CHAPTER - IV

ANALYSIS AND INTERPRETATION OF DATA

SECTION-A

The incidence of non-performing assets (NPAs) is affecting the performance of the credit institutions both financially and psychologically. Non-performing asset (NPA) is not only non-performing but also makes the banker and the bank non-performing as it prevents or delays recycling of funds, denies income from the asset by way of interest and erodes profit by way of provisions. NPA is a disorder resulting in non-performance of a portion of loan portfolio leading to no recovery or less recovery to the lender. NPAs represent the quantified "Credit Risk". It also plays havoc on the mental make-up of the banker wherein the banker tries to go slow on lending, fearing future NPAs. It may lead to delay and denial of credit resulting in low off- take of lendable funds. NPAs are an inevitable burden on the banking industry. Hence, the success of a bank depends upon the methods of managing NPAs and keeping them within tolerance level.

GROSS AND NET NPAs OF COMMERCIAL BANKS

A healthy financial system can help to achieve efficient allocation of resources across time and space by reducing inefficiencies arising out of market frictions and other socio economic factors. Amongst the various desirable characteristics of a well-functioning financial system, the maintenance of a few non-performing assets is an important one. NPAs beyond a certain level are indeed cause for concern for everyone involved because credit is essential for economic growth and NPAs affect the smooth flow of credit. Banks raise resources not just on fresh deposits, but also by recycling the funds received from the borrowers. Thus when a loan becomes non performing, it affects recycling of credit and credit creation. Apart from this, NPAs affect profitability as well since higher NPAs require higher provisioning, which means a large part of the profits need to be kept aside against bad loans.

GROSS NPA IN THE BEGINNING

Gross Non Performing Assets (GNPA) indicates an advance that is irrecoverable. GNPA is often referred as an indicator reflecting the quality of asset, where a higher GNPA indicates deterioration in assets quality and lower GNPA indicates improvement in assets quality. The gross NPA of scheduled commercial banks is shown in Table No 4.1

TABLE - 4.1

**GROSS NPA OF SCHEDULED COMMERCIAL
BANKS IN THE BEGINNING**

(Rs.in Crores)

YEAR	PUBLIC SECTOR BANKS	% OF ANNUAL GROWTH RATE	PRIVATE SECTOR BANKS	% OF ANNUAL GROWTH RATE	FOREIGN BANKS	% OF ANNUAL GROWTH RATE	S C BANKS	% OF ANNUAL GROWTH RATE
2002	54672	-	5879	-	3031	-	63582	-
2003	56473	3.29	11210	90.68	2469	-18.54	70152	10.34
2004	54090	-4.22	11783	5.11	2826	14.46	68699	-2.07
2005	51538	-4.72	8910	-24.38	2649	-6.26	63097	-6.20
2006	48406	-6.08	8526	-4.31	2191	-17.29	59123	-8.25
2007	41358	-14.56	7233	-15.17	1927	-12.05	50518	-14.55
2008	38968	-5.78	9096	25.76	2233	15.88	50297	-0.44
2009	40089	2.88	12458	36.96	2872	28.62	55419	10.18
2010	44957	12.14	16889	35.57	6437	124.13	68283	23.21
2011	59433	32.20	17340	2.67	7133	10.81	83906	22.88
2012	74600	25.52	18200	4.96	5000	-29.90	97800	16.68
2013	117800	57.91	18700	2.75	6200	24.00	142700	45.97
Mean	56865.33	8.96	12185.33	14.60	3747.33	12.17	72798	8.89
SD	20677.68		4344.13		1809.22		25849	
CV	36.36		35.65		48.28		35.50	

Source: Report on Trends and Progress of Banking in India, various issues

It is evident from the above table that the gross NPA of scheduled commercial banks shows constant decrease from Rs.70,152 crores in 2003 to Rs 50,297 crores in 2008.From then onwards, it started to increase from Rs55,419 crores in 2009 to 1,42,700 crores in2013. The same trend is observed in public sector banks with decrease from Rs 54,090 crores in2004 to Rs.38,968 crores in2008 and then it showed an upward trend from Rs 40,089 crores in 2009 to Rs1,17,800 crores in 2013.As far as private sector banks are concerned, gross NPA increased from Rs 9,096 crores in 2008 to Rs18,700 crores in 2013. Gross NPA in foreign banks shows mixed trend during the study period. The value is high with Rs 7,133 crores in 2011 and low during 2007 with Rs1,927 crores. The coefficient of variation reveals that the gross NPA in the beginning is more consistent in SCBs with C.V of 33.99 percent and less consistent in foreign banks with C.V of 48.28 percent.

ADDITIONS TO NPA

Additions to NPA indicate the fresh NPA that is generated every year. It highlights the efficiency of credit risk management particularly credit appraisal standards. Additions to NPA cannot be avoided since it grows along with the growth in advances, but it should be brought to a minimum level to improve the quality of asset portfolio of the bank. Table No4.2 shows additions made to NPA during the study period from 2002 to 2013.

TABLE - 4.2

ADDITIONS TO NPA OF SCHEDULED COMMERCIAL BANKS

(Rs in Crores)

YEAR	PUBLIC SECTOR BANKS	% OF ANNUAL GROWTH RATE	PRIVATE SECTOR BANKS	% OF ANNUAL GROWTH RATE	FOREIGN BANKS	% OF ANNUAL GROWTH RATE	S C BANKS	% OF ANNUAL GROWTH RATE
2002	15668	-	8031	-	1125	-	24824	-
2003	16065	2.53	4274	-46.78	1523	35.38	21862	-11.93
2004	18133	12.87	4728	10.62	1261	-17.2	24122	10.34
2005	15824	-12.73	3353	-29.08	1032	-18.16	20209	-16.22
2006	16740	5.79	3575	6.62	1091	5.72	21406	5.92
2007	19614	17.17	5179	44.87	1417	29.88	26210	22.44
2008	24093	22.84	7661	47.92	2664	88	34418	31.32
2009	31338	30.07	12614	64.65	8430	216.44	52382	52.19
2010	44818	43.01	11651	-7.63	9205	9.19	65674	25.38
2011	58226	29.92	8657	-25.7	3527	-61.68	70410	7.21
2012	92800	59.38	9800	13.2	4500	27.59	107100	52.11
2013	119800	29.09	12800	30.61	4100	-8.89	136700	27.64
Mean	39426.58	21.81	7693.58	9.94	3322.92	27.84	50443.08	17.00
SD	32938.82		3342.18		2728.41		38200.42	
CV	83.54		43.44		82.11		75.73	

Source: Report on Trends and Progress of Banking in India, various issues

Additions to NPA show efficiency in managing fresh NPA till 2007. The growth of additions to NPA of scheduled commercial banks showed a fluctuating trend from 2002 to 2005. In subsequent years it reveals an upward movement from Rs.21,406 crores in 2006 to Rs 1,36,700 crores in 2013. It is observed that the growth in additions to NPA of public sector banks is marginal during 2002 to 2007 i.e. from Rs 15,668 crores to Rs 19,614 crores. The trend reversed and considerable increase in additions to NPA is seen from 2007 onwards with Rs24,093 crores in 2008 to Rs 1,19,800 crores in 2013. A drastic fluctuation in additions to NPA is seen in private sector banks during the study period. The growth of additions to NPA in absolute terms was Rs 8,031 crores to Rs 12,800 crores during 2002 to 2013. The percentage increase in additions is high with 64.65 percent in 2009 and low during 2006 with 6.62 percent. In case of foreign banks addition to NPA exhibits a fluctuating trend during the study period.

The coefficient of variation in addition to NPA is greater (83.54%) in public sector banks indicating the group is less consistent and lesser (43.44%) in private sector banks indicating the group is more consistent. Hence, it is observed from analysis that all bank groups except private sector banks reported higher growth of addition to NPA. A better risk management strategy should be envisaged to predict chances of crisis and to reduce its effect on the banking sector.

RECOVERY OF NPA

In view of several options available to banks for dealing with NPAs, banks have been able to recover a significant amount of NPAs, during the study period from 2002 to 2013 which is shown in Table4.3

TABLE - 4.3
RECOVERY OF NPA

(Rs in Crores)

YEAR	PUBLIC SECTOR BANKS	% OF ANNUAL GROWTH RATE	PRIVATE SECTOR BANKS	% OF ANNUAL GROWTH RATE	FOREIGN BANKS	% OF ANNUAL GROWTH RATE	S C BANKS	% OF ANNUAL GROWTH RATE
2002	13833	-	2239	-	NIL	-	16072	-
2003	18452	33.38	3686	64.63	NIL	-	22138	37.74
2004	20685	12.10	6156	67.01	NIL	-	26841	21.24
2005	19080	-0.07	3274	46.82	1134	-	23488	-12.49
2006	NIL	-100	NIL	-100	NIL	-100	0	-100
2007	22004	0	3157	0	997	0	26158	0
2008	22466	2.10	3773	19.51	1849	85.46	28088	7.38
2009	26271	16.94	8089	114.39	2954	59.76	37314	32.85
2010	26946	2.57	6498	-19.67	5513	86.63	38957	4.4
2011	37160	37.91	5417	-16.64	5514	0.02	48091	23.45
2012	47800	28.63	7300	34.76	3200	-41.97	58300	21.23
2013	64800	35.56	6300	-13.70	2400	-25.00	73500	26.07
Mean	33315.88	19.86	5476	16.44	2945.13	21.83	33245.583	5.00
SD	14808.62		1768.07		1651.97		19666	
CV	44.45		32.29		56.09		59.15	

Source: Report on Trends and Progress of Banking in India various issues

It is evident from the table that the recovery has been increasing during the study period in all the banks. In the absence of a clear agreement between the bank and borrower in the appropriation of recoveries towards principal and interest due, banks adopted an accounting principle and exercised the right of appropriation of recoveries in a uniform and consistent manner. Hence, banks were not in a position to recover either the principal or interest in 2006. The recourse to aggressive restructuring by banks have helped in reducing the level of NPAs. Further banks have been able to recover NPAs through the use of legal measures which are a good sign for banks. Among the various channels of recovery available to banks for dealing with bad loans, the SARFAESI Act and DRTs have been the most effective in recovering the amount. Hence, recovery showed an upward trend from 2007 onwards.

REDUCTION OF NPA

Reduction to NPA reflects the recovery from NPA accounts every year. The reduction of NPA during a year can come through either recovery (cash recovered from past NPA) or upgradation (assets which had fallen into the NPA category and have started to pay off) or write-off (NPAs taken out from the balance sheet of the bank) or all. Reduction of NPA indicates the success of the initiative taken by banks to recover NPA accounts. Table No4.4 highlights the reductions made by commercial banks during the study period.

TABLE - 4.4

REDUCTIONS TO NPA IN COMMERCIAL BANKS

(Rs in Crores)

YEAR	PUBLIC SECTOR BANKS	% OF ANNUAL GROWTH RATE	PRIVATE SECTOR BANKS	% OF ANNUAL GROWTH RATE	FOREIGN BANKS	% OF ANNUAL GROWTH RATE	S C BANKS	% OF ANNUAL GROWTH RATE
2002	13833		2239		1430		17502	-
2003	18452	33.39	3686	64.63	1164	-18.60	23302	33.14
2004	20685	12.10	6156	67.01	1193	2.49	28034	20.31
2005	956	-95.38	207	-96.64	356	-70.16	1519	-94.58
2006	23040	2310.04	4320	1986.96	1355	280.62	28715	1790.39
2007	0	-100.00	0	-100.00	84	-93.80	84	-99.71
2008	0	0.00	1	1.00	191	127.38	192	128.57
2009	0	0.00	0	-1.00	1514	692.67	1514	688.54
2010	2902	100.00	4402	100.00	2948	94.72	10252	577.15
2011	5884	102.76	2338	53012.65	77	-97.39	8299	-19.05
2012	2300	-60.91	1900	-99.92	0	-100.00	4200	-49.39
2013	7800	239.13	4200	121.05	0	0.00	12000	185.71
Mean	7987.67	231.01	197094	5005.07	859.33	74.36	11301.1	263
SD	8341.62		645516		863.94		10734.2	
CV	104.43		327.52		100.54		94.98	

Source: Report on Trends and Progress of Banking in India, various issues

It is interesting to note that in case of SCBs the reduction of NPA shows fluctuating trend during the study period. In the first three years, there is an increase in reduction of NPA from Rs17,502 crores in 2002to Rs 28,034 crores in 2004. From then onwards there is decrease in reduction of NPA to Rs 12000 crores in 2013. In public sector banks the highest reduction was made in 2006 with Rs23,040 crores and lowest reduction was made during 2005 with Rs 956 crores. During 2007to 2009 no reduction is made. With regard to private sector banks highest reduction was made in 2004 with Rs 6,156 crores and lowest reduction of one crore in 2008.As far as foreign banks are concerned the percentage of reduction is high with 692.67 percent in 2009 and low with 2.49 percent in 2003.

GROSS NPA AT THE END

The gross NPA at the end of the year is shown in Table No 4.5

TABLE   4.5

**GROSS NON PERFORMING ASSETS AT THE END**

(Rs in Crores)

YEAR	PUBLIC SECTOR BANKS	% OF ANNUAL GROWTH RATE	PRIVATE SECTOR BANKS	% OF ANNUAL GROWTH RATE	FOREIGN BANKS	% OF ANNUAL GROWTH RATE	S C BANKS	% OF ANNUAL GROWTH RATE
2002	56507	-	11671	-	2726	-	70904	-
2003	54086	-4.28	11798	1.09	2828	3.74	68712	-3.09
2004	51538	-4.71	10355	-12.23	2894	2.33	64787	-5.71
2005	47326	-8.17	8782	-15.19	2191	-24.29	58299	-10.01
2006	42106	-11.03	7781	-11.40	1927	-12.05	51814	-11.12
2007	38968	-7.45	9255	18.94	2263	17.44	50486	-2.56
2008	40595	4.18	12983	40.28	2857	26.25	56435	11.78
2009	45156	11.24	16983	30.81	6834	139.20	68973	22.22
2010	59927	32.71	17640	3.87	7181	5.08	84748	22.87
2011	74615	24.51	18242	3.41	5069	-29.41	97926	15.55
2012	117200	57.07	18800	3.06	6200	22.31	142200	45.21
2013	165000	40.78	21000	11.70	7900	27.42	193900	36.36

Source: Report on Trends and Progress of Banking in India, various issues

It is clear from the table that the gross NPA of SCBs shows a declining trend from Rs.70,904 crores in 2002 to Rs 50,486crores in 2007. From 2008 onwards, the gross NPA shows an increase from Rs56,435 crores to Rs1,93,900 crores. Same trend is observed in the case of public sector banks. But in case of private sector banks and foreign banks, gross NPA shows a fluctuating trend. From 2008 onwards, the NPAs in all the banks showed an ever increasing trend. Even after implementation of prudential norms in early nineties and serious concern raised by government about growing size of NPAs banks paid least attention to all these warnings, which subsequently led to turning fresh loans of banks into non performing category. In fact, growing size of gross NPA in absolute term has been a real cause of worry.

Gross NPA of Commercial Banks

Figure 4.1
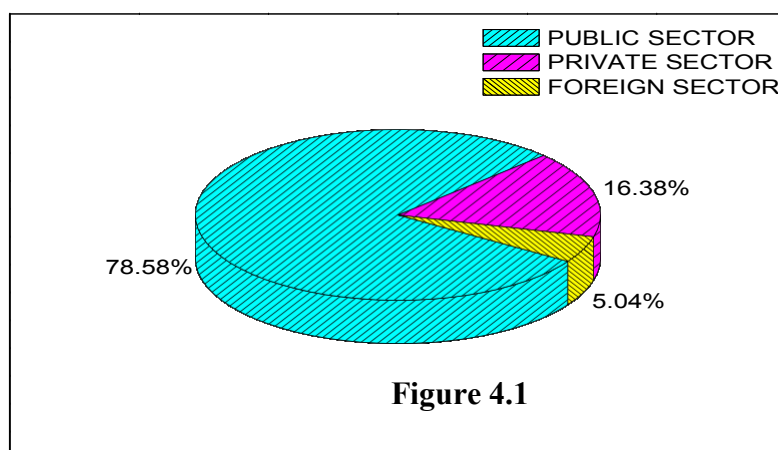
TABLE - 4.6

GROSS NPA AT THE END -SUMMARY OF STATISTICS

Sl. No.	COMMERCIAL BANKS	MIN	MAX	MEAN	SD	CV%	CAGR %
1	Public sector Banks	38968	165000	66085.33	39502.95	**59.78**	9.34
2	Private sector Banks	7781	21000	13774.17	4687.82	**34.03**	**5.02**
3	Foreign Banks	1927	7900	**4239.17**	2286.31	53.93	9.27
4	S C Banks	50487	194100	**84098.7**	42894.5	51	8.74

Source: Computed by the researcher

It is evident from the above table 4.6 that the private sector banks showed least coefficient of variation indicating the consistent performance in the gross NPA and the public sector banks revealed highest variation indicating the inconsistent performance in the gross NPA. Among the commercial banks, private sector banks had least compound annual growth rate during the study period. It is inferred that there is steady growth in gross non-performing assets in private sector banks because of decision making, rules and regulation, role of employees, loan policy and good recovery of loans where as in public sector banks, foreign banks and scheduled commercial banks the growth rate is high and hence a better risk management strategy should be envisaged to avoid crisis and to minimise its effect on the banking sector.

Table 4.7 shows the cubic trend equation forecast of gross NPA at the end

TABLE - 4.7

TRENDS IN GROSS NON PERFORMING ASSETS

Sl. NO	COMMERCIAL BANKS	MODEL SUMMARY					PARAMETER ESTIMATES			
		R^2	F	df 1	df 2	Sig.	b_0	b_1	b_2	b_3
1	Public sector Banks	.685	5.79	3	8	.021	3802	-104	.002	-7.14
2	Private sector Banks	.898	23.35	3	8	.000	3163	-575	.036	-5.08
3	Foreign Banks	.760	8.43	3	8	.007	2132	-95	.043	-3.27
4	S C Banks	.739	7.53	3	8	.010	1135	-368	.005	-1.56

* Significant at 5% level

The parameters reveal a positive trend in gross non-performing assets in future in all the banks, except public sector banks as evidenced through the highest coefficient of variation.(Vide Table 4.6)

ANOVA– GROSS NON PERFORMING ASSETS

H_0: Null Hypothesis:

There is no significant difference in the Gross NPA among different commercial banks during the study period.

H_1: Alternative hypothesis:

There is significant difference in the Gross NPA among different commercial banks during the study period.

TABLE - 4.8

ANOVA – GROSS NON PERFORMING ASSETS

Source	*SS*	*df*	*MS*	*F*	*F crit*	*Result*
Between Groups	5.5E+10	3	1.83E+10	22.29	2.82**	Significant
Within Groups	3.62E+10	44	8.23E+08			
Total	**9.12E+10**	**47**				

** Significant at 5 % level

It is clear from the table that there is significant difference in the Gross NPA among different commercial banks under study because the calculated value of F is higher than the critical value of F. So the null hypothesis is rejected and alternative hypothesis is accepted. Hence, there is significant difference in Gross NPA of banks under study.

TOTAL ASSETS

Table No 4.9 shows the value of total assets of commercial banks including public sector, private sector and foreign banks.

TABLE - 4.9
TOTAL ASSETS OF COMMERCIAL BANKS

(**Rs in crores**)

YEAR	PUBLIC SECTOR BANKS	% OF ANNUAL GROWTH RATE	PRIVATE SECTOR BANKS	% OF ANNUAL GROWTH RATE	FOREIGN BANKS	% OF ANNUAL GROWTH RATE	S C BANKS	% OF ANNUAL GROWTH RATE
2002	1155398	-	267706	-	113321	-	1536425	-
2003	1285411	11.25	297122	10.99	116314	2.64	1698847	10.57
2004	1471211	14.45	367300	23.62	135641	16.62	1974152	16.21
2005	1773939	20.58	425802	15.93	154128	13.63	2353869	19.23
2006	2014880	13.58	550292	29.24	202817	31.59	2767989	17.59
2007	2440166	21.11	745404	35.46	241830	19.24	3427400	23.82
2008	3021924	23.84	940144	26.13	365255	51.04	4327323	26.26
2009	3766717	24.65	1016522	8.12	445129	21.87	5228368	20.82
2010	4440872	17.90	1150736	13.20	433413	2.63	6025021	15.24
2011	5294006	19.21	1398217	21.51	493036	13.76	7185259	19.26
2012	6037982	14.05	1677801	20.00	583600	18.37	8299383	15.51
2013	6961967	15.30	1989804	18.60	621562	6.50	9573333	15.35
Mean	3305372.75	17.81	902237.50	20.25	325503.83	17.51	4533114	17.00
SD	1897390.03		542905.07		179378.26		2730682	
CV	57.40		60.17		55.11		60.24	

Source: Report on Trends and Progress of Banking in India various issues

The total assets of scheduled commercial banks have increased from Rs.15,36,425 crores in 2002 to Rs.95,73,333 crores in 2013. The total assets of public sector, private sector and foreign banks have also shown an increasing trend.

The mean value of total assets is high in private sector banks (20.25%) while it is more or less same for both public sector and foreign banks. Coefficient of variation reveals that the variation in total assets value of the foreign banks is high (60.24%) when compared to other banks.

Total Assets of Commercial Banks
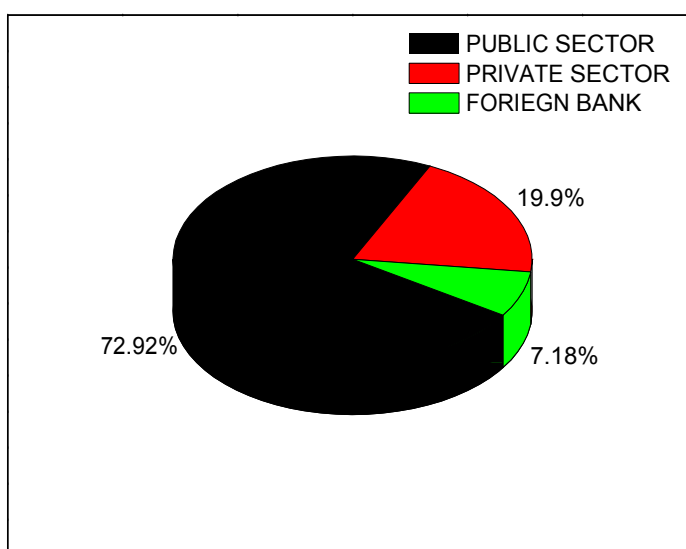
Figure 4.2

TABLE - 4.10

TOTAL ASSETS -SUMMARY OF STATISTICS

SL.NO	COMMERCIAL BANKS	MIN	MAX	MEAN	SD	CV%	CAGR %
1	Public sector Banks	1155398	6961967	3305372.75	1953419.01	59.10	16.14
2	Private sector Banks	267706	1989804	902237.50	556571.47	**61.69**	**18.19**
3	Foreign Banks	113321	621562	325503.83	183576.76	**56.40**	15.24
4	S C Banks	1536425	9573333	4533114	2730682	60.24	16.47

Source: computed by the researcher

It is clear from table 4.10 that foreign banks showed least coefficient of variation indicating the consistent performance in the total assets and the private sector banks showed highest coefficient of variation indicating the inconsistent performance in the total assets. Among the commercial banks, private sector banks had highest compound annual growth rate during the study period.

Table 4.11 shows cubic trend equation forecast of total assets.

TABLE - 4.11

TRENDS IN TOTAL ASSETS

SL. NO	COMMERCIAL BANKS	MODEL SUMMARY					PARAMETER ESTIMATES			
		R^2	F	$df1$	$df2$	$Sig.$	b_0	b_1	b_2	b_3
1	Public sector Banks	.997	772.31	3	8	.000	-1015	1.50	-2.51	2.18
2	Private sector Banks	.971	88.54	3	8	.000	-708	3.74	-3.91	1.38
3	Foreign Banks	.990	253.67	3	8	.000	-101	1.76	-4.45	4.23
4	S C Banks	.736	7.45	3	8	.011	-2180	1.95	-1.94	6.70

* Significant at 5% level

Table 4.11   reveals a positive trend in the total assets in the future years among the commercial banks, except private sector banks as depicted by the highest coefficient of variation.(vide Table 4.10)

ANOVA

H_0: Null Hypothesis:

There is no significant difference in the total assets among different commercial banks during the study period.

H_1: Alternative hypothesis:

There is significant difference in the total assets among different commercial banks during the study period.

TABLE - 4.12
ANOVA TABLE – TOTAL ASSETS

SOURCE	SS	df	MS	F	F crit	RESULT
Between Groups	1.27E+14	3	4.23E+13	16.33	2.82**	Significant
Within Groups	1.14E+14	44	2.59E+12			
Total	2.41E+14	47				

** Significant at 5 % level

From the above table it is clear that the calculated value of F is 16.33 which is greater than the table value of 2.82 at 5 percent level. This analysis does not support the null hypothesis and hence the alternative hypothesis is accepted. Hence it is concluded that, there is significant difference in the total assets among different commercial banks during the study period.

GROSS ADVANCES

Gross advances of public sector banks, private sector banks and foreign banks are depicted in Table No4.7

TABLE - 4.13
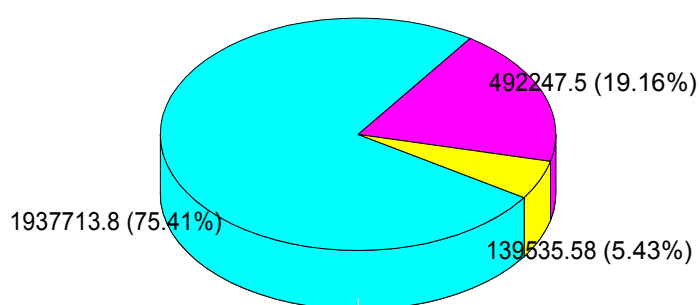### GROSS ADVANCE OF COMMERCIAL BANKS

(Rs in Crores)

YEAR	PUBLIC SECTOR BANKS	% of Annual Growth Rate	PRIVATE SECTOR BANKS	% of Annual Growth Rate	FOREIGN BANKS	% of Annual Growth Rate	S C BANKS	% of Annual Growth Rate
2002	509368	-	120958	-	50631	-	680957	-
2003	577813	13.44	146047	20.74	54184	7.02	778044	14.26
2004	661975	14.57	177419	21.48	62632	15.59	902026	15.94
2005	877825	32.61	197832	11.51	77026	22.98	1152683	27.79
2006	1134724	29.27	317690	60.59	98965	28.48	1551379	34.59
2007	1464493	29.06	420145	32.25	127872	29.21	2012510	29.72
2008	1819074	24.21	525845	25.16	162966	27.44	2507885	24.61
2009	2283473	25.53	585065	11.26	169716	4.14	3038254	21.15
2010	2733458	19.71	644070	10.09	167437	1.34	3544965	16.68
2011	3079804	12.67	732310	13.70	199321	19.04	4011435	13.16
2012	3550389	15.28	880446	20.23	234710	17.75	4665545	16.31
2013	4560169	28.44	1159143	31.65	268967	14.60	5988279	28.35
Mean	1937713.8	22.25	492247.5	23.51	139535.58	16.81	2569497	22.05
SD	1260234.9		311588.52		69770.95		1712156	
CV	65.04		63.3		50		66.6339	

Source: Report on Trends and Progress of Banking in India various issues

It is evident from the table that the gross advances given by all banks showed an increasing trend during the period of study. Advances of SCBs increased from Rs.6,80,957 crores in 2002 to Rs.59,88,279 crores in 2013, while in public sector banks from Rs.5,09,368 crores to Rs.45,60,169 crores, in private sector banks from Rs.1,20,958 crores to Rs 11,59,143 crores and in foreign banks from Rs 50,631 crores to Rs.2,68,967 crores.

The mean value of the SCBs is 22.05 percent. The mean values of private sector banks and public sector banks are more or less similar to SCBs, while that of foreign banks is lower than that of other banks as its mean value is 16.81 percent. Coefficient of variation reveals that gross advances of foreign banks are stable while the advances of public and private sector banks are exhibiting fluctuations.

Gross advances of commercial banks

492247.5 (19.16%)

1937713.8 (75.41%)

139535.58 (5.43%)

Figure 4 .3

TABLE - 4.14

GROSS ADVANCES -SUMMARY OF STATISTICS

SL. NO	COMMERCIAL BANKS	MIN	MAX	MEAN	SD	CV%	CAGR %
1	Public sector Banks	509368	4560169	1947851.79	1321082.85	67.82	20.04
2	Private sector Banks	120958	1159143	583721.08	591608.80	**101.35**	**20.72**
3	Foreign Banks	50631	268967	**142182.83**	76433.27	**53.76**	14.93
4	S C Banks	680957	5988279	**2569497**	1712156	66.63	19.86

Source: computed by the researcher

It is evident from the table that the foreign banks showed least coefficient of variation indicating the consistent performance in the gross advances and the private sector banks had highest coefficient of variation indicating the inconsistent performance in the gross advances. Among the commercial banks, private sector banks had highest compound annual growth rate during the study period.

Table 4.15 shows the significant cubic trend equation forecast of gross advances.

TABLE - 4.15

TRENDS IN GROSS ADVANCES

SL. NO.	COMMERCIAL BANKS	MODEL SUMMARY					PARAMETER ESTIMATES			
		R^2	F	df_1	df_2	$Sig.$	b_0	b_1	b_2	b_3
1	Public sector Banks	.998	1206.09	3	8	.000	988	.254	6.37	-8.90
2	Private sector Banks	.998	1439.05	3	8	.000	186	.639	1.92	-8.19
3	Foreign Banks	.989	248.03	3	8	.000	161	-2.54	3.68	-7.74
4	S C Banks	.948	48.91	3	8	.000	3191	-3.05	1.97	-2.33

* Significant at 5% level

It is observed from the table that there exists a positive trend in the gross advances in the future years among the commercial banks, except private sector banks as shown by highest coefficient of variation.

ANOVA– GROSS ADVANCES

H_0: Null Hypothesis:

There is no significant difference in the gross advances among different commercial banks during the study period.

H_1: Alternative hypothesis:

There is significant difference in the gross advances among different commercial banks during the study period.

TABLE - 4.16

ANOVA TABLE – GROSS ADVANCES

Source	SS	df	MS	F	F crit	Result
Between Groups	4.87E+13	3	1.62E+13	13.21		
Within Groups	5.4E+13	44	1.23E+12		2.82**	Significant
Total	1.03E+14	47				

** Significant at 5 % level

The above table proves that the calculated value of F is (13.21) greater than the table value (2.82) at 5 percent level .This analysis does not support the null hypothesis and alternative hypothesis is accepted. Hence it is concluded that, there is significant difference in the gross advances among different commercial banks during the study period.

PERCENTAGE OF GROSS NPA TO TOTAL ASSETS

The percentage of gross NPA to total assets is shown in Table No 4.17

TABLE - 4.17

PERCENTAGE OF GROSS NPA TO TOTAL ASSETS

(in percentage)

YEAR	PUBLIC SECTOR BANKS	PRIVATE SECTOR BANKS	FOREIGN BANKS	SCHEDULED COMMERCIAL BANKS
2002	4.89	4.36	2.41	4.64
2003	4.21	3.97	2.45	4.04
2004	3.5	2.83	2.13	3.28
2005	2.73	2.06	1.42	2.52
2006	2.05	1.42	0.95	1.85
2007	1.6	1.24	0.94	1.47
2008	1.34	1.38	0.78	1.3
2009	1.19	1.67	1.45	1.31
2010	1.35	1.53	1.65	1.41
2011	1.41	1.29	1.01	1.36
2012	1.86	1.09	1.08	1.43
2013	2.36	1.04	1.28	4.02
Mean	2.37	1.99	1.46	2.39
SD	1.17	1.08	0.56	1.22
CV	49.38	54.2	38.11	50.92

Source: Report on Trends and Progress of Banking in India various issues

It is evident from the table that the percentage of gross NPA to total assets of SCBs showed a constant decrease from4.64 percent in 2002 to 1.30 percent in 2008. A sharp increase in percentage is observed during the last year of the study with 4.02 percent.   Public sector banks exhibited a continuously declining trend from 4.89 percent in 2002 to 1.86 percent in 2012. It showed a slight increase in the last year of the study period with 2.36 percent.

In case of private sector banks the percentage of gross NPA to total assets declined from 4.36 in 2002 to 1.04 in 2013. As far as foreign banks are concerned the

percentage of gross NPA to total assets decreased from 2.45 in 2003 to 0.78 in 2008 and it exhibited slight increase during last two years from 1.08percent to 1.28 percent.

The coefficient of variation of private sector bank is greater (54.20%) indicating that it is less stable, while foreign banks are more stable which is shown by lower coefficient of variation (38.11%).

The decline in NPAs of all the banks implies that the asset quality of banks registered a significant improvement with rapid increase in quantum of credit to commercial sector. The robust industrial performance along with recovery shows a significant reduction in the level of NPAs of banking sector.

PERCENTAGE OF GROSS NPA TO GROSS ADVANCE

The percentage of gross NPA to gross advance is presented in Table No 4.18

TABLE - 4.18
PERCENTAGE OF GROSS NPA TO GROSS ADVANCE

(in percentage)

YEAR	PUBLIC SECTOR BANKS	PRIVATE SECTOR BANKS	FOREIGN BANKS	SCHEDULED COMMERCIAL BANKS
2002	11.09	9.64	5.38	10.41
2003	9.36	8.07	5.25	8.83
2004	7.79	5.85	4.62	7.19
2005	5.51	4.44	2.85	5.15
2006	3.64	2.46	1.95	3.29
2007	2.66	2.20	1.77	2.51
2008	2.22	2.47	1.75	2.25
2009	1.97	2.89	3.80	2.25
2010	2.19	2.74	4.26	2.39
2011	2.42	2.47	2.51	2.44
2012	3.17	2.08	2.68	2.94
2013	3.61	1.79	2.96	3.23
Mean	4.64	3.93	3.32	4.41
SD	2.98	2.48	1.26	2.73
CV	64.27	63.08	37.90	61.99

Source: Report on Trends and Progress of Banking in India various issues

From the table, it is clear that the percentage of gross NPA to gross advance of public sector banks has declined sharply from 11.09 in 2002 to 1.97 percent in 2009. Later on, it showed a gradual increase and reached 3.61 percent in 2013. In the case of private sector banks the percentage of gross NPA to gross advance declined from 9.64 in 2002 to 1.79 in 2013, while foreign banks exhibited a fluctuating trend during the study period ranging from 5.38 percent to 1.75 percent. In total, an analysis of the percentage of gross NPA to gross advance in all scheduled commercial banks revealed a decline from 10.41 in 2001-02 to 3.23percent in2012-13.

Coefficient of variation reveals that foreign banks are more stable and public and private sector banks are subject to fluctuations.

PROVISIONS TOWARDS NPA

RBI requires banks to maintain a certain amount of reserves to meet the future losses on loan defaults. Provision towards NPA reduces the profitability of banks. Banks assume that a certain percentage of loans will not be repaid regularly. Banks, hence, make provision for these losses earlier rather than when the loss occurs so that the losses if and when they occur still guarantee banks solvency and capitalization. Higher provisions towards NPA indicate poor quality of asset portfolio.

Provisioning for NPA tends to follow a cyclical pattern. In the expansionary phase of business cycle, impairment to balance sheet of banks tends to be relatively lower requiring lower provisioning even as credit increases at faster pace. The downturn phase of business cycle, on the other hand, increases the possibility of credit losses, leading to higher provisioning requirements. The higher provisioning in the down turn phase may, thus, put pressure on the credit availability and accentuate the contraction phase of business cycle.

Table No 4.19 presents the provisions for NPA in the beginning of the year by commercial banks during the study period from 2003 to 2012.

TABLE - 4.19
PROVISIONS FOR NPA IN THE BEGINNING

(Rs in Crores)

YEAR	PUBLIC SECTOR BANKS	% OF ANNUAL GROWTH RATE	PRIVATE SECTOR BANKS	% OF ANNUAL GROWTH RATE	FOREIGN BANKS	% OF ANNUAL GROWTH RATE	S C BANKS	% OF ANNUAL GROWTH RATE
2003	24807.00		4529.00		1414.00		30750	-
2004	25876.00	4.31	4681.00	3.36	1697.00	20.01	32254	4.89
2005	29646.00	14.57	4500.00	-3.87	1585.00	-6.60	35731	10.78
2006	28857.00	-2.66	4252.00	-5.51	1374.00	-13.31	34483	-3.49
2007	25024.00	-13.28	4206.00	-1.08	994.00	-27.66	30224	-12.35
2008	22139.00	-11.53	4894.00	16.36	1152.00	15.90	28185	-6.75
2009	21091.00	-4.73	6828.00	39.52	1387.00	20.40	29306	3.98
2010	22658.00	7.43	9391.00	37.54	3448.00	148.59	35497	21.13
2011	28187.00	24.40	10848.00	15.51	4178.00	21.17	43213	21.74
2012	36600.00	29.85	13500.00	24.45	3800.00	-9.05	53900	24.73
Mean	26488.50	5.37	6762.90	14.03	2102.90	18.83	35354.3	7.18
SD	4344.86		3158.61		1143.71		7829.69	
CV	16.40		46.70		54.39		22.15	

Source: Report on Trends and Progress of Banking in India various issues

The provision for NPA by commercial banks shows a mixed trend during the study period. In public sector banks highest provision has been made in the year 2012 and it is lowest in the year 2004(4.31%) and in the case of private sector banks highest percentage in provision is made in the year 2009 with 39.52 percent and lowest in the year 2004 with 3.36 percent. In case of foreign banks, highest percentage in provision is in the year 2010 (148.59%) and lowest during the year 2008 with 15.90 percent and for SCBs highest provision is in 2012 and lowest in 2007.

An analysis of the table reveals that provision for NPA in foreign banks have a mean value of 18.83 percent which is greater than private sector banks (14.03%), SCBs (7.18%) and public sector banks (5.37%).   The coefficient of variation in provision for NPA in the beginning is more (54.39%) in foreign banks indicating that the group is less consistent and it is less in public sector banks indicating the group is more consistent.

PROVISIONS

The provision towards NPA is mandatory and should be provided based on the loan account a bank holds. The loan accounts in banks are classified into: standard assets, sub standard assets, doubtful assets and loss assets. Out of the four categories, sub standard assets, doubtful assets and loss assets are considered as NPA and are used in the calculation of provision towards NPA. The provision made towards NPA by various commercial banks is presented in Table no 4.20

TABLE 4.20
PROVISIONS MADE IN COMMERCIAL BANKS

(Rs in crores)

YEAR	PUBLIC SECTOR BANKS	% OF ANNUAL GROWTH RATE	PRIVATE SECTOR BANKS	% OF ANNUAL GROWTH RATE	FOREIGN BANKS	% OF ANNUAL GROWTH RATE	S C BANKS	% OF ANNUAL GROWTH RATE
2003	9861.00		2509.00		810.00		13180	-
2004	14648.00	48.54	3070.00	22.36	755.00	-6.79	18473	40.15
2005	7923.00	-45.91	2932.00	-4.50	642.00	-14.97	11497	**-37.76**
2006	6272.00	-20.84	2054.00	-29.95	640.00	-0.31	8966	-22.01
2007	7289.00	16.21	2630.00	28.04	481.00	-24.84	10400	15.99
2008	9810.00	34.59	4262.00	62.05	1166.00	142.41	15238	46.51
2009	11415.00	16.36	8613.00	102.09	3099.00	165.78	23127	51.77
2010	18037.00	58.01	10393.00	20.67	3576.00	15.39	32006	38.39
2011	29133.00	61.52	6854.00	-34.05	2755.00	-22.96	38742	21.04
2012	38100.00	30.78	5600.00	-18.30	3400.00	23.41	47100	21.57
Mean	15248.80	22.14	4891.70	16.49	1732.40	30.79	21872.9	18.00
SD	9969.95		2736.15		1231.60		13175.1	
CV	65.38		55.93		71.09		60.23	

Source: Report on Trends and Progress of Banking in India various issues

In case of SCBs provision made it shows a constant increase from Rs 10400 crores in 2007 to Rs 47100 crores in 2012. The provision made towards NPA by public sector bank has increased from Rs 9861 crores in 2003 to Rs 14648 crores in 2004. It showed a decreasing trend during 2005 and 2006. From 2007 onwards again, it exhibited an increase from Rs 7289 crores to Rs 38100 crores in 2012. Provision made for NPA by private sector banks showed a mixed trend. It increased from Rs 2509 crores in 2003 to Rs 10393 crores in 2010 and decreased to Rs 5600 crores in

2012. With regard to foreign banks, provision made showed a decreasing trend from Rs 810 crores in 2003 to Rs 481 crores in 2007 and started to increase from Rs 1166 crores in2008 to Rs 3400 crores in 2012.The coefficient of variation reveals that it is high in foreign banks (71.09%) indicating that it is less stable. Private sector banks are more stable which is shown by lower coefficient of variation (55.93%).

Based on the analysis, public sector banks reported an increase in provisions made since 2007-08, when the financial crisis erupted the market. Overall, the provisions made have increased during the study period and indicated a reduction in asset quality except in case of private sector banks where there is reduction in provision during last two years of the study indicating improvement in their asset quality.

EXCESS PROVISION WRITTEN OFF

The Table No 4.21 presents excess provision written off during the period from 2002 to 2013 with regard to public sector, private sector, foreign and scheduled commercial banks.

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TABLE - 4.21
EXCESS PROVISION WRITTEN OFF

</div>

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(Rs in crores)

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YEAR	PUBLIC SECTOR BANKS	% OF ANNUAL GROWTH RATE	PRIVATE SECTOR BANKS	% OF ANNUAL GROWTH RATE	FOREIGN BANKS	% OF ANNUAL GROWTH RATE	S C BANKS	% OF ANNUAL GROWTH RATE
2003	9131.00		2359.00		559.00		12049	-
2004	10875.00	19.10	2496.00	5.81	661.00	18.25	14032	16.46
2005	8177.00	-24.81	3042.00	21.88	852.00	28.90	12071	-13.98
2006	10082.00	23.30	1814.00	-40.37	1018.00	19.48	12914	6.98
2007	10174.00	0.91	1789.00	-1.38	320.00	-68.57	12283	-4.89
2008	10769.00	5.85	2138.00	19.51	841.00	162.81	13748	11.93
2009	10071.00	-6.48	5986.00	179.98	989.00	17.60	17046	23.99
2010	12293.00	22.06	8782.00	46.71	2810.00	184.13	23885	40.12
2011	20641.00	67.91	4150.00	-52.74	3126.00	11.25	27917	16.88
2012	19000.00	-7.95	5100.00	22.89	2300.00	-26.42	26400	-5.43
Mean	12121.30	11.10	3765.60	22.48	1347.60	38.60	17234.5	9.01
SD	3999.59		2156.42		953.79		6338.014	
CV	33.00		57.27		70.78		36.78	

Source: Report on Trends and Progress of Banking in India various issues

In case of SCBs excess provision written off shows a fluctuating trend with Rs 12,049 crores in 2003 to Rs 26,400 crores in 2012. Excess provision written off is maximum during the year 2011 with Rs 27917 crores. The PSBs also revealed the same trend though the value of excess provision decreased from Rs9131 crores in 2003 to Rs 19000 crores in 2012. The percentage increase in excess provision is maximum during the year 2011 with 67.91 percent. With regard to private sector banks and foreign banks excess provision written off shows a mixed trend during the study period. It is high with Rs 8782 crores in2010 and low with Rs 1789 crores in 2007 as far as private sector banks are concerned, while it is maximum with Rs 2810 crores in 2010 and minimum with Rs 320 crores in 2007 with regard to foreign banks.

By comparing the coefficient of variation in excess provision written off more stability is observed in public sector banks as the C.V is 33percent and less stability is observed in foreign banks as C.V is 70.78 percent.

PROVISION FOR NPA AT THE END

The Table No 4.22 presents provision for NPA by public sector, private sector, foreign and scheduled commercial banks at the end during the period from 2002 to 2013.

TABLE - 4.22
PROVISIONS FOR NPA AT THE END

(Rs in Crore)

YEAR	PUBLIC SECTOR BANKS	% OF ANNUAL GROWTH RATE	PRIVATE SECTOR BANKS	% OF ANNUAL GROWTH RATE	FOREIGN BANKS	% OF ANNUAL GROWTH RATE	S C BANKS	% OF ANNUAL GROWTH RATE
2002	27239	-	4853	-	1829	-	33921	-
2003	25537	-6.25	4679	-3.59	1665	-8.97	31881	-6.01
2004	29649	16.10	5255	12.31	1791	7.57	36695	15.1
2005	29395	-0.86	4390	**-16.46**	1376	-23.17	35161	-4.18
2006	25047	**-14.79**	4492	2.32	997	**-27.54**	30536	-13.15
2007	22139	-11.61	5047	12.36	1156	15.95	28342	-7.18
2008	21180	-4.33	7018	**39.05**	1478	27.85	29676	4.71
2009	22435	5.93	9455	34.72	3498	**136.67**	35388	19.25
2010	28402	26.60	11002	16.36	4214	20.47	43618	23.26
2011	36680	29.15	13552	23.18	3808	-9.63	54040	23.89
2012	55800	**52.13**	14000	3.31	4900	28.68	74700	38.23
2013	63235	13.32	13268	-5.23	5486	11.96	81989	9.76

Source: Source: Report on Trends and Progress of Banking in India various issues

It is clear from the table that the provision for NPA at the end showed a fluctuating trend during the study period in all the banks. Annual growth rate of the provisions for NPA at the end recorded a maximum rate of 52.13 percent in2012 in public sector banks, 39.05 percent in 2008 in case of private sector banks and in foreign banks it is 136.67 in 2009. In case of scheduled commercial banks, the annual growth rate is maximum in 2012 with 38.23 percent. It is also evident from the table that the provisions made by public sector banks have shown an upward trend from 2010 onwards, when the financial crisis erupted the market. Overall, the provisions made increased during the study period and indicated a reduction in asset quality except in case of private sector banks where there is reduction in provision during last year of the study indicating improvement in their asset quality.

TABLE - 4.23

PROVISIONS FOR NPA AT THE END-SUMMARY OF STATISTICS

SL. NO	COMMERCIAL BANKS	MIN	MAX	MEAN	SD	CV%	CAGR %
1	Public sector Banks	21180	63235	32228.17	14071.35	43.66	**7.27**
2	Private sector Banks	4390	14000	8084.25	3971.41	49.13	8.74
3	Foreign Banks	997	5486	2683.17	1647.59	**61.40**	9.59
4	S C Banks	28342	81989	42996	17990	**41.84**	7.63

Source: computed by the researcher

The above table 4.23 shows that the SCBs banks showed least coefficient of variation indicating the consistent performance in the provisions and foreign banks showed highest coefficient of variation indicating the inconsistent performance in the provisions. Among the commercial banks, public sector banks had least compound annual growth rate during the study period. Therefore, it is concluded that provisions in public sector banks show steady growth where as private sector banks, foreign banks and scheduled commercial banks have revealed highest growth.   Though provision towards NPA is mandatory it should be provided based on the quality of the asset in order to maintain their current income.

Table 4.24 shows the cubic trend equation forecast of provisions.

TABLE - 4.24

TRENDS IN PROVISIONS

SL. NO.	COMMERCIAL BANKS	MODEL SUMMARY					PARAMETER ESTIMATES			
		R^2	F	df_1	df_2	Sig.	b_0	b_1	b_2	b_3
1	Public sector Banks	.676	5.56	3	8	.023	15811	-121	.034	-2.70
2	Private sector Banks	.877	32.14	2	9	.000	-154	127	0.000	3.09
3	Foreign Banks	.850	15.06	3	8	.001	576	-517	.198	-1.87
4	S C Banks	.738	7.52	3	8	.010	7027	-412	.011	-6.78

* Significant at 5% level

The above table 4.24 shows the cubic trend equation forecast and observed positive trend in the provisions in the future years among the commercial banks, except foreign banks as revealed by highest coefficient of variation.(Vide Table 4.23)

ANOVA– PROVISIONS

H_0: Null Hypothesis:

There is no significant difference in provisions among different commercial banks during the study period.

H_1: Alternative hypothesis:

There is significant difference in provisions among different commercial banks during the study period.

TABLE - 4.25

ANOVA TABLE – PROVISIONS

SOURCE	SS	df	MS	F	F crit	RESULT
Between Groups	1.48E+10	3	4.93E+09	24.20		
Within Groups	8.97E+09	44	2.04E+08		2.82**	Significant
Total	2.38E+10	47				

** Significant at 5 % level

It is clear from the above table that the calculated value of F is 24.20 which is greater than the table value of F (2.82) at 5% level .So the null hypothesis is rejected and alternative hypothesis accepted . Hence it is concluded that, there is significant difference in provisions among different commercial banks during the study period.

NET NON-PERFORMING ASSETS (NNPA)

Net NPA is calculated by using the equation; GNPA − (Balance in Interest Suspense account + DICGC/ECGC claims received and held pending adjustment + Part payment received and kept in suspense account + Total Provision held).Net NPA is presented in Table No:4.26

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TABLE - 4.26

NET NON PERFORMING ASSETS OF COMMERCIAL BANKS

</div>

(Rs. in. Crores)

YEAR	PUBLIC SECTOR BANKS	% OF ANNUAL GROWTH RATE	PRIVATE SECTOR BANKS	% OF ANNUAL GROWTH RATE	FOREIGN BANKS	% OF ANNUAL GROWTH RATE	S C BANKS	% OF ANNUAL GROWTH RATE
2002	27958	-	6676	-	920	-	35554	-
2003	24877	-11.02	3963	-40.64	903	-1.85	29743	-16.34
2004	19335	-22.28	4128	4.16	933	3.32	24396	-17.98
2005	16904	-12.57	4212	2.03	639	-31.51	21755	-10.83
2006	14566	-13.83	3171	-24.72	808	26.45	18545	-14.76
2007	15145	3.98	4028	27.03	927	14.73	20100	8.39
2008	17836	17.77	5647	40.19	1247	34.52	24730	23.03
2009	21155	18.61	7411	31.24	2996	140.26	31562	27.63
2010	29375	38.86	6505	-12.23	2977	-0.63	38857	23.11
2011	36000	22.55	4300	-33.90	1200	-59.69	41500	6.80
2012	59300	64.72	4300	0.00	1400	16.67	65000	56.63
2013	90000	51.77	5900	37.21	2600	85.71	98500	51.54

Source: Source: Report on Trends and Progress of Banking in India various issues

It is clear from the table that net NPA in scheduled commercial banks declined from Rs 35554 crores in 2002 to Rs18543 crores in 2006. In subsequent years, the net NPA started showing on upward trend from Rs20100 crores in 2007 to Rs98500 crores in 2013. The net NPA of public sector banks showed decreasing trend from Rs27958 crores in2002 to Rs14566 crores in 2006 and from 2007 onwards it showed an increasing trend from Rs15145 crores to Rs90000 crores in 2013. The net NPA of private sector banks exhibits a mixed trend. Starting from Rs6676 crores in 2002, the net NPA declined to Rs3963crores in the subsequent year, followed by a gradual increase in the next two years. In 2006 again, the net NPA registered a decline. From 2007 onwards, net NPA in private sector banks showed an increase from Rs4028 crores to Rs7411crores in 2009 after which again the net NPA declined. The net NPA of foreign banks also reveals the same trend as that of private sector banks. Thus, the recessionary trend started the financial crisis in 2007 which impacted the movement of Net NPA of different bank groups.

Net NPA of Commercial Banks

Figure 4.4

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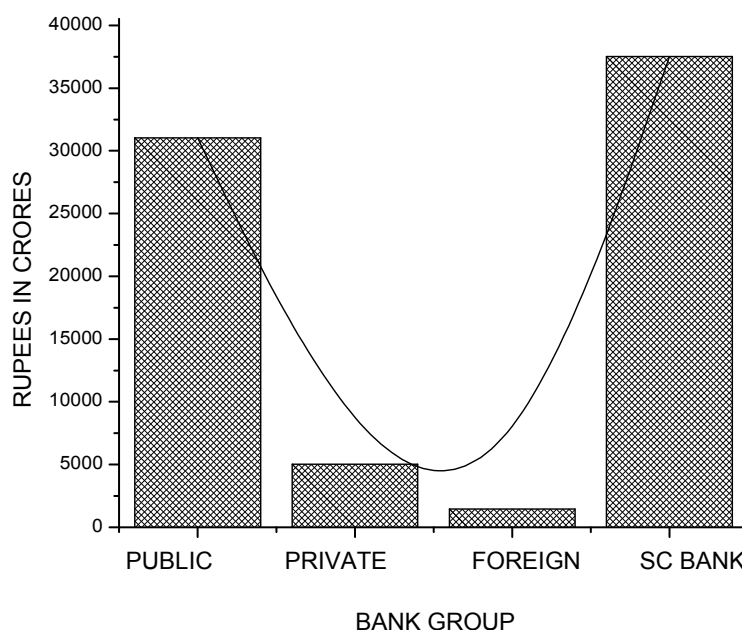
TABLE - 4.27

NET NPA -SUMMARY OF STATISTICS

SL. NO	COMMERCIAL BANKS	MIN	MAX	MEAN	SD	CV%	CAGR %
1	Public sector Banks	14566	90000	31037.58	23393.06	**75.37**	**10.23**
2	Private sector Banks	3171	7411	5020.08	1297.92	**25.85**	-1.02
3	Foreign Banks	639	2996	**1462.50**	895.46	61.23	9.04
4	S C Banks	18545	98500	**37520.17**	23040	61.41	8.86

Source: computed by researcher

An insight into the above table reveals that the mean amount of net NPA ranges from Rs. 1462.50 to Rs. 37520.17during the study period among the commercial banks. The scheduled commercial banks had higher mean amount of net NPA and foreign banks had least mean amount of net NPA during the period of study. The private sector banks showed least coefficient of variation indicating the consistent performance in the net NPA and the public sector banks showed highest coefficient of variation indicating the inconsistent performance in the net NPA. Among the commercial banks, public sector banks had highest compound annual growth rate during the study period.

Table No 4.28 shows the cubic trend equation forecast of net non performing assets.

TABLE - 4.28
TRENDS IN NET NON PERFORMING ASSETS

SL. NO	COMMERCIAL BANKS	MODEL SUMMARY					PARAMETER ESTIMATES			
		R^2	F	df 1	df 2	Sig.	b_0	b_1	b_2	b_3
1	Public sector Banks	.696	6.11	3	8	.018	1856	-34	.002	-2.50
2	Private sector Banks	.041	0.24	2	9	.595	1357	0.000	-.062	5.64
3	Foreign Banks	.390	3.85	3	8	.057	-1120	853	-.659	2.65
4	S C Banks	.355	2.47	2	9	.139	12109	0.000	-.029	2.54

* Significant at 5% level

It reveals positive trend in the NNPA in the future years among the commercial banks, except in public sector banks as revealed by highest coefficient of variation.(Vide Table 4.27)

ANOVA– NET NON PERFORMING ASSETS

H$_0$: Null Hypothesis:

There is no significant difference in Net NPA among different commercial banks during the study period.

H$_1$: Alternative hypothesis:

There is significant difference in the Net NPA among different commercial banks during the study period.

TABLE - 4.29
ANOVA TABLE – NET NON PERFORMING ASSETS

SOURCE	*SS*	*df*	*MS*	*F*	*F cirt*	*RESULT*
Between Groups	1.19E+10	3	3.96E+09	15.36	2.82**	Significant
Within Groups	1.13E+10	44	2.58E+08			
Total	2.32E+10	47				

** Significant at 5 % level

It is evident from the table 4.29 that difference between groups and within groups was significant because the calculated value of F (15.36) is greater than table value of F. It can be inferred that net NPA among different bank groups shows difference during the study period.

The analysis of NPAs of different bank groups indicates that the total amount of gross NPA and net NPA of public sector banks and private sector banks has accounted for more than 70percent of total NPA of scheduled commercial banks. A comparison of public, private and foreign banks reveals that public sector banks seem to have higher gross NPA ratio than other banks during the period of study. In the same manner net NPA percentage to net advance for public sector banks is higher when compared to private, foreign and scheduled commercial banks which show the

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inefficiency of public sector banks in managing NPA. Though the gross and net NPA has increased in amount, the gross NPA to gross advance and net NPA to net advance ratio has shown a declining trend in all bank groups. This is a positive sign and this is due to more provisioning as well as good amount of recovery done by the banks during this period.

NET ADVANCE OF COMMERCIAL BANKS

Net advance given by commercial banks is presented in Table No:4.30

TABLE - 4.30
NET ADVANCES OF COMMERCIAL BANKS

(Rs in Crores)

YEAR	PUBLIC SECTOR BANKS	% OF ANNUAL GROWTH RATE	PRIVATE SECTOR BANKS	% OF ANNUAL GROWTH RATE	FOREIGN BANKS	% OF ANNUAL GROWTH RATE	S C BANKS	% OF ANNUAL GROWTH RATE
2002	480681		116473		48705		645859	-
2003	549351	14.29	138951	19.30	52171	7.12	740473	14.65
2004	631383	14.93	170754	22.89	60506	15.98	862643	16.5
2005	848912	34.45	191397	12.09	75354	24.54	1115663	29.33
2006	1106288	30.32	312602	63.33	97562	29.47	1516452	35.92
2007	1440146	30.18	414752	32.68	126339	29.50	1981237	30.65
2008	1797401	24.81	518403	24.99	161133	27.54	2476937	25.02
2009	2259212	25.69	585328	12.91	165385	2.64	3009925	21.52
2010	2701300	19.57	632494	8.06	163260	-1.28	3497054	16.18
2011	3305632	22.37	797533	26.09	195539	19.77	4298704	22.92
2012	3877307	17.29	966402	21.17	229849	17.55	5073558	18.03
2013	4472774	15.36	1143248	18.30	263680	14.72	5879702	15.89

Source: Report on Trends and Progress of Banking in India various issues

The net advances of SCBs showed an increasing trend from 2002 to 2013. Public sector banks net advances have increased from Rs4,80,681crores in 2002 to Rs 44,72,774 crores in 2013.Private sector banks net advances also have increased from Rs 1,16,473 crores in 2002 to Rs.11,43,248 crores in 2013, foreign banks net advances have increased from Rs.48,705 crores to Rs.2,63,680 crores during 2002 to 2013 and scheduled commercial banks from Rs 6,45,859 crores to Rs.58,79,702.
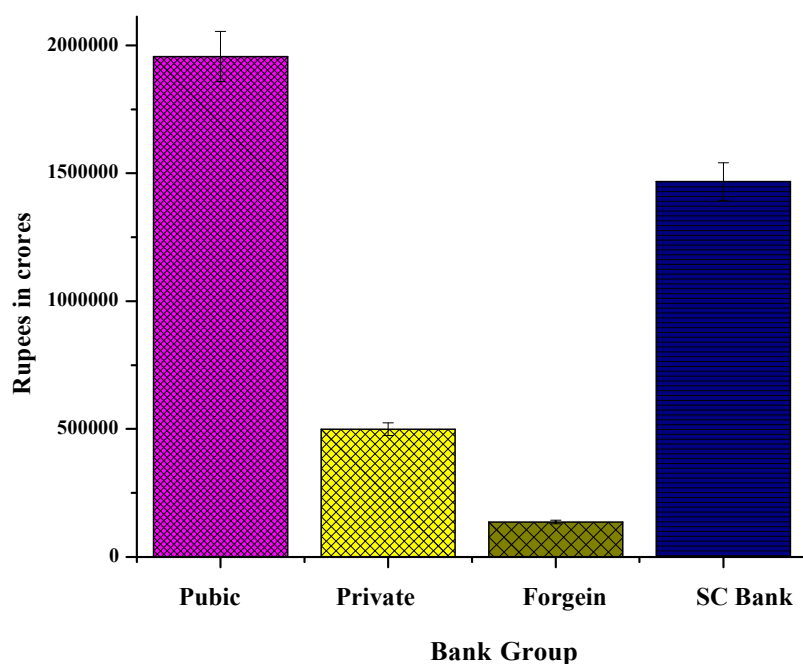
Net Advance of Commercial Banks

Figure 4.5

TABLE - 4.31

NET ADVANCES -SUMMARY OF STATISTICS

SL. NO	COMMERCIAL BANKS	MIN	MAX	MEAN	SD	CV%	CAGR %
1	Public sector Banks	480681	4472774	1955865.58	1351637.37	69.11	20.43
2	Private sector Banks	116473	1143248	499028.08	332987.70	66.73	20.96
3	Foreign Banks	48705	263680	136623.58	69319.36	50.74	15.11
4	S C Banks	645859	5879702	1466893	1778730	121.23	20.21

Source: RBI bulletin complied by researcher

The above table highlights the mean amount of net advances which ranges from Rs136623.58 to Rs1955865.58 during the study period among the commercial banks. The public sector banks had higher mean amount of net advances and foreign banks had least mean amount of net advances during the period of study. The foreign banks showed least coefficient of variation indicating the consistent performance in the net advances and the SCBs banks showed highest coefficient of variation indicating the inconsistent performance in the net advances. Among the commercial banks, private sector banks had highest compound annual growth rate during the study period.

Table 4.32 shows the cubic trend equation forecast of net advance.

TABLE - 4.32

TRENDS IN NET ADVANCES

SL. NO.	COMMERCIAL BANKS	MODEL SUMMARY					PARAMETER ESTIMATES			
		R^2	F	df_1	df_2	Sig.	b_0	b_1	b_2	b_3
1	Public sector Banks	.998	1206.09	3	8	.000	988	.25	6.36	-8.90
2	Private sector Banks	.999	2057.94	3	8	.000	102	1.44	3.55	-1.56
3	Foreign Banks	.987	208.32	3	8	.000	186	-3.27	4.36	-9.49
4	S C Banks	.917	29.62	3	8	.000	3089	-2.90	1.94	-2.35

* Significant at 5% level

The above table 4.32 shows the cubic trend equation forecast and positive trend is observed in the net advances in the future years among the commercial banks, except public sector banks as shown by highest coefficient of variation.(Vide Table 4.31)

ANOVA– NET ADVANCES

H$_0$: Null Hypothesis:

There is no significant difference in the net advances among different commercial banks during the study period.

H$_1$: Alternative hypothesis:

There is significant difference in the net advances among different commercial banks during the study period.

TABLE - 4.33

ANOVA TABLE – NET ADVANCES

SOURCE	SS	df	MS	F	F crit	RESULT
Between Groups	4.91E+13	3	1.64E+13	12.68		
Within Groups	5.68E+13	44	1.29E+12		2.82**	Significant
Total	1.06E+14	47				

** Significant at 5 % level

The above table shows that the calculated value of F is 12.68 which is greater than the table value of 2.82 at 5% level. This analysis does not support the null hypothesis and alternative hypothesis is accepted. Hence it is concluded that, there is significant difference in the mean net advances among different commercial banks during the study period.

PERCENTAGE OF NET NPA TO TOTAL ASSETS

Percentage of net NPA to total assets is used to measure banks performance. Higher NPA to total assets implies poor performance of banks and it decreases the profitability of the banks and lower ratio indicates the better performance of the banks and it increases the profitability of banks. Table No 4.34 shows the percentage of net NPA to total assets.

TABLE 4.34
PERCENTAGE OF NET NPA TO TOTAL ASSETS

(in percentage)

YEAR	PUBLIC SECTOR BANKS	PRIVATE SECTOR BANKS	FOREIGN BANKS	SCHEDULED COMMERCIAL BANKS
2002	2.42	2.49	0.81	2.33
2003	1.94	1.33	0.78	1.75
2004	1.31	1.12	0.69	1.24
2005	0.95	0.99	0.41	0.92
2006	0.72	0.58	0.40	0.67
2007	0.62	0.54	0.38	0.59
2008	0.59	0.60	0.34	0.57
2009	0.56	0.73	0.67	0.60
2010	0.66	0.57	0.69	0.64
2011	0.68	0.31	0.24	0.58
2012	0.98	0.26	0.24	0.68
2013	1.29	0.30	0.42	2.05
Mean	1.06	0.82	0.51	1.05
SD	0.56	0.60	0.20	0.61
CV	53.24	73.20	39.09	58.13

Source: Report on Trends and Progress of Banking in India various issues

The percentage of net NPA to total assets shows a declining trend during the study period from 2002-2010 in all the banks. However during the last three years from 2011-2013 the percentage of net NPA to total assets shows a gradual increase . This shows the poor performance of banks which affects the profitability of all banks. An analysis of coefficient of variation shows that the percentage of net NPA to total assets of foreign banks is more stable (C.V=39.09%) compared to private sector banks (C.V=73.20%) and public sector banks (C.V=53.24%) which show instability.

CLASSIFICATION OF LOAN ASSETS

Expansion of credit is a must for a country like India. But high credit growth may lead to high NPAs. Policy makers therefore face the dilemma as to how to minimize such risks that arise from dilution in credit quality, while still allowing bank lending to contribute to higher growth and efficiency. With effect from financial year 1992-93,as per the recommendations of the Narasimham Committee and the prudential guidelines issued by the Reserve Bank of India, banks were required to classify their loans and advances based on recovery into four categories-standard, sub-standard, doubtful and loss and make provisions at prescribed rate for the Non-Performing Assets.

In respect of accounts where there are potential threats to recovery, erosion in the value of security, existence of other factors such as, frauds committed by borrowers, it will not be prudent for the banks to classify them first as sub-standard and then as doubtful after expiry of 12 months from the date the account has become NPA. Such accounts should be straight away classified as doubtful or loss assets, as appropriate, irrespective of the period for which it has remained as NPA.
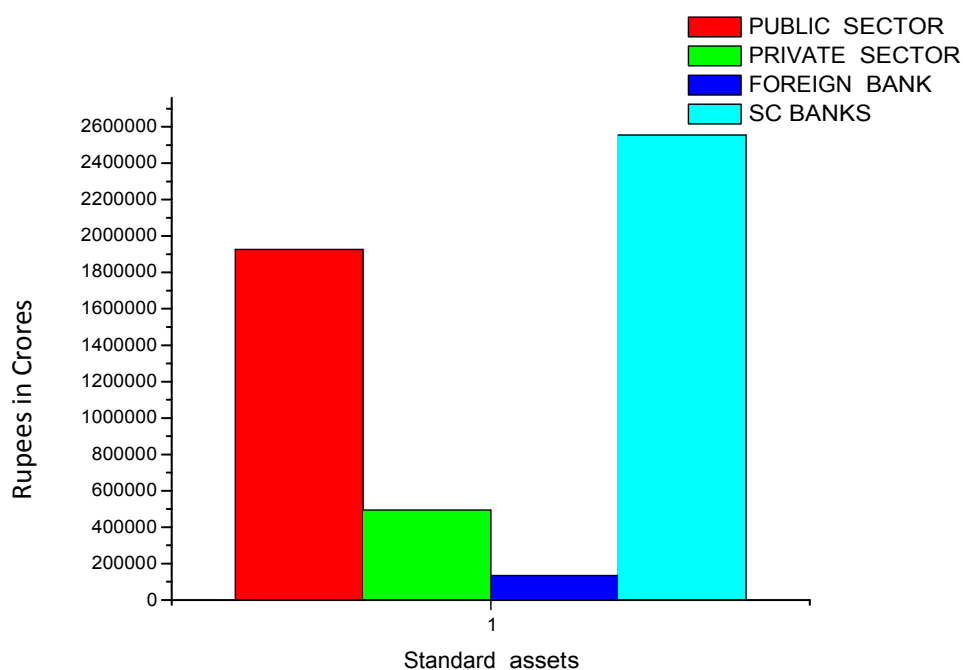
STANDARD ASSETS

Standard assets are those which do not disclose any problem and carries more than normal risk attached to business. Thus an asset, which is not NPA, may be treated as standard or good assets. Such account holders or customers pay interest in cash regularly on prescribed dates and repay the amount of installment of loan on the due date or before the grace period if granted. The table No 4.35 shows the standard assets of commercial banks from 2002 to 2013

TABLE - 4.35

STANDARD ASSETS OF COMMERCIAL BANKS

(Rs. in Crore)

YEAR	PUBLIC SECTOR BANKS	% OF ANNUAL GROWTH RATE	PRIVATE SECTOR BANKS	% OF ANNUAL GROWTH RATE	FOREIGN BANKS	% OF ANNUAL GROWTH RATE	S C BANKS	% OF ANNUAL GROWTH RATE
2002	452862	-	109272	-	47838	-	609972	-
2003	523724	15.65	134248	22.86	51288	7.21	709260	16.28
2004	610435	16.56	167076	24.45	59619	16.24	837130	18.03
2005	830029	35.97	188789	13.00	74705	25.30	1093523	30.63
2006	1092607	31.63	309918	64.16	96907	29.72	1499432	37.12
2007	1425519	30.47	410905	32.59	125453	29.46	1961877	30.84
2008	1778476	24.76	512860	24.81	159882	27.44	2451218	24.94
2009	2237556	25.81	568093	10.77	162422	1.59	2968071	21.09
2010	2673534	19.48	626472	10.28	160311	-1.30	3460317	16.58
2011	3272914	22.42	793590	26.68	194256	21.17	4260760	23.13
2012	3825500	16.88	962900	21.33	228400	17.58	5016800	17.74
2013	4395700	14.91	1138400	18.23	261000	14.27	5795100	15.51

Source: Report on Trends and Progress of Banking in India various issues

Standard assets of scheduled commercial banks show an increasing trend from Rs 6,09,972 crores in 2002 to Rs.57,95,100 crores in 2013. As far as public sector banks are concerned there has been a constant increase from Rs.4,52,862 crores in 2002 to Rs.43,95,700 crores in 2013. Over the years, it is observed that the percentage increase in standard assets of public sector banks showed fluctuations and there is only marginal increase during last two years of the study i.e. 16.88 percent in 2012 and 14.91 percent in 2013. In the case of standard assets of private sector banks there has been a continuous increase from Rs.1,09,272 crores in 2002 to Rs.11,38,400 crores in 2013. With regard to foreign banks, the value of standard assets shows constant increase from Rs 47,838 crores in 2002 to Rs.2,61,000 crores in 2013 except during the year 2010 in which year there has been a decrease from Rs.1,62,422 crores in 2009 to Rs 1,60,311 crores in 2010.

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Figure 4.6

TABLE - 4.36

STANDARD ASSETS -SUMMARY OF STATISTICS

SL. NO	COMMERCIAL BANKS	MIN	MAX	MEAN	SD	CV%	CAG R%
1	Public sector Banks	452862	4395700	1926571.33	1335794.68	**69.34**	20.85
2	Private sector Banks	109272	1138400	493543.58	332481.13	67.37	**21.57**
3	Foreign Banks	47838	261000	**135173.42**	68750.44	**50.86**	15.19
4	S C Banks	609972	5795100	**2555288**	1763576	69.02	20.64

Source: RBI bulletin compiled by researcher

Table 4.36 reveals that the mean amount of standard assets ranges from Rs135173.42 to Rs2555288 during the study period among the commercial banks. The SCBs had higher mean amount of standard assets and foreign banks had least mean amount of standard assets during the period of study. The foreign banks showed least coefficient of variation indicating the consistent performance in the standard assets and the public sector banks shows highest coefficient of variation indicating the inconsistent performance in the standard assets. Among the commercial banks, private sector banks had highest compound annual growth rate during the study period.

Table 4.37 shows the cubic trend equation forecast in standard assets.

TABLE - 4.37

TRENDS IN STANDARD ASSETS

SL. NO.	COMMERCIAL BANKS	MODEL SUMMARY					PARAMETER ESTIMATES			
		R^2	F	df 1	df 2	Sig.	b_0	b_1	b_2	b_3
1	Public sector Banks	.890	21.55	3	8	.000	642	-13.72	7.78	-9.45
2	Private sector Banks	1.00	110430	3	8	.000	14	.958	1.05	-5.62
3	Foreign Banks	1.00	8659	3	8	.000	5	.900	8.71	-1.78
4	S C Banks	.775	9.19	3	8	.006	-5533	14.59	-5.88	7.18

* Significant at 5% level

The above table 4.37 shows the cubic trend equation forecast and positive trend in the   standard assets has been   observed in the future years among the commercial banks, except public sector banks as evidenced by highest CV .(Vide Table 4.36)

ANOVA– STANDARD ASSETS
H_0: Null Hypothesis:

There is no significant difference in standard assets among different commercial banks during the study period.

H_1: Alternative hypothesis:

There is significant difference in standard assets among different commercial banks during the study period.

TABLE – 4.38
ANOVA TABLE – STANDARD ASSETS

SOURCE	SS	df	MS	F	F crit	RESULT
Between Groups	3.96E+13	3	1.32E+13	13.51		
Within Groups	4.3E+13	44	9.78E+11		2.82**	Significant
Total	8.27E+13	47				

** Significant at 5 % level

The above table shows that the calculated value of F is 13.51 which is greater than the table value of 2.82 at 5 percent level .This analysis does not support the null hypothesis and alternative hypothesis is accepted. Hence it is concluded that, there is significant difference in standard assets among different commercial banks during the study period.

SUB-STANDARD ASSETS

A non-performing asset may be classified as sub standard asset when the asset had remained overdue for a period less than or equal to 12 months. An asset where the terms and conditions of the loan regarding payment of interest and repayment of principal have been renegotiated or rescheduled is classified as sub-standard asset. Performance can be judged from the recovery of interest and repayment of principal.

Table No4.39 shows the sub-standard assets of commercial banks during the study period from 2002to 2013.

TABLE - 4.39
SUB STANDARD ASSETS OF COMMERCIAL BANKS

(Rs in Crores)

YEAR	PUBLIC SECTOR BANKS	% OF ANNUAL GROWTH RATE	PRIVATE SECTOR BANKS	% OF ANNUAL GROWTH RATE	FOREIGN BANKS	% OF ANNUAL GROWTH RATE	S C BANKS	% OF ANNUAL GROWTH RATE
2002	15788	-	4738	-	856	-	21382	-
2003	14909	-5.57	4174	-11.90	995	16.24	20078	-6.1
2004	16909	13.41	3127	-25.08	990	-0.50	21026	4.72
2005	11068	-34.54	2233	-28.59	715	-27.78	14016	-33.34
2006	11453	3.48	2427	8.69	946	32.31	14826	5.78
2007	14275	24.64	4368	79.98	1367	44.50	20010	34.97
2008	17290	21.12	7289	66.87	1962	43.53	26541	32.64
2009	20603	19.16	10592	45.31	5874	199.39	37069	39.67
2010	28791	39.74	8842	-16.52	4929	-16.09	42562	14.82
2011	34972	21.47	4530	-48.77	1865	-62.16	41367	-2.81
2012	62300	78.14	5200	14.79	2100	12.60	69600	68.25
2013	81500	30.82	6400	23.08	2900	38.10	90800	30.46

Source: Report on Trends and Progress of Banking in India various issues

It is evident from the above table that the sub-standard assets of scheduled commercial banks showed a constant increase from Rs 14,826 crores in 2006 to Rs 90,800 crores in 2013 except during 2011 in which there is decrease in growth. In public sector banks, fluctuations can be seen in sub-standard assets from 2002 to 2005 from Rs.15,788 crores to RS. 11,068 crores respectively. From 2006 there is constant increase in sub-standard assets from Rs.11,453 crores in 2006 to Rs.81,500 crores in 2013.

The above table also reveals that the sub-standard assets in private sector banks have decreased in the first four years of the study period from Rs.4738 crores in 2002 to Rs.2233 crores in 2005 and recorded an increase in the next four years from Rs.2427 crores in 2006 to Rs.10,592 crores in 2009. In the last four years it showed fluctuations. In case of foreign banks the sub-standard assets shows a mixed trend during the study period from Rs.856 crores in 2002 to Rs.2900 crores in 2013, the lowest being Rs 715 crores in 2005 and highest in 2009 with Rs.5874 crores.

As per the asset classification norms, a sub-standard asset is one which has remained NPA for a period upto 12 months. Thus the above mentioned increase in the share of substandard category is indicative of deterioration of assets .The variations in the sub standard assets are caused by the higher percentage of doubtful assets over substandard assets in some of the banks. The management should take necessary measures to reduce doubtful assets and loss assets and to increase the percentage of substandard assets. Also the bank should maintain maximum amount of provisions for substandard assets.

TABLE - 4.40
SUB STANDARD ASSETS -SUMMARY OF STATISTICS

SL. NO	COMMERCIAL BANKS	MIN	MAX	MEAN	SD	CV%	CAGR %
1	Public sector Banks	11068	81500	27488.17	23015.87	**83.73**	**14.66**
2	Private sector Banks	2233	10592	5326.67	2660.23	**49.94**	2.54
3	Foreign Banks	715	5874	**2124.92**	1702.48	80.12	10.70
4	S C Banks	14016	90800	**34940**	23664	67.72	12.81

Source: computed by researcher

The above table 4.40 reveals that the mean amount of sub standard assets ranges from Rs.2124.92 to Rs.34940 during the study period among the commercial banks. The scheduled commercial banks had higher mean amount of sub standard assets and foreign banks had least mean amount of sub standard assets during the period of study. The private sector banks showed least coefficient of variation indicating the consistent performance in the sub standard assets and the public sector banks highest coefficient of variation indicating the inconsistent performance in the sub standard assets.

Table 4.41 shows the cubic trend equation forecast of sub standard assets.

TABLE - 4.41

TRENDS IN SUB STANDARD ASSETS

SL. NO.	COMMERCIAL BANKS	MODEL SUMMARY					PARAMETER ESTIMATES			
		R^2	F	$df1$	$df2$	$Sig.$	b_0	b_1	b_2	b_3
1	Public sector Banks	.906	25.83	3	8	.000	11	-187	.019	-1.83
2	Private sector Banks	.370	1.56	3	8	.271	-9	74	.024	-2.44
3	Foreign Banks	.869	17.75	3	8	.001	-13	286	-.068	4.70
4	S C Banks	.545	3.19	3	8	.084	-099	152	-.046	4.04

* Significant at 5% level

The above table 4.41 shows the cubic trend equation forecast and a positive trend in the substandard assets in the future years among the commercial banks is observed, except in public sector banks as exhibited through highest coefficient of variation.(Vide Table 4.40)

ANOVA– SUB STANDARD ASSETS

H$_0$: Null Hypothesis:

There is no significant difference in sub standard assets among different commercial banks during the study period.

H$_1$: Alternative hypothesis:

There is significant difference in sub standard assets among different commercial banks during the study period.

TABLE - 4.42

ANOVA TABLE – SUB STANDARD ASSETS

SOURCE	SS	df	MS	F	F crit	RESULT
Between Groups	7.85E+09	3	2.62E+09	12.72		
Within Groups	9.05E+09	44	2.06E+08		2.82**	Significant
Total	1.69E+10	47				

** Significant at 5 % level

Table 4.42 indicates that there is significant difference in the mean Gross NPA among different commercial banks under study because the calculated value of F(12.72) is greater than the critical value of F (2.82). So the null hypothesis is rejected and alternative hypothesis is accepted. It can be concluded that there were significant difference in sub standard assets of banks under study.

DOUBTFUL ASSETS

A non performing asset may be classified as doubtful asset when the asset had remained overdue for a period of more than twelve months. A loan classified as doubtful has all the weaknesses inherent as that classified as substandard, with the added characteristics that the weaknesses make collection or liquidation highly questionable. The doubtful assets ratio indicates the proportion of total doubtful assets to gross NPA"s. If the ratio is higher, there is more scope for compromising and reducing NPAs

Table 4.43 shows the trend of doubtful assets of commercial banks from 2002 to 2013

TABLE - 4.43
DOUBTFUL ASSETS OF COMMERCIAL BANKS

(Rs in Crores)

YEAR	PUBLIC SECTOR BANKS	% of Annual Growth Rate	PRIVATE SECTOR BANKS	% of Annual Growth Rate	FOREIGN BANKS	% of Annual Growth Rate	S C BANKS	% of Annual Growth Rate
2002	33658	-	6539	-	1004	-	41201	-
2003	32340	-3.92	6447	-1.41	944	-5.98	39731	-3.57
2004	28756	-11.08	6392	-0.85	1099	16.42	36247	-8.77
2005	30779	7.04	5929	-7.24	1035	-5.82	37743	4.13
2006	25028	-18.68	4406	-25.69	670	-35.27	30104	-20.24
2007	19873	-20.60	3930	-10.80	605	-9.70	24408	-18.92
2008	19291	-2.93	4452	13.28	764	26.28	24507	0.41
2009	21019	8.96	5035	13.10	1004	31.41	27058	10.41
2010	25383	20.76	6590	30.88	1440	43.43	33413	23.49
2011	33180	30.72	10795	63.81	2110	46.53	46085	37.93
2012	49000	47.68	10400	-3.66	2200	4.27	61600	33.67
2013	76100	55.31	11200	7.69	2700	22.73	90000	46.1

Source: Report on Trends and Progress of Banking in India various issues

It is clear from the table that the value of doubtful assets in scheduled commercial banks has declined from Rs 41201crores in 2002 to Rs 24408 crores in 2007. From then onwards the doubtful assets show an upward movement from Rs 24507 crores in 2008 to Rs 90000 crores in 2013. Same trend can be seen in the case of foreign banks. However, in public sector banks the value of doubtful assets has shown a down trend from Rs 33658 crores in 2002 to Rs19291 crores in 2008.In subsequent years it has registered a rapid increase from Rs 21019 crores in 2009 to76100 crores in 20 13. In case of private sector banks, the value of doubtful assets has decreased from Rs 65639 crores in 2002 to Rs 3930 crores in 2007.Later it has shown an upward trend till the end of the study period.

Thus on analyzing the trend of doubtful assets among the various bank groups, private sector banks percentage of doubtful assets is less during last two years of the study followed by foreign banks indicating a positive sign. More over the banks have recovered the amount through compromise settlement. As far as public sector banks are concerned they should maintain prescribed percentage of provisions for doubtful assets which is classified to three types doubtful 1, doubtful 2 and doubtful 3 as 20 percent provision on secured portion for doubtful 1, 30 percent provision on doubtful 2 and 50 percent provision on doubtful 3.

TABLE - 4.44
DOUBTFUL ASSETS -SUMMARY OF STATISTICS

SL. NO.	COMMERCIAL BANKS	MIN	MAX	MEAN	SD	CV%	CAGR %
1	Public sector Banks	19291	76100	32867.25	16619.06	50.56	7.03
2	Private sector Banks	3930	11200	6842.92	2681.71	**39.19**	4.59
3	Foreign Banks	605	2700	**1297.92**	702.23	**54.10**	**8.59**
4	S C Banks	24408	90000	**41008**	18596	45.34	6.73

Source: computed by researcher

The above table 4.44 refers that the mean amount of doubtful assets ranges from Rs.1297.92 to Rs 41008 during the study period among the commercial banks. The scheduled commercial banks had higher mean amount of doubtful assets and foreign banks had least mean amount of doubtful assets during the period of study. The private sector banks showed least coefficient of variation indicating the consistent

performance in the doubtful assets and the foreign banks exhibited highest coefficient of variation indicating the inconsistent performance in the doubtful assets. Among the commercial banks foreign banks had highest compound annual growth rate during the study period. The banks   should always keep in mind that these assets are very risky as they are very near to loss assets. Hence, the management must try to recover as much doubtful advance as possible so that the gross NPAs are reduced.

Table 4.45 shows the cubic trend equation forecast with regard to doubtful assets.

<div align="center">

TABLE - 4.45

TRENDS IN DOUBTFUL ASSETS

</div>

SL. NO.	COMMERCIAL BANKS	MODEL SUMMARY					PARAMETER ESTIMATES			
		R^2	F	$df1$	$df2$	$Sig.$	b_0	b_1	b_2	b_3
1	Public sector Banks	.705	6.38	3	8	.016	3916	-3648	0.11	-8.11
2	Private sector Banks	.751	13.55	2	9	.002	122	-211	0.00	1.62
3	Foreign Banks	.715	6.67	3	8	.014	34	-573	0.39	-7.05
4	S C Banks	.914	47.81	2	9	.000	2170	-695	0.00	1.36

* Significant at 5% level

The above table 4.45 shows cubic trend equation forecast and positive trend is observed with regard to doubtful assets among the commercial banks, except foreign banks as shown by highest coefficient of variation.(Vide Table 4.44)

ANOVA– DOUBTFUL ASSETS

H$_0$: Null Hypothesis:

There is no significant difference in doubtful assets among different commercial banks during the study period.

H$_1$: Alternative hypothesis:

There is significant difference in doubtful assets among different commercial banks during the study period.

<div align="center">

TBLE - 4.46

ANOVA TABLE – DOUBTFUL ASSETS

</div>

SOURCE	SS	df	MS	F	F crit	RESULT
Between Groups	1.15E+10	3	3.82E+09	40.57		
Within Groups	4.14E+09	44	94122322		2.82**	Significant
Total	1.56E+10	47				

** Significant at 5 % level

It is evident from the table 4.46 that difference between groups and within groups is significant because the calculated value of F is 40.57 which is greater than table value of F (2.82). It can be said that the value of doubtful assets among different bank groups shows difference during the study period.

LOSS ASSETS

Loss assets are those which are identified by the bank auditor / RBI/NABARD through inspections but the amount has not been written off wholly or partially. An asset which is considered unrealizable and / or of such little value that its continuance as a doubtful asset is not worthwhile, should be considered as loss asset. Loss assets show the proportion of loss that the banks are likely to suffer as compared to gross NPAs. The ratio must be minimum, as it will indicate that the assets to be lost would be lower as compared to gross NPA. The loss assets are not likely to be recovered at all and so a higher ratio would suggest higher losses .The bank should maintain 100 percent provision for loss assets. This is the final stage of NPA.

Table 4.47 shows the trend of loss assets of commercial banks from 2002 to 2013

TABLE - 4.47
LOSS ASSETS OF COMMERCIAL BANKS

(**Rs in Crores**)

YEAR	PUBLIC SECTOR BANKS	% OF ANNUAL GROWTH RATE	PRIVATE SECTOR BANKS	% OF ANNUAL GROWTH RATE	FOREIGN BANKS	% OF ANNUAL GROWTH RATE	S C BANKS	% OF ANNUAL GROWTH RATE
2002	7061	-	389	-	920	-	8370	-
2003	6840	-3.13	1177	202.57	954	3.70	8971	7.18
2004	5876	-14.09	825	-29.91	924	-3.14	7625	-15.00
2005	5929	0.90	883	7.03	570	-38.31	7382	-3.19
2006	5636	-4.94	939	6.34	441	-22.63	7016	-4.96
2007	4826	-14.37	941	0.21	447	1.36	6214	-11.43
2008	4018	-16.74	1244	32.20	358	-19.91	5620	-9.56
2009	4296	6.92	1345	8.12	416	16.20	6057	7.78
2010	5750	33.85	2166	61.04	758	82.21	8674	43.20
2011	6463	12.40	2864	32.23	1087	43.40	10414	20.06
2012	6000	-7.16	2900	1.26	2000	83.99	10900	4.67
2013	6800	13.33	3200	10.34	2300	15.00	12300	12.84

Source: Report on Trends and Progress of Banking in India various issues

It is evident that the loss assets in public sector banks had been very low in the first seven years of the study period i.e. 2002 to 2008 except during the year 2005 where there is marginal increase of 0.90 percent compared to the previous year. And from 2009 to 2013 there is an increase in loss assets from Rs 4296 crores to Rs 6800 crores. It is also clear from the above table that loss asset of private sector banks show constant increase during the study period. Loss assets have increased from Rs 389 crores in 2002 to Rs 3200 crores in 2013 except in the year 2004. The foreign banks loss assets is low in 2008 with Rs 358 crores and high in 2013 with Rs 20300 crores during the study period and with regard to scheduled commercial banks there is constant decrease from Rs 8370 crores in 2002 to Rs 5620 crores during 2008.From 2009 onwards loss assests have increased from Rs 6057 crores to Rs 12300 crores in 2013.

Thus on analyzing the trend of loss assets, it is found that all bank groups have experienced increased growth of loss assets during last four years of the study period. The willful default by the borrowers is a significant factor influencing growth of NPA, which is managed and controlled by way of provisioning .The fraudulent practices like advancing loans to ineligible persons, advances without security or to the unviable project are the significant factors which have remarkably influenced the growth of loss assets.

The mean values of classification of assets are represented through bar diagram for illustrating the results through figure.8
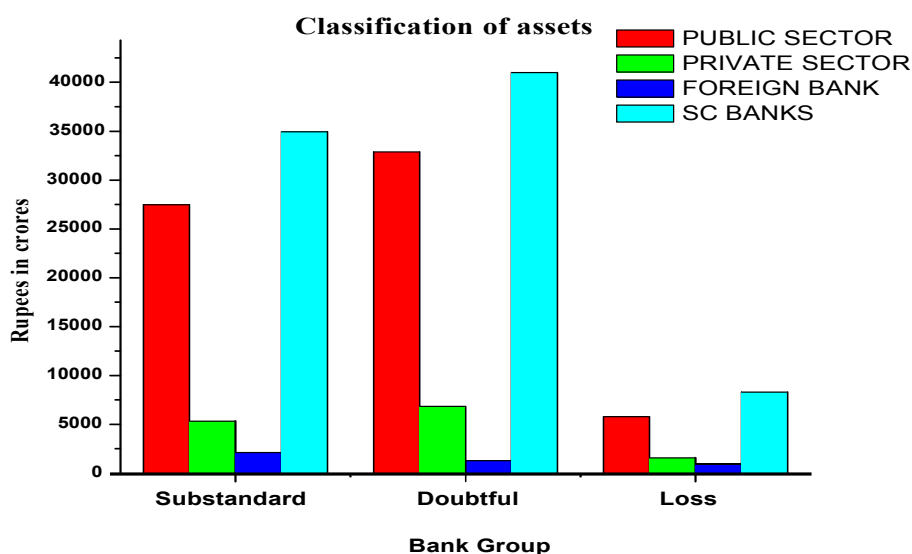
Figure 4.7

TABLE 4.48
LOSS ASSETS -SUMMARY OF STATISTICS

SL. NO.	COMMERCIAL BANKS	MIN	MAX	MEAN	SD	CV%	CAGR %
1	Public sector Banks	4018	7061	5791.25	939.66	**16.23**	-0.31
2	Private sector Banks	389	3200	1572.75	919.44	58.46	**19.20**
3	Foreign Banks	358	2300	**931.25**	653.45	70.17	7.93
4	S C Banks	5620	12300	**8295**	2074	25.00	3.24

Source: computed by the researcher

The above table 4.48 shows that the mean amount of loss assets ranges from Rs.931.25 to Rs 8295 during the study period among the commercial banks. The scheduled commercial banks had higher mean amount of loss assets and foreign banks had least mean amount of loss assets during the period of study. The public sector banks showed least coefficient of variation indicating the consistent performance in the loss assets and the foreign banks show highest coefficient of variation indicating the inconsistent performance in the loss assets. Among the commercial banks, private sector banks had highest compound annual growth rate during the study period. Further the analysis reveals that many internal factors like inefficient management, inappropriate technology and labour problems result in poor performance of the companies leading to an increase in the default rate which in turn increase the level of NPA in public sector banks in India.

Table 4.49 shows the cubic trend equation forecast of loss assets during the study period.

TABLE – 4.49
TRENDS IN LOSS ASSETS

SL. NO.	COMMERCIAL BANKS	MODEL SUMMARY					PARAMETER ESTIMATES			
		R^2	F	$df1$	$df2$	$Sig.$	b_0	b_1	b_2	b_3
1	Public sector Banks	.100	.50	2	9	.623	-2174	623	0.00	-4.52
2	Private sector Banks	.891	21.69	3	8	.000	-174	74	-.30	6.18
3	Foreign Banks	.623	4.41	3	8	.041	314	-62	.53	0.00
4	S C Banks	.865	28.72	2	9	.000	2190	0.00	-.89	7.30

* Significant at 5% level

The above table 4.49 shows the cubic trend equation forecast and observed a positive trend in the loss assets in the future years among the commercial banks, except foreign banks as revealed by the highest CV. (Vide Table 4.48)

ANOVA– LOSS ASSETS

H_0: Null Hypothesis:

There is no significant difference in loss assets among different commercial banks during the study period.

H_1: Alternative hypothesis:

There is significant difference in loss assets among different commercial banks during the study period.

TABLE - 4.50
ANOVA TABLE – LOSS ASSETS

SOURCE	*SS*	*df*	*MS*	*F*	*F crit*	RESULT
Between Groups	3.47E+08	3	1.16E+08	99.19		
Within Groups	51315109	44	1166252		2.82**	Significant
Total	3.98E+08	47				

** Significant at 5 % level

The above table proves that the calculated value of F is 99.19 which is greater than the table value of 2.82 at 5 percent level. Hence it is concluded that, there is significant difference in the loss assets among different commercial banks during the study period.

LOANS AND ADVANCES:

Loans and advances are the most profitable of all the assets of the banks. These assets constitute primary source of income to banks. As business institution, a bank aims at making a huge profit and is willing to lend loans and advances for certain predetermined period. While lending loans and advances the bank should be careful about the safety of such loans. The borrowers must repay the loans promptly but there is no certainty that all the loans will be recovered by maturity date. Loans that cannot be recovered even after its maturity remain as non performing assets of the bank. The total loans and advances of all scheduled commercial bank is presented in Table 4.51

TABLE - 4.51

TOTAL LOANS AND ADVANCES OF COMMERCIAL BANKS

(Rs in Crores)

YEAR	PUBLIC SECTOR BANKS	% OF ANNUAL GROWTH RATE	PRIVATE SECTOR BANKS	% OF ANNUAL GROWTH RATE	FOREIGN BANKS	% OF ANNUAL GROWTH RATE	S C BANKS	% OF ANNUAL GROWTH RATE
2002	509369	-	120938	-	50618	-	680925	-
2003	577813	13.44	146046	20.76	54181	7.04	778040	14.26
2004	661973	14.57	177420	21.48	62632	15.60	902025	15.94
2005	877805	32.60	197834	11.51	77025	22.98	1152664	27.79
2006	1134724	29.27	317690	60.58	98964	28.48	1551378	34.59
2007	1464493	29.06	420145	32.25	127872	29.21	2012510	29.72
2008	1819075	24.21	525845	25.16	162966	27.44	2507886	24.61
2009	2283474	25.53	585065	11.26	169716	4.14	3038255	21.15
2010	2733458	19.71	644070	10.09	167438	-1.34	3544966	16.68
2011	14370518	425.73	811779	26.04	199318	19.04	15381615	333.9
2012	17872716	24.37	981400	20.89	234700	17.75	19088816	24.1
2013	14378873	-19.55	1159200	18.12	268900	14.57	15806973	-17.19

Source: Report on Trends and Progress of Banking in India various issues

In case of scheduled commercial banks the loans and advances have increased from Rs. 6,80,925 crores in 2002 to Rs 1,58,06,973 crores in 2013. Same trend is observed in all bank groups except public sector banks where there is decrease in loans and advances to Rs.143, 78,873 crores in 2013 compared to the previous year (Rs 17872716 crores). It has been observed that the size of loans and advances of all the banks have increased. This has improved the performance of banks. At the time of lending loan, the bank should carefully study the repaying capacity and the banks have to monitor the repayment of loan.

TABLE - 4.52

TOTAL LOANS ADVANCES -SUMMARY OF STATISTICS

SL. NO	COMMERCIAL BANKS	MIN	MAX	MEAN	SD	CV%	CAGR %
1	Public sector Banks	509369	17872716	4890357.58	6678339.57	**136.56**	**32.10**
2	Private sector Banks	120938	1159200	507286.00	336546.12	66.34	20.73
3	Foreign Banks	50618	268900	**139527.50**	70551.96	**50.56**	14.93
4	S C Banks	680925	19088816	**5537171**	6879943	124.25	29.82

Source: computed by researcher

It is clear from the table that the SCBs have higher mean amount of total loans and advances and foreign banks have least mean amount of total loans and advances during the period of study. The foreign banks have shown least coefficient of variation indicating the consistent performance in the total loans and advances and the public sector banks have revealed highest coefficient of variation indicating the inconsistent performance in the total loans and advances. Among the commercial banks, public sector banks have highest compound annual growth rate during the study period.

Table 4.53 shows the cubic trend equation forecast of total loans and advances.

TABLE - 4.53
TRENDS IN TOTAL LOANS AND ADVANCES

SL. NO	COMMERCIAL BANKS	MODEL SUMMARY					PARAMETER ESTIMATES			
		R^2	F	df1	df2	Sig.	b_0	b_1	b_2	b_3
1	Public sector Banks	.965	73.35	3	8	.000	172	1.92	-1.69	4.488
2	Private sector Banks	.999	2487.75	3	8	.000	83	1.52	1.89	-7.88
3	Foreign Banks	.990	254.30	3	8	.000	182	-3.13	4.15	-8.86
4	S C Banks	.251	0.895	3	8	.484	-046	8.00	-1.26	6.08

* Significant at 5% level

The above table 4.53 shows the significant cubic trend equation forecast and positive trend is observed in the total loans and advances except public sector banks as shown by the highest CV.(Vide Table 4.52)

ANOVA– TOTAL LOANS ADVANCES

H$_0$: Null Hypothesis:

There is no significant difference in total loans advances among different commercial banks during the study period.

H$_1$: Alternative hypothesis:

There is significant difference in total loans advances among different commercial banks during the study period.

TABLE - 4.54

ANOVA TABLE – TOTAL LOANS AND ADVANCES

SOURCE	SS	df	MS	F	F crit	RESULT
Between Groups	2.41E+14	3	8.03E+13	6.54		
Within Groups	5.41E+14	44	1.23E+13		2.82**	Significant
Total	7.82E+14	47				

** Significant at 5 % level

Since the calculated F value is greater than the table value at 5 percent level, alternative hypothesis is accepted. Hence it is concluded that, there is significant difference in total loans and advances among different commercial banks during the study period.

BAD LOANS WRITTEN OFF IN COMMERCIAL BANKS

Table no 4.55 shows the position of bad loans written off in public sector, private sector and foreign banks during the period of study from 2002 to 2013.

TABLE - 4.55

BAD LOANS WRITTEN OFF IN COMMERCIAL BANKS

(Rs in Crores)

YEAR	PUBLIC SECTOR BANKS	% OF ANNUAL GROWTH RATE	PRIVATE SECTOR BANKS	% OF ANNUAL GROWTH RATE	FOREIGN BANKS	% OF ANNUAL GROWTH RATE	S C BANKS	% OF ANNUAL GROWTH RATE
2002	6428	-	1484	-	798	-	8710	-
2003	9448	46.98	2217	49.39	356	-55.39	12021	38.01
2004	11308	19.69	1811	-18.31	440	23.60	13559	12.79
2005	8048	-28.83	2146	18.50	628	42.73	10822	-20.19
2006	8799	9.33	1953	-8.99	905	44.11	11657	7.72
2007	9189	4.43	1842	-5.68	590	-34.81	11621	-0.31
2008	8019	-12.73	2301	24.92	1334	126.10	11654	0.28
2009	6966	-13.13	5679	146.81	3350	151.12	15995	37.25
2010	11185	60.57	7596	33.76	6238	86.21	25019	56.42
2011	17794	59.09	3018	-60.27	3083	-50.58	23895	-4.49
2012	15551	-12.61	3695	22.43	1646	-46.61	20892	-12.57
2013	27013	73.71	4350	17.73	855	-48.06	32218	54.21

Source: AIBEA bulletin

An analysis of bad loans written off reveals an increasing trend in SCBs from Rs 8710 crores in 2002 to Rs32,218 crores in 2013. It is also clear from the above table that bad loans written off in public sector banks show a fluctuating trend from Rs6428crores in 2002 to Rs.27,013 crores in 2013.The trend in bad loans written off of private sector banks reveals mixed trend from Rs1484 crores in 2002 to Rs 4350 crores in 2013. The loan written off is highest in 2009-10 with Rs7596 crores. With regard to foreign banks the bad loans written off indicate declining trend from Rs 798 crores in 2002 to Rs628 crores in 2005 and has started to increase from Rs 905 crores in 2006 to Rs 6238 crores in 2010, and from 2011 onwards a constant decreasing trend is observed from Rs 3083 crores to Rs 855 crores in 2013. Thus, Increase in bad loans written off implies redirecting of funds from good projects to bad ones. Hence, the economy suffers due to loss of good projects and failure of bad investments.

ANOVA– BAD LOANS WRITTEN OFF

H_0: Null Hypothesis:

There is no significant difference in bad loans written off among different commercial banks during the study period.

H_1: Alternative hypothesis:

There is significant difference in bad loans written off among different commercial banks during the study period.

TABLE - 4.56
ANOVA TABLE – BAD LOANS WRITTEN OFF

SOURCE	SS	df	MS	F	F crit	RESULT
Between Groups	6.63E+09	3	2.21E+09	16.76		
Within Groups	5.8E+09	44	1.32E+08		2.82****	Significant
Total	1.24E+10	47				

**** Significant at 5 % level**

The above table shows that the calculated value of F is 16.76 which is greater than the table value of 2.82 at 5 percent level .This analysis does not support the null hypothesis and hence alternative hypothesis is accepted. Therefore,it is concluded that, there is significant difference in bad loans among different commercial banks during the study period.

COMPOSITION OF TOTAL NPA

The total NPA of SCBs include NPA in priority sector, non-priority sector and the public sector.

PRIORITY SECTOR ADVANCE

Priority sector advance continued to be an important aspect of lending by Indian banks. In view of the broad socio-economic objectives, the Indian banks are under compulsion to extend advance to priority sector. Since nationalization of major commercial banks in 1969, banking sector has been utilized as a powerful vehicle to carry on the Government"s development programmes. The priority sector activities have been given adequate financial assistance through banks. Among the 20 point programme announced by the Prime Minister Indira Gandhi poverty alleviation,

creation of employment opportunities, promotion of self employment, protection and promotion of village and cottage industries, encouraging entrepreneurs and similar socio economic development programmes were given top priority. Thus various employment generation activities, agricultural development activities and activities related to small scale industries have been classified as priority sectors. Banks are directed by the Central Bank of the country that loans must be given on reduced rates of interest with discounts to promote these fields. Priority sector was first properly announced in 1972, after the National Credit Council emphasized that there should be a larger involvement of the commercial banks in the priority sector. In 1974, the banks were given a target of 33.33 percent as share of priority sector in the total bank credit. This was later revised on the recommendation of Dr.K S.Krishnaswamy Committee and raised to 40 percent.

The table no 4.57 presents the NPA in agriculture from 2002 to 2013.

TABLE - 4.57
NPA IN AGRICULTURE

(Rs in crores)

YEAR	PUBLIC SECTOR BANKS	% OF ANNUAL GROWTH RATE	PRIVATE SECTOR BANKS	% OF ANNUAL GROWTH RATE	FOREIGN BANKS	% OF ANNUAL GROWTH RATE	S C BANKS	% OF ANNUAL GROWTH RATE
2002	7822.00	-	439.00		NIL	-	8261	-
2003	7707.00	-1.47	537.00	22.32	NIL	-	8244	-6.61
2004	7240.00	-6.06	459.00	-14.53	NIL	-	7699	0.26
2005	7254.00	0.19	465.00	1.31	NIL	-	7719	-12.98
2006	6203.00	-14.49	514.00	10.54	NIL	-	6717	9.66
2007	6506.00	4.88	860.00	67.32	0.00	-	7366	32.17
2008	8269.00	27.10	1467.00	70.58	0.07	-	9736	-26.57
2009	5708.00	-30.97	1441.00	-1.77	0.00	-	7149	44.82
2010	8330.00	45.94	2023.00	40.39	0.00	-	10353	60.91
2011	14487.00	73.91	2172.00	7.37	0.10	-	16659	49.47
2012	22700.00	56.69	2200.00	1.29	NIL	-	24900	21.29
2013	28000.00	23.35	2200.00	0.00	NIL	-	30200	-59.99
Mean	10852.17	16.28	1231.42	18.62	0.03	-	12083.58	10.22
SD	6908.33		732.22		0.04	-	7443.90	
CV	63.66		59.46		125.61	-	61.60	

Source: Report on Trends and Progress of Banking in India various issues

As far as agriculture is concerned, it continues to be a concern for banking sector. NPA in agriculture of SCBs shows an increasing trend for majority of the years in absolute terms from Rs.8261 crores in 2002 to Rs.30200 crores in 2013. Public sector banks exhibit a fluctuating trend. In absolute terms NPA has decreased from Rs 7822 crores to Rs.6506 crores in 2007. In the subsequent year, it has gone up to Rs8269 crores. During the last four years of the study, it shows an increasing trend from Rs 8330 crores in 2010 to Rs.28000 crores in 2013.

It is interesting to note from the table that the NPAs in private sector banks show an increasing trend in absolute terms for majority of years during the study period. It has increased from Rs.439 crores in 2001-02 to Rs.2200 crores in 2012-13 except during the year 2003-04 with Rs.459 crores accounting for a decline to the tune of 14.53 percent over the previous year and in 2008-09 with Rs1441 crores accounting for 1.77 percent decrease over previous year.

It is quite surprising to note that the size of NPAs reached an all time low of Rs.5708 crores during 2009 in PSBs and Rs.1441 crores during the same period in private sector banks which is mainly due to the Loan Waiver Scheme of Union Government and Debt Relief Scheme which was implemented in 2008. This shows that private sector banks are improving faster in this regard, but public sector banks are not paying much attention to agricultural sector.

NPA IN SMALL SCALE INDUSTRIES

The table 4.58 gives the quantum of NPAs in SSI advances in commercial banks as a whole for the period of study from 2002to 2013.

TABLE - 4.58

NPA IN SMALL SCALE INDUSTRIES

(Rs in crores)

YEAR	PUBLIC SECTOR BANKS	% OF ANNUAL GROWTH RATE	PRIVATE SECTOR BANKS	% OF ANNUAL GROWTH RATE	FOREIGN BANKS	% OF ANNUAL GROWTH RATE	S C BANKS	% OF ANNUAL GROWTH RATE
2002	10584	-	1485	-	0.00	-	12069	
2003	10162	-3.99	1261	-15.08	0.00	-	11423	-5.35
2004	8838	-13.03	1262	0.08	0.00	-	10100	-11.58
2005	7835	-11.35	964	-23.61	0.00	-	8799	-12.88
2006	6917	-11.72	807	-16.29	0.00	-	7724	-12.22
2007	5843	-15.53	645	-20.07	54	100.00	6542	-15.30
2008	5805	-0.65	651	0.93	65	20.37	6521	-0.32
2009	6984	20.31	670	2.92	220	238.46	7874	20.75
2010	11537	65.19	1139	70.00	299	35.91	12975	64.78
2011	14340	24.30	1298	13.96	352	17.73	15990	23.24
2012	17800	24.13	1700	30.97	0.00	-100.00	19500	21.95
2013	28400	59.55	2000	17.65	0.00	0.00	30400	55.90
Mean	11253.75	12.47	1156.83	5.59	82.50	44.64	12493.08	11.72
SD	6202.28		415.35		124.89		6570.61	
CV	55.11		35.90		151.38		52.59	

Source: Report on Trends and Progress of Banking in India various issues

An analysis of the table indicates that the performance of private sector banks in respect of advances to small scale industries is highly impressive . NPA in SSI shows a declining trend in public sector banks from Rs 10,584 crores in absolute terms in 2002 to Rs 5805 crores 2008 . From 2009 onwards it shows an increasing trend from Rs 6984 crores to Rs 28,400 crores in 2013. As far as private sector banks are concerned NPAs with regard to SSI shows a declining trend from Rs 1485 crores in 2002 to Rs 645 crores in 2007.And then onwards it has increased from Rs 651 crores 2008 to Rs 2000 crores in 2013.

It is surprising to note that NPA in foreign banks with regard to SSI shows an increasing trend from 2008 with 54 crores to Rs 352 crores in 2011 and in the

subsequent two years there is no NPA in SSI indicating there is no defaulters and also the bank has taken necessary measures to recover the advances given to SSI.

NPA in SSI of SCBs shows decreasing trend from Rs 12,069 crores in absolute terms in 2002 to Rs 6521 crores in 2008 and from 2009 onwards it has started increasing from Rs 7874 crores to 30,400 crores in 2013.

The mean value of NPA in SSI is more in public sector banks with Rs 11253 crores followed by private sector banks (Rs 1156.83 crores) and it is less in foreign banks(Rs 82.50 crores)

An analysis of the coefficient of variation in NPA of SSI reveals that it is high in foreign banks (151.38 percent) indicating that the group shows more variation while the private sector banks exhibits less variation with 35.90 percent.

It is important to note that the size of NPAs in SSI reached on all time low of Rs 5805 crores in 2008 in public sector banks, Rs 645 crores in 2007 in private sector banks, Rs 54 crores 2007 in foreign banks . This was due to several favorable policy initiatives taken by the Central Government and RBI including the policy package for stepping up of credit to Small and Medium Scale enterprises (SMEs) announced on August 10 th 2005 which had a positive impact and that is why the amount lent to SSI was the highest during 2007 and 2008.

NPA IN OTHER PRIORITY SECTORS

Other priority sector advances are those advances made to various activities under priority sector other than agriculture and SSI. These are loans to professionals, self employed ,education, rural housing, small road transport operations, export credit, food and agro processing sector. NPA in other priority sector is shown in table No:4.59

TABLE - 4.59
NPA IN OTHER PRIORITY SECTOR

(Rs in crore)

YEAR	PUBLIC SECTOR BANKS	% OF ANNUAL GROWTH RATE	PRIVATE SECTOR BANKS	% OF ANNUAL GROWTH RATE	FOREIGN BANKS	% OF ANNUAL GROWTH RATE	S C BANKS	% OF ANNUAL GROWTH RATE
2002	6734	-	622	-	0.00	-	7356.00	-
2003	7070	4.99	647	4.02	0.00	-	7717.00	4.91
2004	7762	9.79	760	17.47	0.00	-	8522.00	10.43
2005	8308	7.03	759	-0.13	0.00	-	9067.00	6.40
2006	9253	11.37	962	26.75	0.00	-	10215.00	12.66
2007	10604	14.60	1379	43.35	277	100.00	12260.00	20.02
2008	11214	5.75	1300	-5.73	337	21.66	12851.00	4.82
2009	11626	3.67	1529	17.62	429	27.30	13584.00	5.70
2010	10981	-5.55	1630	6.61	871	103.03	13482.00	-0.75
2011	12418	13.09	1353	-16.99	789	-9.41	14560.00	8.00
2012	15700	26.43	1200	-11.31	0.00	-100.00	16900.00	16.07
2013	10500	-33.12	1100	-8.33	0.00	0.00	11600.00	-31.36
Mean	10180.83	5.28	1103.42	6.66	225.25	20.37	11509.50	5.17
SD	2437.90		334.32		309.12		2845.02	
CV	23.95		30.30		137.23		24.72	

Source: Report on Trends and Progress of Banking in India various issues

The above table shows that the NPA in scheduled commercial banks has increased during the study period from Rs 7356 crores in2002 to Rs 11600 crores in 2013. In case of public sector banks it has increased during the study period from Rs 6734 crores in 2002 to Rs 10500 crores 2013. As regard to NPA in private sector banks it exhibits a mixed trend during the study period. The amount of NPAs has increased from Rs 622 crores 2002 to Rs 1630 crores in 2010.From 2011 onwards NPA in other priority sectors has started declining from Rs 1353 crores in 20 11 to Rs 1100 crores in 2013.An insight into foreign banks NPA reveals that in 2007 the amount of NPA has increased from Rs.277 crores to Rs.871 crores in 2010. During the last two years of the study period there is no NPA which is quite impressive and shows that they are strictly following the policy of RBI.

Coefficient of variation is high in foreign banks (137.23%) specifying the group is less consistent and low in PSBs (23.95%) specifying the group is more consistent.

An analysis of NPA in other priority sector reveals that size of NPAs has decreased during the last year of the study (2013) in all categories of banks particularly foreign banks indicating that the management of foreign banks have taken enough care in granting advances and they have been very meticulous in recovering the loans from customers. Further the banks have strictly followed the RBI guidelines by making provisions against NPAs.

The mean values of composition of NPA are represented through bar diagram for illustrating the results through figure.9
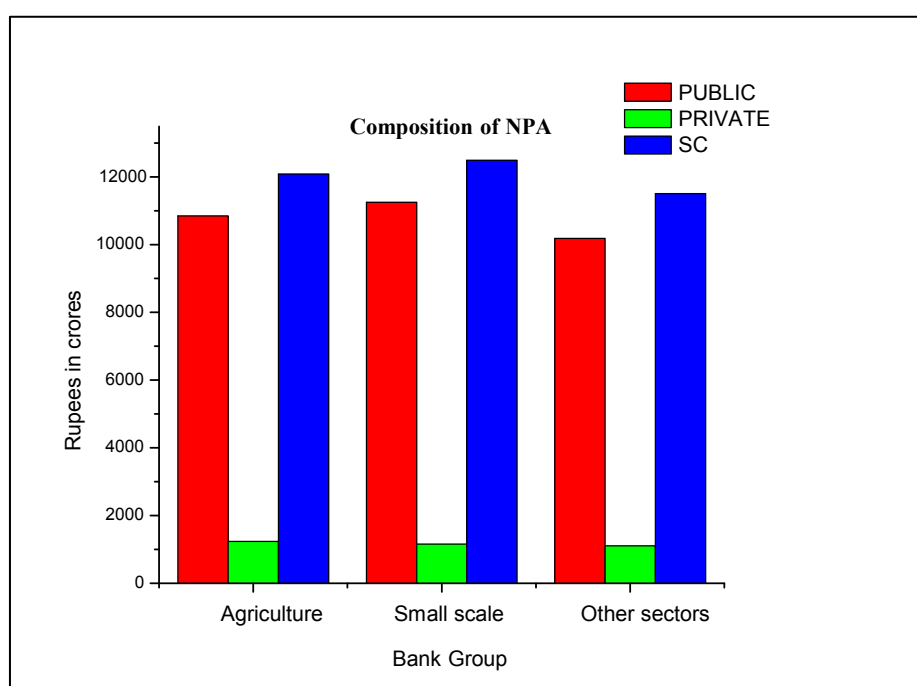
Figure 4.8

NPA IN TOTAL PRIORITY SECTOR LENDING

The concept of priority sector lending (PSL) is mainly intended to ensure that financial assistance from the banking system should flow in an increasing manner to those sectors of the economy which have not received adequate institutional finance. Table No 4.60 highlights NPA in priority sector lending during the study period from 2002 to2013.

TABLE - 4.60

NPA- TOTAL PRIORITY SECTOR

(Rs in crores)

YEAR	PUBLIC SECTOR BANKS	% OF ANNUAL GROWTH RATE	PRIVATE SECTOR BANKS	% OF ANNUAL GROWTH RATE	FOREIGN BANKS	% OF ANNUAL GROWTH RATE	S C BANKS	% OF ANNUAL GROWTH RATE
2002	25140	-	2546	-	0.00	-	27686	-
2003	24939	-0.80	2445	-3.97	0.00	-	27384	-1.09
2004	23840	-4.41	2481	1.47	0.00	-	26321	-3.88
2005	23397	-1.86	2188	-11.81	0.00	-	25585	-2.80
2006	22373	-4.38	2283	4.34	0.00	-	24656	-3.63
2007	22953	2.59	2884	26.33	331	100.00	26168	6.13
2008	25288	10.17	3418	18.52	402	21.45	29108	11.24
2009	24318	-3.84	3640	6.50	649	61.44	28607	-1.72
2010	30848	26.85	4792	31.65	1170	80.28	36810	28.67
2011	41245	33.70	4823	0.65	1141	-2.48	47209	28.25
2012	56200	36.26	5100	5.74	0.00	-100.00	61300	29.85
2013	66900	19.04	5300	3.92	0.00	0.00	72200	17.78
Mean	32286.75	10.30	3491.67	7.58	307.75	22.96	36086.17	9.89
SD	14158.53		1150.67		430.76		15137.60	
CV	43.85		32.95		139.97		41.95	

Source: Report on Trends and Progress of Banking in India various issues

NPA in public sector banks decreased from Rs 25140 crores in 2002 to Rs 22373 crores in 2006 It has increased from Rs 22953 crores in 2007 to 66900 crores in 2013 It is evident from the above table that the NPAs in private sector shows an increasing trend from Rs 2546 crores in 2002 to Rs 5300 crores in 2013. Foreign banks show an increasing trend from2007 with Rs 331 crores to Rs 1170 crores in 2010 and during 2011 to 2013 it has revealed a decreasing trend and in the last two years there is no record of NPAs indicating that borrowers have repaid the loans.

NPAs of commercial banks, public sector banks and private sector banks has shown a gradually decreasing trend. It shows fluctuations upto 2011. An alarming increase in NPAs is observed in all the three since 2011.

Public sector banks as a whole have failed in controlling the NPAs as revealed from their performance during the study period. NPA in priority sector has increased during the study period mainly due to the increase in NPA in the agriculture sector. It is a reflection of the impact of the financial crisis and the economic slowdown that had set in thereafter. The banks without insisting on adequate security, have given advances to priority and other neglected sections of the society at concessional rate of interest. Hence it is observed that NPAs in priority sector is the troubling sector for both private and public sector banks.

NPA IN NON-PRIORITY SECTOR ADVANCE

Table No 4.61 highlights NPAs in non priority sector advances lent by commercial banks from 2002 to2013.

TABLE - 4.61
NPA NON - PRIORITY SECTOR

(Rs in crores)

YEAR	PUBLIC SECTOR BANKS	% OF ANNUAL GROWTH RATE	PRIVATE SECTOR BANKS	% OF ANNUAL GROWTH RATE	FOREIGN BANKS	% OF ANNUAL GROWTH RATE	S C BANKS	% OF ANNUAL GROWTH RATE
2002	28371	-	9090	-	0.00	-	37461	-
2003	26781	-5.60	9327	2.61	0.00	-	36108	-3.61
2004	25698	-4.04	7796	-16.41	0.00	-	33494	-7.24
2005	23849	-7.20	6569	-15.74	0.00	-	30418	-9.18
2006	18664	-21.74	5541	-15.65	0.00	-	2420	-20.43
2007	15158	-18.78	6353	14.65	2120	100.00	23631	-2.37
2008	14163	-6.56	9557	50.43	2712	27.92	26432	11.85
2009	19251	35.92	13172	37.83	6506	139.90	38929	47.28
2010	25929	34.69	12592	-4.40	5956	-8.45	44477	14.25
2011	29524	13.86	13147	4.41	3924	-34.12	46595	4.76
2012	56300	90.69	13200	0.40	0.00	-100.00	69500	49.16
2013	89000	58.08	14800	12.12	0.00	0.00	103800	49.35
Mean	31057.33	15.39	10095.33	6.39	1768.17	17.89	42920.83	12.17
SD	20331.78		3043.36		2372.27		21909.38	
CV	65.47		30.15		134.17		51.05	

Source: Report on Trends and Progress of Banking in India various issues

It is interesting to note that the total NPAs in the scheduled commercial banks has continuously declined from Rs.37,461 crores in 2002 to Rs 23,631 crores in 2007. From then onwards it has started increasing sharply from Rs.26,432 crores in 2008 to Rs.1,03,800 crores in 2013. Same trend is observed in the case of private sector banks. The total NPAs in public sector banks has also shown a declining trend from 2002 (Rs.28,371crores) to 2008 (Rs.14,163crores). Since 2009, it has shown rapid increase from Rs.19,251 crores in 2009 to Rs 89,000 crores in 2013. This is because public sector banks are subject to political interference and hence they are not allowed to act on the basis of the norms of RBI leading to a high level of NPA. As far as foreign banks are concerned, NPAs in non priority sector lending shows high fluctuations. It reached a peak in 2009 with Rs 6506 crores and then started declining. In the last two years of the study period, it is surprising to note that there is no NPAs in foreign banks. It reveals that foreign banks are following the norms prescribed by RBI. Added to this, foreign banks are lending money only against adequate securities.

Hence it is concluded that the sharp rise in NPA in non-priority sector in public sector banks reflects the slowdown in the economy and stressed financial conditions of corporate. It is noteworthy that the Reserve Bank has issued guidelines regarding restructuring of loans as a onetime measure and for a limited period of time in view of extraordinary external factors for preserving the economic and productive value of assets which were otherwise viable.

NPA IN PUBLIC SECTOR ADVANCES

Table 4.62 reveals NPAs in public sector advances

TABLE - 4.62

NPAs IN PUBLIC SECTOR ADVANCE

(Rs in crore)

YEAR	PUBLIC SECTOR BANKS	% OF ANNUAL GROWTH RATE	PRIVATE SECTOR BANKS	% OF ANNUAL GROWTH RATE	FOREIGN BANKS	% OF ANNUAL GROWTH RATE
2003	902.00	-	31.00	-	933.00	-
2004	1087.00	20.51	95.00	206.45	1182.00	26.69
2005	610.00	-43.88	75.00	-21.05	685.00	-42.05
2006	450.00	-26.23	42.00	-44.00	492.00	-28.18
2007	341.00	-24.22	4.00	-90.48	345.00	-29.88
2008	490.00	43.70	3.00	-25.00	493.00	42.90
2009	299.00	-38.98	0.00	-100.00	299.00	-39.35
2010	474.00	58.53	75.00	100.00	549.00	83.61
2011	524.00	10.55	0.00	-100.00	524.00	-4.55
2012	278.00	-46.95	153.00	100.00	431.00	-17.75
2013	3200.00	1051.08	0.00	-100.00	3200.00	642.46
Mean	786.82	100.41	43.45	-7.41	830.27	63.39
SD	798.99		48.30		789.09	
CV	101.55		111.15		95.04	

Source: Report on Trends and Progress of Banking in India various issues

The above table highlights the NPAs in public sector lending by public sector and private sector banks during the study period 2004 to 2013. NPA shows fluctuating trend during the study period in public sector banks. NPA is high in2004 with Rs.1087 crores and low in the year 2012 with Rs278 crores. In case of private sector banks also the same trend prevails as that of public sector banks. NPA is high during the year 2012 with Rs.153 crores and low in the year 2008 with Rs3 crores. NPA is nil during 2009, 2011, 2013 in private sector banks because of proper project handling, effective lending process and regular industrial visits.

COMPOSITION OF NPA INPUBLIC AND PRIVATE SECTOR BANKS

The Ranks given by public sector banks and private sector banks for NPA are depicted in Table 4.63

<div align="center">

TABLE - 4.63

COMPOSITION OF NPA   PAIRED SAMPLE- RANK

</div>

	COMPOSITION OF NPA	Weighted average	Rank by public sector banks	Rank by private sector banks
Pair 1	NPA in Public Sector Banks -Agriculture	10852.17	4	-
	NPA in Private Sector Banks- Agriculture	1231.42	-	3
Pair 2	NPA in Public Sector Banks-Small Scale Industries	11253.75	3	-
	NPA in Private Sector Banks-Small Scale Industries	1156.83	-	4
Pair 3	NPA in Public Sector Banks -Others	10180.83	**5**	-
	NPA in Private Sector Banks -Others	1103.42	-	**5**
Pair 4	NPA in Public Sector Banks-Total Priority Sector	32286.75	1	-
	NPA in Private Sector Banks-Total Priority Sector	3491.67	-	2
Pair 5	NPA in Public Sector Banks-Non-priority Sector	31057.33	2	-
	NPA in Private Sector Banks-Non-priority Sector	10095.33	-	1
Pair 6	NPA in Public Sector Banks -Public Sector	872.92	**6**	-
	NPA in Private Sector Banks -Public Sector	67.75	-	**6**

Source: computed by the researcher

It is evident from the table that the public sector banks gives first rank to total priority sector lending followed by non priority sector, whereas in case of private sector banks first rank is given to non priority sector lending followed by total priority sector. Both the banks have given fifth rank to NPA in other sectors and sixth rank to public sector lending.

COMPOSITION OF NPA- CORRELATION

The correlation in composition of NPA between public and private sector banks is furnished in Table 4.64

<div align="center">

TABLE – 4.64

COMPOSITION OF NPA- PAIRED SAMPLE CORRELATION

</div>

	COMPOSITION	N	Correlation	Sig.
Pair 1	Priority to Agriculture	12	.707	.010**
Pair 2	Priority to Small Scale Industries	12	.894	.000**
Pair 3	Priority to Others	12	.729	.007**
Pair 4	Priority to Total Priority Sector	12	.832	.001**
Pair 5	Priority to Non-priority Sector	12	.627	.029**
Pair 6	Priority to Public Sector	12	.695	.012**

** Significant at 5 % level

It is clear from the above table 4.64 that the overall paired samples are correlated and r is significant at 5 percent level. The study showed that t<0.05 which is consistent for all the pairs. Hence it is likely that all the pairs in the composition of public and private sector banks are highly significant and positively correlated.

COMPOSITION OF NPA- PAIRED DIFFERENCE

Table 4.65 presents the paired difference in composition of NPA between public and private sector banks and the following hypothesis are framed.

H_0: Null hypothesis

1. There is no significant difference in the mean priority of agriculture in public and private sector banks during the study period.

2. There is no significant difference in the mean priority of SSI in public and private sector banks during the study period.

3. There is no significant difference in the mean priority of other priority sector lending in public and private sector banks during the study period.

4. There is no significant difference in the mean priority of non priority sector in public and private sector banks during the study period.

5. There is no significant difference in the mean priority of priority sector in public and private sector banks during the study period.

TABLE - 4.65

COMPOSITION OF NPA- PAIRED DIFFERENCE

VARIABLE		Paired Differences					t	Sig(2-tailed) df=11 p
		Mean	SD	SE Mean	95% Confidence Interval of the Difference			
					Lower	Upper		
Pair 1	Priority to Agriculture	9620	6696	1933	5365	13875	4.97	.000**
Pair 2	Priority to Small Scale Industries	10096	6093	1758	6225	13968	5.74	.000**
Pair 3	Priority to Others	9077	2304	665	7613	10541	13.64	.000**
Pair 4	Priority to Total Priority Sector	28795	13804	3984	20024	37565	7.22	.000**
Pair 5	Priority to Non-priority Sector	20962	19399	5600	8635	33288	3.74	.003**
Pair 6	Priority to Public Sector	805	810	234	289	1320	3.44	.006**

Source: computed by researcher   **** Significant at 5 % level**

The above table 4.65 shows t-value, df, significance level and 95 percent confidence interval for the mean difference. The *t*-value of 4.97, 5.74, 13.64, 7.22, 3.74, and 3.44 and the *P*-values of corresponding pairs are smaller than 0.05, therefore at 5 percent level of significance null hypothesis rejected. Hence, there is a highly significant correlation between all the pairs.

IMPACT OF NPA ON PROFITABILITY

Profit is the very reason for the continued existence of every commercial organization. The rate of profitability and volume of profits are therefore, rightly considered as indicators of efficiency in the deployment of resources of the banks. Profitability indicates earning capacity of the banks and highlights the managerial competency of the banks. The impact of reforms on the profitability of banking sector has been studied on the basis of various variables viz., interest income, net profits and operating profit of commercial banks from 2002 to 2013.

INTEREST INCOME

Interest Income of SCBs is presented in Table No 4.66

TABLE - 4.66

INTEREST INCOME OF COMMERCIAL BANKS

(**Rs in Crores**)

YEAR	PUBLIC SECTOR BANKS	% OF ANNUAL GROWTH RATE	PRIVATE SECTOR BANKS	% OF ANNUAL GROWTH RATE	FOREIGN BANKS	% OF ANNUAL GROWTH RATE	S C BANKS	% OF ANNUAL GROWTH RATE
2002	100725	-	16548	-	9700	-	126973	-
2003	107232	6.46	24533	48.25	8926	-7.98	140691	10.80
2004	109491	2.11	25662	4.60	9137	2.36	144290	2.56
2005	120346	9.91	26128	1.82	9171	0.37	155645	7.87
2006	137875	14.57	35223	34.81	12291	34.02	185389	19.11
2007	164185	19.08	49567	40.72	15450	25.70	229202	23.63
2008	213075	29.78	70991	43.22	24422	58.07	308487	34.59
2009	273088	28.17	85071	19.83	30322	24.16	388481	25.93
2010	305983	12.05	82874	-2.58	26392	-12.96	415248	6.89
2011	366134	19.66	96713	16.70	28530	8.10	491377	18.33
2012	484740	32.39	133980	38.53	36340	27.37	655059	33.31
2013	554876	14.47	166486	24.26	42248	16.26	763611	16.57

Source: computed by researcher

Interest income has been a major contributor to the income of commercial banks. The Interest income of the scheduled commercial banks shows a constant increase from Rs.1,26,973 crores in 2002 to Rs7,63,611 crores in 2013.The interest income of public sector banks also has an increasing trend from Rs. 1,00,725 crores to Rs 5,54,876 crores during the same period. With regard to private sector banks and foreign banks the interest income reveals a constant increase from Rs16,548 crores and Rs9,700 crores respectively in 2002 to Rs 166486 crores and 42248 crores in 2013 respectively except during the year 2010 in which year the private sector banks showed decreasing trend from Rs 82,874 crores compared to the previous year of 2009 with 85,071 crores and Rs26,392 crores compared to 30,322 crores in foreign banks .The upward trend in interest income of all groups of banks is due to boom in the Indian economy as GDP is showing a sign of buoyancy.

The mean values of interest income of commercial banks are represented through pie chart for illustrating the results through figure.10

Interest Income Of Commercial Banks
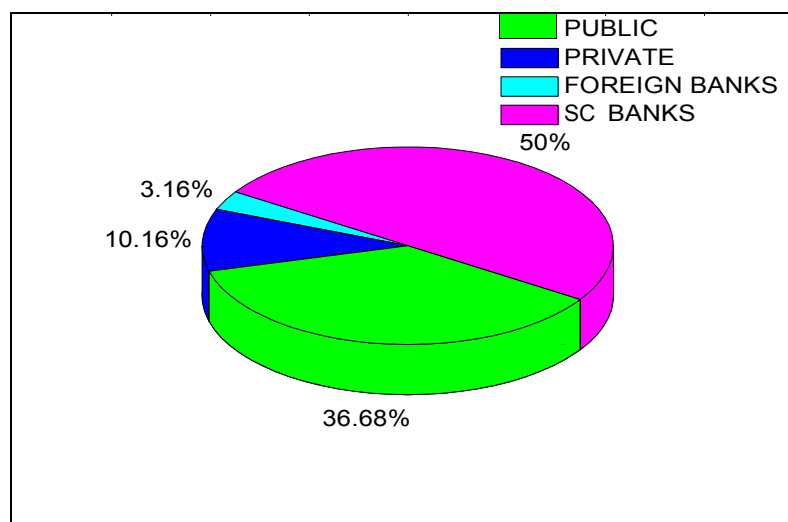
Figure 4.9

TABLE – 4.67

INTEREST INCOME-SUMMARY OF STATISTICS

SL. NO	COMMERCIAL BANKS	MIN	MAX	MEAN	SD	CV%	CAGR %
1	Public sector Banks	100725	554876	244812.50	155805.44	63.64	15.28
2	Private sector Banks	16548	166486	67814.67	46933.82	**69.21**	**21.21**
3	Foreign Banks	8926	42248	**21077.42**	11792.66	**55.95**	13.05
4	S C Banks	140691	763611	**333704**	213994	64.13	16.13

Source: computed by researcher

The above table 4.67 reveals that the mean of amount of interest income ranges from Rs.21077.42 to Rs 333704 during the study period among the commercial banks. The SCBs have higher mean amount interest income and foreign banks have least mean amount of interest income during the period of study. The foreign banks have shown least coefficient of variation indicating the consistent performance in the interest income and the public sector banks have highest coefficient of variation indicating the inconsistent performance in the interest income. Among the commercial banks, private sector banks have highest compound annual growth rate during the study period.

TABLE - 4.68

TRENDS IN INTEREST INCOME

SL. NO	COMMERCIAL BANKS	MODEL SUMMARY					PARAMETER ESTIMATES			
		R^2	F	df1	df2	Sig.	b_0	b_1	b_2	b_3
1	Public sector Banks	.991	305	3	8	.000	97	-.610	1.80	-8.87
2	Private sector Banks	.864	16	3	8	.001	130	-.215	4.30	-1.65
3	Foreign Banks	.816	11	3	8	.003	7	-.845	4.34	-5.49
4	S C Banks	.985	174	3	8	.000	115	-.530	1.31	-6.36

* Significant at 5% level

The above table 4.68 shows that significant cubic trend equation forecast and positive trend in the interest income in the future years among the commercial banks, except private sector banks as evidenced by highest coefficient of variation.(Vide Table 4.67)

ANOVA– INTEREST INCOME

H_0: Null Hypothesis:

There is no significant difference in interest income among different commercial banks during the study period.

H_1: Alternative hypothesis:

There is significant difference in interest income among different commercial banks during the study period.

TABLE - 4.69

ANOVA TABLE – INTEREST INCOME

SOURCE	SS	df	MS	F	F crit	RESULT
Between Groups	7.85E+11	3	2.62E+11	14.58		
Within Groups	7.89E+11	44	1.79E+10		2.82**	Significant
Total	1.57E+12	47				

** Significant at 5 % level

The above table proves that the calculated value of F is 14.58 which is greater than the table value of 2.82 at 5 percent .This analysis does not support the null hypothesis and alternative hypothesis is accepted. Hence it is concluded that, there is significant difference in the interest income among different commercial banks during the study period.

NET PROFIT

The net profit of SCBs, public, private and foreign banks is presented in Table No.4.70

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TABLE - 4.70
NET PROFIT OF COMMERCIAL BANKS

</div>

(Rs in crores)

YEAR	PUBLIC SECTOR BANKS	% OF ANNUAL GROWTH RATE	PRIVATE SECTOR BANKS	% OF ANNUAL GROWTH RATE	FOREIGN BANKS	% OF ANNUAL GROWTH RATE	S C BANKS	% OF ANNUAL GROWTH RATE
2002	8301	-	1779	-	1492	-	11572	-
2003	12296	48.13	2958	66.27	1816	21.72	17070	47.51
2004	16547	34.57	3482	17.71	2047	12.72	22076	29.33
2005	15478	-6.46	3565	2.38	1982	-3.18	21024	-4.77
2006	15979	3.24	4985	39.83	3069	54.84	24033	14.31
2007	20398	27.66	6465	29.69	4533	47.70	31397	30.64
2008	26988	32.31	9522	47.29	6613	45.89	43123	37.35
2009	34319	27.16	10717	12.55	7510	13.56	52546	21.85
2010	39257	14.39	13112	22.35	4733	-36.98	57102	8.67
2011	44901	14.38	17712	35.08	7690	62.48	70311	23.13
2012	49514	10.27	22718	28.26	9426	22.57	81658	16.14
2013	50583	2.16	28995	27.63	11586	22.92	91165	11.64

Source: computed by researcher

The above table gives a clear picture about the net profit earned by commercial banks during the study period. From 2002 to 2013 the net profit of SCBs shows an increase from Rs11,572 crores to RS 91,165 crores except during the year 2005 in which year there is decrease in net profit to Rs 21,024 crores compared to other years of the study period. The same trend is observed in public sector banks. But in foreign banks the net profit has decreased in 2005 and 2010 with Rs 1982

crores and Rs 4733 crores respectively compared to their respective previous years. In case of private sector banks there is constant increase in net profit during the study period from Rs 1779 crores to RS 28,995 crores.

The increase in the profitability of all the banks after 2006 except foreign banks where there is a decrease in profit to 36.98 percent in 2010, is due to increase in non-interest income of the banks as compared to interest income. Now all the banks are focusing on non-interest income by diversifying their product portfolio offered to customers.

TABLE - 4.71

NET PROFIT -SUMMARY OF STATISTICS

SL. NO	COMMERCIAL BANKS	MIN	MAX	MEAN	SD	CV%	CAGR %
1	Public sector Banks	8301	50583	27880.08	14603.88	**52.38**	16.25
2	Private sector Banks	1779	28995	10500.83	8632.37	**82.21**	**26.20**
3	Foreign Banks	1492	11586	**5208.08**	3283.43	63.04	18.63
4	S C Banks	17070	91165	**43590**	26835	61.56	18.77

Source: computed by the researcher

The above table 4.71 shows that the mean amount of net profit ranges from Rs.5208.08 to Rs.43590 during the study period among the commercial banks. The scheduled commercial banks have higher mean amount of net profit and foreign banks have least mean amount of net profit during the period of study. The public sector banks show least coefficient of variation indicating the consistent performance in the net profit and the private sector banks show highest coefficient of variation indicating the inconsistent performance in the net profit. Among the commercial banks, private sector banks have highest compound annual growth rate during the study period.

The cubic trend equation forecast for net profit is presented in Table 4.72

TABLE - 4.72
TRENDS IN NET PROFIT

SL. NO.	COMMERCIAL BANKS	MODEL SUMMARY					PARAMETER ESTIMATES			
		R^2	F	df1	df2	Sig.	b_0	b_1	b_2	b_3
1	Public sector Banks	.984	165.03	3	8	.000	21	12.81	.000	6.85
2	Private sector Banks	.989	231.12	3	8	.000	-55	10.92	.000	8.14
3	Foreign Banks	.954	55.35	3	8	.000	26	3.60	1.03	-2.23
4	S C Banks	.996	674.49	3	8	.000	-395	11.43	.000	1.01

* Significant at 5% level

A positive trend is observed in the net profit in the future years among the commercial banks, except private sector banks because of its highest CV.(Vide Table 4.71)

ANOVA– NET PROFIT
H_0: Null Hypothesis:

There is no significant difference in the net profit among different commercial banks during the study period.

H_1: Alternative hypothesis:

There is significant difference in the net profit among different commercial banks during the study period.

TABLE - 4.73
ANOVA TABLE – NET PROFIT

Source	SS	df	MS	F	F crit	Result
Between Groups	1.13E+10	3	3.78E+09	15.15		
Within Groups	1.1E+10	44	2.49E+08		2.82**	Significant
Total	2.23E+10	47				

** Significant at 5 % level

It is evident from the table that the calculated value of F is greater than the table value at 5 percent level . Hence, the null hypothesis is rejected and alternative hypothesis is accepted. Hence it is concluded that, there is significant difference in the net profit among different commercial banks during the study period.

PERCENTAGE OF INTEREST LOST ON NET PROFIT

The percentage of interest lost on net profit is highlighted in Table No 4.74

TABLE NO 4.74

PERCENTAGE OF INTEREST LOST ON NET PROFIT

(in percentage)

YEAR	PUBLIC SECTOR	PRIVATE SECTOR	FOREIGN BANKS	SCHEDULED COMMERCIAL BANKS
2003	83.43	73.12	26.21	78.93
2004	56.37	50.66	22.03	51.99
2005	50.69	34.89	17.05	44.34
2006	39.88	22.17	9.48	32.22
2007	26.45	18.81	6.31	22.02
2008	20.42	19.20	6.50	18.08
2009	17.90	23.94	11.29	17.99
2010	17.72	19.78	22.46	18.38
2011	19.69	14.88	12.34	17.59
2012	28.42	13.37	10.09	22.22
2013	33.82	11.41	10.33	27.18
Mean	35.89	27.48	14.01	31.91
SD	19.59	17.93	6.53	18.48
CV	54.57	65.25	46.62	57.92

Source: Report on Trends and Progress of Banking in India various issues

It is evident from the table that the percentage of interest lost on net profit of SCBs showed decreasing trend from 78.93 percent in 2003 to 17.59 percent in 2011 and increasing trend is observed since then. The public sector banks revealed a continuous decreasing trend from 83.3 percent in 2003 to 17.72 percent in 2010 and started to increase from 2011 with 19.69 percent to 33.82 percent in 2013. The percentage interest lost on net profit in private sector banks shows a constant decrease from 73.12 percent in 2003 to 11.41 percent in 2013 expect during 2007-09. In case of foreign banks the percentage of interest lost on net profit shows fluctuating trend during the study period from 26.21 percent to 10.33 percent in 2012-13.

The mean score percentage is high (35.89%) in public sector banks followed by SCBs and private sector banks and low (14.01%) in foreign banks.

An analysis of co efficient of variation shows that the percentages of interest lost on net profit of foreign banks are more stable (46.62 %) compared to public sector banks (54.57 %) and private sector banks (65.25 %) which show instability.

The continuous decrease in percentage of interest lost on interest income for majority periods of study is due to bad lending practices, internal bank management like credit policy, terms of credit etc.

OPERATING PROFIT

Table No 4.75 shows the value and percentage increase or decrease in operating profit of SCBs including Public Sector, Private sector and Foreign banks.

TABLE - 4.75
OPERATING PROFIT OF COMMERCIAL BANKS

(**Rs in Crores**)

YEAR	PUBLIC SECTOR BANKS	% OF ANNUAL GROWTH RATE	PRIVATE SECTOR BANKS	% OF ANNUAL GROWTH RATE	FOREIGN BANKS	% OF ANNUAL GROWTH RATE	S C BANKS	% OF ANNUAL GROWTH RATE
2002	21673	-	4647	-	3513	-	29833	-
2003	29717	37.12	7236	55.71	3716	5.78	40669	36.32
2004	39291	32.22	8325	15.05	4790	28.90	52406	28.86
2005	39071	-0.56	7668	-7.89	4577	-4.45	51316	-2.08
2006	39142	0.18	9768	27.39	6659	45.49	55569	8.29
2007	42655	8.98	13703	40.28	6920	3.92	65978	18.73
2008	50307	17.94	19235	40.37	14054	103.09	83596	26.70
2009	66972	33.13	24014	24.85	20099	43.01	111084	32.88
2010	76861	14.77	29173	21.48	16293	-18.94	122328	10.12
2011	99981	30.08	32831	12.54	16288	-0.03	149100	21.89
2012	116344	16.37	38348	16.80	18482	13.47	173175	16.15
2013	121943	4.81	48661	26.89	20432	10.55	191036	10.31

Source: RBI Bulletin computed by the researcher

From the above table , it is clear that the operating profit in scheduled commercial banks shows increasing trend from Rs 29,833 crores in 2002 in absolute

terms to Rs 1,91,036 crores in 2013, and same trend is observed in all bank groups during the study period. In case of public sector banks operating profit increased from Rs 21,673 crores to Rs 1,21,943 crores, in private sector banks it has increased from Rs 4647 crores to Rs 48,661 crores and in foreign banks from Rs 3513 crores to 20,432 crores. The increase in amount of operating profit of all banking sector is due to investments in risk free government securities and other types of investments.

TABLE - 4.76

OPERATING PROFIT -SUMMARY OF STATISTICS

SL. NO.	COMMERCIAL BANKS	MIN	MAX	MEAN	SD	CV%	CAGR %
1	Public sector Banks	21673	121943	61996.42	33472.53	**53.99**	15.48
2	Private sector Banks	4647	48661	20300.75	14094.47	**69.43**	**21.62**
3	Foreign Banks	3513	20432	**11318.58**	6706.55	59.25	15.80
4	S C Banks	40669	191036	**93841**	54522	58.10	16.74

Source: computed by the researcher

The above table 4.76 reveals that the mean amount of operating profit ranges from Rs.11318.58 to Rs.93841 during the study period among the commercial banks. The scheduled commercial banks had higher mean amount of operating profit and foreign banks had least mean amount of operating profit during the period of study. The public sector banks showed least coefficient of variation indicating the consistent performance in the operating profit and the private sector banks had highest coefficient of variation indicating the inconsistent performance in the operating profit. Among the commercial banks, private sector banks had highest compound annual growth rate during the study period.

TABLE - 4.77

TRENDS IN OPERATING PROFIT

SL. NO	COMMERCIAL BANKS	MODEL SUMMARY					PARAMETER ESTIMATES			
		R^2	F	df1	df2	Sig.	b_0	b_1	b_2	b_3
1	Public sector Banks	.978	120.97	3	8	.000	-22	5.19	-3.13	2.14
2	Private sector Banks	.984	168.25	3	8	.000	-9	5.49	.000	1.52
3	Foreign Banks	.943	44.28	3	8	.000	2	1.76	-5.01	2.30
4	S C Banks	.994	470.15	3	8	.000	-182	9.52	-6.31	2.05

* Significant at 5% level

The above table 4.77 shows the significant cubic trend equation forecast and a positive trend is observed   in the gross advances in the future years among the commercial banks except private sector banks as shown by highest CV.(Vide Table 4.76)

ANOVA– OPERATING PROFIT

H$_0$: Null Hypothesis:

There is no significant difference in the operating profit among different commercial banks during the study period.

H$_1$: Alternative hypothesis:

There is significant difference in the operating profit among different commercial banks during the study period.

TABLE - 4.78

ANOVA TABLE – OPERATING PROFIT

SOURCE	SS	df	MS	F	F crit	RESULT
Between Groups	5.44E+10	3	1.81E+10	17.15		
Within Groups	4.66E+10	44	1.06E+09		2.82**	Significant
Total	1.01E+11	47				

** Significant at 5 % level

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The above table proves that the calculated value of F is 17.15 which is greater than the table value of 2.82 at 5 percent level. This analysis does not support the null hypothesis and alternative hypothesis is accepted. Hence it is concluded that, there is significant difference in the operating profit among different commercial banks during the study period.

PERCENTAGE OF INTEREST LOST ON OPERATING PROFIT

The percentage of interest lost on operating profit is presented in Table No 4.79

TABLE - 4.79

PERCENTAGE OF INTEREST LOST ON OPERATING PROFIT

(in percentage)

YEAR	PUBLIC SECTOR	PRIVATE SECTOR	FOREIGN BANKS	SCHEDULED COMMERCIAL BANKS
2003	34.52	29.89	12.81	33.13
2004	23.74	21.19	9.42	21.90
2005	20.08	16.22	7.38	18.17
2006	16.28	11.31	4.37	13.94
2007	12.65	8.87	4.13	10.48
2008	10.96	9.50	3.06	9.33
2009	9.17	10.69	4.22	8.51
2010	9.05	8.89	6.52	8.58
2011	8.84	8.03	5.83	8.29
2012	12.09	7.92	5.15	10.48
2013	14.03	6.80	5.86	12.97
Mean	15.58	12.67	6.25	14.16
SD	7.51	6.77	2.67	7.29
CV	48.16	53.49	42.69	51.51

Source: Report on Trends and Progress of Banking in India various issues

It is inferred from the above table that the percentage of interest lost on operating profit of SCBs shows decreasing trend from 33.13 percent in 2003 to 8.29 percent in 2011 and it has increased to 12.97 percent in 2013.In case of public sector

banks the percentage of interest lost on operating profit shows continuous decrease from 34.52 percent in 2003 to 8.84 percent in 2011 and from then onwards it has started an upward trend in 2013 with 14.03 percent. In private sector banks the percentage of interest lost on operating profit shows a decreasing trend from 29.89 percent in 2003 to 6.80 percent in 2013.In case of foreign banks the percentage of interest lost on operating profit shows a mixed trend with decrease in percentage from 12.81 percent in 2003 to 3.06 percent in 2008 and increased from 4.22 percent in 2009 to 5.86 in 2013.By analyzing the co-efficient of variation , it is more consistent in foreign banks with 42.69 percent and less consistent in private sector banks with 53.49 percent.

The continuous decrease in percentage of interest lost on operating profit is due to lending of advances to those who are not able to repay it. Hence banks should use good credit appraisal system to improve its performance.

FACTOR ANALYSIS

Non Performing Assets variables like gross NPA, net NPA, provisions, gross advances, net advances, total assets, standard assets, sub-standard assets, doubtful assets, loss assets, total loans and advances, interest earned, net profit, and operating profit are grouped together on priority basis based on the strength of inter-correlation between them called „Factors". In order to reduce the number of factors and enhance the interpretability, the factors are rotated. The rotation increases the quality of interpretation of the factors. Rotated factor loadings and communalities of NPA variable is presented in Table 4.80

TABLE - 4.80
ROTATED FACTOR LOADINGS

Sl. NO.	NPA VARIABLES	COMPONENT			COMMUNALITY
		1	2	3	
1	Gross NPA	**.875**	.465	-.131	.999
2	Net NPA	**.947**	.303	.041	.990
3	Provisions	**.837**	.504	-.192	.991
4	Total Income	.358	**.912**	.079	.966
5	Gross Advances of NPA	.506	**.857**	-.063	.994
6	Net Advances of NPA	.506	**.857**	-.063	.994
7	Standard Assets	.477	**.875**	-.048	.996
8	Sub Standard Assets	**.779**	.625	.043	.999
9	Doubtful Assets	**.737**	.661	.131	.998
10	Loss Assets	**.758**	.645	.095	1.000
11	Total Loans and Advances	**.769**	.633	.082	.999
12	Interest Earned	**.764**	.640	.084	1.000
13	Net Profit	**.759**	.644	.095	1.000
14	Operating Profit	**.763**	.640	.089	1.000

Source: computed by the researcher

From the above table it is observed that the first factor comprises of three variables viz Gross NPA(.875), Net NPA (.947), Provisions(.837). The second factor includes with Total Income (.912), Gross Advances of NPA (.857), Net Advances of NPA,(.857) and Standard Assets(.875) The third factor covers Sub Standard Assets(.779), Doubtful Assets(.737), Loss Assets(.758), Total Loans and Advances(.769) Interest Earned (.764),Net Profit(.759) and Operating Profit(.763) Each variable and its variance are expressed in the communality. The variance range from .990 to 1.

Out of the 14 non performing assets variables, 3 factors have been extracted and these three factors put together explain the total variance of these ratios to the extent of 100 percent.

Table 4.81 gives the Eigen values and the percentage of variance explained by the factors.

TABLE - 4.81

TOTAL VARIANCE EXPLAINED

COMPONENT	INITIAL EIGEN VALUES			EXTRACTION SUMS OF SQUARED LOADINGS		
	TOTAL	% OF VARIANCE	CUMULATIVE %	TOTAL	% OF VARIANCE	CUMULATIVE %
1	13.056	93.254	93.254	13.056	93.254	93.254
2	.743	5.307	98.561	.743	5.307	98.561
3	.126	.901	99.462	.126	.901	99.462
4	.057	.408	99.869			
5	.016	.116	99.985			
6	.002	.012	99.997			
7	.000	.002	100.000			
8	3.901E-05	.000	100.000			
9	7.242E-06	5.173E-05	100.000			
10	5.794E-07	4.138E-06	100.000			
11	2.311E-10	1.651E-09	100.000			
12	1.875E-15	1.339E-14	100.000			
13	1.110E-16	7.930E-16	100.000			
14	-8.739E-16	-6.242E-15	100.000			

Extraction Method: Principal Component Analysis.

From the above table it is found that three major factors are substituted out of fourteen variables with total variance 99.462.The factors individually posses the variance 93.254 percent,5.307 percent and .901 percent. Since the total variance is above 95 percent, it can be noted that the data reduced from 14 variables to 3 factors is systematic and critical in explaining the typical elements of NPA.

ROTATION SUMS OF SQUARED LOADINGS:

The matrix of factor loadings is rotated orthogonally using varimax rotation. Total factors of variance accounted for is redistributed over the three extracted factors. Thus the factor analysis condensed and simplified the 14 statements and grouped into 3 factors on priority basis, explaining 100 percent of the variability of all the 14 statements.

ROTATION SUM OF SQUARED LOADINGS
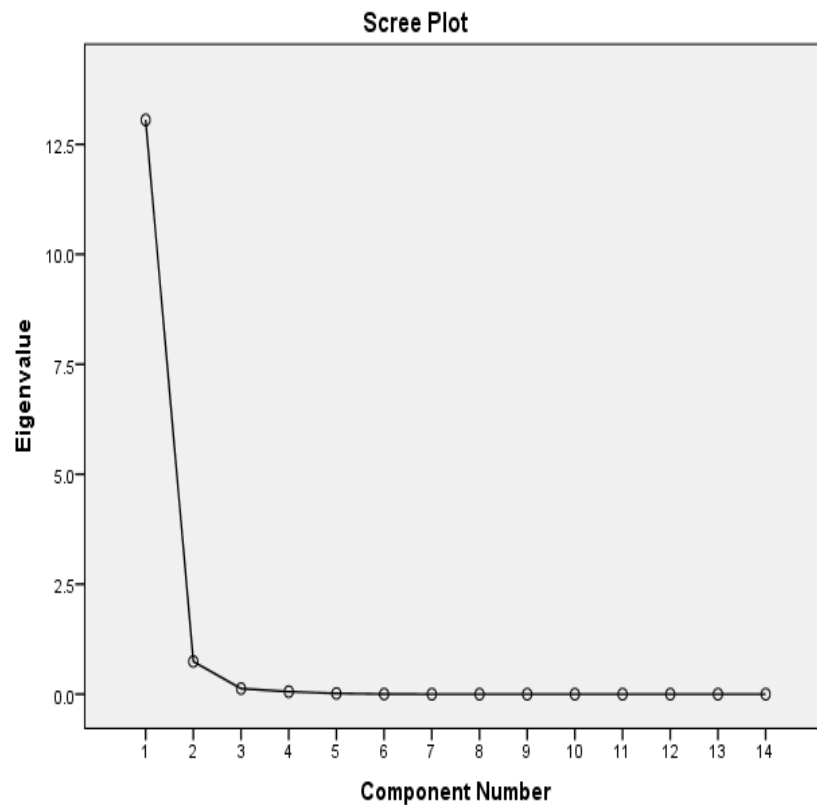
Figure – 4.10

This is a plot between the eigen value and the factor number. From the third factor onwards the line is almost flat, meaning that the each successive factor is accounting for smaller and smaller amounts of total variance. This plot is called a „scree" plot because it often looks like a „scree" slope, where rocks have fallen down

PAIRED T-TEST

Paired correlation of NPA variable

To measure the relationship between NPA variables and profitability variables paired correlation is used and the results are presented in Table 4.82

TABLE – 4.82

PAIRED CORRELATION OF NPA VARIABLES

	VARIABLE	N	Correlation	Sig.
Pair 1	Total Income & Gross NPA	12	.732	.007
Pair 2	Total Income & Net NPA	12	.767	.004**
Pair 3	Total Income & Provisions	12	.744	.006
Pair 4	Total Income & Gross Advances of NPA	12	.945	.000**
Pair 5	Total Income & Net Advances of NPA	12	.965	.000**
Pair 6	Total Loans and Advances & Standard Assets	12	.937	.000**
Pair 7	Total Loans and Advances & Sub Standard Assets	12	.923	.000**
Pair 8	Total Loans and Advances & Loss of Assets	12	.529	.077
Pair 9	Total Income & Total Loans and Advances	12	.900	.000**
Pair 10	Interest Earned & Net Profit	12	.991	.000**
Pair 11	Interest Earned & Operating Profit	12	.991	.000**

Source: computed by the researcher   **** Significan5 % level**

The above table 4.82 shows that the overall paired samples are correlated and r is significant at 5% percent level. The consistent pairs are Pair2, Pair4, Pair5, Pair6, Pair7, Pair9, Pair10, and Pair11 and highly significant and positively correlated as t<0.05 and the rest of pairs are not positively correlated during the study period.

Paired Differences of NPA variables

To indicate whether there is significant differences among the means of NPA variables the following hypothesis are framed and the results are shown in table----

H_0: Null hypothesis – total income comparison

1. There is no significant difference in the mean total income and gross NPA among different commercial banks during the study period.

2. There is no significant difference in the mean total income and net NPA among different commercial banks during the study period.

3. There is no significant difference in the mean total income and provisions among different commercial banks during the study period.

4. There is no significant difference in the mean total income and gross advances of NPA among different commercial banks during the study period.

5. There is no significant difference in the mean total income and net advances of NPA among different commercial banks during the study period.

6. *H_0: Null hypothesis – total loans and advances comparison*

7. There is no significant difference in the mean total loans and advances and standard assets among different commercial banks during the study period.

8. There is no significant difference in the mean total loans and advances and sub standard assets among different commercial banks during the study period.

9. There is no significant difference in the mean total loans and advances and loss of assets among different commercial banks during the study period.

10. There is no significant difference in the mean total income and total loans and advances among different commercial banks during the study period.

11. *H_0: Null hypothesis – interest earned*

12. There is no significant difference in the mean interest earned and net profit among different commercial banks during the study period.

13. There is no significant difference in the mean interest earned and operating profit among different commercial banks during the study period.

The   paired differences of NPA variables are presented in Table No 4.83

TABLE – 4.83
PAIRED DIFFERENCES OF NPA VARIABLES

VARIABLE		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	Sig(2 – tailed) df =11
					Lower	Upper		
Pair 1	Total Income - Gross NPA	8605926	4934059	1424340	5470974	11740877	6.04	.000**
Pair 2	Total Income - Net NPA	8672011	4959469	1431675	5520915	11823107	6.06	.000**
Pair 3	Total Income - Provisions	8685785	4963408	1432812	5532186	11839384	6.06	.000**
Pair 4	Total Income - Gross Advances of NPA	3635194	2090063	603349	2307232	4963157	6.03	.000**
Pair 5	Total Income - Net Advances of NPA	3592007	1823885	526510	2433166	4750848	6.82	.000**
Pair 6	Total Loans and Advances - Standard Assets	5413115	5247219	1514742	2079191	8747039	3.57	.004**
Pair 7	Total Loans and Advances - Sub Standard Assets	10171340	8045223	2322456	5059649	15283030	4.38	.001**
Pair 8	Total Loans and Advances - Loss of Assets	10221453	8081702	2332986	5086585	15356322	4.38	.001**
Pair 9	Total Income - Total Loans and Advances	-1462742	4191577	1210004	-4125942	1200459	-1.21	.252
Pair 10	Interest Earned - Net Profit	580857	374327	108059	343021	818693	5.38	.000**
Pair 11	Interest Earned - Operating Profit	479854	320425	92499	276265	683442	5.19	.000**

Source: computed by the researcher   **** Significant at 5 % level**

The above table 4.84 observes that t-value, df,(11) significance level and 95% confidence interval for the mean difference. The *t*-value is 6.04, 6.06, 6.06, 6.03, 6.82, 3.57, 4.38, 4.38, -1.21, 5.38, 5.19 and the P-values of corresponding pairs are smaller than 0.05, therefore at 5% level of significance , null hypothesis rejected and highly significant pair of the study is Pair 1, Pair 2, Pair 3, Pair 5, Pair 6, Pair 7, Pair 8, Pair 10, and Pair 11. Hence, total income and gross NPA, total income and net NPA, total income and provisions, total income and gross advances of NPA, total income and net advances of NPA, total loans and advances and standard assets, Since the p values of all the pairs except pair 9 are less than 0.05 at 5 percent level of significance, null hypothesis is rejected and these pairs are highly significant.

But, p-value is 0.252 which is > 0.05 with regard to total income and total loans and advances, the null hypothesis is accepted at 5 percent level of significance and hence there is no significant difference in the total income and total loans and advances among commercial banks during the study period.

MULTIPLE REGRESSION

To analyze the association between total loans and advances (dependent variable) and standard assets, sub standard assets, doubtful assets and loss assets of commercial banks (independent variables) multiple regression analysis is used. The multiple regression equation for estimating the dependent variable is

Y $= b_o + b_1 X_1 + b_2 X_2 + b_3 X_3 +$ ……….

Where $b_1, b_2,$ ……. are partial regression coefficients; bo-constant. The results are presented in the Table 4.84

TABLE - 4.84

REGRESSION MODEL

Multiple R	.967
R Square	**.935**
Adjusted R Square	.898
Std. Error of the Estimate	.232
Log-likelihood Function Value	-186.883

Source: computed by researcher

It is observed from the above table that   R   value of .967 which shows substantial correlation between the predictor variable and dependent variable. The R square value indicates that 93.5 percent of the variation in dependent variable (Y) is explained by four selected independent variables.

To test the validity of the model ANOVA has been employed. The result of ANOVA is given below

H_0: There is no significant relationship between dependent and independent variables

TABLE - 4.85

RESULTS OF ANOVA

	MODEL	SUM OF SQUARES	df	MEAN SQUARE	F	Sig.(p)
1	Regression	5.398	4	1.350	25.108	.000
	Residual	.376	7	.054		
	Total	5.774	11			
Predictors: (Constant= X_1),X_2, X_3, $X_{4and X5}$						

Source: Computed by researcher

It is seen from the ANOVA table that the p value is less than 0.05. Hence the regression model is accepted at 5 percent level of significance. The step wise multiple regression model indicates that,   independent variables X_2, X_3, X_4, and X_5 have significantly contributed to X_1
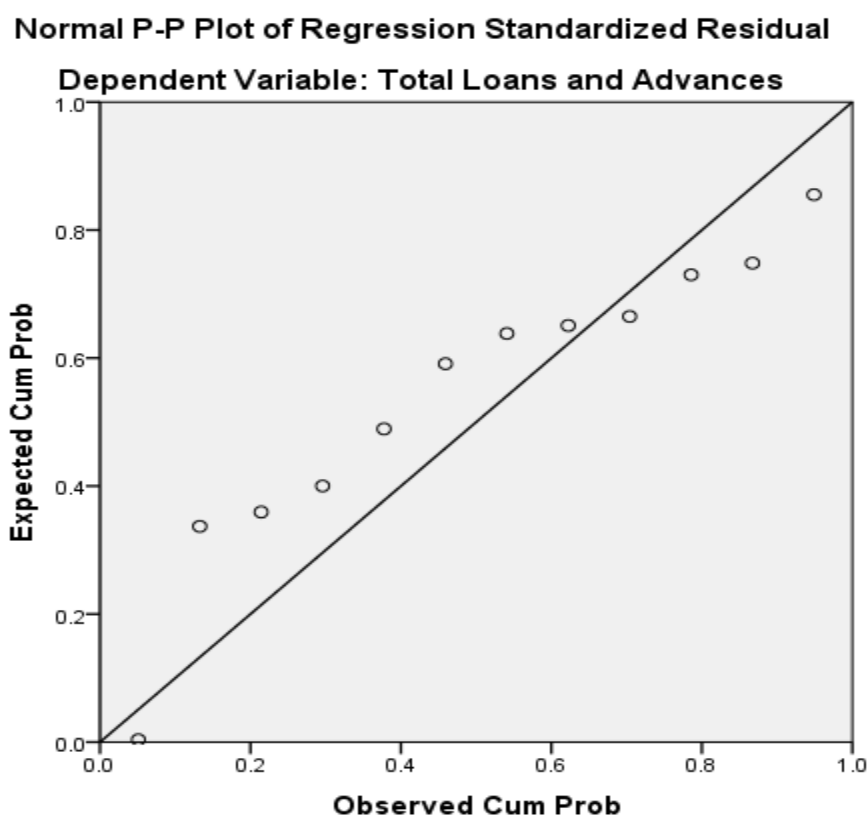
Figure 4.11

In order to find out the most important contributing factor for total loans and advances out of the four types of assets, regression coefficient has been used.

TABLE - 4.86

REGRESSION COEFFICIENT

VARIABLE	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	β	Std. Error	Beta	Std. Error		
(Constant)	-2330537.52	4125735.02			-.565	.590
Standard Assets	2.034	.504	.940	.233	4.040	.005**
Sub Standard Assets	-4.348	54.433	-.020	.256	-.080	.939
Doubtful Assets	81.957	67.443	.298	.245	1.215	.264
Loss of Assets	-218.106	438.841	-.115	.231	-.497	.634

5% level of significance

The above table shows that the standard assets have influenced the total loans and advances positively (β = 2.034; t= 4.040) at 5 percent level. Hence,standard assets are the main contributing factor for total loans and advances in the long run.

The regression equation is

$Y = 2.034 X_1 - 4.348 X_2 + 81.957 X_3 - 218.106 X_4 + u$

MULTIPLE REGRESSION

To analyze the association between dependent variable total income(X_1) and independent variables   gross advance(X_2) ,net advance(X_3), provisions(X_4), interest earned(X_5), net profit(X_6) and operating profit(X_7) of commercial banks multiple regression analysis is employed. The multiple regression equation for estimating the dependent variable is Y = bo + b1X1 + b2 X2 +b3 X3 + ………. Where b1,b2,……. are partial regression coefficients; bo-constant. The results are presented in the following table.

<div align="center">

TABLE - 4.87
REGRESSION MODEL

</div>

Multiple R	.996
R Square	.993
Adjusted R Square	.984
Std. Error of the Estimate	.066
Log-likelihood Function Value	-171.387

Source: computed by researcher

It is observed from the above table that R value of .996 shows substantial correlation between the predictor variable and dependent variable. The R square value indicates that   about 99.3 percent of the variation in dependent variable (Y) is explained by six selected independent variables.

To test the validity of the model ANOVA has been employed. The result of ANOVA is given in Table 4.89.

H_0: There is no significant relationship between dependent and independent variables

<div align="center">

TABLE - 4.88
RESULTS OF   ANOVA

</div>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.943	6	.490	112.48	.000
	Residual	.022	5	.004		
	Total	2.965	11			
Predictors: (Constant= X_1),X_2, X_3, X_4,X_5, X_{6and} X_7						

Source: computed by the researcher   **5% level of significance**

It is seen from the ANOVA table that the p value is less than 0.05. Hence the regression model is accepted at 5 percent level of significance. Hence, the hypothesis was rejected and therefore it can be concluded that the total income depends on variables X_2,X_3 X_4, X_5, X_6 and X_7.

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Total Income
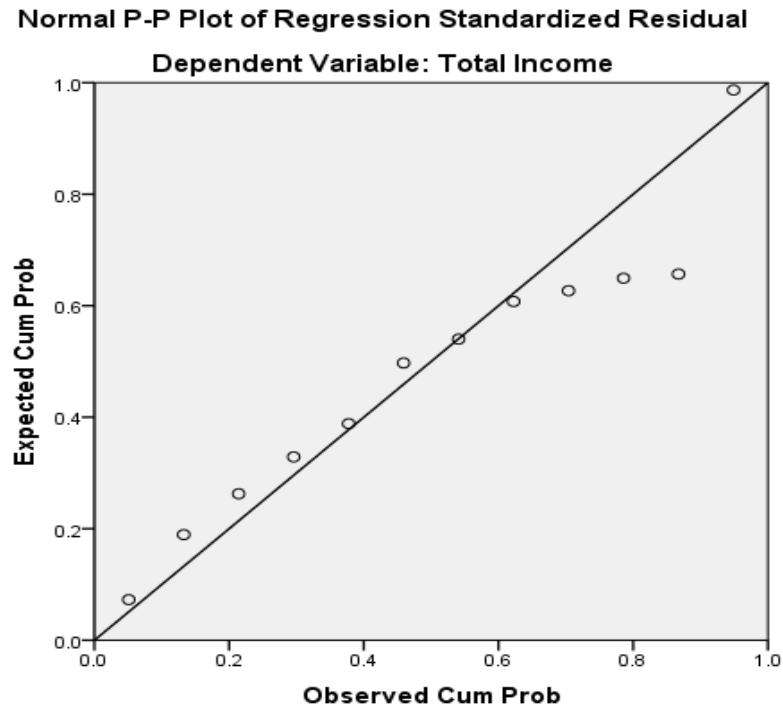
Figure 4.12

TABLE - 4.89

REGRESSION COEFFICIENT

VARIABLE	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	β	Std. Error	Beta	Std. Error		
(Constant)	747933.952	1059873.99			.706	.512
Gross NPA	151.961	193.087	1.391	1.767	.787	.467
Net NPA	202.358	191.575	1.136	1.075	1.056	.339
Provisions	-573.057	577.643	-2.792	2.814	-.992	.367
Interest Earned	12.630	4.691	.864	.321	2.693	.043**
Net Profit	-149.348	110.853	-1.427	1.060	-1.347	.236
Operating Profit	91.072	51.668	1.723	.977	1.763	.138

Source: computed by the researcher   5% level of significance

From the regression estimates it is found that the interest earned has influenced the total income variable $(\beta = 12.630; t = 2.693)$ at five percent level of significance in a positive way. The result reveals that the interest earned is the main factor leading to an increase in the total income of the banking industry.

All the other independent variables are negatively associated with dependent variable and the „t" statistic reveals that the coefficients of all the three variables are statistically insignificant, implying their relationship is not stronger.

Table 4.89 shows the results of estimated regression equation of Y on X_1, X_2, X_3, X_4, X_5 and X_6. The regression equation is $Y= 151.961\ X_1 + 202.358\ X_2 - 573.057\ X_3 + 12.630\ X_4 - 149.348\ X_5 + 91.072\ X_6 + u$

Correlation –NPA variables

The financial crisis and recessionary pressures affected the quality of loan portfolio, as evidenced from higher growth rate of gross and net NPA since 2007-08.The public sector banks are more exposed to credit risk during the recessionary period as inferred from the higher growth of NPA compared to private sector and foreign banks. Pearsons correlation coefficient is calculated to verify the strength of relationship among NPA variables and the result is shown in Table 4.90

TABLE – 4.90
CORRELATION – NPA VARIABLES

VARIABLE		Total Income	Gross NPA	Net NPA	Provisions	Gross Advances of NPA	Net Advances of NPA
Total Income	Pearson Correlation	1	.732**	.767**	.744**	.945**	.965**
	Sig. (2-tailed)		.007	.004	.006	.000	.000
Gross NPA	Pearson Correlation	.732**	1	.997**	.999**	.848**	.842**
	Sig. (2-tailed)	.007		.000	.000	.000	.001
Net NPA	Pearson Correlation	.767**	.997**	1	.999**	.874**	.869**
	Sig. (2-tailed)	.004	.000		.000	.000	.000
Provisions	Pearson Correlation	.744**	.999**	.999**	1	.858**	.852**
	Sig. (2-tailed)	.006	.000	.000		.000	.000
Gross Advances of NPA	Pearson Correlation	.945**	.848**	.874**	.858**	1	.997**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
Net Advances of NPA	Pearson Correlation	.965**	.842**	.869**	.852**	.997**	1
	Sig. (2-tailed)	.000	.001	.000	.000	.000	
**. Correlation is significant at the 0.01 level (2-tailed). N=12							

The above table describes that there is significant and positive correlation among all the explanatory variables .Further it is also seen that all these explanatory variables are highly correlated with the dependent variable.

Correlation –Classification of Assets

Asset quality is a main indicator of potential credit risk. The asset quality is a statistically significant predictor of insolvency.A major reason for bank failure is the erosion in the asset quality explained by the level of NPAs. Often the quality of advances determines the extent of non performing assets, provisions and profitability of banks. To analyse the relationship between classification of assets, correlation is applied and the result is presented in Table 4.91

TABLE - 4.91

CORRELATION – CLASSIFICATION OF ASSETS

VARIABLES		*Standard Assets*	*Sub Standard Assets*	*Doubtful Assets*	*Loss of Assets*	*Total Loans and Advances*
Standard Assets	Pearson Correlation	1	.916**	.587*	.419	.937**
	Sig. (2-tailed)		.000	.045	.176	.000
Sub Standard Assets	Pearson Correlation	.916**	1	.817**	.652*	.923**
	Sig. (2-tailed)	.000		.001	.022	.000
Doubtful Assets	Pearson Correlation	.587*	.817**	1	.932**	.710**
	Sig. (2-tailed)	.045	.001		.000	.010
Loss of Assets	Pearson Correlation	.419	.652*	.932**	1	.529
	Sig. (2-tailed)	.176	.022	.000		.077
Total Loans and Advances	Pearson Correlation	.937**	.923**	.710**	.529	1
	Sig. (2-tailed)	.000	.000	.010	.077	
**. Correlation is significant at the 0.01 level (2-tailed). N=12						
*. Correlation is significant at the 0.05 level (2-tailed). N= 12						

It is seen from the above table that all the explanatory variables are correlated with the dependent variable ie. between standard assets, sub standard assets, doubtful assets, loss assets and total loans and advances. Hence, it is concluded that there is positive correlation between all the explanatory variables.

RECOVERY OF NPAs IN COMMERCIAL BANKS

The Government of India felt that the usual recovery measures like issue of notices for enforcement of securities and recovery of dues was a time consuming process. Thus, in order to speed up the recovery of NPAs, the government constituted

a committee under the chairmanship of late Shri Tiwari in 1981. The Committee examined the ways and means of recovering NPAs and recommended, inter alia, the setting up of „Special Tribunals‟ to expedite the recovery process. Later the Narasimham Committee (1991) endorsed this recommendation, and suggested setting up of the Asset Reconstruction Fund. It was suggested that the Government of India, if necessary, should establish this fund by special legislation to take over the NPAs from banks and financial institutions at a discount.

Based on the recommendation of the Tiwari and Narasimham Committees, Debt Recovery Tribunal was established in various parts of the country. An Asset Reconstruction Company was also established. The various measures taken to reduce NPAs include rescheduling and restructuring of banks, Corporate Debt restructuring and recovery through Lok Adalts, Civil Courts, Debt Recovery Tribunals and Compromise Settlement. In addition, some legal reforms were introduced to speed up recovery.

Recovery of NPAs- Legal measures

Banks have been able to recover NPAs through the use of legal measures which are a good sign for banks. The Central government and RBI have taken steps for controlling incidence of fresh NPAs and creating legal and regulatory environment to facilitate the recovery of existing NPAs of banks. Among the various channels of recovery available to banks for dealing with bad loans, the SARFAESI Act and the Debt Recovery Tribunals (DRTs) have been the most effective in recovering the loans.

 Debt Recovery Tribunal

DRTs were set up under the Recovery of Debts due to Banks and Financial Institutions Act, 1993.Under the Act, two types of tribunals were set up i.e..Debt Recovery Tribunal (DRT) and Debt Recovery Appellate Tribunal (DRAT).The DRT are vested with competence to entertain cases referred to them, by the banks and financial institutions for recovery of debts due to the same. The order passed by a DRT is appealable to the Appellate Tribunal but no appeal shall be entertained by the

DRT unless the applicant deposits 75 percent of the amount due from him as determined by it. However, the Appellate Tribunal may, for reasons to be received in writing, waive or reduce the amount of such deposit. These tribunals were set up for suits of the value of recovery over Rs. 10 lakhs, while High Courts and District Courts would take up cases of lesser values.   An important power conferred on the tribunal is that of making an interim order against the defendant to debar him from transferring, alienating or otherwise dealing with or disposing of any property and the assets belonging to him without prior permission of the tribunal. This order can be passed even while the claim is pending. The following table depicts the NPAs recovered through DRT by SCBs.

TABLE - 4.92

NPAs RECOVERED THROUGH DRT BY SCHEDULED COMMERCIAL BANKS

(Amt in Crores)

YEAR	NO.OF CASES INVOLVED	AMOUNT INVOLVED	AMOUNT RECOVERED	PERCENTAGE OF AMOUNT RECOVERED TO AMOUNT INVOLVED
2004	7544	12305	2117	17.2
2005	4744	14317	2688	18.77
2006	3524	6123	4710	76.92
2007	4028	9156	3463	37.82
2008	3728	5819	3020	51.9
2009	2004	4130	3348	81.07
2010	6019	9797	3133	31.98
2011	12872	14092	3930	27.89
2012	13365	24100	4100	17.01
2013	13408	31000	4400	14.19

Source: RBI Bulletin computed by researcher

The above table shows NPAs of commercial banks recovered through DRTs during the period 2004 to 2013. From the table, it is clear that the number of cases referred to DRTs has increased from 7544 cases in 2004 to 13408 cases in 2013 during the study period and also the amount involved in these cases and the amount

recovered through DRTs has increased. In 2009 DRTs has recovered 81.07 percent of the total amount involved in NPAs and in later years also the amount recovered by DRTs is quite significant. Which reveals the efficient functioning of DRTs. This is the basic reason why the commercial banks are approaching DRTs for the recovery of their NPAs as compared to Lok Adalats in which the percentage of recovery is very low. Though there is a slight decrease in the percentage of amount recovered of NPAs recovered by DRTs the amount recovered shows an increasing trend.

SARFAESI ACT

The legal mechanism for recovery of default loans was so far cumbersome and time-consuming. Thus, it was felt that banks and financial institutions should be given the power to sell securities to recover dues. In this regard, the Government of India appointed a committee under the chairmanship of Shri T.R Andhyarujina, senior Supreme Court advocate and former Solicitor General of India, in 1999 to look into these matters. The Committee submitted four reports. One of them is related to securitization.

Based on the recommendations of the Andhyarjina Committee, The Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act, 2002, was passed on December 17, 2002. The act provides enforcement of the security factor without recourse to civil suits. This act was passed with the aim of enabling banks and financial institutions to realize long –term assets, manage the problem of liquidity, reduce asset liability mismatches and improve recovery by taking possession of securities, selling them and reducing NPAs. The ordinance also allows banks and financial institutions to utilize the services of ARCs/SCs for speedy recovery of dues from defaulters and to reduce their NPAs. The ordinance contains provisions that would make it possible for ARCs/SCs to take possession directly of the secured assets and the management of the defaulting borrower companies without resorting to the time-consuming process of litigation and

without allowing borrower to take shelter under the provisions of SICA/BIFR.All these efforts improved the recovery of NPAs by commercial banks. The NPAs recovered by scheduled commercial banks through SARFAESI Act during the period is presented in the Table 4.93.

<div align="center">

TABLE - 4.93

NPAs RECOVERED THROUGH SARFAESI ACT   BY SCHEDULED COMMERCIAL BANKS

</div>

(Amt in Crores)

YEAR	NO.OF CASES INVOLVED	AMOUNT INVOLVED	AMOUNT RECOVERED	PERCENTAGE OF AMOUNT RECOVERED TO AMOUNT INVOLVED
2004	2661	7847	1156	14.73
2005	39288	13224	2391	18.08
2006	38969	9831	3423	34.81
2007	60178	9058	3749	41.39
2008	83942	7263	4429	60.98
2009	61760	12067	3982	33
2010	78366	14249	4269	29.96
2011	118642	30604	11561	37.78
2012	140991	35300	10100	28.61
2013	190537	68100	18500	27.17

Source : RBI Bulletin computed by researcher

Number of notices issued under section 13(2) of the SARFAESI Act

It is clear from the table that the number of cases involved in NPA increased largely during the study period. This is because of the efficiency of SARFAESI Act in recovering these NPAs of commercial banks. It is clear that SARFAESI Act was vigorously implemented in 2008 in which year the recovery was 60.98 percent of the total amount involved in NPAs and in later years also the amount recovered by the Act shows improvement. It is able to recover 27.17 percent of the amount of NPA of the cases referred to it. This act has emerged as a blessing in disguise for the commercial banks as now they are using this act largely in recovering their NPAs in order to increase their profitability.

National Company Law Tribunal (NCLT)

As per the announcement made in the Budget 2001-02 Sick Industrial Companies Act (SICA) will be replaced and Board for Industrial Finance and Reconstruction (BIFR) will be wound up. As an alternative arrangement, it is proposed to set up NCLT by amending the Companies Act 1956.This is planned to avoid multiplicity of forum. It   is estimated to complete the entire process within 2-3 years. A Rehabilitation and Revival Fund will be constituted to make interim payment and viability of the projects will be assessed on „cash test" and not on net worth" basis.

Corporate Debt Restructuring (CDR) Body

It is a special agency to facilitate debt restructuring. The corporate debt restructuring is one of the methods suggested for the reduction of NPAs. Its objective is to ensure a timely and transparent mechanism for restructure of corporate debts of viable corporate entities affected by the contributing factors outside the purview of BIFR, DRT and other legal proceedings for the benefit of concerned. The CDR has three tier structure viz., a. CDR standing forum b. CDR empowered group and c. CDR cell. The Mechanism of the CDR: It is a voluntary system based on debtors and creditors agreement. It will not apply to accounts involving one financial institution or one bank instead it covers multiple banking accounts, syndication, consortium accounts with outstanding exposure of Rs. 20 crores and above by banks and institutions. The CDR system is applicable to standard and sub – standard accounts with potential cases of NPAs getting a priority. In addition to the steps taken by the RBI and Government of India for arresting the incidence of new NPAs and creating legal and regulatory environment to facilitate for the recovery of existing NPAs of banks, the following measures were initiated for reduction of NPAs. Circulation of Information of Defaulters: The RBI has put in place a system for periodical circulation of details of willful defaulters of banks and financial institutions. The RBI also publishes a list of borrowers (with outstanding aggregate rupees one crore and

above) against whom banks and financial institutions in recovery of funds have filed suits as on 31st March every year. It will serve as a caution list while considering a request for new or additional credit limits from defaulting borrowing units and also from the directors, proprietors and partners of these entities. Its success on the one hand depends on the co-operation extended by bankers and borrowers and understanding among banks and financial institution on the other.

Asset Reconstruction Corporation (ARC)

The RBI will be the regulator of these ARCs. It is a company to be formed in the private sector to take over NPAs in the Public Sector Banks. The ARC will buy NPAs of the banks and financial institutions at the pre-determined discounted value and issue NPA Redemption Bonds which carry a fixed return. ARCs are expected to be managed by professionals to effect maximum recovery of NPAs which will help in redemption of bonds. The ICICI BANK has promoted the country‟s first Asset Reconstruction Company. The objective of ARC is floating of bonds and making necessary steps for recovery of NPAs from the borrowers directly. This enables a onetime clearing of balance sheet of banks by sticky loans.   However the success depends upon the efficiency of the Debt Recovery Tribunals and Courts.

Lok Adalats

These are voluntary agencies created by the State Governments, to assist in matters of loan compromise. The institution of Lok adalat constituted under the Legal Services Authorities Act, 1987 helps in resolving disputes between the parties by conciliation, mediation, compromise or amicable settlement.   The Lok adalats institutions help banks to settle disputes involving accounts in doubtful and loss categories This is proved to be a good agency especially for smaller loans and provide for quick justice and settlement of dues. Lok Adalats meet at convenient places. Parties are heard and they explain their legal position. They are advised to reach to some settlement due to social pressure of senior bureaucrats or judicial officers or

social workers. If the compromise is arrived at, the parties to litigation sign a statement in presence of Lok adalat which is expected to be filed in court to obtain a consent decree. If compromise is not adhered to by the parties, the suits pending in the court will proceed in accordance with the law and parties will have a right to get decree from court.

TABLE - 4.94

NPAs RECOVERED THROUGH LOK ADALATS BY SCHEDULED COMMERCIAL BANKS

(**Amt in Crores**)

YEAR	NO.OF CASES INVOLVED	AMOUNT INVOLVED	AMOUNT RECOVERED	PERCENTAGE OF AMOUNT RECOVERED TO AMOUNT INVOLVED
2004	186100	1063	149	14.02
2005	185395	801	113	14.11
2006	181547	1101	223	20.25
2007	160368	758	106	13.98
2008	186535	2142	176	8.22
2009	548308	4023	96	2.39
2010	778833	7235	112	1.55
2011	616018	5254	151	2.87
2012	476073	1700	200	11.76
2013	840691	6600	400	6.06

Source: RBI Bulletin computed by researcher

Table 4.94 shows NPAs of commercial banks recovered through Lok Adalats during the study period 2004 to 2013. It is evident from the table, that the number of cases referred to Lok Adalats for the recovery of NPAs of commercial banks has increased largely in 2013 as compared to 2004. Though it shows a decline from 2010 onwards, when compared to other means of recovery of NPAs, these referred cases are much more. However, if we look at the amount recovered by Lok Adalats during the study period, it shows a continuous decline during 2008 -2009 ,however it shows improvement from 2010 to 2013. But it is much less than the other recovery channels. These Lok Adalats are only successful in recovering Rs 400 crores out of Rs 6600

crores. The percentage of recovery is only 6.06 of the total amount involved in NPAs of the commercial banks. Due to its inefficiency in recovering, the amount involved in NPAs, the commercial banks resort to other means of recovery. Therefore, the number of cases referred to it has increased and the amount involved also shows an increase in the final year of the study.

The amount of NPA recovered from various channels are represented in trend chart.

NPAs RECOVERED BY SCHEDULED COMMERCIAL BANKS
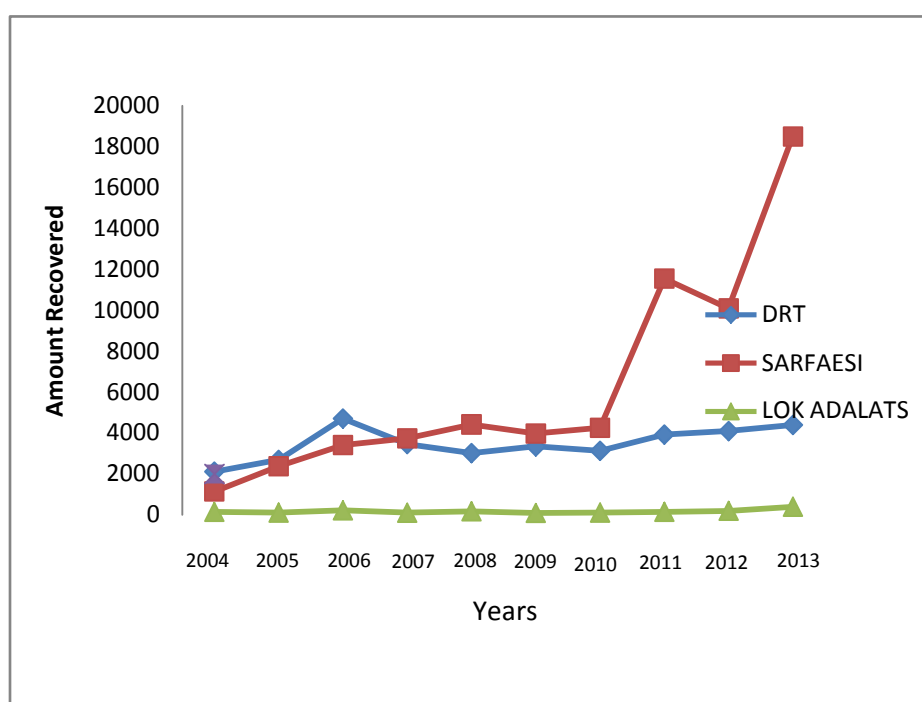
Figure 4.13

In addition to all these measures other legal measures are also taken to recover the NPAs.

Enforcement of security interest by Banks and Foreign Institution Bill2001

This empowers the officers in banks and foreign institutions to seize a mortgaged property for the purpose of recovery, without the intervention of the court. It facilitates to take possession of mortgaged property if the borrower fails to repay within 60 days of notice. Copy of notice is filed with the Central Registrar to prevent

sale of asset. No injunction shall be granted and the success depends on co-operation of borrowers in handing over the assets.

Civil Courts

Recovery through courts can be tried with fast track. Selected courts may be identified to exclusively deal with bank cases.

Debt Settlement Tribunals

Under this system a Recovery Officer is appointed by the bank itself, who will issue demand notice and pass the award. The defaulter may apply to the Debt Settlement Tribunal for settlement of the debt suggesting the terms on which he wants to settle. The Tribunals may hear both the parties and pass the final award which will be binding on both the parties.

Amendment to Banking –related Laws

Acts such as Banking Regulation Act 1949, Property Act 1882, Code of Civil Procedure 1908,DRT Act1993 need required amendments to enhance banks to repossess the collateral property, foreclosure and bankruptcy for defaulting borrowers.

Recovery Measures -Non-legal measure

Reminder System

It is a normal course of action where the banker sends reminders to the borrowers before the loan installment falls due. Efforts are needed to see that the reminders are sent on timely basis.

Recovery Camps

These are camps organized during the harvest season to speed up recovery. The camps are organized with the help of local authorities and if properly planned and publicized, funds can be mobilized.

Rehabilitation of sick units:

Rehabilitation packages are prepared for those sick units falling under the definition and if causes are genuine. RBI has permitted banks not to make provision for sick units for the first year of implementation.

Visit to Borrower's Business premise/residence

A planned visit by qualitative staff to borrower's premise can speed up recovery with minimized cost.

Rephrasing unpaid loan installments

Sincere and hard working borrowers can be given an opportunity of rephrasing/rescheduling the unpaid loan installments provided the failure to repay is due to natural calamities.

Loan Compromise

This is the lost resort of recovery. This should be voluntary. Committee approach should be adopted to decide on the loan compromise. Loan compromise should be taken up on priority basis.

Recovery through Professional Agencies

It is an effort to recover dues by appointing independent professional agencies which should be done after examining the credentials of the professionals.

One Time Settlement (OTS)

RBI announced in July 2000 OTS scheme for reduction of NPAs. This scheme is not applicable to cover cases of willful neglect, fraud and malfeasance. This scheme is divided into two categories as follows: a) Recovery of NPAs upto Rs. 5 crores. This category covers all sectors irrespective of nature of business. The scheme covers NPAs classified as sub-standard which have subsequently become doubtful or loss. It also covers cases pending before courts/DRTs/BIFR, subject to consent decree being obtained from the Courts.b) Recovery of NPAs overRs.5 crore and above. The course of action is decided in terms of rehabilitation/restructuring OTS or by filing of suits.

Credit Information Bureau

A good information system is required to prevent loans from turning into NPA. If a borrower is a defaulter to one bank, this information should be available to all banks so that they may avoid lending to him. A Credit Information Bureau can help by maintaining a data bank which can be used by all lending institutions.

The institutionalization of information sharing arrangement is now possible through the newly formed Credit Information Bureau of India Limited (CIBIL). It was set up in January 2001, by SBI, HDFC, and two foreign technology partners. This will prevent those who take advantage of lack of system of information sharing amongst

lending institutions to borrow large amount against same assets and property, which has in no measure contributed to the NPAs of banks. It was established to function as an intermediary between bank and financial institution for credit information whereby customers availing credit facility of Rs 2 million and above and not repaying the loans by the stipulated time and violating other terms and condition of the credit would be listed in the black list.

Circulation of Information of Defaulters

The RBI has put in place a system for periodical circulation of details of willful defaulters of banks and financial institutions. The RBI also publishes a list of borrowers (with outstanding aggregate rupees one crore and above) against whom banks and financial institutions in recovery of funds have filed suits as on 31st March every year. It will serve as a caution list while considering a request for new or additional credit limits from defaulting borrowing units and also from the directors, proprietors and partners of these entities.

Recovery Action against Large NPAs

The RBI has directed the PSBs to examine all cases of willful default of Rs. One crore and above and file criminal cases against willful defaulters. The board of directors are requested to review NPAs accounts of one crore and above with special reference to fix staff accountability individually.

Hence it is concluded from the   analysis that SARFAESI Act and the debt recovery tribunals (DRTs) have proved to be most effective in terms of amount recovered among the various channels of recovery for dealing with bad loans. .In terms of total cases, the highest number (4159868) were referred to the lok adalats and the lowest (71236) to the DRTs over the period 2004- 2013.In terms of the recovery, DRTs recovered around 14.19 percent and lok Adalats recovered around 6.06 percent, while 27.17percent of the amount was recovered under the SARFAESI Act for the period2013**.**But the performance of various recovery channels of NPAs in Indian banking system is not found satisfactory. So that, there is requirement of improved the recovery of the NPAs and try to reduce the NPAs for the good health and future of Indian banks. Indian banking system required a right dose for NPAs reduction unless our banking system will be died.

ANALYSIS ON THE VIEW OF BANK EXECUTIVES ON NON PERFORMING ASSETS (NPA) OF COMMERCIAL BANKS

SECTION - B

In order to find out the opinion of the executives employed in public sector banks, private sector banks and foreign banks regarding the prevalence of NPAs, a questionnaire has been administered and their responses are recorded.

INCIDENCE OF NPA- FACTOR ANALYSIS

The results obtained from 180 respondents have been thoroughly analyzed by applying SPSS, the Principal component Analysis (PCA) was carried out to explore the underlying factors associated with the items.

Test of KMO and Bartlett's Test of Sphericity

The use of KMO and Bartlett's test of sphericity is primarily essential to measure sample adequacy for using Factor Analysis. The small value of KMO statistics indicate that the correlation between pair of variables cannot be explained by other variables and the Factor analysis may not be appropriate.

The constructs validity was tested by applying Bartlett's Test of Sphericity and the Kaiser-Mayer-Olkin measure of sampling adequacy to analyze the strength of association among variables.. The value of KMO varies from 0 to 1 and KMO overall should be 0.60 or higher to perform factor analysis. Results for Bartlett's Test of Sphericity and KMO is shown in table 4.95.

TABLE - 4.95
KMO AND BARTLETT'S TEST

Kaiser-Meyer-Olkin	Measure of sample adequacy	.950
Bartlett's test of Sphericity	Approx. Chi-square	7269.281
	DF	105
	Sig	.000

Source: Primary Data

It is clear from the above table that KMO measure of sample adequacy is .950. Bartlett's Test of Sphericity is 7269.281 and significant at 5 percent level. This shows

that the sample size is adequate in explaining the variables. And also results for the Bartlett"s Test of Sphericity and the KMO reveal that both were highly significant and eventually concluded that this variable was suitable for factor analysis.

Opinion of Bank Executives

Using all the 15 statements namely reasons for NPA, Contribution to different sectors NPA and factors affecting NPA,   factor analysis is performed in order to group these attributes   on priority basis based on the strength of inter-correlation between them called „Factors" and cluster these statements into the factors extracted. This is done by utilizing communality of each variable. Communality is the extent to which an item correlates with all other items. Higher communalities are better. The variable with low communalities i.e., between 0.0 – 0.4, are removed from the analysis and the results are presented in the following tables.

Rotated factor loadings on NPA factors are summarized in table 4. 96

TABLE - 4.96

INCIDENCE FACTORS OF NPA

Sl. NO.	FACTORS	COMPONENT					COMMUNALITIES =1
		1	2	3	4	5	
1	Lack of supervision	**.780**	.569	.209	.072	-.006	.981
2	Diversification of Funds	**.855**	.432	.242	.049	.016	.978
3	Higher rate of interest	**.696**	.652	.252	.089	.070	.986
4	Willful default	**.738**	.587	.299	.007	-.065	.983
5	Political influence	**.678**	.660	.291	.072	.019	.985
6	Economic Slowdown	.564	**.779**	.210	.121	-.017	.984
7	Inadequate or defective credit	.650	**.724**	.150	.085	.033	.977
8	Different sectors of NPA	.326	**.938**	-.049	-.002	-.048	.991
9	Contribution priority sector of NPA	.470	**.846**	.161	.090	.060	.974
10	Credit appraisal system	**.885**	.432	.053	-.054	-.036	.976
11	Competitive pressure	**.834**	.487	.131	.049	-.166	.980
12	Existing staff in credit portfolio	**.857**	.465	.118	.033	.065	.970
13	Poor market intelligence	**.786**	.531	.091	.286	.034	.991
14	Inadequate mechanism	**.881**	.434	.057	-.004	.147	.989
15	Overhang component of NPA	**.871**	.393	.040	.272	-.051	.991

Extraction method: Principal Component Analysis

222

From the above table it is observed that the first factor comprises of five variables viz., Lack of supervision (.780), Diversification of funds (.855),Higher rate of interest (.696),Wilful default (.738), Political influence(.678). The variables loaded as first factor are personnel /workforce awareness and attitude factors. The second factor lodged with Economic slow down(.779),Inadequate credit(.724), Different sectors of NPA(.938),Contribution to priority sector of NPA (.846) and the factors reflects the economic conditions it is known as economical factors. The third factor bears with credit appraisal system (.885),competitive pressure (.834), existing staff in credit portfolio (.857),poor market intelligence (.786), inadequte mechanism (.881), overhang component of NPA(.871) and the last factor is called as market structure and systems. Each variable and its variance is expressed in communalities. The variance ranges from .970 to .991 .

Table 4.97 gives the rotated factor loadings, eigen values and the percentage of variance explained by the factors. Out of the 15 statements opinion towards incidence of NPA, 5 factors have been extracted and these five factors put together explain the total variance of these statements to the extent of 100 percent. In order to reduce the number of factors and enhance the interpretability, the factors are rotated. The rotation increases the quality of interpretation of the factors. The varimax rotation is one such method to obtain better result and the results are presented below.

TABLE - 4.97

TOTAL VARIANCE EXPLAINED

COMPONENT	INITIAL EIGENVALUES			LOADINGS		
	TOTAL	% OF VARIANCE	CUMULATIVE %	TOTAL	% OF VARIANCE	CUMULATIVE %
1	13.642	90.947	90.947	13.642	90.947	90.947
2	.763	5.085	96.032	.763	5.085	96.032
3	.139	.923	96.956	.139	.923	96.956
4	.117	.780	97.736	.117	.780	97.736
5	.075	.499	98.235	.075	.499	**98.235**
6	.054	.363	98.598			
7	.049	.325	98.924			
8	.034	.226	99.150			
9	.032	.214	99.364			
10	.023	.155	99.519			
11	.020	.130	99.649			
12	.017	.110	99.759			
13	.014	.097	99.856			
14	.012	.078	99.934			
15	.010	.066	100.000			

Extraction Method: Principal Component Analysis.

From the above table it is found that fifteen factors are reduced to five with total variance 98.235.The factors individually posses the variance 90.947 percent,5.085 percent, .923 percent,.780 percent,.499 percent. Since the total variance is above 95 percent, it can be noted that the data reduced from 15 variables to 5 factors is systematic and critical in explaining the incidence of NPA.

FACTORS AFFECTING NPA-Z SCORE

Adequacy of Credit Appraisal Standards

Experts in the banking sector emphasized the significance of inadequate credit appraisal in the generation of NPA. There was no in-depth appraisal at all and in a large number of accounts, people were being judged based on the fact that they were well known or that their company was well known. Banking is not like that. It is emphasized the need for an in-depth analysis at all stages of credit appraisal.

The respondents view on the statement current credit appraisal system is inadequate is summarized in Table no 4.98

TABLE – 4.98

INADEQUATE CREDIT APPRAISAL SYSTEM

	Frequency	Percent	Mean % Score	Z Score
Strongly Agree	60	33.3		
Agree	79	43.9		
Neither Agree nor Disagree	18	10.0	**20.4%**	**-5.823**
Disagree	20	11.1		
Strongly Disagree	3	1.7		
Total	**180**	**100.0**		

Source: Primary Data

The above table explains that inadequate credit appraisal system is the cause of NPA by bank executives. 43.9 percent of the respondents commented that the present credit appraisal is not adequate in the modern banking environment. 33.3 percent of respondents strongly agree with the comment on the mismatch of current credit appraisal standards for effective appraisal of loan applications. 11.1 percent of respondents disagreed to this opinion that the current credit appraisal standards are not adequate in the modern banking environment. And 1.7 percent strongly disagree. The appraisal of loan should strictly adhere to international standards and guidelines. The inference based on Z score, i.e., -5.823 highlighted that the factor is not statistically significant for occurrence of NPA.

Impact of competitive pressure on credit standards and NPA

It is felt that the competitive pressure forced banks to aggressively market their products. Since interest income remains the major source of income, the competitive pressure has influenced the quality of credit appraisal. The respondent"s remarks on   present competitive pressure in the banking sector leading to the emergence of more local banks and branches of international banks in the country leads to relaxing the credit norms and thereby more NPA is summarized in the Table no.4.99

TABLE – 4. 99
COMPETITIVE PRESSURE ON CREDIT NORMS AND NPA

	Frequency	Percent	Mean % Score	Z Score
Strongly Agree	67	37.2	**20.5%**	**-3.744**
Agree	61	33.9		
Neither Agree nor Disagree	30	16.7		
Disagree	20	11.1		
Strongly Disagree	2	1.1		
Total	180	100.0		

Source: Primary Data

It is evident from the above table that 37.2 percent of the respondents observed that the competitive pressure has forced banks in general to relax credit appraisal standards and thereby contributed to more NPAs. 11.1 percent of the respondents disagreed with this statement. It supports the fact that in order to capture the market and increase their business, bankers sometimes relax their credit standards. The inference based on Z score, i.e., -3.744 highlighted that the factor is not statistically significant for occurrence of NPA.

Availability of skilled staff in credit portfolio

Counterparty risk is an outcome directly related to NPA of a financial institution. The counterparty risk should be properly assessed before lending to minimize the occurrence of NPA. The staff productivity declines as more manpower would be allocated to preparing returns, statements, compliance of audit and filing of cases. Respondents opinion regarding existing staff in credit portfolio is inadequate is presented in Table no:4.100

TABLE – 4.100

EXISTING STAFF IN CREDIT PORTFOLIO IS INADEQUATE

TO SUPPORT TASK ASSIGNED

	Frequency	Percent	Mean % Score	Z Score
Strongly Agree	58	32.2		
Agree	67	37.2		
Neither Agree nor Disagree	26	14.4	20.8%	-6.362
Disagree	23	12.8		
Strongly Disagree	6	3.3		
Total	180	100.0		

Source: Primary Data

Inference based on above table showed that the highest percentage of respondents (37.2%) considered the existing staff strength in credit portfolio as inadequate to support the tasks assigned. 3.3 percent of respondents strongly disagreed with the statement. They identified non-availability of skilled staff as a reason for sanctioning loan to non-credit worthy customers. 12.8 percent did not agree with this statement. The inference based on Z score, i.e., -6.362 highlights the fact that the factor is not statistically significant for occurrence of NPA.

Existence of Market Intelligence System

A strong market intelligence system is beneficial for bankers to know about market condition, industry prospects, credit worthiness of applicant etc respondents remarks on the statement that "The banks does not have a strong market intelligence system" is summarized in Table no.4.101

TABLE – 4.101
EXISTENCE OF MARKET INTELLIGENCE SYSTEM

	Frequency	Percent	Mean % Score	Z Score
Strongly Agree	49	27.2		
Agree	73	40.6		
Neither Agree nor Disagree	37	20.6	21.7%	-8.223
Disagree	21	11.7		
Strongly Disagree	0	0		
Total	180	100		

Source: Primary Data

The above table exhibits that the highest percentage of respondents (40.6 %) commented that the banks do not possess a strong market intelligence system to facilitate proper deployment of credit. 27.2 percent strongly agreed to the above opinion. 11.7 percent of the respondents commented that the banks in India possess a strong market intelligence system to facilitate proper deployment of credit.

Based on the analysis, it is suggested that the banks should improve the market intelligence system. The market intelligence system can be two fold – a centralized system to pass on information about the market, economic prospects etc., and a bank specific information system to generate information about the location, customer profile, their credit worthiness, etc. The inference based on Z score, i.e., -8.233 highlights that the factor is not statistically significant for occurrence of NPA.

Dissemination of Credit Information among banks

Many countries have adopted a system of information sharing through the Central Bank or through other means to support decision making. Such measures are helpful for effective credit monitoring and identification of risky credit portfolios. The feedback on the statement used "There is an inadequate mechanism available in the banking sector to gather and disseminate credit information amongst commercial banks" is summarized in Table no. 4.102

TABLE – 4.102

INADEQUATE MECHANISM TO DISSEMINATE CREDIT INFORMATION

	Frequency	Percent	Mean % Score	Z Score
Strongly Agree	53	29.4		
Agree	81	45.0		
Neither Agree nor Disagree	18	10.0	**21.4%**	**-7.865**
Disagree	24	13.3		
Strongly Disagree	4	2.2		
Total	180	100.0		

Source: Primary Data

It is clear from the above table that 45 percent of respondents observed that there is inadequate mechanism to gather credit information among banks . 29.4 percent strongly supported the view. 13.3 percent of respondents remarked that the dissemination of credit information is currently present in Indian banks. 2.2 percent of respondents strongly feel that there is adequqte mechanism for gathering and dissemination of information. 10 percent of respondents neither agreed nor disagreed with the statement. A major conclusion derived from the analysis is the presence of a strong market intelligence system and dissemination of credit information among banks. The inference based on Z score, i.e., -7.865 highlights that the statement is not statistically significant.

The Overhang component of NPA

It is observed and often supported by bankers that effective recovery of the NPA is hampered on account of the sizeable overhang component arising from infirmities from the existing process of debt recovery and inadequate legal provisions on foreclosure and bankruptcy. Bank executives views regarding overhang component is presented in Table 4.103

TABLE – 4.103

OVERHANG COMPONENT OF NPA

	Frequency	Percent	Mean % Score	Z Value
Strongly Agree	48	26.7		
Agree	78	43.3		
Neither Agree nor Disagree	33	18.3	28.2%	-7.974
Disagree	21	11.7		
Strongly Disagree	0	0		
Total	180	100		

Source: Primary Data

The overhang component of NPA contributes for higher NPA of banks. The highest percentage of respondents (43.3%) supported and remarked that this is always a significant problem affecting banking sector. 26.7 percent of respondents strongly supported this view. 18.3 percent of respondents neither agreed nor disagreed with the statement. And 11.7 percent disagreed to the statement. The inference based on Z score, i.e., -7.974 highlights that the statement is not statistically significant.

IMPACT OF NPA-DISCRIMINANT ANALYSIS

Impact of NPA- Mean Score & Standard Deviation

This analysis shows the 6 factors of ranking on the impact of NPA like Erosion of profit ,Increase market borrowings ,Declining reserves and surplus ,Increasing provision, Increasing intermediation cost and Increasing spread. And mean score is presented in Table 4.104

<div align="center">

TABLE - 4.104
MEAN SCORE – IMPACT OF NPA

</div>

S.NO	Impact of NPA	IMPACT OF NPA FACTORS			
		MEAN		SD	
		HIGH (n1=48)	LOW (n2 = 45)	HIGH (n1=48)	LOW (n2 = 45)
1	Erosion of Profit	1.83	1.00	**.377**	**0.000**
2	Increase market borrowings	3.04	1.36	.683	.484
3	Declining Reserves and Surplus	2.50	1.49	.505	.506
4	Increasing Provisions	2.00	1.07	**0.000**	**.252**
5	Increasing Intermediation cost	3.60	2.49	.494	.727
6	Increasing spread	4.21	2.29	.410	.968

Source: Primary data

The above table shows the variable among the respondents notified as the impact of NPA mean score and SD. This study proves explanatory variables of NPA leads to Erosion of profit and increasing provisions.

Multi-group discriminant analysis

Large values of wilk"s lambda indicate that group means are not different, while small values indicate that group means are different. The following hypothesis framed to know the discriminating ability of the variables.

Null hypothesis – Impact of NPA variables has no discriminating ability and the results is presented in Table 4. 105

TABLE - 4.105
TESTS OF EQUALITY OF GROUP MEANS
UNIVARIATE ANOVAS

S.No	Impact of NPA	Wilk's Lambda	F	Sig
1	Erosion of Profit	.292	220.161	.000**
2	Increase market borrowings	.328	186.446	.000**
3	Declining Reserves and Surplus	.495	92.959	.000**
4	Increasing Provisions	.122	657.548	.000**
5	Increasing Intermediation cost	.546	75.710	.000**
6	Increasing spread	.365	158.395	.000**

Source: Primary Data　　　　　　　　　**5% of Sig:(P<0.05)**

It is observed from the table the impact of NPA by Wilk"s Lambda high performance and Wilk"s Lambda low performance.   Here, the P value is less than 0.05. Therefore we reject the null hypothesis at 5 percent level of significance and concluded that the variable has discriminating ability.

TABLE - 4.106

STEPWISE STATISTICS

Step	Entered	Wilks' Lambda				Exact F			
		Statistic	df1	df2	df3	Statistic	df1	df2	Sig.
1	Increasing Provisions	.122	1	1	91	657.548	1	91	.000**
2	Erosion of Profit	.292	2	1	91	220.161	2	90	.000**

**Significant at 5 % level

231

The above table shows that stepwise statistics for impact of NPA factors. This study proves that the impact of NPA parameters highly significant for increasing provisions and erosion of profit rather than other factors.

Canonical Correlation

Canonical Correlation is a correlation between the discriminant scores and the levels of the dependent variable. A high correlation indicates a function that discriminate well and the results are shown in Table 4.107

TABLE - 4.107

SUMMARY OF CANONICAL DISCRIMINANT FUNCTIONS

Function	Eigen value	% of Variance	Cumulative %	Canonical Correlation
1	9.645^a	100	100	.952

The eigen value is 9.645 which is greater than 1, hence the groups are distinct. ie sum of squares among the groups is greater than sum of squares within the groups. The present correlation is .952 is extremely high.(1.00 is perfect).

TABLE - 4.108

WILKS' LAMBDA DISCRIMINANT FUNCTIONS

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1	.094	212.859	2	.000

Here, the *p-value* is smaller than 0.05. Therefore, we reject the null hypothesis at 5 percent level of significance and conclude that the function has significant discriminating ability.

TABLE - 4.109

STANDARDIZED CANONICAL DISCRIMINANT FUNCTION COEFFICIENTS

IMPACT OF NPA	Function
	1
Erosion of Profit	.501
Increasing Provisions	.866

232

The above table shows that standardized canonical Discriminant function coefficients. Since this study proves co-efficient of erosion of profit and increasing provisions are highly significant rather than other factors. It is concluded that below 1 is highly satisfied by the impact of NPA..These are standardized discriminant function of coefficients or discriminant weights, b_1, and b_2

Thus, the discriminant function is $z_i = 0.501x_{1i} + 0.866x_{2i}$

Structure Matrix

Structure matrix of pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions of impact of NPA. Variables ordered by absolute size of correlation within function are shown in table 4. 110

TABLE - 4.110

STRUCTURE MATRIX

IMPACT OF NPA	FUNCTION
	1
Increasing Provisions	**.866**
Erosion of Profit	.501
Increase market borrowings[a]	.461
Increasing spread[a]	.425
Declining Reserves and Surplus[a]	.325
Increasing Intermediation cost[a]	.294

The above table shows the correlation of predictor variables with the discriminant function. It is clear from the table that increasing provision is the best discriminating variable having highest correlation with discriminant function.

TABLE - 4.111

PERCENTAGE OF CORRECT CLASSIFICATION BY USING

DISCRIMINANT FUNCTION

Respondents with	Low overall mean score	High overall mean score	TOTAL
Low overall mean score	**42**	4	46
High overall mean score	0	*48*	48
Total (grouped cases)	*42*	*52*	*94*
Total (grouped cases)%	*100%*	*92.3%*	*100%*

*95.7% of original grouped cases correctly classified.

From the above table it is observed that 46 (42+4) out of 180 respondents are for impact of NPA. 42 Out of 42 *(42/42×100=100%)* respondents are with lowest overall mean score, 48 out of 52 respondents are (*48/52×100=92.3%)* highest overall mean score is correctly classified. Hence the percentage of correct classification is *((42+48=90), (42+52=94)) 90/94×100= 95.7%)* of original grouped cases correctly classified. The percent of correct classification of respondents using the observation clearly indicates adequacy of the model in discriminating between the two groups namely lower and higher opinion among the impact of NPA by bank executives.

IMPACT OF NPA-ANOVA

Testing of Hypothesis

In order to test the significance of differences among the mean agreeability scores on the NPA affects the liquidity and its income generating capacity among the respondents, the following hypothesis is tested.

Null Hypothesis

There is no significant difference in the mean agreeability scores on the NPA affects the liquidity and its income generating capacity among the respondents.

TABLE - 4.112

NPA AFFECTS THE LIQUIDITY

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups (Combined)	171.472	2	85.736	231.587	.000**
Within Groups	65.528	177	.370		
Total	237.000	179			

**5% level of significance

It is evident from the above table that the difference between group and within groups in NPA affects liquidity was significant because the calculated value (231.587) is higher than critical value. Analysis indicates that there is significant difference in mean agreeability that NPA affects the liquidity and its income generating capacity among the respondents.

Testing of Hypothesis

In order to test the significance of differences in the mean agreeability scores on the higher NPA force banks to maintain a higher rate of interest among the respondents, the following hypothesis is tested

Null Hypothesis

There is no significant difference in the mean agreeability scores on the higher NPA force banks to maintain a higher rate of interest among the respondents.

TABLE - 4.113

NPA FORCE TO MAINTAIN HIGHER RATE OF INTEREST

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups (Combined)	183.038	3	61.013	198.99	.000**
Within Groups	53.962	176	.307		
Total	**237.000**	**179**			

**5% level of significance

It is clear from the table that the calculated value of F is 198.99 which is greater than the table value of F. So null hypothesis is rejected and alternate hypothesis is accepted. So it can be concluded that there is significant difference in mean that higher NPA force banks to maintain a higher rate of interest among the respondents.

Testing of Hypothesis

In order to test the significance of differences in the mean agreeability scores on the higher NPA adversely affect credit growth among the respondents, the following hypothesis is tested

Null Hypothesis

There is no significant difference in the mean agreeability scores on the higher NPA adversely affect credit growth among the respondents.

TABLE - 4.114

HIGHER NPA ADVERSELY AFFECT CREDIT GROWTH

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups (Combined)	184.899	2	92.449	314.07	.000**
Within Groups	52.101	177	.294		
Total	237.000	179			

**5% level of significance

It is observed from the above table that there is significant differences in mean score on higher NPA adversely affect credit growth among the respondents because the calculated value of is higher than table value. So null hypothesis is rejected. It can be concluded that mean score on higher NPA adversely affect credit growth among respondents are different.

Testing of Hypothesis

In order to test the significance of differences in the mean agreeability scores that NPA force banks to depend on subordinate debt to meet its legal and operational requirements. Among the respondents, the following hypothesis is tested

Null Hypothesis

There is no significant difference in the mean agreeability scores that NPA force banks to depend on subordinate debt to meet its legal and operational requirements among the respondents.

TABLE - 4.115

OPERATIONAL REQUIREMENTS

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups (Combined)	166.083	3	55.361	137.39	.000
Within Groups	70.917	176	.403		
Total	237.000	179			

**5% level of significance

It is evident from the ANOVA table that the value of F is greater (137.39) than the table value of F at 5% level of significance between and within bank groups. This analysis does not support the null hypothesis. Therefore, it is concluded that there is significant difference in mean score that NPA force banks to depend on subordinate debt to meet its legal and operational requirements among respondents.

CHI-SQUARE TEST- MEASURES TO REDUCE NPA

Designation and increasing collateral required

H_0: There is no significant relationship between designation and increasing collateral required among the respondents.

H_1: There is real significant relationship between designation and increasing collateral required among the respondents.

TABLE - 4.116
DESIGNATION AND INCREASING COLLATERAL REQUIRED

| | Value | df | Asymp. Sig. (2-sided) | Monte Carlo Sig. (2-sided) | | |
| | | | | Sig. | 99% Confidence Interval | |
					Lower Bound	Upper Bound
Pearson Chi-Square	451.862[a]	20	.000**	.000[b]	.000	.025
Likelihood Ratio	398.135	20	.000	.000[b]	.000	.025
Fisher's Exact Test	340.554			.000[b]	.000	.025
Linear-by-Linear Association	160.209[c]	1	.000	.000[b]	.000	.025
N of Valid Cases	180					

Source: Primary Data   ****5% level of significance**

It is observed that the P-value is less than 0.05. The difference is considered as insignificant. The H_o is accepted and therefore, there is real insignificant relationship between designation and increasing collateral required among the respondents. Thus, designation and increasing collateral required among the respondents is independent concern to reduce NPA and to recover NPA accounts.

Designation and release of wilful defaulters list

H_0: There is no significant relationship between designation and release of wilful defaulters list among the respondents.

H_1: There is real significant relationship between designation and release of wilful defaulters list among the respondents.

TABLE - 4.117
DESIGNATION AND RELEASE OF WILFUL DEFAULTERS LIST

| | Value | df | Asymp. Sig. (2-sided) | Monte Carlo Sig. (2-sided) | | |
| | | | | Sig. | 99% Confidence Interval | |
					Lower Bound	Upper Bound
Pearson Chi-Square	424.413[a]	20	.000**	.000[b]	.000	.025
Likelihood Ratio	401.156	20	.000	.000[b]	.000	.025
Fisher's Exact Test	343.693			.000[b]	.000	.025
Linear-by-Linear Association	162.468[c]	1	.000	.000[b]	.000	.025
N of Valid Cases	180					

Source: Primary Data   ****5% level of significance**

It is observed that the P-value is less than 0.05. The difference is considered as insignificant. The H$_o$ is accepted and therefore, there is real insignificant relationship between designation and release of wilful defaulters list among the respondents. Thus, the designation and release of wilful defaulters list among the respondents are independent concern to reduce NPA and to recover NPA accounts.

Designation and credit information bureau

    H$_0$: There is no significant relationship between designation and credit information bureau among the respondents.

    H$_1$: There is real significant relationship between designation and credit information bureau among the respondents.

TABLE-4.118

DESIGNATION AND CREDIT INFORMATION BUREAU

	Value	df	Asymp. Sig. (2-sided)	Monte Carlo Sig. (2-sided)		
				Sig.	99% Confidence Interval	
					Lower Bound	Upper Bound
Pearson Chi-Square	375.756[a]	20	.000	.000[b]	.000	.025
Likelihood Ratio	363.047	20	.000	.000[b]	.000	.025
Fisher's Exact Test	306.159			.000[b]	.000	.025
Linear-by-Linear Association	158.636[c]	1	.000	.000[b]	.000	.025
N of Valid Cases	180					

Source: Primary Data

It is observed that the P-value is less than 0.05. The difference is considered as insignificant. The H$_o$ is accepted and therefore, there is real insignificant relationship between designation and credit information bureau among the respondents. Thus, the designation and credit information bureau among the respondents are independent concern in reducing NPA and to recover NPA accounts.

Designation and compromise settlement schemes

H$_0$: There is no significant relationship between designation and compromise settlement schemes among the respondents.

H$_1$: There is real significant relationship between designation and compromise settlement schemes among the respondents.

TABLE - 4.119

DESIGNATION AND COMPROMISE SETTLEMENT SCHEMES

	Value	df	Asymp. Sig. (2-sided)	Monte Carlo Sig. (2-sided)		
				Sig.	99% Confidence Interval	
					Lower Bound	Upper Bound
Pearson Chi-Square	412.728[a]	20	.000**	.000[b]	0.000	.025
Likelihood Ratio	400.123	20	.000	.000[b]	0.000	.025
Fisher's Exact Test	340.051			.000[b]	0.000	.025
Linear-by-Linear Association	152.215[c]	1	.000	.000[b]	0.000	.025
N of Valid Cases	180					

Source: Primary Data

It is observed that the P-value is less than 0.05. The difference is considered as insignificant. The H$_o$ is accepted and therefore, there is real insignificant relationship between designation and compromise settlement schemes among the respondents. Hence, the designation and compromise settlement schemes among the respondents are independent concern to reduce NPA and to recover NPA accounts.

Designation and reporting frauds to RBI

H$_0$: There is no significant relationship between designation and reporting frauds to RBI among the respondents.

H$_1$: There is real significant relationship between designation and reporting frauds to RBI among the respondents.

TABLE - 4.120

DESIGNATION AND REPORTING FRAUDS TO RBI

	Value	df	Asymp. Sig. (2-sided)	Monte Carlo Sig. (2-sided)		
				Sig.	99% Confidence Interval	
					Lower Bound	Upper Bound
Pearson Chi-Square	428.828[a]	20	.000**	.000[b]	0.000	.025
Likelihood Ratio	411.275	20	.000	.000[b]	0.000	.025
Fisher's Exact Test	351.086			.000[b]	0.000	.025
Linear-by-Linear Association	152.767[c]	1	.000	.000[b]	0.000	.025
N of Valid Cases	180					

Source: Primary Data　　　　　　　　　　****5% level of significance**

It is observed that the P-value is less than 0.05. The difference is considered as insignificant. The H_o is accepted and therefore, there is real insignificant relationship between designation and reporting frauds to RBI among the respondents.Hence, the designation and reporting frauds to *RBI* among the respondents are independent concern to reduce NPA and to recover NPA accounts.

Designation and risk assessment and risk management mechanism

H_0: There is no significant relationship between designation and risk assessment and risk management mechanism among the respondents.

H_1: There is real significant relationship between designation and risk assessment and risk management mechanism among the respondents.

TABLE - 4.121
DESIGNATION AND RISK ASSESSMENT AND
RISK MANAGEMENT MECHANISM

	Value	df	Asymp. Sig. (2-sided)	Monte Carlo Sig. (2-sided)		
				Sig.	99% Confidence Interval	
					Lower Bound	Upper Bound
Pearson Chi-Square	432.897[a]	20	.000**	.000[b]	0.000	.025
Likelihood Ratio	416.770	20	.000	.000[b]	0.000	.025
Fisher's Exact Test	356.705			.000[b]	0.000	.025
Linear-by-Linear Association	151.336[c]	1	.000	.000[b]	0.000	.025
N of Valid Cases	180					

Source: Primary Data   ****5% level of significance**

It is observed that the P-value is less than 0.05. The difference is considered as insignificant. The H_o is accepted and therefore, there is real insignificant relationship between designation and risk assessment and risk management mechanism among the respondents.Thus, the designation and risk assessment and risk management mechanism among the respondents is independent concern to reduce NPA and to recover NPA accounts.

REGRESSION ANALYSIS-Managing NPA

A regression analysis is undertaken considering the various performance indicators in managing NPAs Multiple regression analysis of X_1- NPA controlled by improving the system of loan appraisal, X_2- Maintaining continuous report, X_3- Incentives to staff loan departments, X_4- Presence of credit rating, X_5- Adding more staff in credit appraisal process, X_6- More training and development, the following regression model is fitted for performance: $Y = b0 + b1 X_1 + b2 X_2 + b3 X_3 + b4 X_4 + \ldots$ Where b1, b2, b3 and b4 are partial regression coefficients, b0-constant the results are presented in the following table.

TABLE – 4.122
MEAN - FACTORS OF MANAGING NPA

DESCRIPTIVE STATISTICS	[N=180]	
	Mean	Std. Deviation
Nature of Commercial Banks	**3.17**	**1.889**
NPA controlled by improving the system of loan appraisal	1.75	.716
Maintaining continuous report	1.78	.795
Incentives to staff in loan departments	**2.11**	**1.189**
Presence of credit rating	1.84	.746
Adding more staff in credit appraisal process	1.77	**.678**
More training and development	**1.65**	.835

Source: Primary Data

The above table refers mean and standard deviation for the six variables of managing NPA concerning the opinion by executives. Mean of dependent variable was *3.17* and SD was *1.889*. Thus study proved that, incentives to staff in loan departments had higher average and more training and development had lowest average. Adding more staff in credit appraisal process shows least SD(.678) indicating consistent performance among the executives and incentives to staff in loan departments showed highest SD(1.189) indicating it is not satisfactory among the bank executives.
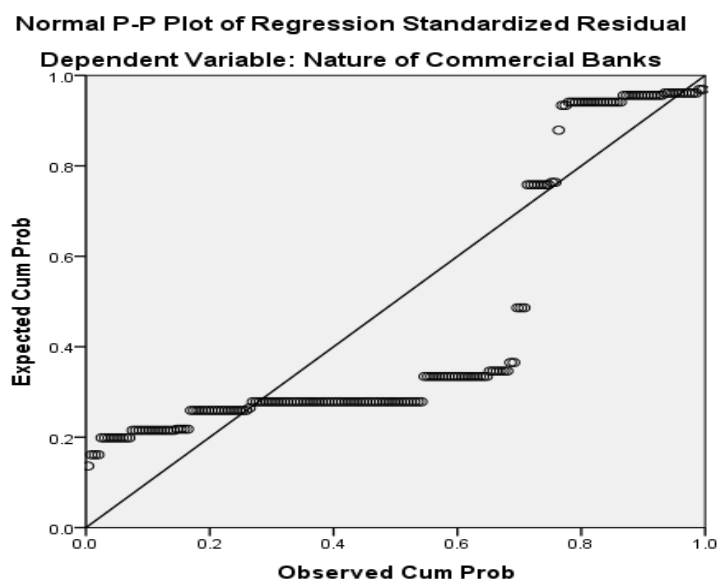
Figure 4.14

TABLE - 4.123
REGRESSION COEFFICIENT-MANAGING NPA VARIABLE

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.975[a]	.951	.949	.425	.951	560	6	173	.000

Predictors: (Constant= X_1),X_2,X_3, X_4,X_5,X_6,X_7

Source: Primary data

It is observed from the above table that the variables considered for managing NPA is significant. R value of .975 shows substantial correlation between the predictor variable and dependent variable. The R square value indicates that about 95.1 percent of the variation in dependent variable (Y) is explained by six selected independent variables.

To test the validity of the model ANOVA has been employed. The output of ANOVA is given below

H_0: There is no significant relationship between dependent and independent variables

TABLE - 4.124
ANOVA –MANAGING NPA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	607.721	6	101.287	560.1	.000[b]
	Residual	31.279	173	.181		
	Total	639.000	179			
Predictors: (Constant= X_1),X_2,X_3, X_4,X_5,X_6,X_7						

Source: Primary data

The step wise multiple regression models indicated that 6 Variables namely, X_2,X_3, X_4,X_5,X_6, and X_7 have significantly contributing to X_1 through „F" statistics at 5% level. Hence, the hypothesis was rejected and therefore it can be concluded that there is significant relationship between dependent and independent variables(X_1,X_2, X_3, X_4, X_5 and X_6.)

Table – 4.125

COEFFICIENTS-MANAGING NPA

| Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	β	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	-.775	.106		-7.29	.000	-.984	-.565
NPA controlled by improving the system of loan appraisal	.679	.157	.257	4.32	.000	.369	.990
Maintaining continuous report	-.726	.181	-.306	-4.01	.000	-1.083	-.369
Incentives to staff loan departments	1.06	.095	.667	11.11	.000	.872	1.249
Presence of credit rating	.452	.136	.178	3.31	.001	.183	.721
Adding more staff in credit appraisal process	.466	.180	.167	2.58	.011	.110	.822
More training and development	.093	.092	.041	1.01	.313	-.088	.273

Source: Primary Data   ****5% level of significance**
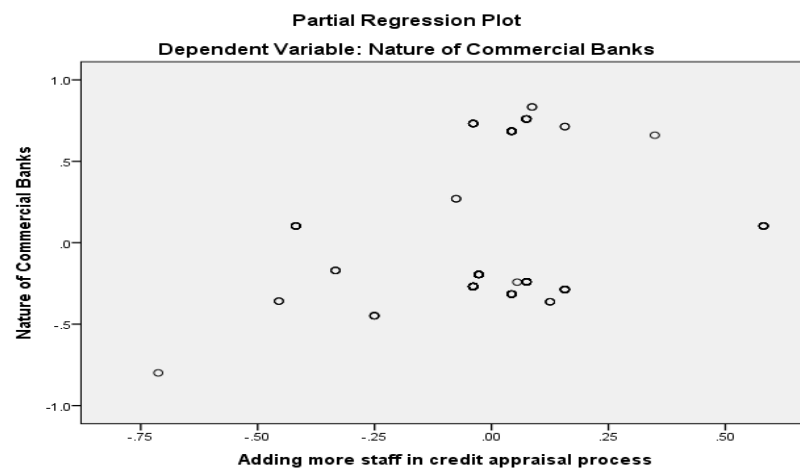
The significance of the variables considered for managing NPA of commercial banks is analysed using t-test. The result showed that the regression coefficient is highly significant at 5% level and implies that the dependent variable can be taken as a significant explanatory variable for examining the behavior of independent variable. Hence, the multiple regression equation is formulated as

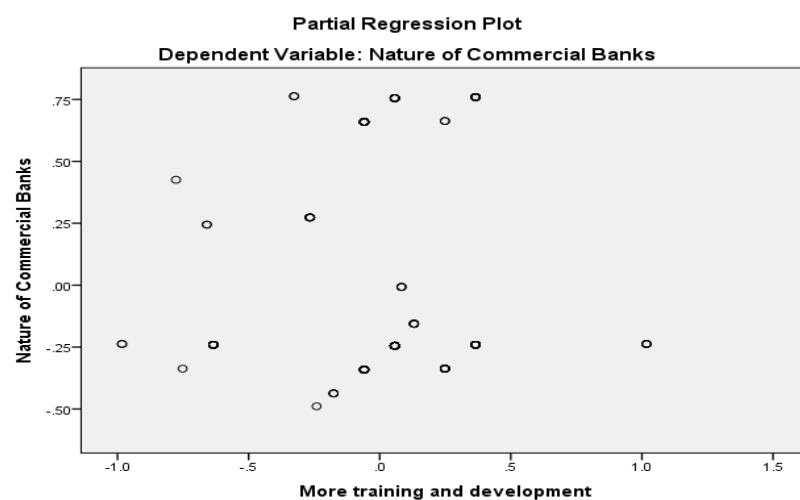$$Y = 0.679x_2 - 0.726x_3 + 1.06x_4 + 0.452x_5 + 0.466x_6 + 0.093x_7$$

From the regression estimates it is found that the system of loan appraisal has influenced the commercial banks $(\beta = .679; t = 4.32)$ at five percent level of significance in a positive way.
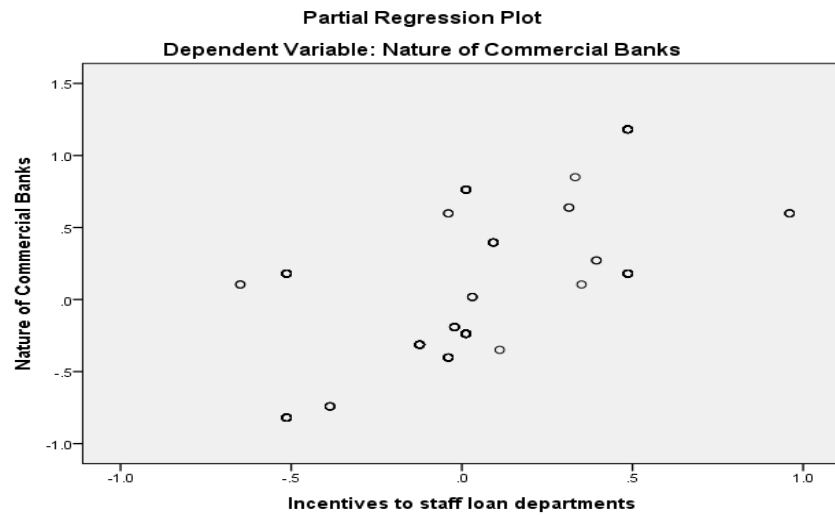
Figure 4.15

Figure 4.16

Figure 4.17