Affairs (Calcutta)*, 21(6), 228. Retrieved on 2<sup>nd</sup> September 2022 from <https://www.proquest.com/openview/9bec733bb14f495be51dc7a36120544a/1?pq-origsite=gscholar&cbl=2031131>
- Dey, S. (2018). Recovery Mechanism of Non-Performing Assets in Indian Commercial Banks: An Empirical Study, *NSOU-Open Journal*, 1(2), 2-8. Retrieved from <http://www.wbnsou.ac.in/openjournals/Issue/2nd-Issue/Surojit.pdf>
- Dhananjaya, K. (2021). Corporate distress and non-performing assets in India. *Global Business Review*, 22(3), 780-796. <https://doi.org/10.1177/0972150918812553>
- Dhanda, N., & Rani, S. (2010). Basel I and Basel II Norms: Some Empirical Evidence for the Banks in India. *IUP Journal of Bank Management*, 9(4), 21-35. Retrieved on 31<sup>st</sup> August 2022 from [https://iupindia.in/Bank\\_Management.asp](https://iupindia.in/Bank_Management.asp)
- Dharwal, M. (2016). *A Study on Reduction of Non-Performing Assets in Commercial Banks* (Doctoral dissertation). Available from Shodhganga-a reservoir of Indian theses @ INFLIBNET, (<http://hdl.handle.net/10603/94853>)
- Drehmann, M., Sorensen, S., Stringa, M. (2010). The integrated impact of credit and interest rate risk on banks: A dynamic framework and stress testing application, *Journal of Banking & Finance*, 34(4), 713-729. <https://doi.org/10.1016/j.jbankfin.2009.06.009>.
- Dudhe, C. (2017). Impact of Non-Performing Assets on the profitability of banks—A selective study. *The Annals Of The University Of Oradea Economic Sciences*, XXVI(1), 307-314. Retrieved on 29<sup>th</sup> September 2022 from <https://www.researchgate.net/profile/Ioana-Coita/publication/321492017>
- Ekinci, R., & Poyraz, G. (2019). The effect of credit risk on financial performance of deposit banks in Turkey. *Procedia Computer Science*, 158, 979-987. <https://doi.org/10.1016/j.procs.2019.09.139>
- Gajdhane, A. (2012). The Evolution Of Banking In India. *Avishkar-Solapur University Research Journal*, (2), 67-75. Retrieved from <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.695.3183&rep=rep1&type=pdf>
- Gaur, D. and Mohapatra, D.R. (2021), "The nexus of economic growth, priority sector lending and non-performing assets: case of Indian banking sector", *South Asian Journal of Business Studies*, Vol. 10 No. 1, pp. 70-90. <https://doi.org/10.1108/SAJBS-01-2020-0010>
- Gautami, S. (2017). Credit Recovery Methods of Scheduled Commercial Banks in India. *International Journal of Engineering, Science and Computing*, 7(11), 15546-15550. Retrieved on 9<sup>th</sup> September 2022 from <http://ijesc.org/>
- General Knowledge Chronicle (n.d.). *Importance of Banking Sector in India*. Retrieved on 23<sup>rd</sup> August 2022 from <https://gkchronicle.com/economy/Importance-of-banking-sector-in-India.php>
- Gizaw, M., Kebede, M., & Selvaraj, S. (2015). The impact of credit risk on profitability performance of commercial banks in Ethiopia. *African journal of business management*, 9(2), 59. <http://www.journals.mku.ac.ke>
- Gobat, J. (n.d.). *Banks: At The Heart Of The Matter*. Retrieved on 23<sup>rd</sup> August 2022 from <https://www.imf.org/external/pubs/ft/fandd/basics/bank.htm#:~:text=Banks%20also%20play%20a%20central,markets%20within%20which%20they%20operate>
- Goswami, A. and Gulati, R. (2022), "Economic slowdown, NPA crisis and productivity behavior of Indian banks", *International Journal of Productivity and Performance Management*, Vol. 71 No. 4, pp. 1312-1342. <https://doi.org/10.1108/IJPPM-01-2020-0010>

- Gupta, D. (2017). Analysis of Responses of Bank Employees regarding Reasons of increasing NPA on the Basis of Categories of Public and Private Sector Banks, *International Journal of Techno-Management Research*, 5(2), 25-40. Retrieved from [https://www.ijtmr.com/docs/vol5/se17\(3\).pdf](https://www.ijtmr.com/docs/vol5/se17(3).pdf)
- Gupta, L., & Dharwal, M. (2017). A Comparative Evaluation of NPAs Recovery Mechanisms by Public Sector Banks in India. *MUDRA: Journal of Finance and Accounting*, 4(1), 102-121. Retrieved on 19<sup>th</sup> September 2022 from <https://www.indianjournals.com/ijor.aspx?target=ijor:ajrbem&type=home>
- Gupta, M. S., & Singh, J. B.(2020). Insolvency And Bankruptcy Code (IBC) In India: Impact On Recovery Of NPAs By Banks. *Bihar Journal Of Public Administration*, XVII (2),606-614. Retrieved on 19<sup>th</sup> September 2022 from <http://www.iipabiharbranch.org/journals.htm>
- Gupta, M.& Malhotra, N. (2017). A Comparative Study of SARFAESI Act 2002 and Other Tools Available For the Recovery of NPAs. *International Journal for Research in Applied Science & Engineering Technology*, 5(XI), 1207-1213. Retrieved on 19<sup>th</sup> September 2022 from [www.ijraset.com](http://www.ijraset.com)
- Gupta, M., & Malhotra, N. (2017). A Comparative Study of SARFAESI Act 2002 and Other Tools Available For the Recovery of NPAs. *International Journal for Research in Applied Science & Engineering Technology (IJRASET)*, 5(XI), 1207-1213. Retrieved on 9<sup>th</sup> September 2022 from [www.ijraset.com](http://www.ijraset.com)
- Hafsal, K., Suvvari, A., & Durai, S. (2020). Efficiency of Indian banks with non-performing assets: evidence from two-stage network DEA. *Future Business Journal*, 6(1), 1-9.<https://doi.org/10.1186/s43093-020-00030-z>
- Hall, M. (2021). *How the Banking Sector Impacts Our Economy*. Retrieved on 23<sup>rd</sup> August 2022 from <https://www.investopedia.com/ask/answers/032315/what-banking-sector.asp>
- Hamid, A. J., & Ahmed, T. M. (2016). Developing prediction model of loan risk in banks using data mining. *Machine Learning and Applications: An International Journal (MLAIJ)*, 3(1), 1-9. Retrieved from <https://airccse.org/journal/mlaij/vol3.html>
- Hassan Al-Tamimi, H.A. and Mohammed Al-Mazrooei, F. (2007), "Banks' risk management: a comparison study of UAE national and foreign banks", *Journal of Risk Finance*, Vol. 8 No. 4, 394-409. <https://doi.org/10.1108/15265940710777333>
- Hassan, A, Hussein A. and Miniaoui, H. and Elkelish, W. (2015). 'Financial Risk and Islamic Banks' Performance in the Gulf Cooperation Council Countries. *The International Journal of Business and Finance Research*, 9(5) 103-112, Available at SSRN: <https://ssrn.com/abstract=2664764>.
- Hassan, M. K., Khan, A., & Paltrinieri, A. (2019). Liquidity risk, credit risk and stability in Islamic and conventional banks. *Research in International Business and Finance*, 48, 17-31.<https://doi.org/10.1016/j.ribaf.2018.10.006>
- Hawaldar, I, T., Spulbar, C., M., Lokesh, L., Birau, F, R., Rebegea, C. (2020). Analyzing Non-Performing Assets in Agricultural Loans: A Case Study of India, *Revue des Sciences Politiques*, 65, 42-53. Retrieved on 2<sup>nd</sup> October 2022 from <https://ssrn.com/abstract=3583303>
- History of Banking in India (2022, February 12). History of Banking in India: Origin and Its Evolution [Blog post]. Retrieved from <https://guidely.in/blog/history-of-banking-in-india>
- Hosna, A., Manzura, B., & Juanjuan, S. (2009). Credit risk management and profitability in commercial banks in Sweden. *rapport nr.: Master Degree Project 2009: 36*. Retrieved from <http://hdl.handle.net/2077/20857>
- Hox, J., & Boeije, H. (2005). Data Collection, Primary Vs. Secondary. *Encyclopedia of Social Measurement*, 1, 593-599.
- Hussain, H. A. and Al-Ajmi, J. (2012), "Risk management practices of conventional and Islamic banks in Bahrain", *Journal of Risk Finance*, Vol. 13 No. 3, 215-239. <https://doi.org/10.1108/15265941211229244>

- Ibrahim, M. S., & Thangavelu, R. (2014). A study on the composition of non-performing assets (NPAs) of scheduled commercial banks in India. *Journal of Finance and Bank Management*, 2(1), 31-48. Retrieved on 18<sup>th</sup> September 2022 from www.aripd.org/jfbm
- Imbierowicz, B., & Rauch, C. (2014). The relationship between liquidity risk and credit risk in banks. *Journal of Banking & Finance*, 40, 242-256. <https://doi.org/10.1016/j.jbankfin.2013.11.030>.
- Impact of COVID-19 Relief Measures on Small Business Financing (2022). *Reserve Bank of India-Annual Report 2021-22*. Retrieved from <https://rbidocs.rbi.org.in/rdocs/AnnualReport/PDFs/0RBIAR2021226AD1119FF6674A13865C988DF70B4E1A.PDF>
- India Brand Equity Foundation (2022). Banking Sector in India, Banking Industry Report 2021-2022. Retrieved on 2<sup>nd</sup> October 2022 from <https://www.ibef.org/industry/banking-india>
- India Brand Equity Foundation (n.d.). *Banking Sector in India-Market Size*. Retrieved on 2<sup>nd</sup> September 2022 from <https://www.ibef.org/industry/banking-india>
- Iqbal, B. A., & Sami, S. (2017). Role of banks in financial inclusion in India. *Contaduría y administración*, 62(2), 644-656. <https://doi.org/10.1016/j.cya.2017.01.007>
- Jain, S. (2018). Mounting Non-Performing Assets (NPAs) in Indian Banking Sector: Study of Factors Responsible, Oorja, 16(2), 46-54.
- Janetius, S.T., S. Shilpa & S. Easwaran (2013). Bad Loans and Wilful Defaulters: Do We Need Change in Financial Management? in Change Management for Goal Setting, pp. 4-9.
- Jangra, K. (2020). Operating Efficiency of Indian Public Sector Banks in Light of Basel III Norms. *International Journal of Banking, Risk and Insurance*, 8(1), 15-25. Retrieved on 31<sup>st</sup> August 2022 from <http://publishingindia.com/ijbri/>
- Jauhari, S. (2020). A Critical Review of NPA Management: Challenge for Public Sector Banks. *Adhyayan: A Journal Of Management Sciences*, 10(02), 52-58. <https://doi.org/10.21567/adhyayan.v10i2.7>
- Jayaraman, A. R., & Bhuyan, P. (2020). Impact of NPA and loan write-offs on the profit efficiency of Indian banks. *Decision*, 47(1), 35-48. <https://doi.org/10.1007/s40622-020-00235-9>
- Jindal, P., & Kaur, J. (2021, August). Artificial Intelligence Applications for Lending and NPA Management. In *2021 Asian Conference on Innovation in Technology (ASIANCON)* (pp. 1-6). IEEE.10.1109/ASIANCON51346.2021.9544822.
- Kaaya, I., & Pastory, D. (2013). Credit Risk and Commercial Banks Performance in Tanzania: a Panel Data Analysis. <http://dspace.cbe.ac.tz:8080/xmlui/handle/123456789/792>
- Kadanda, D., & Raj, K. (2018). *Non-performing assets (NPAs) and its determinants: a study of Indian public sector banks*. *Journal of Social and Economic Development*. doi:10.1007/s40847-018-0068-0
- Kang, D. (2018). *Resolution of Non-performing Assets: Experiences of Korea* (No. 147077, pp. 1-15). The World Bank. Retrieved on 3<sup>rd</sup> October 2022 from <https://documents1.worldbank.org/curated/en/465341585199455656/pdf/Resolution-of-Non-Performing-Assets-Experiences-of-Korea.pdf>
- Kapoor, S. (2016). *Management of Non-Performing Assets in Public Sector Banks: An Appraisal* (Doctoral dissertation). Available from Shodhganga-a reservoir of Indian theses @ INFLIBNET, (<http://hdl.handle.net/10603/276809>)
- Kaushik, N. (Producer). (2015, April, 29). *Bivariate Analysis One Way ANOVA Part-1 Levene, Anova, Welch and Post hoc Analysis in SPSS*. [Video Podcast]. Retrieved from <https://www.youtube.com/watch?v=-2NSUhoRPbE>
- Kavitha, N., & Muthukrishna, V. (2019). Impact of non-performing assets on the profitability in Indian scheduled commercial banks. *African Journal of Business Management*, 13(4), 128-137. doi: 10.5897/AJBM2018.8683
- Khaitan, J. (2016). Management and Recovery of NPAs in Indian Banks. *International Research Journal of Commerce, Arts and Science*, 7(11), 75-81. Retrieved on 19<sup>th</sup> September 2022 from <http://www.casirj.com/>

- Khalid, S. and Amjad, S. (2012), Risk management practices in Islamic banks of Pakistan, *Journal of Risk Finance*, 13(2), 148-159. <https://doi.org/10.1108/15265941211203198>
- Khetarpal, K. (2013). A Study of Compliance with Basel Norms by Banks in Canada. <http://dx.doi.org/10.2139/ssrn.2246609>
- Kithinji, A. M. (2010). Credit risk management and profitability of commercial banks in Kenya.<http://erepository.uonbi.ac.ke/bitstream/handle/11295/40437/aibuma2011-submission232.pdf>
- Kolapo, T. F., Ayeni, R. K., & Oke, M. O. (2012). Credit Risk And Commercial Banks' performance In Nigeria: A Panel Model Approach. *Australian journal of business and management research*, 2(2), 31. Retrieved from [http://www.ajbmr.com/articlepdf/aus\\_20\\_70i2n2a4.pdf](http://www.ajbmr.com/articlepdf/aus_20_70i2n2a4.pdf)
- Kumar, A. (2017). A study on effectiveness of recovery channels for the recovery of NPAs: A Case Study on Scheduled Commercial Banks in India, *International Journal of Recent Scientific Research*, 8(3), 16200-16205. Retrieved on 9<sup>th</sup> September 2022 from <http://www.recentscientific.com>
- Kumar, A., Mohan, R., and Srinivasan, D. (2022, October 12). Why NPAs are not just about bank governance. *The Indian Express*. Retrieved from<https://indianexpress.com>
- Lakra, A. (2013). Compliance with Basel Norms by Banks in Italy [March 17]. <http://dx.doi.org/10.2139/ssrn.2235204>
- Legal Service India (n.d.). *Overview of Basel Norms*. Retrieved on 31<sup>st</sup> August 2022 from <https://www.legalserviceindia.com/legal/article-3882-overview-of-basel-norms.html>
- Lepetit, L., Nys, E., Rous, P., Tarazi, A., (2008). Bank income structure and risk: An empirical analysis of European banks, *Journal of Banking & Finance*, 32(8), 1452-1467,<https://doi.org/10.1016/j.jbankfin.2007.12.002>.
- Maity, S. (2019). Is the efficiency of banks degenerating due to the mounting of non-performing assets?, *Malaysian Management Journal*, 23, 65-86. Retrieved on 29<sup>th</sup> September 2022 from <http://zbw.eu/econis-archiv/bitstream/11159/4608/1/1701084961.pdf>
- Malhotra, N., & Dash, S. (2011). *Marketing Research-An Applied Orientation*. Nodia: Pearson Prentice Hall.
- Marshal, I., & Onyekachi, O. (2014). Credit risk and performance of selected deposit money banks in Nigeria: An empirical investigation. *European Journal of Humanities and Social Sciences*, 31(1). Retrieved 30<sup>th</sup> August 2022 from <https://www.ej-social.org/>
- McKinsey's Global Banking (2021). Annual Review. Retrieved on 3<sup>rd</sup> September 2022 from <https://www.mckinsey.com/industries/financial-services/our-insights/global-banking-annual-review>
- Meher, B.K., Puntambekar, G. L., Hawaldar, I. T., Spulbar, C., Birau, R., & Rebegea, C. (2020). An Effectiveness Assessment of Preventive Management Strategies in order to Manage Non-Performing Assets in Indian banks: A Case Study. *Scientific Annals of Economics and Business*, 67(2), 235–258. <https://doi.org/10.47743/saeb-2020-0013><https://doi.org/10.47743/saeb-2020-0013>
- Mileris, R. (2012). Macroeconomic determinants of loan portfolio credit risk in banks. *Engineering Economics*, 23(5), 496-504.<https://doi.org/10.5755/j01.ee.23.5.1890>
- Minocha, M. (2013). Compliance with Basel Norms by Banks in Finland. <http://dx.doi.org/10.2139/ssrn.2234784>
- Mittal, R. K., & Suneja, D. (2017). The problem of rising non-performing assets in banking sector in India: comparative analysis of public and private sector banks. *International Journal of Management, IT and Engineering*, 7(7), 384-398. Retrieved on 18<sup>th</sup> September 2022 from <https://www.indianjournals.com/ijor.aspx?target=ijor:iijmie&volume=7&issue=7&article=026>
- Mondal, H., Mondal, S., Ghosal, T., & Mondal, S. (2018). Using Google Forms for Medical Survey: A Technical Note. *International Journal of Clinical and Experimental Physiology*, 5(4), 216-218. doi:[10.5530/ijcep.2018.5.4.26](https://doi.org/10.5530/ijcep.2018.5.4.26)
- Money Tap (n.d.). What Is Non-Performing Asset (NPA): Types of NPA, Its Impact and More. [Blog Post]. Retrieved from [https://www.moneytap.com/blog/what-is-non-performing-asset/#Non\\_Performing\\_Assets\\_Definition\\_given\\_by\\_RBI](https://www.moneytap.com/blog/what-is-non-performing-asset/#Non_Performing_Assets_Definition_given_by_RBI)

- Moore, C., Carter, R., Nietert, P., & Stewart, P. (2011). Recommendations for Planning Pilot Studies in Clinical and Translational Research. *Clinical and Translational Science*, 4(5), 332-337. doi:10.1111/j.1752-8062.2011.00347.x
- Moses, W. and Kwambai, K. D. (2013). Effects Of Credit Information Sharing On Nonperforming Loans: The Case Of Kenya Commercial Bank Kenya. Retrieved on 2<sup>nd</sup> October from <http://hdl.handle.net/123456789/75>
- Mukhopadhyay, A. (2018). Finding Innovative Solutions to India's NPA Woes, ORF Issue Brief, 246,1-12. Retrieved on 2<sup>nd</sup> October 2022 from [https://www.orfonline.org/wp-content/uploads/2018/07/ORF\\_IssueBrief\\_246\\_NPAs\\_FinalForUpload.pdf](https://www.orfonline.org/wp-content/uploads/2018/07/ORF_IssueBrief_246_NPAs_FinalForUpload.pdf)
- Musyoki, D., & Kadubo, A. S. (2012). The impact of credit risk management on the financial performance of banks in Kenya for the period. *International Journal of Business and Public Management*, 2(2), 72-80. Retrieved from : <http://www.journals.mku.ac.ke>
- Nair, G. K. (2013). Credit risk management in banks: An approach to Indian banking industry. *ZENITH International Journal of Business Economics & Management Research*, 3(2), 50-62. Retrieved on 31<sup>st</sup> August 2022 from <https://www.indianjournals.com/ijor.aspx?target=ijor:zijbemr&volume=3&issue=2&article=004>
- Narayanan, B. B. S., & Surya, R. (2014). A study on nonperforming assets in Indian bank. *International journal of management research and business strategy*, 3(3), 144-155. <http://www.ijmrbs.com/currentissue.php>
- Narayanaswamy, V., R, &, Harinarayana, N.S. (2016, January). *Online survey tools: A case study of Google Forms. Paper presented at National Conference on Scientific, Computational & Information Research Trends in Engineering, GSSS-IETW, Mysore.* Paper retrieved from <https://www.researchgate.net>
- Naveenan, R.V. (2016). Warning Signals-A Tool to Control NPA in Banks, International Journal of Advance Research in Computer Science and Management Studies, 4(7), 280-288. Retrieved on 1<sup>st</sup> October, 2022 from [www.ijarcsmms.com](http://www.ijarcsmms.com)
- Nidugala, G. K. & Pant, A. (2017). Lessons from NPAs Crisis in Indian banks, *Journal of Public Affairs*, 17(4), e1672.<https://doi.org/10.1002/pa.1672>
- NPAs and its effects on banks profitability (2020, December, 22). The Times of India, Retrieved [Blog Post] from <https://timesofindia.indiatimes.com/blogs/economic-update/npas-and-its-effects-on-banks-profitability/>
- Padmavathi, U., Srivani, N. & Madhavi, B. (2017, August). A study on performance of debt recovery channels in management of NPAs of Scheduled Commercial Banks in India. Paper presented at the 10<sup>th</sup> International Conference on Recent Trends in Engineering Science and Management, Guntur, Andhra Pradesh. Retrieved from [www.conferenceworld.in](http://www.conferenceworld.in)
- Pandey, N. (2013). Compliance with Basel Norms by Banks in Philippines (March 20). <http://dx.doi.org/10.2139/ssrn.2235992>
- Parmar, M. (2017). Basel III Norms: A Study on Awareness Level of Bank Employees of Selected Banks in Saurashtra Region. *International Journal of Social Sciences, Arts and Humanities*, 5(2), 37-40. Retrieved on 31<sup>st</sup> August 2022, from : [www.crdeepjournal.org/ijssah](http://www.crdeepjournal.org/ijssah)
- Patnaik, B.C.M., Satpathy, I. and Mohapatra, A. K. (2011). An Empirical Analysis of Bad Loans in Agriculture Loan, *International Journal of Research in Finance & Marketing* 1(3), 127-162. Retrieved on 2<sup>nd</sup> October 2022 from <http://www.mairec.org>
- Patra, B., & Padhi, P. (2016). Determinants of nonperforming assets-bank-specific and macroeconomic factors: A panel data analysis of different group of commercial banks operating in India. *Theoretical & Applied Economics*, 23(4). Retrieved on 29<sup>th</sup> September 2022 from <http://store.ectap.ro/articole/1234.pdf>
- Perumal, R., & Anilkumar, P. (2018). NPA Management in Banks: An Indian Perspective. *Shanlax-International Journal of Management*, 6(2), 7-10. <https://doi.org/10.5281/zenodo.1473306>
- Popli, G. S., & Kumari, S. (2012). Basel Norms Compliance: Initiatives by Commercial Banks in India. <http://dx.doi.org/10.2139/ssrn.2103530>

- Poudel, R. P. S. (2012). The impact of credit risk management on financial performance of commercial banks in Nepal. *International Journal of arts and commerce*, 1(5), 9-15. [https://ijac.org.uk/images/frontImages/gallery/Vol.\\_1\\_No.\\_5/2.pdf](https://ijac.org.uk/images/frontImages/gallery/Vol._1_No._5/2.pdf)
- Pradhan Mantri Jan Dhan Yojana (n.d.). *Scheme Details*. Retrieved on 2<sup>nd</sup> September 2022 from <https://www.pmjdy.gov.in/scheme>
- Pradhan, T. K. (2012). Management of NPA in the commercial banks in Odisha: An empirical analysis. *International Journal of Scientific and Research Publications*, 2(9), 1-5. <https://www.ijsrp.org/>
- Pramahender. (2022). Critical Perspectives to Non-performing Assets of Indian Banks, Shrinking Balance Sheet, Challenges and Way Ahead. *FIIB Business Review*, 11(2), 130-136. <https://doi.org/10.1177/23197145211040271>
- Prasanth, S., Nivetha, P., Ramapriya, M., & Sudhamathi, S. (2020). Factors affecting non performing loan in India. *International Journal of Scientific & Technology Research*, 9(1), 1654-1657. Retrieved on 2<sup>nd</sup> October from [www.istr.org](http://www.istr.org)
- Puntambekar, G., L., & Meher, B. (2016). NPA Management in Indian Banks with special reference to curative management strategies, *Southern Economist*, 26-40. Retrieved on 9<sup>th</sup> September 2022 from [https://www.researchgate.net/publication/326319128\\_NPA\\_Management\\_in\\_Indian\\_Banks\\_With\\_Special\\_Reference\\_to\\_Curative\\_Management\\_Strategies](https://www.researchgate.net/publication/326319128_NPA_Management_in_Indian_Banks_With_Special_Reference_to_Curative_Management_Strategies)
- Rai, K. (2012). Study on performance of NPAs of Indian commercial banks. *Asian Journal of Research in Banking and finance*, 2(12), 16-26. Retrieved on 19<sup>th</sup> September 2022 from <https://www.indianjournals.com/ijor.aspx?target=ijor:ajrbem&type=home>
- Raj, M., Jain, A., Bansal, S., & Verma, T. (2018). Non-Performing Assets: A Comparative Study of SBI and ICICI Bank from 2014-2017, *IOSR Journal of Business and Management*, 20(9), 78-84. DOI: 10.9790/487X-2009077884
- Raj, N. (2020). Non-Performing Assets (NPA): *How serious is India's bad loan problem?* Retrieved on 9<sup>th</sup> September 2022 from <https://www.clearias.com/non-performing-assets-npa/>
- Rajeev, M., & Bhandarkar, S. (2016). Banking Sector Reforms and the Problems of Bad Loans: A Study of Indian and Chinese Banks. *Available at SSRN 2866794*.
- Rajender, K. (2009). Management of non-performing assets in public sector banks. *The Indian Journal of Commerce*, 62(1), 45-54. Retrieved on 18<sup>th</sup> September 2022 from <http://icaindia.info/wp-content/uploads/2019/03/Indian-Journal-of-Commerce-January-March-2009.pdf#page=51>
- Rajender, K., and Yakub, M. (2017). Recovery Performance of Indian Commercial Banks-An Analysis, *International Journal of Research in Finance and Marketing (IJRFM)*, 7(7), 33-40. Retrieved on 13<sup>th</sup> September 2022 from <http://euroasiapub.org/current.php?title=IJRFM>
- Rajesh, M., and Sivakumar, T. (2017). Non-Performing Assets of Banks in India- Issues and Challenges, *International Journal of World Research*, I (XXXV), 12-22. Retrieved on 13<sup>th</sup> September 2022 from [www.apjor.com](http://www.apjor.com)
- Rajoria, K. (2021). The Consolidation of Public Sector Banks: A Ray of Hope to the NPA Problem in India, *International Journal of Law and Policy Review* 7(2), 97-110, <https://ssrn.com/abstract=3799119>
- Rajput, N., Arora, A. P., & Kaur, B. (2011). Non-performing assets in Indian public sector banks: an analytical study. *Banks & bank systems*, 6 (4), 84-89. <http://orcid.org/0000-0001-7978-0959>
- Ramesh, K. (2019). Bad Loans of Public Sector Banks in India: A Panel Data Study. *Emerging Economy Studies*, 5(1), 22–30. <https://doi.org/10.1177/2394901519825911>
- Ramu, N. (2009). *Dimensions of Non-performing Assets in Urban Cooperative Banks in Tamil Nadu*. *Global Business Review*, 10(2), 279–297. doi:10.1177/097215090901000209
- Ranjini, M., L. (2013). An Empirical Study on NPA Management Strategies between Public and Private Banks-with Special Reference to Banks in Bangalore City. *Vidyaniketan Journal of Management and Research*, 1(2), 57-77. Retrieved on 12<sup>th</sup> September 2022 from <http://52.172.159.94/index.php/Vjmr/article/view/42690>

- Rao, J. M. (2014). Management of Non-Performing Assets Problems, *International Journal of Management and Business Studies*, 4(1), 39-44. Retrieved on 13<sup>th</sup> September 2022 from www.ijmbs.com
- RBI Bulletin (2021). *ARCs in India: A Study of their Business Operations and Role in NPA Resolution* [Press Release]. Retrieved from [https://www.rbi.org.in/Scripts/BS\\_ViewBulletin.aspx?Id=20203](https://www.rbi.org.in/Scripts/BS_ViewBulletin.aspx?Id=20203)
- Reddy, P. K. (2002). A comparative study of Non Performing Assets in India in the Global context-similarities and dissimilarities, remedial measures. *Remedial Measures (October 2002)*. Retrieved on 1<sup>st</sup> October 2022 from [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=361322](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=361322)
- Reserve Bank of India (2009). *Master Circular on Income Recognition, Asset Classification, Provisioning & Other Related Matters – UCBS*. Retrieved on 5<sup>th</sup> September 2022 from [https://www.rbi.org.in/scripts/BS\\_ViewMasCirculardetails.aspx?id=5154#2](https://www.rbi.org.in/scripts/BS_ViewMasCirculardetails.aspx?id=5154#2)
- Reserve Bank of India (2020). Annual Report 2020. Retrieved from <https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/55T5EEA6E931F13488EAD9CFD46CBB5A1FF.PDF>
- Reserve Bank of India (2020). Publications-Bank Group-Wise Distribution of Employees of Scheduled Commercial Banks Retrieved on 2<sup>nd</sup> September 2022 from <https://rbi.org.in/Scripts/PublicationsView.aspx?id=19783>
- Reserve Bank of India (2021). *Bank Wise And Bank Group-Wise Gross Non-Performing Assets, Gross Advances And Gross NPA Ratio Of Scheduled Commercial Banks*. Retrieved on 6<sup>th</sup> September, 2022 from <https://dbie.rbi.org.in/BOE/OpenDocument/1608101727/OpenDocument/opendoc/openDocument.faces?logonSuccessful=true&shareId=1>
- Reserve Bank of India (2022). *All Scheduled Commercial Banks-Business in India*. Weekly Statistical Supplement. Retrieved on 2<sup>nd</sup> September 2022 from <https://dbie.rbi.org.in/DBIE/dbie.rbi?site=publications>
- Reserve Bank of India (2022). Bank Credit By Sector-Monthly, Economy Watch. Retrieved on 2<sup>nd</sup> September 2022 from <https://dbie.rbi.org.in/DBIE/dbie.rbi?site=home>
- Reserve Bank of India (2022). Gross NPAs as a Percentage of Gross Advances, Economy Watch. Retrieved on 2<sup>nd</sup> September 2022 from <https://dbie.rbi.org.in/DBIE/dbie.rbi?site=home>
- Rizvi, N. U., Kashiramka, S., Singh, S., & Sushil. (2019). A hierarchical model of the determinants of non-performing assets in banks: an ISM and MICMAC approach. *Applied Economics*, 1–21. doi:10.1080/00036846.2019.1584377
- Roopa, S., & Rani, M. (2012). Questionnaire Designing for a Survey. *J Ind Orthod Soc*, 46(4), 273-277. doi:10.5005/jp-journals-10021-1104
- Roy, P., & Samanta, P. K. (2017). Analysis of non performing assets in public sector banks of India. *International Journal of Management (IJM)*, 8(1), 21-29. Retrieved on 17<sup>th</sup> September 2022 from <http://www.iaeme.com/ijm/issues.asp?JType=IJM&VType=8&IType=1>
- Ryan, M. (2018). *By the numbers-Mega Banks Vs. Community Bank*. Retrieved on 2<sup>nd</sup> September 2022 from <https://www.extractable.com/insights/by-the-numbers-mega-banks-vs-community-banks/>
- Sahoo, B. P., & Kaur, K. (2017). Risk Management in Indian Public Sector Banks-Analysis of Credit Risk-I on State Bank of India. *Asian Journal of Management*, 8(2), 337-342. Retrieved on 31<sup>st</sup> August 2022 from <https://www.indianjournals.com/ijor.aspx?target=ijor:ajm&volume=8&issue=2&article=031>
- Sahoo, M. K., & Majhi, M. (2020). The recovery management system of NPAs—A case study of commercial banks in India. *Parishodh Journal*, 9(3), 5065-5076. Retrieved on 19<sup>th</sup> September 2022 from <http://www.parishodhpu.com/>
- Sahu, M. M. K., & Maharana, N. (2017). Impact of corporate governance practices on non-performing assets (NPA) management in Indian public and private sector banks. *Pacific Business Review International*, 10(4), 67-79. [http://www.pbr.co.in/2017/2017\\_month/Oct/8.pdf](http://www.pbr.co.in/2017/2017_month/Oct/8.pdf)

- Saini, R. K., & Tayal, V. K. (2018). Role of Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest Act 2002 in NPAs Recovery. *Anwesh*, 3(2), 48-52. Retrieved on 19<sup>th</sup> September 2022 from <http://www.publishingindia.com/anwesh/>
- Salas, V., & Saurina, J. (2002). Credit risk in two institutional regimes: Spanish commercial and savings banks. *Journal of Financial Services Research*, 22(3), 203-224. <https://doi.org/10.1023/A:1019781109676>
- Samir, and Kamra, D. (2013) A Comparative Analysis of Non-Performing Assets (NPAs) of Selected Commercial Banks in India, *Opinion: International Journal of Management*, 3(1). Retrieved on 18<sup>th</sup> September 2022 from [www.cpmr.org.in](http://www.cpmr.org.in)
- Sanjeev, G. M. (2007). Bankers' Perceptions on Causes of Bad Loans in Banks. *Journal of Management Research*, 7(1), 40–46. Retrieved on 30<sup>th</sup> September 2022 from <http://jmgtr.com/newjmr/index.php/jmr>
- Saunders, A. and M.M. Cornett Financial Institutions Management: A Risk Management Approach. (New York: McGraw Hill, 2006)
- Saylor Academy (n.d.) *The Circular Flow of Income*. Retrieved on 31<sup>st</sup> August 2022 from <https://www.saylor.org/books/>
- Sekar, V. (2015). Management of Non-Performing Assets and Recovery Strategies of Old Private Sector Banks in Tamilnadu (Doctoral dissertation). Available from Shodhganga-a reservoir of Indian theses @ INFLIBNET, (<http://hdl.handle.net/10603/107032>)
- Senthilrajaprabha, R. (2019).*Non-Performing Assets of Indian Commercial Banks with special reference to select Public Sector Banks* (Doctoral dissertation). Available from Shodhganga-a reservoir of Indian theses @ INFLIBNET, (<http://hdl.handle.net/10603/277174>)
- Shah, R., and Talwar, S. (2018). A Comparative Study of Credit Risk Management and Non-Performing Asset Management Across Australia, Canada, and India, *Oorja*, 16(2), 29-37. Retrieved on 13<sup>th</sup> September 2022 from <http://oorja.org.in/>
- Sharifi, S., Haldar, A., & Rao, S. N. (2019). The relationship between credit risk management and non-performing assets of commercial banks in India. *Managerial Finance*. 45(3), 399-412. <https://doi.org/10.1108/MF-06-2018-0259>
- Sharma, A. (2016). International Journal of Advanced Research in Management and Social Sciences, 5(8 ), 76-83. Retrieved on 2<sup>nd</sup> October 2022 from [www.garph.co.uk](http://www.garph.co.uk)
- Sharma, S., Rathore, D. S. & Prasad, J. (2019) Empirical assessment of management of non-performing asset (NPA) in the public and private sector banks, *Journal of Statistics and Management Systems*, 22(3,) 587-601, DOI: 10.1080/09720510.2019.1575601
- Sikarwar, M. V., & Deepika, M. (2020). NPAs-The Heavy Load of Bad Loans on The Indian Banking System A Comparative Analysis of Private and Public Sector Banks. *Solid State Technology*, 63 (2), 7744-7763. Retrieved on 2<sup>nd</sup> October 2022 from <http://solidstatetechnology.us/index.php/JSST/article/view/5148>
- Sikdar, P., & Makkad, M. (2013). Role of Non-Performing Assets in the Risk framework of commercial banks—a study of select Indian commercial banks. *AIMA Journal of Management & Research*, 7(2/4), 1-19. Retrieved 18<sup>th</sup> September 2022 from [https://apps.aima.in/ejournal\\_new/](https://apps.aima.in/ejournal_new/)
- Singh, A. (2013). Performance of non-performing assets (NPAs) in Indian Commercial Banks. *International Journal of Marketing, Financial Services & Management Research*, 2(9), 86-94. Retrieved on 18<sup>th</sup> September 2022 from [www.indianresearchjournals.com](http://www.indianresearchjournals.com)
- Singh, A. (2015). Effect of Credit Risk Management on Private and Public Sector Banks in India. *International Journal of Academic Research in Business and Social Sciences*, 5(1), 97.10.6007/IJARBSS/v5-i1/1404
- Singh, A. (2015). Performance of credit risk management in Indian commercial banks. *International Journal of Management and Business Research*, 5(3), 169-188. Retrieved on 31<sup>st</sup> August 2022 from [https://ijmbr.srbiau.ac.ir/article\\_7080.html](https://ijmbr.srbiau.ac.ir/article_7080.html)

- Singh, J. (2013). Recovery of NPAs in Indian commercial banks. *International Journal of Transformations in Business Management*, 3, 77-95. Retrieved on 18<sup>th</sup> September 2022 from <http://www.ijtbtm.com>
- Singh, R., N. & Modiyani, R., A. (2013). Impact of Recovery Management on NPA: A Case Study of Bank of Maharashtra, *Indian Journal of Applied Research*, 3(5), 458-460. Retrieved on 12<sup>th</sup> September 2022 from [https://www.researchgate.net/publication/336133428\\_Impact\\_of\\_Recovery\\_Management\\_on\\_NPA\\_a\\_Case\\_Study\\_of\\_Bank\\_of\\_Maharashtra](https://www.researchgate.net/publication/336133428_Impact_of_Recovery_Management_on_NPA_a_Case_Study_of_Bank_of_Maharashtra)
- Singh, V. B. (2016). A Study of Non-Performing Assets of Commercial Banks and it's recovery in India. *Annual Research Journal of SCMS*, 4, 110-125, Retrieved from <https://www.scmspune.ac.in/chapter/2016/Chapter%209.pdf>
- Sinkey, J.F., Greenawalt, M.B. (1991). Loan-loss experience and risk-taking behavior at large commercial banks. *Journal of Financial Services Research*, 5, 43-59. <https://doi.org/10.1007/BF00127083>
- Srikanth, M., & Kishore, B. (2014). Credit Risk Management in Indian Banks: An Emirical Assessment. *The Indian Economic Journal*, 62(1), 751-767. Retrieved on 31<sup>st</sup> August 2022 from <https://journals.sagepub.com/home/iej>
- Sukamolson, S. (2007). Fundamentals of quantitative research. *Language Institute Chulalongkorn University*, 1(3), 1-20. Retrieved 12 April, 2021 from [https://www.researchgate.net/publication/242772176\\_Fundamentals\\_of\\_quantitative\\_research](https://www.researchgate.net/publication/242772176_Fundamentals_of_quantitative_research)
- Sumathy, M., & Das, A. S. (2021). Recovery channels of NPA in scheduled commercial banks. *International Journal of Business and Administration Research Review*, 8 (3), 103, 108. Retrieved on 2<sup>nd</sup> October 2022 from [www.ijbarr.com](http://www.ijbarr.com)
- Suresh, N., Kumar, S. A., & Gowda, D. M. (2010). Credit Risk Management in Commercial Banks. *CURIE Journal*, 2(4), 72-83.
- Swain, R. K., Sahoo, M., & Mishra, A. P. (2017). Non-performing assets of scheduled commercial banks in India: Its regulatory frame work. *Parikalpana: KIIT Journal of Management*, 13(2), 154-162. DOI # 10.23862/kiit-parikalpana/2017/v13/i2/164529
- Swamy, V.(2020). Impact of Macroeconomic and Endogenous Factors on Non Performing Bank Assets, *International Journal of Banking and Finance*, 9(1), 27-47.<https://doi.org/10.32890/ijbf2012.9.1.8447>
- Tan, Y., Floros, C. and Anchor, J. (2017), The profitability of Chinese banks: impacts of risk, competition and efficiency, *Review of Accounting and Finance*, Vol. 16 No. 1, 86-105. <https://doi.org/10.1108/RAF-05-2015-0072>
- Tandon, D., & Tandon, N. (2019). Ballooning non-performing assets in Indian banking and insolvency and bankruptcy code: Resolution plans and cases. *International Journal of Political Activism and Engagement (IJPAE)*, 6(1), 1-24. Retrieved on 3<sup>rd</sup> October 2022 from <https://www.igi-global.com/article/ballooning-non-performing-assets-in-indian-banking-and-insolvency-and-bankruptcy-code/227751>
- Tanted, N., Gupta, R., & Gaykward, A. (2021). A Study of NPA and its Impact on Banking Performance. *N. L. Dalmia Institute of Management Studies and Research*, 5(2), 14–25. <https://doi.org/10.31794/NLDIMSR.5.2.2021.14-25>
- The Economic Times (n.d.). *What is 'Non Performing Assets'*. Retrieved on 4<sup>th</sup> September 2022 from <https://economictimes.indiatimes.com/definition/non-performing-assets>
- The Global Economy (n.d.). Non-Performing Loans-Country Ranking. Retrieved on 4<sup>th</sup> September 2022 from [https://www.theglobaleconomy.com/rankings/nonperforming\\_loans/](https://www.theglobaleconomy.com/rankings/nonperforming_loans/)
- The World Bank (n.d.). Financial Inclusion. Retrieved on 4<sup>th</sup> September 2022 from <https://www.worldbank.org/en/topic/financialinclusion/overview>
- The World Bank (n.d.). *International Monetary Fund, Financial Access Survey*. Retrieved on 2<sup>nd</sup> September 2022 from <https://data.worldbank.org/indicator/FB.CBK.BRCH.P5?locations=IN>

- Theivanayaki, M. (2017). *A Study on Non-Performing Assets in Indian Public and Private Sector Banks* (Doctoral dissertation). Available from Shodhganga-a reservoir of Indian theses @ INFLIBNET, (<http://hdl.handle.net/10603/230665>)
- Thiagarajan, S., Ayyappan, S., & Ramachandran, A. (2011). Credit risk determinants of public and private sector banks in India. *European Journal of Economics, Finance and Administrative Sciences*, 34(34), 147-153. Retrieved from <http://www.eurojournals.com>
- Thomas, L. (2021). *What is a cross-sectional study?* Retrieved December 11, 2021, from Scribbr Web Site: <https://www.scribbr.com/methodology/cross-sectional-study/>
- Thomas, R. & Vyas, R.K. (2016). A Comparative Analysis of Loan recovery strategy of Indian Banks, *Prajnan*, 2(12), 158-164.
- Tiwari, C.K. (2015). Management of NPA: Comparative Analysis of Non-Performing Assets in Selected Commercial Vs Co-operative Banks in Pune. *Asian Journal of Research in Banking and Finance*, 5(8), 59-63. 10.5958/2249-7323.2015.00100.5
- Tiwari, N. (2011). Resolution of NPA in India: The role of asset reconstruction companies. *Pratt's J. Bankr.* L., 7, 552. Retrieved on 30<sup>th</sup> September 2022 from <https://heinonline.org/HOL/LandingPage?handle=hein.journals/prattjb7&div=64&id=&page=>
- Transition of NPAs (2022). *Reserve Bank of India-Annual Report 2021-22*. Retrieved from <https://rbidocs.rbi.org.in/rdocs/AnnualReport/PDFs/0RBIAR2021226AD1119FF6674A13865C988DF70B4E1A.PDF>
- Tripathi, L. K., Parashar, A. R. P. A. N., & Mishra, S. (2014). A Comparative Study of Advances Contributing to Non-Performing Assets between SBI Group and Nationalized Banks. *International Journal of Marketing, Financial Services & Management Research*, 3(7), 147-157.[http://knimbusstore.s3.amazonaws.com/journal\\_article/14\\_IJMFSMR\\_VOL3\\_NO7\\_JULY2014.pdf](http://knimbusstore.s3.amazonaws.com/journal_article/14_IJMFSMR_VOL3_NO7_JULY2014.pdf)
- Unnikrishnan, D. (2021). How is the proposed 'Bad Bank' different from the existing ARC? Retrieved on 7<sup>th</sup> September 2022 from <https://www.moneycontrol.com/news/business/how-is-the-proposed-bad-bank-different-from-existing-arc-6436601.html>
- Upadhyay, R. K. (2019). Divergence of Bad Loans and their Provisioning and NPA in Indian Banking System, *The Deliberation*, 1-9. Retrieved on 30<sup>th</sup> September 2022 from [www.deliberation.in](http://www.deliberation.in)
- Uppal, R. K., & Juneja, A. (2012). NPAs of commercial banks in India—role of debt recovery channels. *Asian Journal of Research in Business Economics and Management*, 2(11), 174-188. Retrieved on 19<sup>th</sup> September 2022 from <https://www.indianjournals.com/ijor.aspx?target=ijor:ajrbem&type=home>
- Vallabh, G., Singh, D., Prasoon, R., & Singh, A. (2016). Methodology to predict NPA in Indian banking system. *Theoretical Economics Letters*, 6(4), 827-836. DOI: 10.4236/tel.2016.64087
- Valliammal, M., & Manivannan, S. K. (2018). A Study on Non-Performing Assets and Its Impact on Public Sector Banks in India. *International Journal of Scientific Research in Science and Technology (IJSRST)*, Print ISSN, 2395-6011. Retrieved on 18<sup>th</sup> September 2022 from <https://ijsrst.com/>
- Veerakumar, K. (2012). Non-performing assets in priority sector: A threat to Indian scheduled commercial banks. *International Research Journal of Finance and Economics*, 93(1), 6-23. Retrieved on 18<sup>th</sup> September 2022 from <http://www.internationalresearchjournaloffinanceandeconomics.com>
- Visaria, S. (2009). Legal Reform and Loan Repayment: The Microeconomic Impact of Debt Recovery Tribunals in India. *American Economic Journal: Applied Economics*, 1 (3): 59-81. DOI: 10.1257/app.1.3.59
- Waemustafa, W. & Sukri, S. (2015). Bank Specific and Macroeconomics Dynamic Determinants of Credit Risk in Islamic Banks and Conventional Banks . *International Journal of Economics and Financial Issues* , 5 (2) , 476-481 . Retrieved from <https://dergipark.org.tr/en/pub/ijefi/issue/31969/352147>

- Washington Bankers Association. (n.d.). *Risks in Banking*. Retrieved from [https://wabankers.com/images/wba/pdfs/Johnson\\_H.pdf](https://wabankers.com/images/wba/pdfs/Johnson_H.pdf)
- Weber, O. (2012). Environmental credit risk management in banks and financial service institutions. *Business Strategy and the Environment*, 21(4), 248-263.<https://doi.org/10.1002/bse.737>
- Weber, O., Hoque, A., & Ayub Islam, M. (2015). Incorporating environmental criteria into credit risk management in Bangladeshi banks. *Journal of Sustainable Finance & Investment*, 5(1-2), 1-15.<https://doi.org/10.1080/20430795.2015.1008736>
- Xiao, N., Xu, Y., & Duan, H. (2021). Research on the Application of Financial Non-performing Assets Appraisal Based on Comprehensive Factor Analysis Method. In *E3S Web of Conferences* (Vol. 292, p. 02059). EDP Sciences.<https://doi.org/10.1051/e3sconf/202129202059>

#### **List of Publication**

1. A Comparative Study of Public Sector Bank and Private Sector Bank's Advances and NPA Management. Published by Dr.Kerav Pandaya and Naren Sharma in Asian Journal of Organic & Medicinal Chemistry (Special Issue - AJOMC Vol. 7 No. 1 January - March Special Issue II 2022).
2. A COMPARATIVE STUDY OF VARIOUS RECOVERY TOOLS FOR BANK'S NPA IN INDIA.. Published by Dr.Kerav Pandaya and Naren Sharma in Mukt Shabd Journal ( Volume XI, Issue IV, April 2022).

## **Annexure- I Questionnaire**

**"A study on NPA resolution mechanism of Indian Financial institutes with a special reference to Gujarat"**

### **QUESTIONNAIRE**

Dear respondents,

I am Naren Sharma pursuing my Doctorate in GTU, Gandhinagar under the supervision of Dr. Kerav Pandya. For the research work, I have selected the topic "A study on NPA resolution mechanism of Indian Banks with a special reference to Gujarat". So, I kindly request you to provide and extend your support for filling the questionnaire. The goal of this survey is to gather information and opinions of RPs in Gujarat to determine which is effective recovery mechanism for NPA recovery. The information gathered here will help to develop model that support Financial institute in selection of effective tool for NPA. The information will be kept confidential and the same would be used only for academic purpose. This will be purely used for the research purposes only.

Thanking you.

Naren Sharma,

Research Scholar,  
Gujarat Technical University,  
Gandhinagar.

Name: \_\_\_\_\_

Gender:  Male

Female

Location of work : \_\_\_\_\_

Qualification:

- Chartered Accountant
  - Company Secretary
  - Cost Accountant Advocate
  - Banker
- Designation : \_\_\_\_\_
- Work Experience : \_\_\_\_\_
- 10-20 years
  - 20-30 years
  - Above 30 years

### Questionnaire

A . Please indicate your opinion by placing a (✓) mark at appropriate column in the five point response scale.

Sr. No.	Your opinion	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
A - 1	A financial risk assessment will help to identify a simplistic and broad classification of loans exposures into a good or a bad category at the prior stag.	<input type="checkbox"/>				
A - 2	During credit assessment of the proposal evaluate Business Risk, Industry Risk and Project Risk parameters will reduce the chances of NPA in the future.	<input type="checkbox"/>				
A - 3	Effective Management Information System (MIS), required to manage and measure the reviews, periodic credit calls, periodic visits, and reviews of troubled exposures.	<input type="checkbox"/>				
A - 4	Financial institutes need to develop Industry-wise credit portfolio to remove credit loopholes. A diversified credit portfolio will reduce the risk assets	<input type="checkbox"/>				

Sr. No.	Your opinion	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
	of FI.					
A - 5	Financial institutes ignore account conduct and previous default while sanctioning the loan proposal which resulting in NPA.	<input type="checkbox"/>				
A - 6	To manage assets portfolio availability of skilled staff is generally inadequate.	<input type="checkbox"/>				
A - 7	Various government bodies like CII, FICCI, Federation of India Exporters Association, Chambers of Commerce and Industry, CCI are supporting financial institutes and borrowers to recovering the dues.	<input type="checkbox"/>				
A - 8	The financial institution needs to change the approach towards early problem recognition in SMA accounts. Aggressively take remedial action and implement a pre-pack resolution plan for recovery of accounts.	<input type="checkbox"/>				
A - 9	From the viewpoint of the financial institute, a good value realization can be obtained if the firm is sold as a going concern.	<input type="checkbox"/>				
A - 10	The financial institute works out a one-time settlement for quick settlement of NPA.	<input type="checkbox"/>				
A - 11	Financial institutes sell NPA assets to ARC's for quicker resolution.	<input type="checkbox"/>				
A - 12	Equal participation by all stakeholders required in the resolution process. Management change will give effective results in the NPA resolution process.	<input type="checkbox"/>				

Sr. No.	Your opinion	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
A - 13	Regulatory and government is lacking in effective reform like developing a secondary market for bad loans.	<input type="checkbox"/>				
A - 14	Government / RBI force financial institutions to drive various scheme to distribute fund aggressively which lead to higher NPA cases.	<input type="checkbox"/>				
A - 15	To cater volume of NPA cases present available infrastructure and resources are inadequate in IBBI and DRT which results in delays in the resolution process.	<input type="checkbox"/>				
A - 16	Auditors, CA, Accountants, Workers and all stakeholder would help to recover the financial institutes dues in an effective manner.	<input type="checkbox"/>				
A - 17	Cross Border Insolvency Framework in India need to be improve	<input type="checkbox"/>				

**B . The following are some of the approaches for NPA Resolution. Please indicate the statements by placing a √ mark at appropriate column.**

Sr. No.	Financial institute's preferable approaches for NPA Reduction	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
B - 1	Recovery by Lok adalat	<input type="checkbox"/>				
B - 2	Recovery by DRTs	<input type="checkbox"/>				
B - 3	Recovery by Enforcement of SARFAESI Act 2002	<input type="checkbox"/>				
B - 4	Recovery by filing of suit in IBC.	<input type="checkbox"/>				

**C . The following are the opinion on Lok Adalats NPA resolution process. Please indicate the statements by placing a √ mark at appropriate column.**

Sr. No.	Your opinion on NPA Tool Lok Adalats	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
C - 1	A small loan amount should be preferred for resolution under Lok Adalats	<input type="checkbox"/>				
C - 2	Large loan amount should be preferred for resolution under Lok Adalats	<input type="checkbox"/>				
C - 3	Unsecured loans should be preferred for resolution under Lok Adalats	<input type="checkbox"/>				
C - 4	Secured loans should be preferred for resolution under Lok Adalats	<input type="checkbox"/>				
C - 5	The time frame for realization of the loan amount longer in Lok Adalats	<input type="checkbox"/>				
C - 6	Lok Adalats is very cost effective tool for NPA recovery	<input type="checkbox"/>				
C - 7	In case of natural and genuine business failure Lok Adalats consider to be effective tool for recovery	<input type="checkbox"/>				
C - 8	In case of wilful defaulter Lok Adalats consider to be effective tool for recovery	<input type="checkbox"/>				
C - 9	All action under the Lok Adalats be approved by delegated authority	<input type="checkbox"/>				

**D . The following are the opinion on NPA resolution process under SARFAESI Act. 2012. Please indicate the statements by placing a √ mark at appropriate column.**

Sr. No.	Your opinion on NPA recovery tool SARFAESI Act	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
D - 1	A small amount should be preferred for resolution under SARFAESI Act	<input type="checkbox"/>				

Sr. No.	Your opinion on NPA recovery tool SARFAESI	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
D - 2	Large loan amount should be preferred for resolution under SARFAESI Act	<input type="checkbox"/>				
D - 3	Unsecured loans should be preferred for resolution under SARFAESI Act	<input type="checkbox"/>				
D - 4	Secured loans should be preferred for resolution under SARFAESI Act	<input type="checkbox"/>				
D - 5	The time frame for realization of the loan amount shorter in SARFAESI Act	<input type="checkbox"/>				
D - 6	SARFAESI Act is very cost effective tool for NPA recovery	<input type="checkbox"/>				
D - 7	In case of natural and genuine business failure consider to be effective to use SARFAESI Act for recovery	<input type="checkbox"/>				
D - 8	In case of wilful defaulter consider to be effective to use SARFAESI Act for recovery	<input type="checkbox"/>				
D - 9	All action under the SARFAESI Act be approved by delegated authority	<input type="checkbox"/>				

**E . The following are the opinion on NPA resolution process under DRT be considered on the following basis. Please indicate the statements by placing a √ mark at appropriate column.**

Sr. No.	Your opinion on NPA recovery tool DRT	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
E - 1	A small amount should be preferred for resolution under DRT	<input type="checkbox"/>				
E - 2	Large loan amount should be preferred for resolution under DRT	<input type="checkbox"/>				
E - 3	Unsecured loans should be preferred for resolution under DRT	<input type="checkbox"/>				

Sr. No.	Your opinion on NPA recovery tool DRT	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
E - 4	Secured loans should be preferred for resolution under DRT	<input type="checkbox"/>				
E - 5	The time frame for realization of the loan amount longer in DRT	<input type="checkbox"/>				
E - 6	DRT is very cost effective tool for NPA recovery	<input type="checkbox"/>				
E - 7	In case of natural and genuine business failure consider DRT to be effective tool for recovery	<input type="checkbox"/>				
E - 8	In case of wilful defaulter consider DRT to be effective tool for recovery	<input type="checkbox"/>				
E - 9	Action under DRT be approved by the delegated authority	<input type="checkbox"/>				

F . The following are the opinion on IBC for NPA resolution process. Please indicate the statements by placing a √ mark at appropriate column.

Sr. No.	Your opinion on NPA recovery tool IBC	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
F - 1	A small amount should be preferred for resolution under IBC	<input type="checkbox"/>				
F - 2	Large loan amount should be preferred for resolution under IBC	<input type="checkbox"/>				
F - 3	Unsecured loans should be preferred for resolution under IBC	<input type="checkbox"/>				
F - 4	Secured loans should be preferred for resolution under IBC	<input type="checkbox"/>				
F - 5	Time frame for realization of the loan amount shorter in IBC	<input type="checkbox"/>				
F - 6	IBC is very cost effective tool for NPA recovery	<input type="checkbox"/>				

Sr. No.	Your opinion on NPA recovery tool IBC	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
F - 7	In case of natural and genuine business failure consider IBC to be effective tool for recovery	<input type="checkbox"/>				
F - 8	In case of wilful defaulter IBC consider to be effective tool for recovery	<input type="checkbox"/>				
F - 9	Action under the IBC Act be approved by the delegated authority	<input type="checkbox"/>				

## PART- C

**Please offer your suggestions form your practical experience to contain the problem of NPAs taking into consideration the present constraints.**

---



---



---



---