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NPA MANAGEMENT STRATEGY OF ICICI BANK IN INDIAN SCENARIO: A STUDY OF PRE-CRISIS, CRISIS AND POST CRISIS PERIOD

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ABSTRACT

Strong banking system is the vital component for the economic growth of any economy. Indian banking industry has huge canvas of history and with the privatization it has achieved new heights in the changing times. Private sector plays very important role in Indian banking sector because it helps to bring technology advancement in the industry at a faster pace. The use of technology has brought a revolution in the working style of the banks and on the other side in the first decade of the 21st century, world economy was passing through complex circumstances as in the form of insolvency of banking and financial institutions, debt crisis etc. This scenario has resulted into negative impact on major developed economies as well and raises some valid questions about the survival & growth of economies. Present paper attempts to analyse the NPA management strategies of ICICI bank, which is one of the leading private sector banks in India, during the period of 15 years from 2001-2015. As per requirement of analysis, period is divided in 3 parts i.e. pre –crisis, crisis and post-crisis period. It presents the trend analysis of NPAs of private sector banks vis-à-vis ICICI bank and industry sector analysis through loan exposure data and NPAs out of loan distribution to various industries.

Keywords: *Non-Performing Assets, Private Sector Banks, Industry and Trend Analysis, Financial Crisis.*
JEL CLASSIFICATION: *G01, G21, G28*

Introduction

In Indian banking history, the private sector banks played an important role in the growth of the commercial banking system. It was observed that the prominent growth of private sector banks was take place in the first half of the 20th century. The Private sector banks are those banks, where majority of equity are held by the private shareholders. According to the Indian financial regulators private sector banks can split into two parts: Old private sector banks and New private sector banks. The Old & New private sector banks have arisen again, since the liberalization of the government banking policy in 1990s. Over the two decades, they have grown faster & bigger by using the latest technology, providing new innovation and monetary tools & techniques.

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ICICI (Industrial Credit & Investment Corporation of India) Bank

ICICI bank is the largest private sector bank with its total assets of Rs 12.50 trillion at 30th June 2019, & has currently network of 4882 branches & 15101 ATMs across India. Currently Bank offered a wide variety of banking & financial services through its subsidiaries to corporate & retail customers. It has several delivery channels in the areas of investment banking, life and non-life insurance, venture capital and asset Management.

ICICI bank was wholly owned subsidiary of ICICI Ltd. & established in 1994. The Parent Company (ICICI Ltd.) was created by the initiative of the world bank, the Government of India and public sector insurance companies with the objective to provide medium and long term project financing to Indian industry. Later on Parent company was also merged with the bank.

In 1999, it became the first Indian company or bank to be listed in New York Stock Exchange from non- Japan Asia. During 2001-02, Bank of Madura Ltd acquired by this Bank. In 2007 and 2010 ICICI acquired Sangli Bank which is the private sector unlisted Bank & Bank of Rajasthan also acquired for Rs30 billion.

ICICI bank was established during the period of deregulation and liberalization. Banking sector was dominated by state owned & foreign banks at that time. With the strategic management, ICICI bank decided to cater the untapped opportunity i.e. the middle class and corporate class on the much higher scale & at the lower cost. For this it needed a robust technology platform & to achieve this purpose it joined the hands with Infosys. From the first day of its working it was automated. It got various awards and recognition for its technology driven services in the different period

NPA Management of ICICI Bank

NPA Management of ICICI Bank explained here through the Trend of NPA of ICICI vis-à-vis Private sector Banks, followed by Classification of Loan assets of the Bank, Loan exposure to different industries, then reason of NPAs find out by analysis the NPAs of different sector in Pre-crisis, Crisis & Post-crisis period.

Trends of NPAs of ICICI Bank vis-à-vis Private Sector Banks

Table I: Trends of NPAs of ICICI Bank vis-à-vis Private Sector Banks

Period	Year	PvtSB	ICICI
Pre Crisis Period	2001	5.44	2.19
	2002	5.73	5.48
	2003	4.95	5.21
	2004	2.84	2.21
	2005	1.85	2.21
	2006	1.01	0.72
crisis period	2007	0.97	1.02
	2008	1	**1.55**
	2009	1.29	**2.09**
	2010	1.03	**2.12**
Post crisis period	2011	0.56	1.11
	2012	0.5	0.73
	2013	0.5	0.77
	2014	0.7	0.82
	2015	0.9	1.4

Source: www. http://dbie.rbi.org.in/

In pre-crisis period (2001-2006) ICICI Bank initially recorded lower NNPA Ratio than average of Private sector banks which is lowest in 2006 i.e. 0.72% as compared to industry average of 1.01%.

Now look at the crisis period (2007-2010) the situation is found to be reverse. In 2007 ICICI recorded NNPA ratio of 1.02 (PvtSB – 0.97), followed by 1.55(PvtSB- 1%) in 2008, 2.09(1.29- PvtSB) in 2009 and 2.12 (PvtSB – 1.03) in 2010. This trend indicates rise of NNPA in greater proportion of ICICI Bank as compare to the industry average NNPA of all Private sector Banks. Further, the data of post crisis period validates that the sufferings of ICICI had not come to halt even in 2011, 12, 13, 14 & 15.

Classification of Loan Assets

Table II: Classification of Loan Assets

	Year	Standard	Sub - Standard	Doubtful Assets	Loss Assets
Pre Crisis-Period	2001	**94.8**	**1.5**	**3.7**	-
	2002	94	2.2	3.8	-
	2003	95	1.9	3.1	-
	2004	97.1	1	1.9	-
	2005	98	0.6	1.4	-
	2006	**98.5**	**0.7**	**0.74**	**0.06**
Crisis Period	2007	**98**	**1.2**	**0.79**	**0.01**
	2008	96.9	2	0.91	0.19
	2009	95.9	2.6	1.3	0.2
	2010	**95.5**	**2.3**	**1.9**	**0.3**
Post Crisis Period	2011	**96.3**	**0.7**	**2.7**	**0.3**
	2012	**98**	**0.3**	**1.5**	**0.2**
	2013	98.2	0.35	1.27	0.18
	2014	98.22	0.38	1.06	0.34
	2015	**97.64**	**0.41**	**1.56**	**0.39**
(-) all the loss assets have been written off or provided for					

Source: Annual reports of ICICI Bank

With reference to Table no II, in the pre –crisis period (2001-2006) standard assets of the ICICI were rising from 94.8% to 98.5% and due to this Sub-standard and Doubtful asset were decreasing from 1.5% & 3.7% to 0.7% & 0.74% respectively. Loss Assets were almost negligible and have been written off. In the period of Crisis (2007-2010), the situation is opposite to that of. The percentage of standard assets started declining from 98% to 95.5% which was not good for the financial health of the Bank. Due to this all types of NPA were rising. Sub-standard increased from 1.2% to 2.3%, Doubtful assets rose up from 0.79% to 1.9% vis-à-vis loss assets from 0.01% to 0.3%. This indicates ICICI was affected bank in the global crisis period. In the post crisis period (2011-15), Situation of NPAs was improving little bit, this can be analyze by increasing percentage of standard assets from 96.5% in 2011 to 98.22% in 2014, Doubtful assets were declining from 2.7% in 2011 to 1.06% in 2014. Sub-standard & loss assets were moved in the same direction, these had declined from2011 to 2012 but from 2013 onwards both were rising (Sub-standard from 0.35%in 2013 to 0.41% in 2015 & loss assets from 0.18% in 2013 to 0.39% in 2015, approx. twice in two years.)

Analysis of Loan Exposure

Table III: Loan Exposure of ICICI Bank (With Reference to Different Industries)

	Pre- Crisis Period						Crisis Period				Post - Crisis Period				
Name of the Industries	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Iron & Steel Industry	11.4	11.1	9.6	7.6	5.1	3.1	2.5	4.1	4.4	4.6	4.2	4.6	5.4	5.4	5.6
Electricity & Power	11	11.2	10.1	3.6	1.9	1.8	2.1	2.5	2.4	3	4.4	5.4	6.2	6.4	6.2
Retail finance	**2.6**	**7.9**	**22.8**	**51.5**	**60.9**	**62.9**	**65.2**	**58.6**	**49.3**	**44.4**	**39.7**	**39.3**	**37.7**	**40.8**	**43.5**
Services	12.8	9.3	8.5	3.6	3.2	5.2	7.7	9.2	11	10.6	14.9	13.2	12.2	9.8	9
Textiles	7.1	6.2	4.9	2.6	1.7	0.9	N.A	N.A	N.A	1	0.9	N.A	N.A	N.A	N.A
Crude oil & Petroleum, refining	9.5	5.4	4.1	3.4	3.3	2.7	2.5	2.5	6.4	7.1	6.3	2.7	3	3	2.9
Road, Railways, Port, Telecom	5.8	6.5	7.1	3.4	3.3	2	1.5	2.2	4.2	5.4	5.8	6.9	7.3	7.3	6.1
Electronics & Engineering	2.5	6.4	6.1	3.7	1.8	1.6	1.1	0.9	1.6	1.7	2	2.1	2.2	2.3	1.7
Cement	3.9	2.8	2.3	1.9	1.3	0.5	N.A	N.A	N.A	N.A	N.A	1.5	2.2	2.2	2.3
Chemical & its product	7.3	2.5	1.7	5.1	3	2.7	2.5	1.7	2.3	2.5	1.3	1.3	1.2	N.A	N.A
Food processing	N.A	1.4	1.4	0.2	0.7	2.7	2.2	2.8	2.4	3.3	3.2	2.5	2.3	2.1	1.6
Wholesale & retail trade	N.A	N.A	N.A	N.A	N.A	0.9	1.2	1.1	1.2	2.4	2.3	1.8	1.9	1.9	2.9

In order to find out the possible **reasons of NPA**, an **analysis of loan exposure** by ICICI Bank have been done (Please refer to Table -III). The Exposure of Loan by ICICI Bank indicates that retail finance topped the loan basket with 60.9% (in 2005) followed by Iron & Steel Industry (5.1%), Crude oil& petroleum (3.3%), Infrastructure (Railways, Roads, Port, Telecom) with 3.3%, with the less difference services took place next position (3.2%), then chemical & its product (3%), followed by Electricity & Power (1.9%). In the crisis period, retail loan declined vis-à-vis share of services, Crude oil& Infrastructure (Road, Railways, Port & telecom) increased during the crisis period. In the post crisis period share of services was high (14.9%) after retail finance in 2011, after that share of services declined but it was still more than another sector. Iron & steel industry, Electricity & power & Infrastructure (Road, Railways, port & telecom) played prominent role during the post crisis period.

Table IV: Average of Loan Exposure to Different Industries (in %)

Name of the Industries	Average of Loan in Pre-Crisis Period	Average of Loan in Crisis Period	Average of Loan in Post-Crisis Period
Iron & Steel Industry	7.83	3.9	5.38
Electricity & Power	6.6	2.5	5.72
Retail finance	**34.77**	**54.38**	**40.2**
Services	**7.1**	**9.62**	**11.82**
Textiles	3.9	1	0.9
Crude oil & Petroleum, refining	4.73	4.63	3.58
Road, Railways, Port, Telecom	**4.68**	**3.33**	**6.68**
Electronics & Engineering	3.68	1.33	2.06
Cement	2.11	N.A	2.05
Chemical & its product	3.72	2.25	1.27
Food processing	1.28	2.68	2.34
Wholesale & retail trade	**0.9**	**1.48**	**2.16**
Construction	**0.37**	**1.33**	**2.22**

Source: Annual Reports of ICICI

With reference to Table IV, Retail finance was the prominent sector of loan exposure in all the segment of time period but it was highest (54.38%) in the crisis period. Share of service sector was continuously increasing from pre-crisis period to post –crisis period (7.1% to 11.82%). Share of Infrastructure sector was increased twice approx. from crisis period to post crisis period (3.33% to 6.68%), similarly with the sector Iron & Steel and Electricity & Power. Average loan exposure to wholesale & retail trade and construction sector had increased from pre-crisis period to post-crisis period (0.9% to 2.16% & 0.37% to 2.22%). Average share of Textile had declined from pre-crisis period to post-crisis period (3.9% to 0.9%).

Table V: Composition of Retail Finance (in %)

Types of Retail Finance	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Home Loan	50.3	49.3	49.4	**49.3**	**52.2**	**57.1**	**60.8**	**47.6**	**51.5**	50	51.6
Auto loan	**21.4**	**20.4**	**14.8**	**13**	**12.1**	**10.2**	**9.6**	**9.2**	10.3	10.9	10.9
Commercial Business Loan	13.8	12.2	15.7	15.1	14.9	16.5	17.2	**17.5**	**13.5**	**8.8**	**6.3**
Personal Loan	4.4	6.3	**9.6**	**10.7**	**9.9**	**6.9**	4.5	2.9	2.8	3.3	4.1
Credit Card	3.6	4.7	N.A	**9.2**	**8.2**	**7.1**	5.5	4.5	3.2	2.6	2.4
Others	6.5	7.2	*10.5	2.7	**2.7**	**9.3**	**7.9**	**18.3**	**19.1**	**24.4**	**24.7**
* It include credit card also.											

Source: Annual Reports of ICICI

As per the table V, retail finance had major share in loan exposure of ICICI Bank & Retail finance include Home loan, Auto loan, commercial business loan, Personal loan , credit card etc. as per the table 6. Home loan played important role in Retail finance (approx. 50% of retail finance as per the table 5). Share of home loan had increased during the crisis period from 49.4% in 2007 to 57.1% in 2010 because it is the most secured loan for Banks. It was highest in 2011 (60.8%). Share of Auto loan continuously declining from 2005 to 2012 (from 21.4% to 9.2%). It was rising from 2013. Commercial Business loan has significant share in Retail finance, as per the table, it increased during the crisis period from 2009 to 2012 from where it was declining (in the post crisis period). Personal Loan & credit card are unsecured loans; these were declining during the crisis period (Personal Loan from 9.6% in 2007 to 6.9% in 2010 & in case of Credit card from 9.2% in 2008 to 7.1% in 2010). Share of other types of retail loans was increasing from 2009 (2.7%) to 2015 (24.7%).

Analysis of Non-Performing Assets with Reference to Different Industries

Table VI: Non-performing Assets of ICICI: Industry wise Analysis (in %)

	Pre-crisis Period						Crisis Period				Post-crisis Period				
Name of the Industry	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Textile	**14.9**	**15.1**	**16.3**	**10.8**	**9.4**	**7.3**	**2**	1.4	1.8	2	2.2	N.A	N.A	N.A	N.A
Man made fibre	11	8.3	**9.8**	**N.A**	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A
Iron & Steel	**10.2**	**15.4**	**13.3**	**3.4**	**1.9**	0.9	1.8	1.6	N.A	1.5	0.2	0.9	2.1	**2.3**	**6.4**
chemical & its product	**6.5**	**7.9**	**8.7**	**18.4**	**11.6**	**7.2**	3.9	2.5	2	2.6	2	1.6	1.4	N.A	N.A
Food processing	6.3	4.9	3.2	2.5	2.1	2.9	3	0.8	1.1	1.7	2.9	1.6	2	3.5	2.6
Metal & its product	6.3	5.8	6.9	3.7	1.1	0	0	0.1	0.2	0.7	1.3	1.2	1.1	1	1.1
Electronic & engineering	4.9	9.2	10.9	10	**8.2**	**2.4**	1.5	0.7	0.8	0.7	**0.7**	**1.9**	**2.7**	**2.8**	**5.3**
cement	3.5	3	2.4	3.8	0.6	0	0	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A
paper & its product	3	4	3	3.8	1	0.3	0.2	0.1	0.1	0	0.5	N.A	N.A	N.A	N.A
services	N.A	0.7	4.8	5.4	4.1	4.9	2	2.1	1.7	2.9	2.7	0.4	9.1	14.9	15.8
Power	N.A	N.A	N.A	**15.3**	**21.3**	0	0	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0
Infra - telecom	N.A	N.A	N.A	0	6.2	0	0	N.A	N.A	N.A	N.A	**0.2**	**0.1**	**7.8**	**12**
Retail finance	N.A	N.A	N.A	N.A	N.A	**62.3**	**73.8**	**72.7**	**72.9**	**67.2**	**65.6**	**80.2**	**60.3**	**39**	**22.2**
Wholesale & retail trade	N.A	N.A	N.A	N.A	N.A	N.A	N.A	0.1	1.5	2.3	3.8	1.2	4.3	3.9	3
Construction	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	**0.9**	**2.3**	**3**	**4.8**
Note : Retail finance include Home loan, Auto loan, commercial business loan, personal loan, credit card loan & others.															

In the Pre-crisis period (2001-2006), till 2005 NPAs generated mainly from Textile, Iron & Steel, chemical & its product, and from electronic & engineering but from 2006 onwards retail finance was become highest NPA generator sector. As per the table VI from 2001 to 2004 NPA percentage of chemical & its product was increasing from 6.5% to 18.4% & reverse of it food processing showing decreasing trend from 6.3% to 2.1%. Textile and Iron & Steel sector showing fluctuating trend but % share was important. During the crisis period Retail finance was the prominent sector but showing decreasing trend from 73.8% to 67.2%. as contrary of it wholesale & retail trade show increasing trend from 0.1% to 3.8%. Next of it was services then chemical & its product.

In post-crisis period, some new sector showed majority NPAs like in 2015, Retail finance took first position with 22.2%, followed by services (15.8%), infra-telecom 12%, Iron & steel (6.4%) then Electronic & engineering. Construction &Infra-telecom were new sector showed increasing NPAs trend in the Post –crisis period from 0.9% to 4.8% and 0.2% to 12% respectively. Similar services increased from 2.7% to 15.8%, Iron & steel from 0.2 to 6.4%, and Electronic & engineering from 0.7% to 5.3%.

Table VII: Average of GNPA: Industry Wise (in %)

Name of the Industries	Average of GNPA in Pre-crisis Period	Average of GNPA in Crisis Period	Average of GNPA in Post-crisis Period
Textile	12.3	1.8	2.2
Man-made fiber	9.7	N A	N A
Iron & Steel	7.52	1.63	2.38
chemical & its product	10.05	2.75	1.67
Food processing	3.65	1.65	2.52
Metal & its product	3.97	0.25	1.14
Electronic & engineering	7.6	0.925	2.68
Cement	2.22	NA	NA
paper & its product	2.52	0.1	0.5
Services	3.98	2.18	8.58
Power	12.2	0.1	0.1
Infra - telecom	2.1	N A	5.02
Retail finance	62.3	71.65	53.46
Wholesale & retail trade	NA	1.3	3.24
Construction	NA	NA	2.75

Source: Annual reports of ICICI Bank.

As per the Table VII, on the basis of Average of Gross NPA from different industries, In the pre-crisis period Retail finance had major NPAs with 62.3% of total, followed by Textile(12.3%), Power (12.2%), Chemical & its product(10.05%) then man-made fiber(9.7%), Electronic & Engineering(7.6%), Iron & Steel(7.52%) after that services & metal & its product took the place.

In the Crisis period also Retail finance tool first place in case of GNPA % with highest of three period i.e.71.65% followed by chemical & its product (2.75%), services (2.18%), 1.65% - food processing & 1.63% - Iron & steel.

In the post-crisis period, Average GNPA % of Retail Finance had declined to 53.46% which was minimum in all three segment of period but still highest among all other sectors. Followed by services 8.58%, Infra-telecom- 5.02%, wholesale & retail trade -3.24%, construction- 2.75%, then Electronic & engineering-2.68%, food processing -2.52%.

Objective of the Study

- To study the Trend analysis of ICICI Bank in the Pre –crisis, crisis period as well as post-crisis period.
- To find out the reasons of NPAs through industry analysis.

Research Methodology

- **Research design** used to carry out this study is descriptive research.
- **Time Period of the Study:** For this study NPA of ICICI Bank has been evaluated. The study is done on the basis of data for the period of 15 years from the financial year 2001-2015
- **Data Collection:** secondary data is collected mainly from the ICICI Publications, bulletins & its website. Data is presented with the help of tables.

Hypotheses

H_{01}: There is not a significant difference between the industries of loan exposure in the Pre- Crisis Period, Crisis and Post-crisis Period of ICICI bank.

H_{02}: There is not a significant difference between the average loan exposure of Pre-Crisis, Crisis period and Post-crisis period of ICICI bank.

H_{03}: There is not a significant difference between the average NPAs of Pre-crisis, Crisis period and Post-crisis period of ICICI bank.

H_{04}: There is not a significant difference between the industries belongs to NPAs in the Pre-crisis, Crisis period and post-crisis period of ICICI bank.

Findings & Analysis

Industry analysis of NPAs of ICICI Bank

- **Average Loan Exposure with Reference to Different Industries**

Analysis of average loan exposure with reference to different industries has done on the basis of table IV which indicates the average loan exposure to different industries in the pre-crisis period, crisis period and the post-crisis period. Two-way ANOVA is used to check whether there is any difference in the average loan exposure in the pre – crisis, crisis period and post-crisis period or not and simultaneously is there any difference in industries of loan exposures in Pre-crisis, Crisis period and post-crisis period. For that two Null Hypotheses have postulate: first to check the difference of column (H_{02}: average of loan exposure), second to check the difference of Rows (H_{01}: Industries of loan exposure)

Anova: Two-Factor Without Replication				
Summary	**Count**	**Sum**	**Average**	**Variance**
Iron & Steel Industry	3	17.11	5.703333	3.939633
Electricity & Power	3	14.82	4.94	4.6588
Retail finance	3	129.35	43.11667	102.5182
Services	3	28.54	9.513333	5.578133
Textiles	3	5.8	1.933333	2.903333
Crude oil & Petroleum, refining	3	12.94	4.313333	0.405833
Road, Railways, Port, Telecom	3	14.69	4.896667	2.840833
Electronics & Engineering	3	7.07	2.356667	1.446633
Cement	3	4.16	1.386667	1.443033
Chemical & its product	3	7.24	2.413333	1.520633
Food processing	3	6.3	2.1	0.5332
Wholesale & retail trade	3	4.54	1.513333	0.397733
Construction	3	3.92	1.306667	0.856033
Average of loan in pre-crisis period	13	81.67	6.282308	78.75494
Average of loan in crisis period	13	88.43	6.802308	210.0966
Average of loan in post-crisis period	13	86.38	6.644615	110.5692

ANOVA						
Source of Variation	**SS**	**df**	**MS**	**F**	**P-value**	**F crit**
Rows	4536.814	12	378.0678	35.41124	2.62E-12	2.18338
Columns	1.848313	2	0.924156	0.08656	0.917366	3.402826
Error	256.2358	24	10.67649			
Total	4794.898	38				

Source: Generated by the Researcher

Interpretation

For Column, p-value is 0.917366 which is greater than the level of significance 0.05, so H_{01} accepted and it is concluded that there is not a significant difference between the average loan exposure in the pre –crisis, crisis period and post-crisis period among different industries. It can verify also from the above table that average loan to industries in the pre-crisis period is 6.28 and average loan exposure to industries in the crisis period is 6.80 where as in post crisis period, it is 6.64.

For Rows, p-value is 2.62E-12 which is very much less than the level of significance 0.05, so H_{02} rejected and it is concluded that there is a significant difference among the industries to which loan have given in the pre-crisis period, crisis period and post-crisis period. It means loan exposure to industries in the pre-crisis period and/or crisis period is different from industries in the post-crisis period.

- **Average Gross NPAs with Reference to Different Industries**

Industrial Analysis of NPAs has done as per the table VII which indicates the average GNPA of ICICI from different industry. Two-way ANOVA is used to check that whether there is significant difference in NPAs of the pre-crisis, crisis period and post-crisis period of ICICI bank or not and simultaneously is there any significant difference of industries which create NPAs in the pre-crisis, crisis period and post-crisis period.

Two Null Hypotheses have postulate: first to check the difference of column (H_{03}: NPAs), second to check the difference of Rows (H_{04}: industries)

ANOVA: Two-factor without Replication				
Summary	**Count**	**Sum**	**Average**	**Variance**
Textile	3	16.3	5.433333	35.40333
Man-made fiber	3	9.7	3.233333	31.36333
Iron & Steel	3	11.53	3.843333	10.27903
chemical & its product	3	14.47	4.823333	20.78013
Food processing	3	7.82	2.606667	1.005633
Metal & its product	3	5.36	1.786667	3.773233
Electronic & engineering	3	11.205	3.735	11.97368
Cement	3	2.22	0.74	1.6428
paper & its product	3	3.12	1.04	1.6828
Services	3	14.74	4.913333	10.89333
Power	3	12.4	4.133333	48.80333
Infra – telecom	3	7.12	2.373333	6.356133
Retail finance	3	187.41	62.47	82.7407
Wholesale & retail trade	3	4.54	1.513333	2.658533
Construction	3	0	0	0
Average of GNPA in pre-crisis period	15	140.11	9.340667	231.6225
Average of GNPA in crisis period	15	84.335	5.622333	334.509
Average of GNPA in post-crisis period	15	83.49	5.566	180.7833

Source of Variation	SS	df	MS	F	P-value	F crit
Rows	10058.48	14	718.4629	50.50381	4.23E-16	2.063541
Columns	140.3864	2	70.19321	4.934179	0.0146	3.340386
Error	398.3256	28	14.22591			
Total	10597.19	44				

Source: Generated by the Researcher

Interpretation

For Column, p-value is 0.0146 which is less than the level of significance 0.05, so H_{03} rejected and it is concluded that there is a significant difference between the average NPAs in the pre-crisis, crisis period and post-crisis period from different industries. It can also verify from the above table that average GNPA in the pre-crisis period is 9.340667 and average of GNPA in the crisis and post crisis period are 5.622 and 5.56 respectively.

According to the post hoc analysis, p-value is 0.929278 which is greater than the level of significance 0.05, so null hypothesis accepted there and it is concluded that there is not a significant difference between the average NPAs in crisis period and post-crisis period from different industries.

For Rows, p-value is 4.23E-16 which is less than the level of significance 0.05, so H_{04} rejected and it is concluded that there is a significant difference among the industries which create NPAs in the pre-crisis, crisis period and post-crisis period. It means industries which were responsible for NPAs in the pre-crisis period are different from industries which were responsible for NPAs in the crisis and post-crisis period.

Suggestions

It was challenged to the bank concerning new investment opportunities and the assets quality of these areas. Average % of secured loans is more than average % of unsecured loans in the crisis as well as in the post-crisis period. NPAs belonged to both the segments, so proper valuation of primary & collateral securities should be done.

Some instances were noticed regarding the forceful recovery of debt. Banks should develop healthy banker-borrower relationship. No need to take hasty decision while granting loans, just to maintain good position in industry and meet the targets. Rigorous credit evaluation should be done by on the basis of 3C's; i.e. Capacity, Character and Collateral.

Conclusion

NNPA ratio of ICICI is almost less than the NNPA ration of private sector banks in Pre-crisis period but it was more throughout in crisis as well as post crisis period i.e. 2007 to 2015. Mainly loan exposure industries were Retail finance, Iron & steel, Electricity & power, Infrastructure, Services, Wholesale & retail trade etc. throughout the period of study. In the pre-crisis period, average GNPA arose from textile, chemical & its product, services, food processing and apart from these industries retail finance contribute mainly in crisis period and further Infrastructure, Iron & steel, Electronics & Engineering, Wholesale & retail trade, construction were contribute to increasing NPAs in the post-crisis period.

Limitation

It is a study of single bank only which represent a sector. This study considers only the industry analysis for NPAs whereas other qualitative aspects can be considered.

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