CHAPTER-6

ANALYSIS OF THE RESULTS:

6. A: Analysis based on the performance of some selected Indian commercial banks during FY 2000-01 to 2014-15:

In this chapter, analysis of performance of some selected banks is presented. The period of our study is starting from 2000-01 and ending on 2014-15.

Table 6.1 shows the average of pre-merger financial pointers of Nedungadi Bank Ltd (NBL) and Punjab National Bank (PNB) and average of post-merger financial indicators of Acquiring Bank of Punjab National Bank (PNB), mean differences, change in ratio and their growth pattern. While considering the case of Nadungadi Bank (NBL) vs. Punjab National Bank (PNB) merger, regarding Credit -Deposit Ratio, Investment-Deposit Ratio (IDR), Priority sector advance (PSA) as % to total advance, Interest income as a % of total income (IITI), Establishment expenses as a % of total expenses (EETE), Other operating expenses as a % of total expenses (OOETE, Spread as a % to total assets (STA), Operating profit as % to average working funds (OPAWF), Capital Adequacy Ratio (CAR), null hypotheses are rejected which lead us to summarize that there are noteworthy variances between above mentioned pre-and post-merger financial indicators.

Regarding the Deposit per employee (DPE), Advance per employee (APE), Non-interest income as a % of total income (NIITI), Interest expenses as a % of total expenses (IETE), Interest Income as % to average working funds (IIAWF), Non-interest Income as % to average working funds (NIIAWF), Return on Asset (ROA), Net NPA as % to net

advances (NNPANA), null hypotheses are rejected signifying that there are noteworthy variances between above mentioned pre-and post-merger financial indicators.

Table 6.1: Mean and Standard Deviation of Pre-merger of combined (Nedungadi Bank Ltd and Punjab National Bank) and Post-merger Ratios of Acquiring Bank (Punjab National Bank)

Financial parameters	Pre-and post-merger	Mean	Mean Difference	Change in ratios	Std. Deviation	Growth Rate (%)
Credit -Deposit Ratio	Pre-merger	51.40	1.988	I*	3.065	3.87%
	Post-merger	53.39			0.467	
Investment- Deposit Ratio	Pre-merger	41.45	4.955	I*	1.556	11.95%
	Post-merger	46.405			2.143	
Priority sector advance as % to total advance	Pre-merger	35.85	6.035	I*	0.396	16.83%
	Post-merger	41.885			2.864	
Deposit per employee	Pre-merger	247.25	108.26	D**	9.461	-43.78%
	Post-merger	138.98			14.764	
Advance per employee	Pre-merger	127.78	53.54	D**	11.745	-41.9%
	Post-merger	74.235			8.521	
Interest income as a % of total income	Pre-merger	82.59	0.585	I*	6.413	0.71%
	Post-merger	83.17			3.564	
Non-interest income as a % of total income	Pre-merger	17.42	0.59	D**	6.413	-3.39%
	Post-merger	16.83			3.564	
Interest expenses as a % of total expenses	Pre-merger	61.46	9.503	D**	2.507	-15.46%
	Post-merger	51.96			4.653	
Establishment expenses as a % of total expenses	Pre-merger	16.83	2.208	I*	1.128	13.12%
	Post-merger	19.035			0.474	
Other operating expenses as a % of total expenses	Pre-merger	6.57	1.310		0.382	19.94%
	Post-merger	7.875		I*	0.728	
Spread as a % to Assets	Pre-merger	1.93	1.655		0.156	85.75%
	Post-merger	3.58		I*	0.057	
Interest Income as % to average working funds	Pre-merger	9.52	0.783		0.421	-8.22%
	Post-merger	8.74		D**	0.693	
Non-interest Income as % to average working funds	Pre-merger	2.13	0.243		0.951	-11.41%
	Post-merger	1.885		D**	0.346	
Operating profit as % to average working funds	Pre-merger	1.51	2.040		0.976	135.09%
	Post-merger	3.545		I*	0.375	
Return on Asset	Pre-merger	1.29	0.183	D**	1.213	-14.19%
	Post-merger	1.11			0.099	
Net NPA as % to net advances	Pre-merger	16.04	13.62	D**	3.037	-84.90%
	Post-merger	2.42			2.036	
Capital Adequacy Ratio [CAR (%)]	Pre-merger	6.22	6.345	I*	0.184	102%
	Post-merger	12.56			0.764	

*I stands for Increase, **D stands for Decrease.
Source: Author's own estimate.

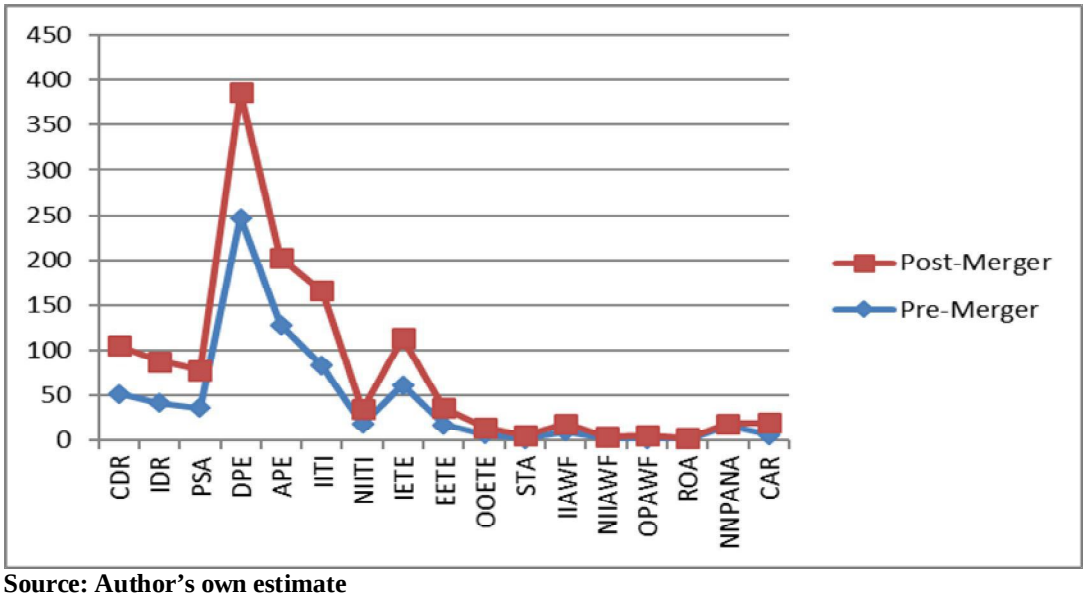
Table 6.1 shows a growing rate of 3.87% (showing improvement in post-merger period) in CDR ratio, which signifies that Depositors' money, has been utilized more in lending credit to the borrower during the time of post-merger period. It may highlight

that bank is presumed to be issuing more of it deposits in the form of interest bearing loan, which in turn may have affirmative effect on the profitability or success of the bank generating out of interest earned. It has been also noticed from the above table that IDR has increased remarkably around 12% indicating that the merged entity may have invested out of deposit in Government security, bonds and other economic instruments as per RBI guideline. The study of the said merged entity portrays that the merged entity has complied with the RBI guideline by investing in priority sector advance (which is gradually increasing in post-merger period at around 17%). It may have favorable impact on earning capacity with efficient operations of management of bank. DPE is found to have negative growth rate at around 44% (decline), which indicates that after merger number of employees have increased in comparison to total deposit of merged entity. The management should concentrate more on accumulating deposit from public so as to be more compliance with efficiency parameter of performance analysis. This has to be ensured by providing necessary capacity building technique to the employees. The abrupt decline at around 42% in advance per employee (APE) suggests that the merged entity may have confronted with some problem with efficiency improvement of the employees. IITI is found to have marginal increase in the said ratio during the post-merger period, which may be because of inefficiency of generating interest income by target bank has been successfully compensated by the acquiring bank during the post-merger period. NIITI has declined slightly during post-merger period implying that merged entity failed to generate more non-interest income to augment their ROA (return on assets). The overall total expenses aggregating of interest expenses, establishment expenses and other operating costs respectively have increased for merged entity. However, the interest

expenses as percentage to total expenses has declined sharply at around 15% during post-merger period. It has been possibly due to the increase in total expenses resulting from the noticeable increase in combined personnel costs under establishment expenses at around 13% and increase in other operating expenses at around 20% during post-merger period and probably the maintaining of same level of interest expenses in the merged bank. Decline in interest expenses as a percentage of total expenses is a positive indication towards the profitability of the acquiring bank. On the contrary, increase in establishment expenses and operating expenses are supposed to have inversed effect on profitability of merged bank. Spread indicating the different the interest earnings and interest outlays, shows remarkable rise in the post-merger period at around 86%. It provide us an indication that profitability has increased in merged entity owing to enhancement in core income resulted from increase in Spread. The decrease in interest income as 8% of AWF (average working fund) may probably be due to underutilization of funds. Thus, it has indicated that the merged entity has not efficiently used its working funds in earning interest income and has inversed effect on profitability of merged bank. Non-interest income, primarily the fee-based income, shows declining trends at around 11% during the tenure of post-merger period. It has indicated that the merged entity has not employed efficiently its funds in earning non-interest income. Operating profit, net of operating expenses, has indicated tremendous increasing trend at around 135% during post-merger period of merged bank. It provides us an indication that the merged bank is in a strong position to earn from its operations for every rupee spent on working funds. In other word, the merged bank has deployed its working funds in creating profit. Return on Asset (ROA), indicating the barometer of measuring profitability of bank, indicates that it

has decreased at around 14% during post-merger period, which further indicates that it paved the way for not enhancing the profitability of merged bank. Net NPA measuring quality of assets, has substantially decreased at around 85% in post-merger period, which has adverse relationship with profitability of merged bank. The reduction in NPA may probably be due to efficient handling of assets by the management of merged bank. CAR (Capital Adequacy Ratio), one of the key pointers of the financial strength of bank, has noticeably enhanced at around 102% during post-merger period, which assure customer regarding protection of their investment in one hand and on the other, it ensures profitability of the acquiring or merged bank.

Fig-1 Diagrammatic Presentation of Pre-merger ratios of combined Nedungadi Bank Ltd and Punjab national bank and Post-merger Ratios of Acquiring Bank Punjab national bank.



Source: Author's own estimate

Table 6.2: Mean and Standard Deviation of Pre-merger of combined Oriental Bank of Commerce and Global Trust Bank and Post-merger Ratios of Acquiring Bank (Oriental Bank of Commerce)

Financial parameters	Pre-and post-merger	Mean	Mean Difference	Change in ratios	Std. Deviation	Growth Rate (%)
Credit-Deposit Ratio	Pre-merger	48.11	20.29	I*	2.09	42.17%
	Post-merger	68.90			8.00	
Investment- Deposit Ratio	Pre-merger	44.86	13.82	D**	4.29	-30.81%
	Post-merger	31.04			3.53	
Priority sector advance as % to total advance	Pre-merger	31.21	1.63	I*	1.75	5.22%
	Post-merger	32.84			2.35	
Deposit per employee	Pre-merger	384.92	106.85	I*	25.96	27.76%
	Post-merger	491.77			93.37	
Advance per employee	Pre-merger	201.89	138.12	I*	21.60	68.41%
	Post-merger	340.01			85.44	
Interest income as a % of total income	Pre-merger	81.12	8.54	I*	5.14	10.53%
	Post-merger	89.66			1.83	
Non-interest income as a % of total income	Pre-merger	18.89	8.55	D**	5.13	-45.26%
	Post-merger	10.34			1.83	
Interest expenses as a % of total expenses	Pre-merger	59.58	12.71	I*	11.89	21.33%
	Post-merger	72.29			5.91	
Establishment expenses as a % of total expenses	Pre-merger	6.93	3.15	I*	0.34	45.45%
	Post-merger	10.08			2.18	
Other operating expenses as a % of total expenses	Pre-merger	10.15	0.28	I*	1.00	2.76%
	Post-merger	10.43			1.38	
Spread as a % to Assets	Pre-merger	1.79	0.37	I*	0.38	20.67%
	Post-merger	2.16			0.44	
Interest Income as % to average working funds	Pre-merger	8.95	1.37	D**	1.54	-15.31%
	Post-merger	7.89			0.50	
Non-interest Income as % to average working funds	Pre-merger	1.98	1.06	D**	0.35	-53.54%
	Post-merger	0.91			0.12	
Operating profit as % to average working funds	Pre-merger	2.17	0.40	D**	0.23	-18.43%
	Post-merger	1.77			0.44	
Return on Asset	Pre-merger	-1.11	2.24	I*	2.62	126.55%
	Post-merger	1.13			0.43	
Net NPA as % to net advances	Pre-merger	8.71	8.05	D**	2.62	-92.42%
	Post-merger	0.66			0.39	
Capital Adequacy Ratio [CAR (%)]	Pre-merger	11.78	0.49	I*	4.71	4.16%
	Post-merger	12.27			1.59	

***I stands for Increase, **D stands for Decrease**
Source: Author's own estimate.

Table-6.2 shows that in case of merger between Oriental Bank of Commerce (OBC) vs. Global Trust Bank (GTB), while we consider some fixed parameters like Credit -Deposit Ratio, Priority sector advance (PSA) as % to total advance, Deposit per employee, Advance per employee, Interest income as a % of total income, Interest expenses as a % of total expenses, Establishment expenses as a % of total expenses, Other operating expenses as a % of total expenses, Spread as a % to total assets, Return on Asset, Capital Adequacy Ratio [CAR(%)], we see that null hypotheses are rejected which lead us to conclude that there are noteworthy variances between pre and post-merger above mentioned financial indicators.

Regarding Investment-Deposit Ratio, Non-interest income as a % of total income, Interest Income as % to average working funds, Non-interest Income as % to average working funds, Operating profit as % to average working funds, Net NPA as % to net advances, null hypotheses are also rejected signifying that there are noteworthy variances between pre and post-merger above mentioned financial indicators.

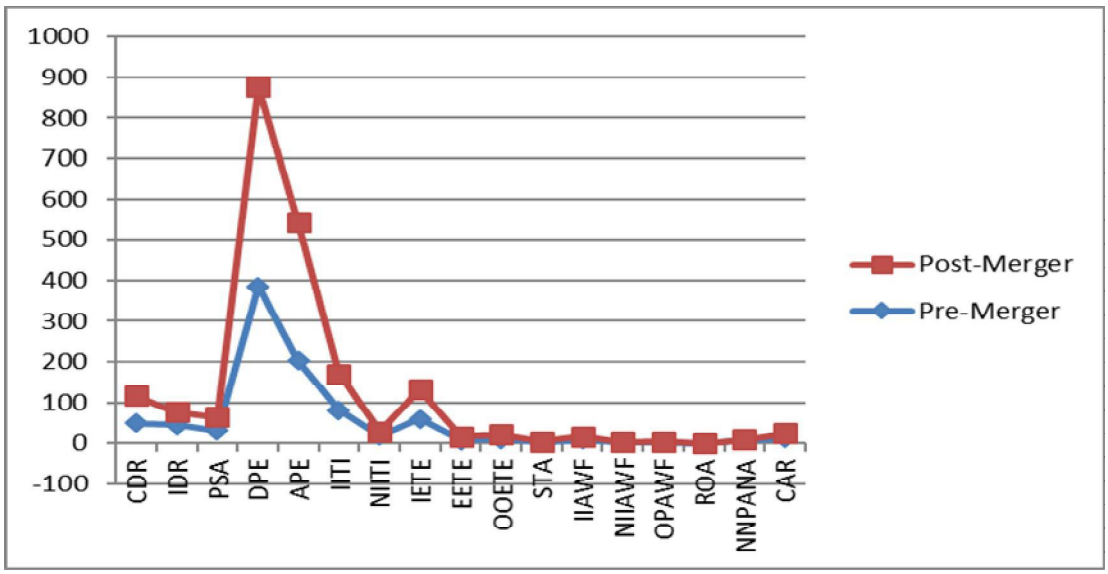
Table 6.2 shows a growing rate of 42% (showing improvement in post-merger period) in CDR ratio, which signifies that Depositors' money has been utilized more in giving credit after the post-merger period. It may also point out that the bank is presumed to be issuing more of it deposits in the form of interest bearing loan, which in turn may have positive impact on the profitability of the bank generating out of interest earned. It has been also noticed from above (Table 6.2) that IDR has decreased remarkably around 31% indicating that the merged entity may not have invested out of deposit in Government security, bonds and other financial instruments as per RBI guideline. The study of the said merged bank portrays that the merged bank may be complied with the RBI guideline

by investing in priority sector advance (which is gradually increasing in post-merger period at around 5%). It may have favorable impact on earning capacity of the bank with efficient operations of management of bank. Deposit per employee (DPE) is found to have growing rate at around 28% (upward), which indicates that after merger employees have increased the collection of deposit of merged entity. The management is concentrating more on accumulating deposit from public so as to be more compliance with efficiency parameter of performance analysis. This has to be ensured by providing necessary capacity building technique to the employees. The excellent growth at around 68% in advance per employee (APE) suggests that the merged bank may have more aggressive in term of lending business with efficiency improvement of the employees. Interest Income as 11% of Total income (IITI) is found to have marginal increase in the said ratio during the post-merger period, which may be due to facts that inefficiency of generating interest income by target bank has been successfully compensated by the acquiring bank during the post-merger period. Non–Interest income as 45% of total income (NIITI) is found to have declined drastically during post-merger period implying that merged entity failed to generate more non-interest income to augment their ROA (return on assets). The overall total expenses aggregating of interest expenses, establishment expenses and other operating costs respectively have been increased in merged entity. However, the interest expenses as percentage to total expenses has increased sharply at around 21% during post-merger period. It has been possibly due to increase in borrowing costs during post-merger period. Noticeable increase in establishment expenses at around 45% is found due to upward trends of personnel costs. Increase in other operating expenses at around 3%, interest expenses and establishment

expenses in the merged bank is a negative or inversed indication towards the profitability of the merged or acquiring bank. Spread indicating the different the interest earnings and interest outlays, shows remarkable rise in the post-merger period at around 21%. It provide us an indication that profitability has increase in merged entity owing to enhancement in core income resulted from increase in Spread. The decrease in interest income as 15% of AWF (average working fund) may probably be due to underutilization of funds. Thus, it has indicated that the merged entity has not efficiently deployed its funds in earning interest income and has inversed effect on profitability of merged bank. Non-interest income, primarily the fee-based income, shows declining trends at around 54% during post-merger period. It has indicated that the merged entity has not employed efficiently its working funds in earning non-interest income. Operating profit, net of expenses, has indicated decreasing trend at around 18% during post-merger period of merged bank. It provides us an indication that the merged bank is not in a position to earn income from its business for every rupee spent on working funds. In other word, the merged bank has not deployed its working funds in making profit. Return on Asset (ROA) indicating the barometer of measuring profitability of bank, indicates that it has increased at around 126% during post-merger period, which further indicates that it pave the way for enhancing the profitability of merged bank. Net NPA measuring quality of assets, has substantially decreased at around 92% in post-merger period, which has adverse relationship with profitability of merged bank. The reduction in NPA may probably be due to efficient handling of assets by the management of merged bank. Capital Adequacy Ratio (CAR), one of the key pointers of the financial strength of bank, has noticeably enhanced at around 4% during post-merger period, which assure customer

regarding protection of their investment in one hand and on the other, it ensures profitability of the merged or acquiring bank.

Fig: 2 Diagrammatic Presentation of Pre-merger ratios of combined Oriental Bank of Commerce and Global Trust Bank and Post-merger Ratios of Acquiring Bank (Oriental Bank of Commerce)



Source: Author's own estimate

Table 6.3: Mean and Standard Deviation of Pre-merger of combined (IDBI and United Western Bank) and Post-merger Ratios of Acquiring Bank (IDBI)

Financial parameters	Pre–and post- merger	Mean	Mean Difference	Change in Ratios	Std. Deviation	Growth Rate (%)
Credit -Deposit Ratio	Pre-merger	156.75	54.42	D**	34.53	-34.72%
	Post-merger	102.325			14.56	
Investment- Deposit Ratio	Pre-merger	82.54	37.80	D**	23.62	-45.80%
	Post-merger	44.74			0.29	
Priority sector advance as % to total advance	Pre-merger	23.33	3.08	D**	3.59	-13.19%
	Post-merger	20.26			2.44	
Deposit per employee	Pre-merger	330.26	664.15	I*	86.84	201.10%
	Post-merger	994.42			151.95	
Advance per employee	Pre-merger	604.72	401.78	I*	57.29	66.44%
	Post-merger	1,006.50			10.69	
Interest income as a % of total income	Pre-merger	42.25	43.61	I*	0.50	103.22%
	Post-merger	85.86			3.96	
Non-interest income as a % of total income	Pre-merger	15.15	1.01	D**	0.50	-6.64%
	Post-merger	14.14			3.96	
Interest expenses as a % of total expenses	Pre-merger	66.67	16.95	I*	1.30	25.42%
	Post-merger	83.62			1.58	
Establishment expenses as a % of total expenses	Pre-merger	9.72	5.22	D**	1.75	-53.73%
	Post-merger	4.50			0.26	
Other operating expenses as a % of total expenses	Pre-merger	9.96	3.59	D**	0.06	-35.99%
	Post-merger	6.38			0.08	
Spread as a % to Assets	Pre-merger	1.26	0.65	D**	0.15	-51.49%
	Post-merger	0.61			0.16	
Interest Income as % to average working funds	Pre-merger	5.98	1.72	I*	1.15	28.76%
	Post-merger	7.70			0.74	
Non-interest Income as % to average working funds	Pre-merger	1.09	0.17	I*	0.14	15.67%
	Post-merger	1.26			0.29	
Operating profit as % to average working funds	Pre-merger	0.77	0.32	I*	0.02	41.83%
	Post-merger	1.09			0.15	
Return on Asset	Pre-merger	(0.47)	1.11	I*	0.05	-237.97%
	Post-merger	0.65			0.04	
Net NPA as % to net advances	Pre-merger	3.61	2.49	D*	0.34	-69.00%
	Post-merger	1.12			0.28	
Capital Adequacy Ratio [CAR (%)]	Pre-merger	(4.46)	16.05	I*	20.71	359.86%
	Post-merger	11.59			0.51	

***I stands for Increase; **D stands for Decrease**
Source: Author's own estimate.

Table-6.3 shows that, in case of merger between IDBI and United Western Bank, while we consider some fixed parameters like Deposit per employee, Advance per employee, Interest income as a % of total income, Interest expenses as a % of total expenses, Interest Income as % to average working funds, Non-interest Income as % to average working funds, Operating profit as % to average working funds, Return on Asset and Capital Adequacy Ratio [CAR%], which showed post-merger improved performance, null hypotheses are rejected which leads us to conclude that there are noteworthy variances between pre and post-merger above mentioned financial indicators.

With respect to Credit-Deposit Ratio, Investment-Deposit Ratio, Priority sector advance (PSA) as % to total advance, Non-interest income as a % of total income, Establishment expenses as a % of total expenses, Other operating expenses as a % of total expenses, Spread as a % to total assets and Net NPA as % to net advances, which show significant declining trend, null hypotheses are also rejected signifying that there are noteworthy variances between pre and post-merger above mentioned financial indicators.

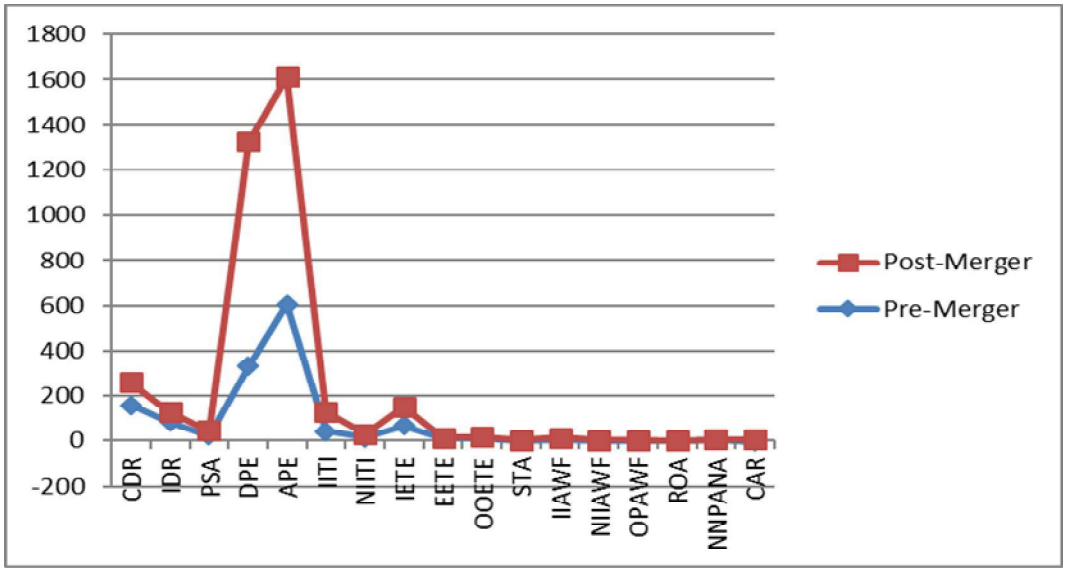
Table 6.3 shows a decline rate of 35% (showing negative growth in post-merger period) in CDR ratio, which signifies that Depositors' money, has not been utilized properly in giving credit (loan & advance) to the borrower during post-merger period. It may also specify that the bank is not assumed to be issuing more of it deposits in the form of interest bearing loan, which in turn may not have noteworthy effect t on the revenue of the bank generating out of interest earned. It has been also noticed from above (Table 6.3) that IDR has decreased remarkably around 46% indicating that the merged entity may not have invested out of deposit in Government security, bonds and other financial instruments as per RBI guideline. The study of the said merged bank portrays that the

merged bank may not be complied with the RBI guideline by investing in priority sector advance (which is gradually decrease in post-merger period at around 13%). It may not have favorable impact on earning capacity of bank with efficient operations of management of bank. Deposit per employee (DPE) is found to have growing rate at around 201% (upward), which indicates that after merger employees have increased their collection of deposit of merged bank. The new management is concentrating more on accumulating deposit from public so as to be more compliance with efficiency parameter of performance analysis. The growth of deposit has ensured by providing necessary capacity building technique to the employees. The excellence growth at around 66% in advance per employee (APE) suggests that the merged bank may have more aggressive in term of lending business with efficiency improvement of the employees. Interest Income as 103% of total income (IITI) is found to have tremendous increase in the said ratio during the post-merger period, which may be because of the facts that inefficiency of generating interest income by target bank has been successfully compensated by the acquiring bank during post-merger period. Non–Interest income as 7% of total income is found to have declined during post-merger period implying that merged entity failed to generate more non-interest income to augment their ROA (return on assets). The overall total expenses aggregating of interest expenses, establishment expenses and other operating costs respectively have been increased in merged bank. However, the interest expenses as percentage to total expenses has increased sharply at around 25% during post-merger period. It has been possibly due to increase in borrowing costs during post-merger period. Noticeable decrease in establishment expenses at around 53% is found due to downward trends of personnel costs, which may be the positive indication towards

the profitable of merged bank. Decrease in other operating expenses at around 39% in the merged bank is a positive indication towards the revenue (profitability) of the merged bank. Spread indicating the different the interest revenue and interest outlays, shows remarkable decrease in post-merger period at around 51%. It provide us an indication that lower earning of interest income has impacted the profitability in merged entity owing to inefficient of management in generating core income resulted from Spread. The increase in interest income as 29% of average working fund may probably be due to proper utilization of funds. Thus, it has indicated that the merged entity has efficiently deployed its working funds in earning interest income and has positive influence on profitability of merged bank. Non-interest income, primarily the fee-based income, shows increasing trends at around 16% during post-merger period. It has indicated that the merged entity has employed efficiently its funds in earning non-interest income. Operating profit (OPAWF), net of expenses, has indicated increasing trend at around 42% during post-merger period of merged bank. It provides us an indication that the merged bank is in a position to earn from its actions for every rupee expended on working funds. In other word, the merged bank has deployed its operational funds in making profit. Return on Asset (ROA) indicating the barometer of measuring profitability of bank, indicates that it has increased at around 237% during post-merger period, which further indicates that it pave the way for enhancing the profitability of merged bank. Net NPA measuring quality of assets, has substantially decreased at around 69% in post-merger period, which has a adverse correlation with profitability of merged bank. The reduction in NPA may probably be because of the efficient handling of assets by the management of merged bank. Capital Adequacy Ratio (CAR), one of the chief pointers of the financial strength

of bank, has drastically enhanced at around 360% during post-merger period, which assure customer regarding protection of their investment in one hand and on the other, it ensures profitability of the merged or acquiring bank.

Fig: 3: Diagrammatic Presentation of Pre-merger ratios of combined IDBI and United Western Bank and Post-merger Ratios of Acquiring Bank (IDBI)



Source: Author's own estimate

Table 6.4: Mean and Standard Deviation of Pre-merger of combined Centurion Bank of Punjab and HDFC Bank and Post-merger Ratios of HDFC Bank (Acquiring Bank)

Financial parameter	Pre-and Post-merger	Mean	Mean Difference	Change in Ratios	Std. Deviation	Growth Rate (%)
Credit -Deposit Ratio	Pre-merger	68.27	9.73	I*	2.79	14.25%
	Post-merger	78			2.56	
Investment- Deposit Ratio	Pre-merger	41.72	5.17	D**	4.12	-12.40%
	Post-merger	36.55			2.51	
Priority sector advance as % to total advance	Pre-merger	29.85	3.66	I*	3.82	12.26%
	Post-merger	33.51			1.41	
Deposit per employee	Pre-merger	292.1	82.14	I*	28.92	28.12%
	Post-merger	374.25			42.56	
Advance per employee	Pre-merger	198.85	93.80	I*	18.86	47.17%
	Post-merger	292.66			42.19	
Interest income as a % of total income	Pre-merger	79.47	3.19	I*	2.29	4.01%
	Post-merger	82.65			1.38	
Non-interest income as a % of total income	Pre-merger	20.53	3.19	D**	2.29	-15.51%
	Post-merger	17.35			1.38	
Interest expenses as a % of total expenses	Pre-merge	44.55	5.79	I*	4.29	13.00%
	Post-merger	50.34			5.09	
Establishment expenses as a % of total expenses	Pre-merger	11.61	1.16	I*	1.17	10.03%
	Post-merger	12.77			1.18	
Other operating expenses as a % of total expenses	Pre-merger	29.16	8.84	D**	5.11	-30.33%
	Post-merger	20.31			0.96	
Spread as a % to Assets	Pre-merger	3.44	1.16	I*	0.18	33.86%
	Post-merger	3.79			0.13	
Interest Income as % to average working funds	Pre-merger	8.25	0.68	I*	0.56	8.20%
	Post-merger	8.93			0.86	
Non-interest Income as % to average working funds	Pre-merger	2.16	0.29	D**	0.30	-13.53%
	Post-merger	1.87			0.11	
Operating profit as % to average working funds	Pre-merger	2.25	0.94	I*	0.22	41.71%
	Post-merger	3.19			0.12	
Return on Asset	Pre-merger	1.05	0.65	I*	0.09	61.81%
	Post-merger	1.69			0.17	
Net NPA as % to net advances	Pre-merger	1.02	0.8	D**	0.26	-78.54%
	Post-merger	0.22			0.06	
Capital Adequacy Ratio [CAR (%)]	Pre-merger	13.33	2.49	I*	2.54	18.67%
	Post-merger	15.82			7.93	

***I stands for Increase; **D stands for Decrease**
Source: Author's own estimate.

Table 6.4 depicts that in considering the case of Centurion Bank of Punjab vs. HDFC Bank merger, regarding Credit-Deposit Ratio, Priority sector advance (PSA) as percentage to total advance, Deposit per employee, Advance per employee, Interest income as a percentage of total income, Interest expenses as a percentage of total expenses, Establishment expenses as a percentage of total expenses, Spread as a percentage of total assets, Interest Income as percentage to average working funds, Operating profit as percentage to average working funds, Return on Asset, Capital Adequacy Ratio [CAR (%)], null hypotheses are rejected which lead us to determine that there are noteworthy variances between pre-and post-merger above mentioned financial indicators.

Regarding Investment-Deposit Ratio, Non-interest income as a percentage of total income, Other operating expenses as a percentage of total expenses, Non-interest Income as percentage to average working funds, Net NPA as percentage to net advances, null hypotheses are rejected signifying that there are noteworthy variances between pre-and post-merger above mentioned financial indicators.

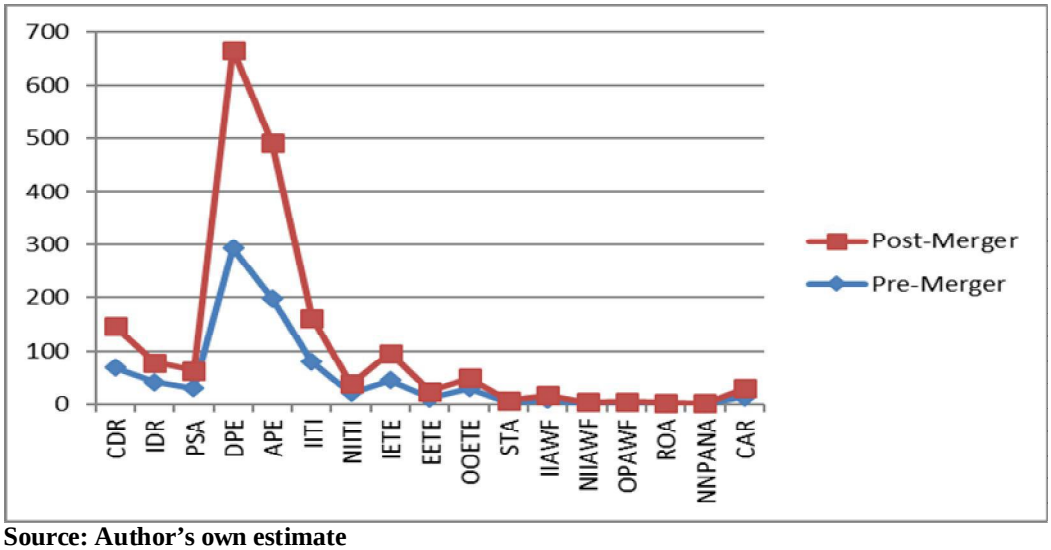
Table 6.4 shows a growing rate of 14% (showing improvement in post-merger period) in CDR ratio, which signifies that Depositors' money, indicates that depositors' money has been utilized more in giving credit to the debtor during post-merger period. It may also specify that the bank is presumed to be issuing more of it deposits in the form of interest bearing credit, which in turn may have favorable effect on the revenue (profitability) of the bank generating out of interest earned. It has been also noticed from above Table that Investment Deposit Ratio (IDR) has decreased remarkably at around 12% indicating that the merged entity may not have invested out of deposit in

Government security, bonds and other financial instruments as per RBI guideline. The study of the said merged bank portrays that the merged bank may be complied with the RBI guideline by investing in priority sector advance [PSA] (which is gradually increase in post-merger period at around 12%). It may have favorable impact of PSA on earning capacity of bank with efficient operations of management. Deposit per employee (DPE) is found to have growing rate at around 28% (upward), which indicates that after merger employees have increased the collection of deposit of merged entity. The management is concentrating more on accumulating deposit from public so as to be more compliance with efficiency parameter of performance analysis. This has to be ensured by providing necessary capacity building technique to the employees. The excellence growth at around 47% in advance per employee (APE) suggests that the merged bank may have more aggressive in term of lending business with efficiency improvement of the employees. Interest Income as 4% of Total income (IITI) is found to have marginal increase in the said ratio during the post-merger period, which may be because of the facts that inefficiency of generating interest income by target bank has been successfully compensated by the acquiring bank during post-merger period. Non–Interest income as 16% of total income is found to have declined drastically during post-merger period implying that merged entity failed to generate more non-interest income to augment their ROA (return on assets). The overall total expenses aggregating of interest expenses, establishment expenses and other operating costs respectively have been increased in merged entity. However, the interest expenses as percentage to total expenses has increased sharply at around 13% during post-merger period. It has been probably because of the increase in borrowing costs during post-merger period. Noticeable increase in

establishment expenses at around 10% is found due to upward trends of personnel costs. Decrease in other operating expenses at around 30% in the merged bank is a positive or inversed indication towards the revenue (profitability) of the merged bank. Spread indicating the different the interest revenue and interest outlays, shows remarkable rise in the post-merger period at around 33%. It provide us an indication that profitability has increase in merged entity owing to enhancement in core income resulted from increase in Spread. The increase in interest income as 8% of average working fund may probably be due to proper utilization of funds. Thus, it has indicated that the merged entity has efficiently deployed its funds in earning interest income and has positive effect on revenue (profitability) of merged bank. Non-interest income, primarily the fee-based income, shows declining trends at around 14% during post-merger period. It has indicated that the merged entity has not employed efficiently its funds in earning non-interest income. Operating profit (OPAWF), net of expenses, has indicated increasing trend at around 42% during post-merger period of merged bank. It provides us an indication that the merged bank is in a position to earn from its activities for every rupee used on working funds. In other word, the merged bank has deployed its funds in making profit. ROA (Return on Asset) indicating the barometer of measuring profitability of bank, indicates that it has increased at around 61% during post-merger period, which further indicates that it pave the way for enhancing the profitability of merged bank. Net NPA measuring quality of assets, has substantially decreased at around 79% in post-merger period, which has an adverse connection with revenue (profitability) of merged bank. The reduction in NPA may probably be because of the efficient handling of assets by the management of merged bank. Capital Adequacy Ratio (CAR), one of the chief

pointers of the financial strength of bank, has noticeably enhanced at around 19% during post-merger period, which assure customer regarding protection of their investment in one hand and on the other, it ensures profitability of the merged or acquiring bank.

Fig: 4: Diagrammatic Presentation of Pre-merger ratios of combined Centurion Bank of Punjab and HDFC Bank and Post-merger Ratios of HDFC Bank (Acquiring Bank)



Source: Author's own estimate

Table 6.5: Mean and Standard Deviation of Pre-merger of combined (Bank of Rajasthan (Target Bank) and ICICI Bank and Post-merger Ratios of (Acquiring Bank) ICICI Bank

Financial Parameter	Pre-and Post-merger	Mean	Mean Difference	Change in Ratios	Std. Deviation	Growth Rate (%)
Credit -Deposit Ratio	Pre-merger	72.49	29.44	I*	2.78	40.62%
	Post-merger	101.93			3.74	
Investment- Deposit Ratio	Pre-merger	43.69	12.8	I*	6.90	29.30%
	Post-merger	56.49			4.96	
Priority sector advance as % to total advance	Pre-merger	27.55	6.87	D**	1.77	-24.95%
	Post-merger	20.67			1.90	
Deposit per employee	Pre-merger	484.52	422.15	I*	12.24	87.13%
	Post-merger	906.67			251.25	
Advance per employee	Pre-merger	377.78	539.67	I*	22.52	142.85%
	Post-merger	917.45			232.37	
Interest income as a % of total income	Pre-merger	83.66	2.29	D**	2.02	-2.73%
	Post-merger	81.38			1.13	
Non-interest income as a % of total income	Pre-merger	16.34	2.29	I*	2.02	13.99%
	Post-merger	18.62			1.13	
Interest expenses as a % of total expenses	Pre-merger	64.69	1.40	D**	4.07	-2.16%
	Post-merger	63.29			2.85	
Establishment expenses as a % of total expenses	Pre-merger	12.60	2.91	D**	2.27	-23.06%
	Post-merger	9.69			0.34	
Other operating expenses as a % of total expenses	Pre-merger	12.49	0.60	I*	2.40	4.81%
	Post-merger	13.09			0.52	
Spread as a % to Assets	Pre-merger	2.08	0.56	I*	0.13	26.95%
	Post-merger	2.64			0.29	
Interest Income as % to average working funds	Pre-merger	7.99	0.05	I*	0.44	0.64%
	Post-merger	8.04			0.19	
Non-interest Income as % to average working funds	Pre-merger	1.59	0.25	I*	0.22	15.64%
	Post-merger	1.84			0.15	
Operating profit as % to average working funds	Pre-merger	1.71	1.14	I*	0.31	66.72%
	Post-merger	2.85			0.38	
Return on Asset	Pre-merger	0.82	0.89	I*	0.39	109.56%
	Post-merger	1.71			0.15	
Net NPA as % to net advances	Pre-merger	1.22	0.20	D**	0.53	-16.20%
	Post-merger	1.02			0.41	
Capital Adequacy Ratio [CAR (%)]	Pre-merger	13.08	3.55	I*	1.08	69.00%
	Post-merger	16.63			0.93	

***I stands for Increase; **D stands for Decrease**
Source: Author's own estimate.

Table 6.5 depicts the next merger of Bank of Rajasthan (Target Bank) vs. ICICI Bank (Acquiring Bank). For the Credit -Deposit Ratio, Investment- Deposit Ratio, Deposit per employee, Advance per employee, Non-interest income as a percentage of total income, Other operating expenses as a percentage of total expenses, Spread as percentage to total Assets, Interest Income as percentage to average working funds, Non-interest Income as percentage to average working funds, Operating profit as percentage to average working funds, Return on Asset, Capital Adequacy Ratio [CAR(%)], null hypotheses are rejected which lead us to determine that there are noteworthy variances between pre and post-merger above mentioned financial indicators.

Regarding Priority sector advance as percentage to total advance, Interest income as percentage of total income, Interest expenses as percentage of total expenses, Establishment expenses as percentage of total expenses and Net NPA as percentage to net advances, null hypotheses are rejected signifying that there are noteworthy variances between pre and post-merger above mentioned financial indicators.

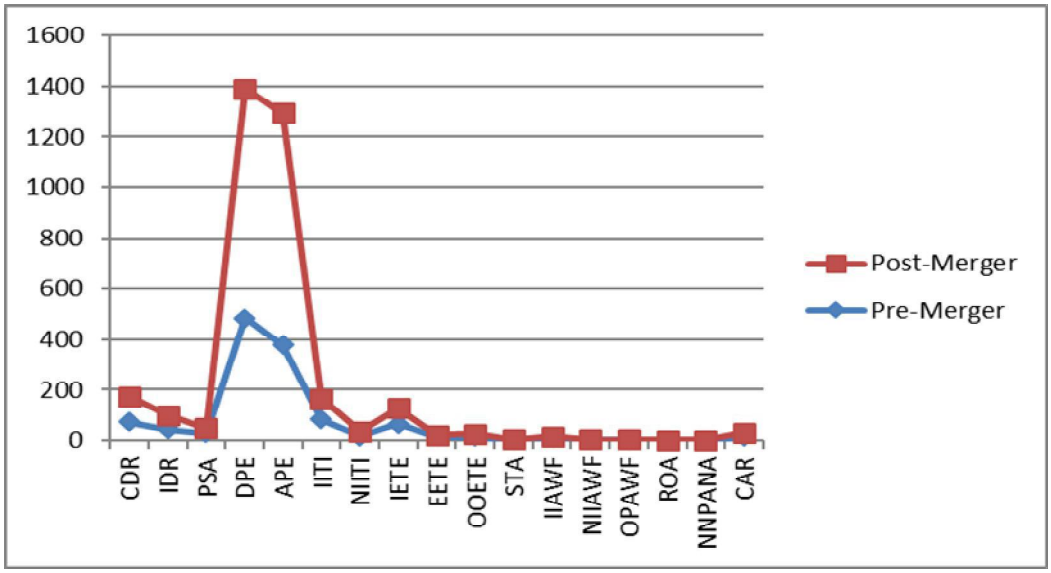
Table 6.5 shows a growing rate of 41% (showing improvement in post-merger period) in CDR ratio, which signifies that Depositors' money, has been utilized more in giving credit to the debtor during post-merger period. It may also specify that the bank is presumed to be issuing more of it deposits in the form of interest bearing credit, which in turn may have significant effect on the revenue (profitability) of the bank generating out of interest earned. It has been also noticed from above Table that Investment Deposit Ratio (IDR) has increased remarkably at around 29% indicating that the merged entity may have invested out of deposit in Government security, bonds and other financial instruments as per RBI guideline. The study of the said merged bank portrays that the

merged bank may not be complied with the RBI guideline by investing in priority sector advance [PSA] (which is gradually decrease in post-merger period at around 25%). It may not have favorable impact of PSA on earning capacity of bank with efficient operations of management. Deposit per employee (DPE) is found to have growing rate at around 87% (upward), which indicates that after merger employees have increased the collection of deposit of merged entity. The management is concentrating more on accumulating deposit from public so as to be more compliance with efficiency parameter of performance analysis. This has to be ensured by providing necessary capacity building technique to the employees. The excellence growth at around 143% in advance per employee (APE) suggests that the merged bank may have more aggressive in term of lending business with efficiency improvement of the employees. Interest Income as 3% of Total income (IITI) is found to have marginal decrease in the said ratio during the post-merger period, which may be because of the facts that inefficiency of generating interest income by target bank has not been successfully compensated by the acquiring bank during post-merger period. Non–Interest income as 16% of total income is found to have increased drastically during post-merger period implying that merged bank have more concentrated to generate non-interest revenue to augment their ROA (return on assets). The overall entire expenses are the aggregating of interest expenses, establishment expenses and other operating costs respectively. However, the interest expenses as percentage to total expenses has decreased sharply at around 2% during post-merger period. It has been probably due to control of borrowing costs during post-merger period. Noticeable decrease in establishment expenses at around 23% may have to downward trends of personnel costs. Increase in other operating expenses at around 5%

in the merged bank is a negative indication towards the revenue (profitability) of the merged or acquiring bank. Spread indicating the different the interest revenue and interest outlays, shows remarkable rise in the post-merger period at around 27%. It provide us an indication that profitability has increase in merged entity owing to enhancement in core income resulted from increase in Spread. The increase in interest income as 0.6% of average working fund may probably be due to proper utilization of funds. Thus, it has indicated that the merged entity has efficiently deployed its funds in earning interest income and has positive effect on revenue (profitability) of merged bank. Non-interest income, primarily the fee-based income, shows upward trends at around 16% during post-merger period. It has indicated that the merged entity has employed efficiently its funds in earning non-interest income. Operating profit (OPAWF), net of expenses, has indicated increasing trend at around 67% during post-merger period of merged bank. It provides us an indication that the merged bank is in a position to earn from its activities for every rupee used on working funds. In other word, the merged bank has deployed its funds in making profit. ROA (Return on Asset) indicating the barometer of measuring profitability of bank, indicates that it has increased at around 110% during post-merger period, which further indicates that it pave the way for enhancing the profitability of merged bank. Net NPA measuring quality of assets, has substantially decreased at around 16% in post-merger period, which has a adverse connection with profitability of merged bank. The reduction in NPA may probably be because of the efficient handling of assets by the management of merged bank. CAR (Capital Adequacy Ratio), one of the chief pointers of the financial strength of bank, has noticeably enhanced at around 69% during

post-merger period, which assure customer regarding protection of their investment in one hand and on the other, it ensures profitability of the merged or acquiring bank.

Fig: 5: Diagrammatic Presentation of Pre-merger ratios of combined Bank of Rajasthan (Target Bank) and ICICI Bank and Post-merger Ratios of (Acquiring Bank) ICICI Bank



Source: Author's own estimate

Table 6.6: Summary analysis (increase/decrease of mean value) of 5 banks pre-and post-merger:

Sr.No.	Particulars	Ned/PNB	OBC/GTB	IDBI/UWB	CB/HDFC	BOR/ICICI
01	CDR	I (P)	I (P)	D (N)	I (P)	I (P)
02	IDR	I (P)	D (N)	D (N)	D (N)	I (P)
03	PSA	I (P)	I (P)	D (N)	I (P)	D (N)
04	DPE	D (N)	I (P)	I (P)	I (P)	I (P)
05	APE	D (N)	I (P)	I (P)	I (P)	I (P)
06	IITI	I (P)	I (P)	I (P)	I (P)	D (N)
07	NIITI	D (N)	D (N)	D (N)	D (N)	I (P)
08	IETE	D (P)	I (N)	I (N)	I (N)	D (P)
09	EETE	I (N)	I (N)	D (P)	I (N)	D (P)
10	OOETE	I (N)	I (N)	D (P)	D (P)	I (N)
11	STA	I (P)	I (P)	D (N)	I (P)	I (P)
12	IIAWF	D (N)	D (N)	I (P)	I (P)	I (P)
13	NIIAWF	D (N)	D (N)	I (P)	D (N)	I (P)
14	OPAWF	I (P)	D (N)	I (P)	I (P)	I (P)
15	ROA	D (N)	I (P)	I (P)	I (P)	I (P)
16	NNPANA	D (P)	D (P)	D (P)	D (P)	D (P)
17	CAR	I (P)	I (P)	I (P)	I (P)	I (P)
Positive impact		9	9	11	12	14
Negative impact		8	8	6	5	3
Total		17	17	17	17	17
I (P) means the increse in mean between pre and post merger, which have positive impact.						
I (N) means the increse in mean between pre and post merger, which have negative impact.						
D(P) means the decrease in mean between pre and post merger, which have positive impact.						
D(N) means the decrease in mean between pre and post merger, which have negative impact.						

Source: Author's own estimate

Table 6.6 shows a summary analysis of all sample banks.

(1) **CDR:** It indicates a growth (showing improvement in post-merger period) in CDR ratio for 4 merged banks (such as PNB/NED, OBC/GTB, HDFC/CBOP and ICICI/BOR) except the merger of IDBI & UWB (United Western Bank) , which signifies that the collected Depositors' funds, has been utilized more in giving credit to the debtor during post-merger period. It may also show that the 4 banks are assumed to be issuing more of it deposits in the form of interest bearing loan, which in turn may

have affirmative effect on the revenue (profitability) of the bank generating out of interest earned. On other side, IDBI/UWB bank was not able to utilize its depositors' funds in the form of interest bearing credit, which in turn may have negative impact on the profitability of the said bank. From the Table 6.6, it is clearly visible that most of the merged banks in post-merger period generate more interest income by extending the credit facility to the borrowers. Too high CDR ratio may not always yield good results because of the high risk of default of recovering loan amount including interest from the borrowers. On the other hand, very low CDR ratio means the underutilization of deposit fund, which in turn may have negative impact on profitability, in spite of having lower percentage of default risk. RBI does not prescribed any ideal CDR ratio for banks. Keeping in mind risk and return, the merged bank should adopt the middle path and continuously improving this CDR would be high priority of the management. In post-merger period, 4 merged banks out of 5, have been moving in positive directions by improving their CDR ratio.

(2) **IDR:** It has been also noticed from above Table that Investment Deposit Ratio (IDR) has remarkably increased only for 2 merged banks (such as PNB/NED & ICICI/BOR) and indicating a decrease in trend for 3 merged banks (such as OBC/GTB, IDBI& UWB and HDFC/CBOP). Apart from CDR, merged banks may have other option of utilization of deposits' funds (raised from CASA deposit, recurring deposit and fixed accounts etc.) through long-term and short-term investment in stock market, Govt. securities, bonds and other financial instruments etc. In IDR, the merged bank may have to invest in RBI only in the form CRR (cash reserve ratio) and to invest certain % of their deposit in specified financial instruments like Central Government and State

Government's securities and Bond on the form of Statutory Liquidity Ratio (SLR). Unlike CRR, merged banks can generate some amount as interest on investment of SLR. From the Table 6.6, we can draw an inference that 3 merged banks shows decreasing trends of investments in various financial instruments, which in turn may have adverse effect on the revenue (profitability) of the said banks. Overall, this ratio does not indicate impressive results.

(3) **PSA:** The study of the said Table portrays that 3 merged banks in post-merger period (such as PNB/NED, OBC/GTB and HDFC/CBOP) have stepped up Priority sector advance (PSA) in complied with the RBI guideline. However, the 2 merged banks (such as IDBI/UWB and ICICI/BOR) shows the downward trend by investing in priority sector advance [PSA]. As per RBI norm, 40% of total advances shall move forward to PSA to ensure adequate intuitional credit to vulnerable sector of the economy, which may not be good-looking for merged banks in view of revenue (profitability). Overall, it is good indication for the merged banks.

(4) **Deposit per employee (DPE)**: It is found to have upward growth for 4 merged banks (such as OBC/GTB, IDBI/UWB, HDFC/CBOP and ICICI/BOR) except 1 bank (such as PNB/NED), which indicates that in post-merger period, employees have increased their collection of deposit from public. The management is concentrating more on accumulating deposit so as to be more compliance with efficiency parameter of performance analysis. This has to be ensured by providing necessary capacity building technique to the employees. Overall, it is a very good indication for merged banks.

(5) **Advance per employees (APE)**: The excellence growth in advance per employee (APE) suggests that the merged banks in post-merger period may have been more aggressive in term of lending business with efficiency improvement of the employees. Overall, it shows the impressive results for merged banks.

(6) **Interest Income as percentage of Total Income (IITI)**: Interest Income as percentage of total income (IITI) is found to have increased in the said ratio during post-merger period for merged banks (such as PNB/UWB, OBC/GTB, IDBI/UWB and HDFC/CBOP). This ratio measures ability of the merged banks to generate interest income from lending operations. We can draw inference from the Table 6.6 that 4 merged banks out of 5 sample banks have successfully generated interest revenue such as revenue on advances, interest earning on deposits with RBI and dividend income etc. except the merged banks of ICICI/BOR. It shows from the result and once again established that the revenue from lending operations are still dominate major share of their total income.

(7) **Non-Interest revenue (income) to total income (NIITI)**: Non–Interest revenue (income) refers to the revenue (income) of a bank from its associated and non-banking operations. From the Table 6.6, the 4 merged banks (such as PNB/UWB, OBC/GTB, IDBI/UWB and HDFC/CBOP) in post-merger period have failed to generate non-interest revenue (income) to augment their ROA (return on assets) except the merged ICICI/BOR bank. From the Table, Only ICIC/BOR bank in post-merger period generates higher fee-based income than IITI through its innovative products; technology for sustained level of services and the changing socio-

economics condition of the country force it to generate non-interest revenue (income) to augment their ROA (return on assets).

(8) **IETE, EETE & OOETE:** The total outlays are the aggregating of interest expenses, establishment expenses and other operating costs respectively. This tool measures the functioning efficacy of the merged banks as these ratios have negative relationship with profitability. It shows from the Table 6.6, that overall total expense are supposed to in higher side in post-merger period of all merged banks with inter-changing either increase or decrease among the 3 ratios such as IETE, EETE & OOETE. The reason for upward or downward side of these expenses are probably because of higher or lower interest on borrowing funds or increase or decrease of no. of employees and their scale of emoluments and/or upper or lower side of other working costs of the merged banks.

(9) **Spread:** Spread indicating the difference the interest revenue and interest outlays, shows remarkable rise in the post-merger period of 4 merged banks (such as PNB/NED, OBC/GTB, HDFC/CBOP and ICICI/BOR) except IDBI/UWB. It provides us an indication that profitability has increased in maximum of the merged banks owing to enhancement in core income resulted from increase in Spread.

(10) **Income on average working funds:** Income on average working funds indicates how a bank employed its workings funds in earning interest income. The increase in interest income as % of average working fund in post-merger period may probably be due to proper utilization of funds and has affirmative effect on revenue (profitability) of merged banks (such as IDBI/UWB, HDFC/CBOP and ICICI/BOR) except for

PNB/NED and OBC/GTB, the merged banks not using efficiently employment of its working funds.

Whereas, non-interest income (NIIAWF), primarily the fee-based income, shows upward trends in post-merger period of 2 merged banks (such as IDBI/UWB and ICICI/BOR) except the other 3 merged banks (such as PNB/NED, OBC/GTB and HDFC/CBOP). Thus, from the Table 6.6, it is clearly visible that both NIITI and NIIAWF are not able to generate non-interest income in post-merger period, which are measuring in term of total income and average working funds.

Operating profit (OPAWF), net of expenses, has indicated increasing trend in post-merger period of merged banks (such as PNB/NED, IDBI/UWB, HDFC/CBOP and ICICI/BOR) except OBC/GTB. It provides us an indication that 4 merged banks are in a position to earn from its activities for every rupee used on working funds. Among the 3 ratios of IIAWF, NIIAWF and OPAWF, only OPAWF has impacted an impressive result in post-merger period of merged banks.

(11) **Return on Asset (ROA)**: It is indicating the barometer of measuring profitability of banks, which indicates an inspiring results and pave the way for enhancing the profitability in post-merger period of merged banks (such as OBC/GTB, IDBI/UWB, HDFC/CBOP and ICICI/BOR) expect PNB/NED bank.

(12) **Net NPA:** Net NPA measuring quality of assets, has substantially decreased for all merged banks in post-merger period, which has a adverse connection with profitability of merged bank. In other word, the reduction of NPA in post-merger period has influenced significant contribution to enhance profitability of all merged banks. The reduction in NPA may probably be because of the efficient handling of

assets by the management of merged bank. From the results, M&A is the way to reduce NPA for acquiring bank.

(13) **CAR (Capital Adequacy Ratio):** It is one of the chief pointers of the financial strength of bank, has noticeably enhanced for all merged banks (such as PNB/NED, OBC/GTB, IDBI/UWB, HDFC/CBOP and ICICI/BOR) during post-merger period, which assure customer regarding protection of their investment in one hand and on the other, it ensures profitability of the acquiring (merged) bank. From the Table 6.6, M&As are the unique way to increase CAR for acquiring bank.

From the Table 6.6 and after careful analysis for all 5 pairs banks in post-merger period, we conclude that out of total cumulative 85 (17X5) financial parameters, 55 (9+9+11+12+14) financial parameters have noteworthy affirmative effect on merged banks and the remaining 30 (8+8+6+5+3) financial parameters have less impact on merged banks. We can draw an extrapolation from the analysis that M&A have positive influence on the acquiring bank in post-merger period.

Table 6.7 shows the classification of 17 parameters under **Assets Quality** (CDR, IDR, PSA and NNPANA), **Operational efficiency** (IETE, EETE & OOETE), Management efficiency (DPE, APE), **Earning quality** (STA, IIAWF, NIIAWF, OPAWF, ROA, IITI and NIITI) and **Capital adequacy** (CAR). The Table 6.7 suggests that two parameters (such as NNPANA & CAR) are impressive on post-merger period. Seven parameters (such as CDR, DPE, APE, IITI, STA, OPAWF and ROA) are very significant on post-merger period. Impact of two parameters (PSA and IIAWF) are good on post-merger period and five parameters (such as IDR, IETE, EETE, OOETE and NIIAWF) does not have any noteworthy effect t on post-merger and NIITI as well.

Table 6.7: Classification of 17 parameters:

Assets Quality		
Sr.No.	Particulars	Remarks
1	CDR	Very Good
2	IDR	Poor
3	PSA	Good
4	NNPANA	Excellance
Operational Efficiency		
Sr.No.	Particulars	Remarks
1	IETE	Poor
2	EETE	Poor
3	OOETE	Poor
Management Efficiency		
Sr.No.	Particulars	Remarks
1	DPE	Very Good
2	APE	Very Good
Earning Quality		
Sr.No.	Particulars	Remarks
1	STA	Very Good
2	IIAWF	Good
3	NIIAWF	Poor
4	OPAWF	Very Good
5	ROA	Very Good
6	IITI	Very Good
7	NIITI	Very Poor
Capital Adequacy		
Sr.No.	Particulars	Remarks
1	CAR	Excellance

Source: Author's own estimate

Table 6.7 may suggest the following findings based on all 5 merged banks:

(i) Most of the parameters indicating assets quality like CDR, NNPANA present positive trend towards their performance evaluation.

(ii) With respect to operational efficiency, all the parameters like IETE, EETE & OOETE display dismal declining trend.

(iii) While considering Management efficiency with respect to DPE& APE, these two-ratio show very strong positive performance that are under our general expectation.

(iv) With respect to earning quality represented by STA, IIAWF, NIIAWF, OPAWF,ROA,IITI &NIITI, it has been found that all financial parameters have presented favorable picture within our expectation expect NIIAWF & NIITI.

(v) CAR (Capital adequacy ratio) is found to have steady favorable pictures during post-merger scenario, which indicate presence of additional capital to bear additional risk.

6. B: Use of Statistical Tools to substantiate finding from financial parameters:

6. B.1: Punjab National Bank & Nedungadi Bank

The Kolmogorov-Smirnov test evaluates whether there is noteworthy deviation from normalcy in the population distribution for the bank mentioned above. The null hypothesis states that the normalcy presumption is not violated. The result of the normality displays that the noteworthy value of IDR, IETE, and NNPANA of the PNB bank during entire sample period 2000-01 to 2014-15 (both pre-merger and post-merger) is less than 0.05, implication that normalcy presumption has been violated. Since the significant values of each remaining variables (in table-6.8) is greater than 0.05, we accept the null hypothesis and find out that these data do not violate the normality assumption by using the two test as per Table 6.8:

Table 6.8: Kolmogorov-Smirnov test and Shapiro-Wilk test of normality of merged entity of PNB

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	Df	Sig.
ROA	.169	15	.200*	.956	15	.618
CDR	.200	15	.109	.848	15	. 160
IDR	**.293**	**15**	**.001**	**.777**	**15**	**.002**
PSA	.122	15	.200*	.948	15	.498
DPE	.139	15	.200*	.928	15	.259
APE	.170	15	.200*	.897	15	.087
IITI	.151	15	.200*	.933	15	.307
NIITI	.151	15	.200*	.933	15	.307
IETE	**.239**	**15**	**.021**	**.901**	**15**	**.039**
EETE	.154	15	.200*	.921	15	.201
OOETE	.163	15	.200*	.893	15	.073
STA	.164	15	.200*	.922	15	.208
IIAWF	.114	15	.200*	.986	15	.996
NIIAWF	.181	15	.198	.915	15	.164
OPAWF	.159	15	.200*	.953	15	.574
NNPANA	**.235**	**15**	**.025**	**.848**	**15**	**.016**
CAR	.135	15	.200*	.967	15	.811
a. Lilliefors Significance Correction						
*. This is a lower bound of the true significance.						

Source: Author's own estimate

The Shapiro–Wilk test is a test of normality in frequentist statistics. The null-hypothesis of SW test is that the population is normally scattered. Therefore, if the *p*-value is less than the selected alpha level (0.05), then the null hypothesis is not accepted and there is a clear confirmation that the data, which are tested, are not from ordinarily scattered population. In other words, the data are abnormal. On the other hand, if the *p*-value is more than the selected alpha level (0.05), then the null hypothesis that the data, which are tested, came from ordinarily scattered population and can be accepted. The

result derived from Kolmogorov-Smirnov (KS) test has also been substantiated by the Shapiro-Wilk test.

Table 6.9: Wilcoxon Signed Ranks Test of merged entity of PNB

Ranks				
		N	Mean Rank	Sum of Ranks
IDRpost – IDRpre	Negative Ranks	0[a]	.00	.00
	Positive Ranks	2[b]	1.50	3.00
	Ties	0[c]		
	Total	2		
IETEpost - IETEpre	Negative Ranks	2[d]	1.50	3.00
	Positive Ranks	0[e]	.00	.00
	Ties	0[f]		
	Total	2		
NNPANApost - NNPANApre	Negative Ranks	2[g]	1.50	3.00
	Positive Ranks	0[h]	.00	.00
	Ties	0[i]		
	Total	2		
a. IDRpost < IDRpre				
b. IDRpost > IDRpre				
c. IDRpost = IDRpre				
d. IETEpost < IETEpre				
e. IETEpost > IETEpre				
f. IETEpost = IETEpre				
g. NNPANApost < NNPANApre				
h. NNPANApost > NNPANApre				
i. NNPANApost = NNPANApre				

Source: Author's own estimate

Table 6.9 shows that the adverse (negative) mean rank is less than the affirmative (positive) mean rank in case of Investment –Deposit Ratio (IDR) of merged PNB. This advocates that the IDR measure in post-merger period is likely to be greater than that the pre-merger period. Therefore, we deduce that the sensation of merger has highlighted this performance factor of merged PNB.

On other side, the adverse (negative) mean rank is greater than the affirmative (positive) mean rank in case of Net NPA as % to net advances (NNPANA) and Interest expenses as a percentage of total expenses (IETE). This suggests that the Net NPA as percentage to net advances (NNPANA) and Interest expenses as a percentage of total expenses (IETE) positions in post-merger period are likely lesser than the pre-merger period. Therefore, we deduce that the sensation of merger has turned down the Interest expenses as a percentage of total expenses (IETE) position and turned up or accentuated position of the Net NPA as % to net advances (NNPANA) of the merged PNB.

Table 6.10: Wilcoxon Test Ranks of merged entity of PNB

Test Statistics[c]			
	IDRpost - IDRpre	IETEpost – IETEpre	NNPANApost – NNPANApre
Z	-1.342[a]	-1.342[b]	-1.342[b]
Asymp. Sig. (2-tailed)	.180	.180	.180
a. Based on negative ranks.			
b. Based on positive ranks.			
c. Wilcoxon Signed Ranks Test			

Source: Author's own estimate

By using the Wilcoxon signed rank test in Table no. 6.10, we perceive that for all the 3 ratios, the significance level is higher than 0.05 (0.18), therefore, the null hypothesis is not rejected which shows that there is no noteworthy variance between the pre and post-merger result (performance) on the basis of IDR, IETE, NNPANA of the Punjab National Bank. However, if we compare the individual ratio, we discover that the post-merger IDR performance has been better than the pre-merger period and reverse have happened in case of IETE and NNPANA ratio.

Table 6.11: Paired Samples Statistics of Nedungadi Bank Ltd and PNB and merged entity of PNB

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	CDRpre	51.77944	2	2.57296	1.81936
	CDRpost	53.38871	2	.46211	.32676
Pair 2	PSApre	38.91132	2	.27849	.19692
	PSApost	41.88141	2	2.86327	2.02463
Pair 3	DPEpre	404.57488	2	30.59842	21.63635
	DPEpost	138.97871	2	14.76419	10.43986
Pair 4	APEpre	209.88027	2	26.25326	18.56386
	APEpost	74.23306	2	8.52466	6.02784
Pair 5	IITIpre	87.72929	2	.77903	.55086
	IITIpost	83.16702	2	3.56340	2.51970
Pair 6	NIITIpre	12.27070	2	.77903	.55086
	NIITIpost	16.83302	2	3.56347	2.51975
Pair 7	EETEpre	21.12633	2	3.52142	2.49002
	EETEpost	19.03701	2	.47542	.33617
Pair 8	OOETEpre	6.75708	2	.11239	.07947
	OOETEpost	7.87514	2	.73360	.51874
Pair 9	STApre	3.05133	2	.03893	.02753
	STApost	3.58249	2	.05712	.040390
Pair 10	IIAWFpre	9.5978	2	.34249	.24218
	IIAWFpost	8.74268	2	.69395	.49070
Pair 11	OPAWFpre	1.97299	2	.54696	.38676
	OPAWFpost	3.54508	2	.377700	.26707
Pair 12	ROApre	.7607	2	.04346	.03073
	ROApost	1.10745	2	.096923	.06853
Pair 13	CARpre	10.4700	2	.32527	.23000
	CARpost	12.5600	2	.76368	.54000
Pair 14	NIIAWFpre	1.40154	2	.13464	.09520
	NIIAWFpost	1.88662	2	.34336	.24279

Source: Authors' own estimate

Table-6.12: Paired Samples t Test of Nedungadi Bank Ltd and PNB and merged entity of PNB

Pair	Variables (Pre-Post)	Paired Differences					T	Df	Sig. (2 tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
1	CDRpre - CDRpost	-1.609	2.110845	1.492	-20.5744	17.355	-1.07	1	.476
2	PSApre - PSApost	-2.970	2.584773	1.827	-26.1933	20.253	-1.62	1	.351
3	DPEpre - DPEpost	265.5	15.83422	11.19	123.3313	407.86	23.72	1	.027
4	APEpre - APEpost	135.6	17.72859	12.53	-23.6379	294.93	10.82	1	.059
5	IITIpre - IITIpost	4.562	2.784363	1.968	-20.4542	29.578	2.317	1	.259
6	NIITIpre – NIITIpost	-4.562	2.784437	1.968	-29.5795	20.454	-2.31	1	.259
7	EETEpre – EETEpost	2.089	3.996847	2.826	-33.8209	37.999	.739	1	.595
8	OOETEpre – OOETEpost	-1.118	.6212126	.4392	-6.69943	4.4633	-2.54	1	.238
9	STApre - STApost	-.5311	.0181829	.0128	-.694533	-.36779	-41.3	1	.015
10	IIAWFpre – IIAWFpost	.8551	.3514618	.2485	-2.30262	4.0128	3.441	1	.180
11	OPAWFpre – OPAWFpost	-1.572	.1692633	.1196	-3.09286	-.05131	-13.1	1	.048
12	ROApre - ROApost	-.3467	.053465	.0378	-.82709	.13364	-9.17	1	.069
13	CARpre - CARpost	-2.09	.43841	.3100	-6.0289	1.8489	-6.74	1	.094
14	NIIAWFpre – NIIAWFpost	-.4850	.208722	.14758	-2.3603	1.3902	-3.28	1	.188

Source: Author's own estimate

In case of pre-and post-merger cash deposit ratio, (CDR pre & CDR post), since the calculated value of t (1.078) for N=2 (as in Table 6.12) is lower than the table value (12.7062 at $t_{0.025}$,df =1), we accept the null hypothesis. The results are not noteworthy at

0.05 level of significance (p=.476). Therefore, the outcomes of the above table-6.12 shows insignificant difference between pre-and post-M&A credit deposit ratio, because the p-value is more than 0.05. Therefore, after M&As (merger and acquisitions) has taken place, there is no noteworthy variance on the performance of the said PNB bank in India as H_0 is accepted. This shows that the average or means of the pre-and post-merger CDR (credit deposit ratio) are not altered noteworthy.

Even some ratios individually depicts that there is slight increase or decrease in the economic performance of banks, but paired samples 't' test shows in this study that there is no noteworthy effect . From Table 6.12, we observe that in pair 1, the post-merger credit deposit ratio mean is higher than tthe pre-merger period. We, therefore, infer that it is possible to have been because of some logical and thoughtful cause. If all other confuses are removed, this logical cause must have been remained in the event of merger process.

In case of pre-and post-merger Priority Sector Advance ratio (PSApre & PSApost), since the calculated value of t =1.625) for N=2 (as in pair 2 in table-12) is lower than the table value (12.7062 at $t_{0.025}$,df =1), we accept the null hypothesis. The results are not noteworthy at 0.05 level of significance (p=0.351). Therefore, the findings of the above table show irrelevant variance between pre and post-merger priority sector advance ratio, because the p-value is higher than 0.05. Therefore, after M&As (merger and acquisitions), there is no noteworthy variance in the performance of the said PNB bank in India in terms of priority sector advance ratio as H_0 is accepted. This shows that the average (means) of the pre-and post-merger priority sector advance ratio are indifferent meaningfully.

Following the pattern of priority sector advance ratio, present study shows similar trend in case of pre-and post-merger advance per employee (APEpre & APEpost), pre-and post-interest income as percentage of total income (IITIpre & IITIpost), pre-and post-merger non-interest income as percentage of total income (NIITIpre& NIITIpost), pre-and post-merger establishment expenses as percentage of total expenses (EETEpre & EETEpost), pre-and post- merger of other operating expenses as percentage of total expenses (OOETEpre & OOETEpost), pre-and post-merger interest income as percentage of average working fund (IIAWFpre& IIAWFpost), pre and post-merger return on total asset (ROApre& ROApost), pre and post-merger capital adequacy ratio (CARpre & CARpost), pre and post-merger non-interest income as percentage of average working fund (NIIAWFpre & NIIAWFpost).

On the contrary, pre and post-merger (DPEpre & DPEpost), (STApre & STApost) and (OPAWFpre & OPAWFpost), since the calculated value of t (=23.721, 41.31and 13.13 respectively) for N=2 (as in pair 3, 9 and 11 in table-6.12) is higher than the table value 12.7062 at $t_{0.025}$,df =1), we accept alternative hypothesis or reject the null hypothesis. The outcomes are noteworthy at 0.05 level of significance (p=0.027, 0.015, 0.048). Therefore, the results of the said table show noteworthy variance between pre and post Merge (DPEpre & DPEpost), (STApre & STApost) and (OPAWFpre & OPAWFpost). This shows that the average (means) of the pre and post (DPEpre & DPEpost), (STApre & STApost) and (OPAWFpre & OPAWFpost), ratio are different significantly.

6. B.2: Oriental Bank of Commerce vs. Global Trust Bank:

The outcome of the normality displays that the noteworthy value of CDR, IDR, OOETE, NIIAWF, OPAWF of the Oriental Bank of Commerce during entire sample period 2000-01 to 2014-15 (both pre-merger and post-merger) is less than 0.05, highlighting that normalcy presumption has been violated. Since the significant values of the remaining variables (in table-6.13) is greater than 0.05, we accept the null hypothesis and infer that these data, which are tested, do not violate the normality assumption. The same result is also confirmed by the Shapiro-Wilk test.

Table 6.13: Kolmogorov-Smirnov test and Shapiro-Wilk test of normality of merged entity of Oriental Bank of Commerce

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
CDR	**.302**	**15**	**.001**	**.800**	**15**	**.004**
IDR	**.272**	**15**	**.004**	**.806**	**15**	**.004**
PSA	.117	15	.200*	.943	15	.427
DPE	.177	15	.200*	.893	15	.073
APE	.152	15	.200*	.895	15	.079
IITI	.153	15	.200*	.916	15	.166
NIITI	.153	15	.200*	.916	15	.166
IETE	.167	15	.200*	.954	15	.597
EETE	.197	15	.122	.895	15	.079
OOETE	**.238**	**15**	**.022**	**.797**	**15**	**.003**
STA	.199	15	.113	.912	15	.146
IIAWF	.102	15	.200*	.967	15	.816
NIIAWF	**.333**	**15**	**.000**	**.809**	**15**	**.005**
OPAWF	**.291**	**15**	**.001**	**.810**	**15**	**.005**
ROA	.159	15	.200*	.972	15	.882
NNPANA	.200	15	.110	.873	15	.057
CAR	.160	15	.200*	.945	15	.447

a. Lilliefors Significance Correction
* This is a lower bound of the true significance.

Source: Author's own estimate

Table 6.14 displays that the adverse (negative) mean rank is less than the affirmative (positive) mean rank in case of CDR and OOETE measure. This advocates that the Credit –Deposit Ratio (CDR) and Operating expenses to total expenses measure (OOETE) in post-merger period is possible greater than that in the pre-merger period. Therefore, we conclude that the sensation of merger has heightened this performance.

Table 6.14: Wilcoxon Signed Ranks Test of merged entity of Oriental Bank of Commerce

Ranks				
		N	Mean Rank	Sum of Ranks
CDRpost – CDRpre	Negative Ranks	0[a]	.00	.00
	Positive Ranks	4[b]	2.50	10.00
	Ties	0[c]		
	Total	4		
IDRpost – IDRpre	Negative Ranks	4[d]	2.50	10.00
	Positive Ranks	0[e]	.00	.00
	Ties	0[f]		
	Total	4		
OOETEpost – OOETEpre	Negative Ranks	1[g]	1.00	1.00
	Positive Ranks	3[h]	3.00	9.00
	Ties	0[i]		
	Total	4		
NIIAWFpost – NIIAWFpre	Negative Ranks	3[j]	3.00	9.00
	Positive Ranks	1[k]	1.00	1.00
	Ties	0[l]		
	Total	4		
OPAWFpost – OPAWFpre	Negative Ranks	3[m]	3.00	9.00
	Positive Ranks	1[n]	1.00	1.00
	Ties	0[o]		
	Total	4		

a. CDRpost < CDRpre
b. CDRpost > CDRpre
c. CDRpost = CDRpre
d. IDRpost < IDRpre
e. IDRpost > IDRpre
f. IDRpost = IDRpre
g. OOETEpost < OOETEpre
h. OOETEpost > OOETEpre
i. OOETEpost = OOETEpre
j. NIIAWFpost < NIIAWFpre
k. NIIAWFpost > NIIAWFpre
l. NIIAWFpost = NIIAWFpre
m. OPAWFpost < OPAWFpre
n. OPAWFpost > OPAWFpre
o. OPAWFpost = OPAWFpre

Source: Author's own estimate

On the contrary, table 6.14 displays that the adverse (negative) mean rank is higher than the affirmative (positive) mean rank in case of Investment–Deposit Ratio (IDR), Non-interest Income as % to average working funds (NIIAWF), Operating profit as % to average working funds (OPAWF). This suggests that the Investment-Deposit Ratio (IDR), Non-interest Income as % to average working funds (NIIAWF), Operating profit as % to average working funds (OPAWF) position in post-merger period is likely to be lesser than the pre-merger period. Therefore, we deduce that the sensation of merger has turned down the IDR, NIIAWF, and OPAWF position of the said public sector bank.

Table 6.15: Wilcoxon Test Ranks of merged entity of Oriental Bank of Commerce

Test Statistics[c]					
	CDRpost – CDRpre	IDRpost - IDRpre	OOETEpost - OOETEpre	NIIAWFpost - NIIAWFpre	OPAWFpost – OPAWFpre
Z	-1.826[a]	-1.826[b]	-1.461[a]	-1.461[b]	-1.461[b]
Asymp. Sig. (2-tailed)	.068	.068	.144	.144	.144
a. Based on negative ranks. b. Based on positive ranks. c. Wilcoxon Signed Ranks Test					

Source: Author's own estimate

By applying the Wilcoxon signed rank test from Table 6.15, we understand that for all the 5 ratios, the significance level is more than 0.05 (0.068 for CDR and IDR, 0.144 for OOETE, NIIAWF, OPAWF), therefore, the null hypothesis is not rejected, which shows that there is no noteworthy variance between the pre and the post-merger performance on the basis of CDR, IDR, OOETE, NIIAWF and OPAWF of Oriental Bank of Commerce (OBC).

On other side, the shortcut to the hypothesis testing of the Wilcoxon signed rank test is knowing the critical value for a 95% confidence interval (or a 5% level of significance)

which is z=1.96 for a two tailed test and directionality. Whenever a test is founded on normal distribution, the sample z value needs to be 1.96 or higher to discard the null hypothesis. However, for all 5 ratios above, sample z values are less than z=1.96 at 5% level of significance. Therefore, we have no other alternatives but to admit the null hypothesis at 5% level of significance signifying that there is no noteworthy variance between the pre and the post-merger performance based on CDR, IDR, OOETE, NIIAWF and OPAWF of OBC (Oriental Bank of Commerce).

However, if we compare the individual ratio, we find that the post-merger CDR and OOETE performance have been better than the pre-merger period and reverse has happened in case of IDR, NIIAWF, and OPAWF ratio.

Table 6.16: Paired Samples Statistics of Global Trust Bank and Oriental Bank of Commerce and merged entity of Oriental Bank of Commerce

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	IETEpre	62.902	4	6.0192	3.01
	IETEpost	72.287	4	5.849	2.924
Pair 2	PSApre	38.4225	4	0.2997	0.1498
	PSApost	32.835	4	1.742	0.871
Pair 3	DPEpre	218.625	4	33.576	16.788
	DPEpost	491.765	4	142.663	71.331
Pair 4	APEpre	111.655	4	26.360	13.180
	APEpost	340.012	4	103.331	51.665
Pair 5	IITIpre	86.470	4	3.717	1.858
	IITIpost	89.662	4	1.496	0.748
Pair 6	NIITIpre	13.530	4	3.717	1.858
	NIITIpost	10.337	4	1.496	0.748
Pair 7	EETEpre	10.365	4	0.965	0.482
	IETEpost	72.287	4	5.849	2.924
Pair 8	IIAWFpre	3.210	4	0.874	0.437
	IIAWFpost	1.765	4	0.262	0.131
Pair 9	STApre	3.037	4	0.680	0.340
	STApost	2.157	4	0.439	0.219
Pair 10	NNPANApre	2.222	4	1.405	0.702
	NNPANApost	0.655	4	0.235	0.117
Pair 11	CARpre	12.827	4	1.691	0.845
	CARpost	12.272	4	0.251	0.125
Pair 12	ROApre	1.175	4	0.414	0.207
	ROApost	1.125	4	0.222	0.111

Source: Authors' own estimate

Table-6.17: Paired samples t test of Global Trust Bank and Oriental Bank of Commerce and merged entity of Oriental Bank of Commerce

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	IETEpre - IETEpost	-9.385	11.329	5.665	-27.412	8.642	-1.657	3	.196
Pair 2	PSApre - PSApost	5.588	1.452	.726	3.278	7.897	7.698	3	.005
Pair 3	DPEpre - DPEpost	-273.14	109.469	54.734	-447.33	-98.951	-4.990	3	.015
Pair 4	APEpre - APEpost	-228.36	77.117	38.559	-351.07	-105.646	-5.922	3	.010
Pair 5	IITIpre – IITIpost	-3.192	4.453	2.227	-10.278	3.893	-1.434	3	.247
Pair 6	NIITIpre – NIITIpost	3.193	4.453	2.227	-3.893	10.278	1.434	3	.247
Pair 7	EETEpre – IETEpost	-61.92	6.004	3.002	-71.477	-52.368	-20.63	3	.000
Pair 8	IIAWFpre – IIAWFpost	1.445	1.103	.551	-.310	3.200	2.621	3	.079
Pair 9	STApre - STApost	.880	1.118	.559	-.899	2.659	1.574	3	.213
Pair 10	NNPANApre – NNPANApost	1.56	1.569	.784	-.929	4.064	1.998	3	.140
Pair 11	CARpre - CARpost	.555	1.940	.970	-2.532	3.642	.572	3	.607
Pair 12	ROApre - ROApost	.050	.636	.318	-.962	1.062	.157	3	.885

Source: Author's own estimate

In case of pre and post-merger Interest expenses as percentage of total expenses ratio (IETEpre - IETEpost), since the calculated value of t -1.657) for N=4 (as in Table 6.17) is lower than the table value (3.18245 at $t_{0.025}$,df =3), we accept the null hypothesis. The results are not noteworthy at 0.05 level of significance (p=0.196). Thus, the outcomes of the above table show immaterial variance between pre and post-merger Interest expenses as percentage of total expenses, because the p-value is higher than 0.05. Therefore, after merger and acquisition taken place, there is no noteworthy variance in the achievement of the said OBC (Oriental Bank of Commerce) in India as H_0 is accepted. This shows that

the average (means) of the pre and post-merger Interest expenses as percentage of total expenses are not altered meaningfully.

Following the pattern of Interest expenses as percentage of total expenses (IETEpre-IETEpost), present study shows similar trend that there is no noteworthy variance of pre and post-merger interest income as a % of total income (IITIpre & IITIpost), pre and post-merger non-interest income as percentage of total income ratio (NIITIpre & NIITIpost), pre and post-merger return on total asset (ROApre& ROApost), pre and post-merger capital adequacy ratio (CARpre & CARpost), pre and post-merger Net NPA as percentage to net advances (NNPANApre & NNPANApost), pre and post-merger interest income as percentageto average working funds ratio (IIAWFpre & IIAWFpost), pre and post- merger Spread as percentage to total assets (STApre – STApost) performance.

Even some ratios individually depicts that there is slight increase or decrease in the economic achievement of banks, but paired samples 't' test shows in this study that there is no noteworthy effect . From Table 6.17, we observe that in pair 1, the post-merger Interest expenses as percentage of total expenses mean is higher than that of the pre-merger period. We, therefore, determine that it is possible to have been because of some logical and careful cause. If all other confuses are removed, this logical cause must have been in the event of merger.

Pre and post-merger Priority Sector Advance ratio (PSApre & PSApost), since the calculated value of t =7.698) for N=4 (as in pair 2 in table-6.17) is higher than the table value (3.18245 at $t_{0.025}$,df=3), we do not accept the null hypothesis. Therefore, the outcomes are noteworthy at 0.05 level of significance (p=0.005). Therefore, the outcomes of the said table show noteworthy variance between pre and post-merger priority sector

advance, because the p-value is not more than 0.05. Therefore, after M&As (merger and acquisitions) with Global Trust Bank, there is noteworthy variance in the achievement of the said OBC (Oriental Bank of Commerce) in India in terms of priority sector advance ratio as H_0 is rejected. This shows that the average (means) of pre and post-merger priority sector advance ratio values are different significantly.

Likewise, pre and post-merger Deposit per employee (DPEpre & DPEpost), Advance per employee (APEpre & APEpost), pre and post-merger establishment expenses as a % of total expenses ratio (EETEpre & EETEpost), since the calculated value of t (=-4.990, -5.922 and -20.63 respectively) for N=4 (as in pair 3 ,4 and 7 in table-6.17) is higher than the table value (3.18245 at $t_{0.025}$,df =3), we accept alternative hypothesis or reject the null hypothesis. The outcomes are significant at 0.05 level of significance (p=0.015 0.010 and 0.000 respectively).

Hence, the outcomes of the above table 6.17 display noteworthy variance between pre and post-merger (PSApre-PSApost), (DPEpre & DPEpost) (APEpre& APEpost) and (EETEpre & EETEpost). This shows that the average (means) of the pre and post (PSApre-PSApost), (DPEpre & DPEpost), (APEpre& APEpost) and (EETEpre & EETEpost) ratio are different significantly.

6. B.3: IDBI Bank & United Western Bank:

The outcome of the normality displays that the noteworthy value of CDR, IDR, DPE, OOETE and CAR of the IDBI during entire sample period 2000-01 to 2014-15 (both pre-merger and post-merger) is less than 0.05, in other word that normalcy presumption has been violated. Since the significant values of the remaining variables (in table-6.18) is

greater than 0.05, we accept the null hypothesis and infer that these data do not violate the normality assumption. The same result is subsequently confirmed by the Shapiro-Wilk test.

Table 6.18: Kolmogorov-Smirnov test and Shapiro-Wilk test of normality of merged entity of IDBI

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
CDR	**.311**	**11**	**.004**	**.678**	**11**	**.000**
IDR	**.370**	**11**	**.000**	**.603**	**11**	**.000**
PSA	.125	11	.200*	.958	11	.740
DPE	**.254**	**11**	**.046**	**.875**	**11**	**.039**
APE	.204	11	.200*	.918	11	.300
IITI	.163	11	.200*	.912	11	.255
NIITI	.163	11	.200*	.912	11	.255
IETE	.186	11	.200*	.900	11	.184
EETE	.138	11	.200*	.966	11	.838
OOETE	**.322**	**11**	**.002**	**.722**	**11**	**.001**
STA	.245	11	.063	.873	11	.085
IIAWF	.170	11	.200*	.860	11	.058
NIIAWF	.167	11	.200*	.954	11	.701
OPAWF	.155	11	.200*	.930	11	.412
ROA	.212	11	.178	.934	11	.447
NNPANA	.186	11	.200*	.855	11	.050
CAR	**.344**	**11**	**.001**	**.692**	**11**	**.000**
a. Lilliefors Significance Correction						
*. This is a lower bound of the true significance.						

Source: Author's own estimate

Table 6.19 displays that the adverse (negative) mean rank is greater than the affirmative (positive) mean rank in case of Credit-Deposit ratio (CDR ratio). This suggests that the Credit-Deposit (CDR ratio) position in post-merger period is likely to be lesser than the pre-merger period. Therefore, we deduce that the sensation of merger has

turned down the CDR position of the companies. Similar events happened in case of IDR, OOETE and CAR ratio indicating that phenomenon of merger had turned down the above-mentioned financial parameters of the company.

On other side, table 6.19 shows that the adverse (negative) mean rank is less than the affirmative (positive) mean rank in case of deposit per employee (DPE). This suggests that the Deposit per Employee measure (DPE) in post-merger period is likely to be greater than the pre-merger period. Therefore, we deduce that the sensation of merger has highlighted this performance indicator.

Table 6.19: Wilcoxon Signed Ranks Test of merged entity of IDBI

Ranks				
		N	Mean Rank	Sum of Ranks
CDRpost – CDRpre	Negative Ranks	2[a]	1.50	3.00
	Positive Ranks	0[b]	.00	.00
	Ties	0[c]		
	Total	2		
IDRpost – IDRpre	Negative Ranks	2[d]	1.50	3.00
	Positive Ranks	0[e]	.00	.00
	Ties	0[f]		
	Total	2		
DPEpost - DPEpre	Negative Ranks	0[g]	.00	.00
	Positive Ranks	2[h]	1.50	3.00
	Ties	0[i]		
	Total	2		
OOETEpost – OOETEpre	Negative Ranks	2[j]	1.50	3.00
	Positive Ranks	0[k]	.00	.00
	Ties	0[l]		
	Total	2		
CARpost – CARpre	Negative Ranks	2[m]	1.50	3.00
	Positive Ranks	0[n]	.00	.00
	Ties	0[o]		
	Total	2		

Source: Author's own estimate

Table 6.20: Wilcoxon Signed Ranks Test of merged entity of IDBI

Test Statistics[c]					
	CDRpost – CDRpre	IDRpost - IDRpre	DPEpost - DPEpre	OOETEpost – OOETEpre	CARpost – CARpre
Z	-1.342[a]	-1.342[a]	-1.342[b]	-1.342[a]	-1.342[a]
Asymp. Sig. (2-tailed)	.180	.180	.180	.180	.180
a. Based on positive ranks.					
b. Based on negative ranks.					
c. Wilcoxon Signed Ranks Test					

Source: Author's own estimate

By applying the Wilcoxon signed rank test, we perceive that for all the 5 ratios, the significance value is more than 0.05 (0.18), therefore, the null hypothesis is not rejected which shows that there is no noteworthy variance between the before and after the merger performance on the basis of CDR, IDR, DPE, OOETE and CAR of the IDBI bank. However, if we compare the individual ratio, we have established that the post-merger CDR, IDR, OOETE and CAR performance for all has been despairing (declining trend) than before the merger period and DPE has happened to increase in post-merger period.

Table 6.21: Paired samples Statistics of IDBI and United Western Bank and merged entity of IDBI

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PSApre	11.27	2	2.489	1.76
	PSApost	20.255	2	2.439	1.72
Pair 2	APEpre	1.08106	2	111.086	78.54
	APEpost	1.0065	2	10.691	7.55
Pair 3	IITIpre	80.84	2	.0848	.060
	IITIpost	85.86	2	3.959	2.799
Pair 4	NIITIpre	19.16	2	.0848	.0599
	NIITIpost	14.14	2	3.959	2.80
Pair 5	IETEpre	82.46	2	.6788	.4799
	IETEpost	83.615	2	1.5768	1.115
Pair 6	EETEpre	5.255	2	.04949	.035
	EETEpost	4.495	2	.2616	.185
Pair 7	STApre	.330	2	.1414	.10
	STApost	.610	2	.1555	.11
Pair 8	IIAWFpre	4.93	2	2.234	1.58
	IIAWFpost	7.70	2	.7353	.52
Pair 9	NIIAWFpre	1.29	2	.3676	.26
	NIIAWFpost	1.255	2	.2899	.205
Pair 10	OPAWFpre	.715	2	.3606	.255
	OPAWFpost	1.085	2	.1484	.105
Pair 11	ROApre	.5050	2	.17678	.12500
	ROApost	.645	2	.03535	.025
Pair 12	NNPANApre	1.47	2	.56569	.40
	NNPANApost	1.12	2	.28284	.20

Source: Authors' own estimate

Table-6.22: Paired samples t test of IDBI and United Western Bank and merged entity of IDBI

Pair	Variables (Pre-Post)	Paired Differences					T	Df	Sig. (2 tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
1	PSApre – PSApost	-8.98	0.0494	0.035	-9.42971	-8.5402	-256.7	1	.002
2	APEpre – APEpost	74.55	100.395	70.99	-827.45347	976.573	1.05	1	.484
3	IITIpre – IITIpost	-5.01	4.044	2.86	-41.35974	31.3197	-1.755	1	.330
4	NIITIpre – NIITIpost	5.02	4.044	2.86	-31.31974	41.3597	1.755	1	.330
5	IETEpre – IETEpost	-1.15	2.255	1.594	-21.42139	19.1113	-.724	1	.601
6	EETEpre – EETEpost	0.76	0.3111	.220	-2.03536	3.5553	3.455	1	.179
7	STApre – STApost	-0.28	0.0141	0.010	-.407062	-.15293	-28.0	1	.023
8	IIAWFpre – IIAWFpost	-2.77	1.499	1.059	-16.23857	10.698	-2.613	1	.233
9	NIIAWFpre – NIIAWFpost	0.035	0.657	0.465	-5.87338	5.9433	.075	1	.952
10	OPAWFpre – OPAWFpost	-0.37	0.509	0.36	-4.94423	4.2042	-1.028	1	.491
11	ROApre – ROApost	-0.14	0.212	0.15	-2.04593	1.7659	-.933	1	.522
12	NNPANApre – NNPANApost	0.35	0.282	0.20	-2.19124	2.8912	1.750	1	.330

Source: Author's own estimate

Before and after the merger, Priority sector advance as % to total advance ratio (PSA pre & PSA post), since the calculated value of t (-256.7) for N=2 (as in Table 6.22) is upper than the table value (12.7062 at $t_{0.025}$,df =1), we reject the null hypothesis. The

outcomes are noteworthy at 0.05 level of significance (p=.002). Therefore, the outcomes of the above table reveal noteworthy variance between pre and post-merger PSA as percentage to total advance ratio because the p-value is lesser than 0.05. Therefore, after M&As took place, there is noteworthy variance in the performance of the said IDBI bank in India as H_0 is rejected. This shows that the average or means of before and after the merger Priority sector advance as % to total advance ratio values are different significantly.

Similarly, for before and after merger spread as a % to total assets (STA pre and STA post), since the calculated value of t (-28.0) for N=2 (as in Table 6.22) is upper than the table value (12.7062 at $t_{0.025}$, df =1), we reject the null hypothesis. The outcomes are noteworthy at 0.05 level of significance (p=.023). Therefore, the outcomes of the above table show noteworthy variance between pre and post-merger spread as a % to total assets because the p-value is lesser than 0.05. Therefore, after M&As took place, there is noteworthy variance in the performance of the said IDBI bank in India as H_0 is rejected. This shows that the average or means of the before and after merger spread as a % to total assets ratio values are different significantly. Even some ratios individually depicts that there is slight increase or decrease in the economic performance of banks, but paired samples 't' test shows in this study that there is no noteworthy impact.

Therefore, on opposite, for before and after merger (APEpre & APEpost), (IITIpre & IITI post), (NIITI pre& NIITIpost), (IETEpre & IETEpost), (EETEpre& EETEpost), (IIAWFpre & IIAWFpost), (NIIAWFpre & NIIAWFpost), (OPAWFpre & OPAWFpost), (ROApre & ROApost) and (NNPANApre & NNPANApost), since the calculated value of t (=1.05, -1.755, 1.755, -.724, 3.455, -2.613, .075, -1.028, -.933, 1.750 respectively)

for N=2 (as in pair 2,3,4,5,6, 8,9,10,11 and 12 in table-6.22) is lesser than the table value 12.7062 at $t_{0.025}$,df =1), we reject the null hypothesis. The results are not important at 0.05 level of significance. Therefore, the outcomes of the above table show that there are no noteworthy variance between Pre and Post-merger (APEpre & APEpost), (IITIpre& IITI post), (NIITIpre & NIITIpost), (IETEpre & IETEpost), (EETEpre & EETEpost), (IIAWFpre& IIAWFpost), (NIIAWFpre& NIIAWFpost), (OPAWFpre &OPAWFpost), (ROApre & ROApost), (NNPANApre & NNPANApost). This shows that the average or means of the pre and post (APEpre & APEpost), (IITIpre& IITI post), (NIITIpre& NIITIpost), (IETEpre& IETEpost), (EETEpre & EETEpost), (IIAWFpre& IIAWFpost), (NIIAWFpre& NIIAWFpost), (OPAWFpre &OPAWFpost), (ROApre&ROApost), (NNPANApre &NNPANApost), ratio values are not different significantly.

6. B.4: HDFC Bank & Centurion Bank of Punjab:

Table 6.23 shows that the outcomes of the normality displays that the noteworthy value of PSA, STA, NIIAWF and CAR of the HDFC bank during entire sample period 2000-01 to 2014-15 (both pre-merger and post-merger) is less than 0.05, indicating that normality presumption has been violated. Since the significant values of the remaining variables is greater than 0.05, we do not reject the null hypothesis and determine that these data do not violate the normality assumption. The same result is also subsequently confirmed by the Shapiro-Wilk test.

Table 6.23: Kolmogorov-Smirnov test and Shapiro-Wilk test of normality of merged HDFC bank

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
CDR	.160	15	.200*	.895	15	.080
IDR	.162	15	.200*	.918	15	.177
PSA	**.225**	**15**	**.040**	**.869**	**15**	**.033**
DPE	.109	15	.200*	.963	15	.748
APE	.149	15	.200*	.898	15	.090
IITI	.147	15	.200*	.948	15	.489
NIITI	.147	15	.200*	.948	15	.489
IETE	.176	15	.200*	.936	15	.339
EETE	.125	15	.200*	.948	15	.501
OOETE	.180	15	.200*	.917	15	.174
STA	**.229**	**15**	**.033**	**.868**	**15**	**.032**
IIAWF	.172	15	.200*	.927	15	.246
NIIAWF	**.285**	**15**	**.002**	**.810**	**15**	**.005**
OPAWF	.131	15	.200*	.970	15	.859
ROA	.177	15	.200*	.899	15	.093
NNPANA	.154	15	.200*	.930	15	.276
CAR	**.258**	**15**	**.008**	**.742**	**15**	**.001**

a. Lilliefors Significance Correction
*. This is a lower bound of the true significance.

Source: Author's own estimate

Table 6.24 shows that the adverse (negative) mean rank is less than the affirmative (positive) mean rank of PSA, STA and NIIAWF of merged HDFC bank. This advocates that the PSA as percentage to total advance, Spread as a % to total assets (STA), Non-interest Income as % to average working funds (NIIAWF) in post-merger period are likely upper than that in the pre-merger period. Therefore, we deduce that the sensation of merger has highlighted these performance indicators in merged HDFC bank.

Table 6.24 shows that the adverse (negative) mean rank is higher than the affirmative (positive) mean rank in case of CAR. This advocates that the CAR position in post-merger period is likely lesser than the pre-merger period. Therefore, we deduce that the sensation of merger has turned down the CAR position of the banks.

Table 6.24: Wilcoxon Signed Ranks Test of merged entity of HDFC bank

Ranks				
		N	Mean Rank	Sum of Ranks
PSApost – PSApre	Negative Ranks	1a	1.00	1.00
	Positive Ranks	5b	4.00	20.00
	Ties	0c		
	Total	6		
STApost – STApre	Negative Ranks	0d	.00	.00
	Positive Ranks	6e	3.50	21.00
	Ties	0f		
	Total	6		
NIIAWFpost – NIIAWFpre	Negative Ranks	0g	1.50	3.00
	Positive Ranks	4h	4.50	18.00
	Ties	0i		
	Total	6		
CARpost – CARpre	Negative Ranks	1j	6.00	6.00
	Positive Ranks	5k	3.00	15.00
	Ties	0l		
	Total	6		
a. PSApost < PSApre				
b. PSApost > PSApre				
c. PSApost = PSApre				
d. STApost < STApre				
e. STApost > STApre				
f. STApost = STApre				
g. NIIAWFpost < NIIAWFpre				
h. NIIAWFpost > NIIAWFpre				
i. NIIAWFpost = NIIAWFpre				
j. CARpost < CARpre				
k. CARpost > CARpre				

Source: Author's own estimate

Table 6.25: Wilcoxon Signed Ranks Test of merged HDFC bank

Test Statistics[c]				
	PSApost - PSApre	STApost – STApre	NIIAWFpost - NIIAWFpre	CARpost - CARpre
Z	-1.992[a]	-2.201[a]	-1.572[a]	-.943[a]
Asymp. Sig. (2-tailed)	.046	.028	.116	.345
a. Based on negative ranks.				
b. Wilcoxon Signed Ranks Test				

Source: Author's own estimate

By applying the Wilcoxon signed rank test (Table 6.25), we observe that for two ratios, PSA as percentage to total advance, Spread as a % to Assets (STA), the significance level is less than 0.05 (0.046 and 0.028 respectively), therefore, the null hypothesis is rejected which shows that there is noteworthy variance between before and after the merger performance on the basis of PSA and STA of HDFC Bank. Likewise, if we compare the individual ratio, we have observed that the post-merger PSA and STA performance for all the years has been better than the pre-merger period.

But for Non-interest Income as % to average working funds (NIIAWF), CAR , the significance level is upper than 0.05 (0.116 and 0.345 respectively), therefore, the null hypothesis is accepted which shows that there is no noteworthy variance between before and after the merger performance on the basis of NIIAWF and CAR of HDFC bank. But, if we compare the individual ratio, we observe that the post-merger NIIAWF performance for all the years has been declined than the pre-merger period and better outcomes have been observed in post-merger period in case of CAR ratio.

Table 6.26: Paired samples Statistics of Centurion Bank of Punjab and HDFC and merged HDFC bank

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	CDRpre	66.212	4	3.891	1.945
	CDRpost	78.000	4	2.561	1.280
Pair 2	IDRpre	49.472	4	3.588	1.794
	IDRpost	36.550	4	2.510	1.255
Pair 3	DPEpre	340.489	4	60.702	30.351
	DPEpost	374.247	4	42.556	21.278
Pair 4	APEpre	226.252	4	47.671	23.835
	APEpost	292.652	4	42.192	21.096
Pair 5	IITIpre	81.387	4	1.104	0.552
	IITIpost	82.650	4	1.379	0.689
Pair 6	NIITIpre	18.612	4	1.104	0.552
	NIITIpost	17.350	4	1.379	0.689
Pair 7	IETEpre	43.505	4	2.155	1.077
	IETEpost	50.340	4	5.089	2.544
Pair 8	EETEpre	10.595	4	1.290	0.645
	IETEpost	50.340	4	5.089	2.544
Pair 9	OOETEpre	24.440	4	1.707	0.853
	OOETEpost	20.315	4	0.961	0.480
Pair 10	IIAWFpre	7.527	4	0.700	0.350
	IIAWFpost	8.927	4	0.863	0.431
Pair 11	OPAWFpre	3.057	4	0.089	0.044
	OPAWFpost	3.190	4	0.120	0.060
Pair 12	ROApre	1.375	4	0.068	0.034
	ROApost	1.695	4	0.171	0.085
Pair 13	NNPANApre	0.395	4	0.104	0.052
	NNPANApost	0.2200	4	0.060	0.038

Source: Author's own estimate

Table-6.27: Paired samples t test of Centurion Bank of Punjab and HDFC and merged HDFC bank

Paired Samples Test									
		Paired Differences					T	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	CDRpre – CDRpost	-11.788	5.557	2.779	-20.630	-2.945	-4.242	3	0.024
Pair 2	IDRpre – IDRpost	12.923	5.925	2.963	3.494	22.351	4.362	3	0.022
Pair 3	DPEpre – DPEpost	-33.758	101.112	50.556	-194.649	127.134	-.668	3	0.552
Pair 4	APEpre – APEpost	-66.400	89.820	44.910	-209.324	76.524	-1.479	3	0.236
Pair 5	IITIpre – IITIpost	-1.263	1.961	.981	-4.383	1.858	-1.287	3	0.288
Pair 6	NIITIpre - NIITIpost	1.261	1.960	.980	-1.858	4.383	1.285	3	0.2867
Pair 7	IETEpre – IETEpost	-6.835	3.222	1.611	-11.962	-1.708	-4.242	3	0.024
Pair 8	EETEpre – IETEpost	-39.745	4.023	2.012	-46.147	-33.343	-19.758	3	0.000
Pair 9	OOETEpre - OOETEpost	4.125	1.613	.807	1.558	6.692	5.113	3	0.014
Pair 10	IIAWFpre - IIAWFpost	-1.400	.319	.160	-1.908	-.892	-8.764	3	0.003
Pair 11	OPAWFpre - OPAWFpost	-.133	.161	.081	-.389	.124	-1.645	3	0.199
Pair 12	ROApre - ROApost	-.320	.234	.117	-.692	.052	-2.737	3	0.072
Pair 13	NNPANApre - NNPANApost	.17500	.16361	.08180	-.08533	.43533	2.139	3	0.122

Source: Author's own estimate

Before and after the merger credit-deposit ratio (CDR Pre & CDR post), since the calculated value of t (-4.242) for N=4 (as in Table 6.27) is higher than the table value (3.182 at $t_{0.025}$, df =3), we reject the null hypothesis. The outcomes are noteworthy at 0.05 level of significance (p=.024). Therefore, the outcomes of the above table show noteworthy variance between before and after the credit- deposit ratio, because the p-value is lesser than 0.05. Therefore, after the M&As took place, there is noteworthy

variance in the performance of the said HDFC bank in India as H_0 is rejected. This shows that the average or means of before and after the merger credit- deposit ratio values are different significantly.

Even some ratios individually depicts that there is slight increase or decrease in the economic performance of banks, but paired samples 't' test shows that in this study, there is no noteworthy impact. From Table 6.27, we observe that in pair 1, the post-merger credit- deposit ratio mean is upper than that of the pre-merger period. We, therefore, observe that it is possible to have been because of some logical and deliberate cause. If all other confounds are removed, this logical cause must have been in the event of merger.

Before and after the merger, Investment-Deposit ratio (IDRpre & IDRpost), since the calculated value of t =4.362) for N=4 (as in pair 2 in table-6.27) is higher than the table value (3.182 at $t_{0.025}$,df =3), we reject the null hypothesis. The outcomes are noteworthy at 0.05 level of significance (p=.022). Therefore, the results of the above table 6.27 shows significant difference between pre and post-merger Investment-Deposit ratio, because the p-value is smaller than 0.05. Therefore, after M&As, there is noteworthy variance in the performance of the said HDFC bank in India in terms of Investment-Deposit ratio as H_0 is rejected. This shows that the average or means of the before and after merger priority sector advance ratio values are different significantly.

Following the pattern of credit-deposit ratio (CDR pre & CDR post) and Investment-Deposit ratio (IDRpre & IDRpost), present study shows similar trend of before and after merger Interest expenses as % total expenses (IETEpre-IETEpost) pre and post-merger Other operating expenses as % total expenses (OOETEpre & OOETEpost), pre and post-

merger establishment expenses as percentage of total expenses (EETEpre & EETEpost) and pre and post-merger Interest Income as % Average Working Fund (IIAWFpre-IIAWFpost).

On the contrary, for before and after merger (DPEpre & DPEpost), (APEpre & APEpost), (IITIpre – IITIpost), (NIITIpre – NIITIpost), (OPAWFpre - OPAWFpost), (ROApre-ROApost) and (NNPANApre - NNPANApost), the calculated value of t (-0.668, -1.479, -1.287, 1.285, -1.645, -2.737 and 2.139 respectively) for N=4 (as in pair 3,4,5,6,11, 12 and 13 in table-6.26) are lesser than the table value 3.182 at $t_{0.025}$,df =3), we accept the null hypothesis. The outcomes are not noteworthy at 0.05 level of significance (p= 0.552, 0.236, 0.288, 0.286, 0.199, 0.072 and 0.122) Thus, the outcomes of the above table show immaterial variance between Pre and Post-merger (DPEpre & DPEpost), (APEpre & APEpost), (IITIpre – IITIpost), (NIITIpre – NIITIpost), (OPAWFpre - OPAWFpost), (ROApre-ROApost) and (NNPANApre - NNPANApost). This shows that the average or means of before and after the merger (DPEpre & DPEpost), (APEpre & APEpost), (IITIpre – IITIpost), (NIITIpre – NIITIpost), (OPAWFpre - OPAWFpost), (ROApre- ROApost) and (NNPANApre - NNPANApost) values are not changed significantly.

6. B.5: ICICI Bank & Bank of Rajasthan:

The outcomes of the normality test from table-6.28 displays that the noteworthy value of CDR, IDR, OOETE, NNPANA and CAR of the ICICI bank during entire sample period 2000-01 to 2014-15 (both pre-merger and post-merger) is less than 0.05, indicating that normality presumption has been violated. Since the significant values of the remaining variables (in table-6.28) is greater than 0.05, we do not reject the null hypothesis and

observe that these data do not violate the normality assumption. The same result is also confirmed by the Shapiro-Wilk test.

Table 6.28: Kolmogorov-Smirnov test and Shapiro-Wilk test of normality of merged entity of ICICI bank

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
CDR	**.229**	**15**	**.033**	**.832**	**15**	**.010**
IDR	**.258**	**15**	**.008**	**.769**	**15**	**.001**
PSA	.139	15	.200*	.886	15	.058
DPE	.183	15	.187	.902	15	.103
APE	.240	15	.072	.896	15	.084
IITI	.117	15	.200*	.961	15	.717
NIITI	.117	15	.200*	.961	15	.717
IETE	.122	15	.200*	.967	15	.818
EETE	.209	15	.078	.904	15	.108
OOETE	**.252**	**15**	**.011**	**.871**	**15**	**.035**
STA	.127	15	.200*	.966	15	.793
IIAWF	.158	15	.200*	.927	15	.243
NIIAWF	.129	15	.200*	.935	15	.321
OPAWF	.204	15	.092	.885	15	.057
ROA	.137	15	.200*	.973	15	.899
NNPANA	**.283**	**15**	**.002**	**.742**	**15**	**.001**
CAR	**.196**	**15**	**.024**	**.847**	**15**	**.016**
a. Lilliefors Significance Correction						
*. This is a lower bound of the true significance.						

Source: Author's own estimate

Table 6.29 displays that the adverse (negative) mean rank is less than the affirmative (positive) mean rank in case of CDR and CAR of merged ICICI bank. This advocates that the Credit –Deposit Ratio measure (CDR), Capital-Adequacy ratio (CAR) in post-merger period are likely upper than that in the pre-merger period. Therefore, we observe that the sensation of merger has highlighted these performance indicateres.

Table 6.29 also displays that the adverse (negative) mean rank is upper than the affirmative (positive) mean rank in case of Investment –Deposit ratio (IDR), Other operating expenses to total expenses ratio (OOETE), Net NPA as % to net advances (NNPANA). This advocates that Investment–Deposit ratio (IDR), Other Operating Expenses to total expenses ratio (OOETE), Net NPA as % to net advances (NNPANA) positions in post-merger period are likely lesser than the pre-merger period. Therefore, we observe that the sensation of merger has turned down the Investment–Deposit ratio (IDR), other operating expenses to total expenses ratio (OOETE), Net NPA as % to net advances (NNPANA) position of the merged ICICI bank. The turning down OOERE and NNPANA has indicated the positive impact in Merged ICICI Bank.

Table 6.29: Wilcoxon Signed Ranks Test of merged ICICI bank

Ranks				
		N	Mean Rank	Sum of Ranks
CDR post – CDR pre	Negative Ranks	2[a]	2.00	4.00
	Positive Ranks	2[b]	3.00	6.00
	Ties	0[c]		
	Total	4		
IDR post – IDR pre	Negative Ranks	3[d]	2.67	8.00
	Positive Ranks	1[e]	2.00	2.00
	Ties	0[f]		
	Total	4		
CAR post – CAR pre	Negative Ranks	0[g]	.00	.00
	Positive Ranks	4[h]	2.50	10.00
	Ties	0[i]		
	Total	4		
OOETE post – OOETE pre	Negative Ranks	4[j]	2.50	10.00
	Positive Ranks	0[k]	.00	.00
	Ties	0[l]		
	Total	4		
NNPANA post – NNPANA pre	Negative Ranks	4[m]	2.50	10.00
	Positive Ranks	0[n]	.00	.00
	Ties	0[o]		
	Total	4		

Source: Author's own estimate

By applying the Wilcoxon signed rank test (Table 6.30), we see that for all the 5 ratios, the noteworthy value is more than 0.05, therefore, the null hypothesis is accepted which shows that there is no noteworthy variance between before and after the merger performance on the basis of CDR, IDR, CAR, OOETE, NNPANA of the ICICI bank. But, if we compare the individual ratio, we observe that the post-merger CDR, IDR, CAR, OOETE performance for all the two years has been better than the pre-merger period and reverse has happened in case of NNPANA ratio.

Table 6.30: Wilcoxon Test Ranks of merged entity of ICICI bank

Test Statistics[c]					
	CDRpost – CDRpre	IDRpost - IDRpre	CARpost - CARpre	OOETEpost - OOETEpre	NNPANApost - NNPANApre
Z	-.365[a]	-1.095[b]	-1.826[a]	-1.826[b]	-1.826[b]
Asymp. Sig. (2-tailed)	.715	.273	.068	.068	.068
a. Based on negative ranks.					
b. Based on positive ranks.					
c. Wilcoxon Signed Ranks Test					

Source: Author's own estimate

Table 6.31: Paired samples Statistics of ICICI bank and Bank of Rajasthan and merged ICICI bank

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PSApre	28.227	4	1.357	0.678
	PSApost	20.675	4	1.904	0.952
Pair 2	DPEpre	624.175	4	50.947	25.473
	DPEpost	906.672	4	251.25	125.626
Pair 3	IITIpre	77.902	4	1.792	0.896
	IITIpost	81.377	4	1.127	0.563
Pair 4	NIITIpre	22.097	4	1.792	0.896
	NIITIpost	18.622	4	1.127	0.563
Pair 5	IETEpre	63.752	4	2.571	1.285
	IETEpost	63.29	4	2.854	1.427
Pair 6	EETEpre	6.092	4	0.424	0.212
	EETEpost	9.695	4	0.34	0.17
Pair 7	STApre	1.977	4	0.29	0.145
	STApost	2.642	4	0.29	0.145
Pair 8	IIAWFpre	7.82	4	0.489	0.244
	IIAWFpost	8.037	4	0.185	0.092
Pair 9	NIIAWFpre	2.215	4	0.213	0.106
	NIIAWFpost	1.84	4	0.15	0.075
Pair 10	OPAWFpre	2.31	4	0.297	0.148
	OPAWFpost	2.85	4	0.382	0.191
Pair 11	ROApre	1.075	4	0.059	0.029
	ROApost	1.71	4	0.154	0.077
Pair 12	APEpre	571.835	4	49.689	24.844
	APEpost	917.455	4	232.37	116.185

Source: Authors' own estimate

Table-6.31A: Paired Samples t Test of ICICI bank and Bank of Rajasthan and merged ICICI bank

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	**PSApre - PSApost**	**7.553**	**2.579**	**1.290**	**3.448**	**11.657**	**5.856**	**3**	**.010**
Pair 2	DPEpre - DPEpost	-282.498	224.536	112.268	-639.785	74.790	-2.516	3	.086
Pair 3	IITIpre - IITIpost	-3.475	2.337	1.168	-7.193	.243	-2.975	3	.059
Pair 4	NIITIpre - NIITIpost	3.470	2.331	1.168	-.243	7.196	2.957	3	.054
Pair 5	IETEpre - IETEpost	.462	2.385	1.192	-3.333	4.258	.388	3	.724
Pair 6	**EETEpre – EETEpost**	**-3.603**	**.485**	**.242**	**-4.374**	**-2.831**	**-14.868**	**3**	**.001**
Pair 7	**STApre - STApost**	**-.665**	**.087**	**.043**	**-.803**	**-.527**	**-15.358**	**3**	**.001**
Pair 8	IIAWFpre - IIAWFpost	-.217	.531	.266	-1.063	.628	-.819	3	.473
Pair 9	NIIAWFpre - NIIAWFpost	.375	.347	.173	-.177	.927	2.164	3	.119
Pair 10	**OPAWFpre - OPAWFpost**	**-.540**	**.133**	**.066**	**-.751**	**-.329**	**-8.125**	**3**	**.004**
Pair 11	**ROApre - ROApost**	**-.633**	**.174**	**.087**	**-.909**	**-.356**	**-7.268**	**3**	**.005**
Pair 12	**APEpre - APEpost**	**-345.620**	**199.002**	**99.501**	**-662.276**	**-28.964**	**-3.474**	**3**	**.040**

Source: Author's own estimate

Before and after the merger Priority Sector Advance ratio (PSA pre & PSA post), since the calculated value of t (5.856) for N=4 (as in Table 6.31A) is more than the table value (3.182 at $t_{0.025}$, df =3), we reject the null hypothesis. The outcomes are noteworthy at 0.05 level of significance (p=0.01). Thus, the outcomes of the above table 6.31A show noteworthy variance between before and after M&As Priority Sector Advance ratio, because the p-value is lower than 0.05. Therefore, after merger and acquisition took place, there is noteworthy variance in the performance of the said ICICI bank in India as H_1 is accepted. This shows that the average or means of the pre and post-merger Priority

Sector Advance ratio values are different significantly. Following the same trend of Priority Sector Advance ratio, this finding holds good in case of EETEpre – EETEpost, STApre – STApost, OPAWFpre – OPAWFpost, ROApre – ROApost, APEpre – APEpost, which specifies that there is noteworthy variance between before and after merger performance of the said merger.

On the contrary, for before and after merger (DPEpre & DPEpost), (IITIpre – IITIpost), (NIITIpre – NIITIpost), (IETEpre – IETEpost), (IIAWFpre – IIAWFpost), (NIIAWFpre – NIIAWFpost), the calculated value of t (-2.516, -2.975, 2.957, .388, -.819and 2.164 respectively) for N=4 (as in pair 2,3, 4,5,8 and 9 in Table-6.31A) is lesser than the table value 3.182 at $t_{0.025}$,df =3), we accept the null hypothesis. The results are insignificant at 0.05 level of significance (p= 0.086, 0.059, 0.054, 0.724, 0.473 and 0.119). Therefore, the outcomes of the above table display that there are no noteworthy variance between before and after merger (DPEpre & DPEpost) (IITIpre – IITIpost), (NIITIpre – NIITIpost), (IETEpre – IETEpost), (IIAWFpre – IIAWFpost), (NIIAWFpre – NIIAWFpost). This shows that the average or means of before and after (PSApre & PSApost), (EETEpre & EETEpost), (STApre & STApost), (OPAWFpre & OPAWFpost), (APEpre & APEpost) and (ROApre &ROApost) ratio values have significant difference.

6. C: Consolidated Analysis of All Selected 5 Banks at a glance:

Table 6.32 shows the statistics analysis of all 5 merged Banks. By applying Kolmogorov-Smirnov Test (the results is also confirmed by Shapiro-Wilk Test) for normality of financial parameters from selected banks for the entire sample period, we find that few parameters have violated the normality assumption, which are further tested by applying

Wilcoxon Signed Ranks Test. Here, the violation of normality assumptions means significant different of increases or decreases the previously mentioned parameters. The remaining parameters, which are not violated the normality assumption, have been put for paired sample statistics to verify further of their noteworthy effect on the merged banks.

Table 6.32: Significant of Kolmogorov-Smirnov (K-S) and Shapiro-Wilk (S-W) test of normality of merged Bank

	PNB		OBC		IDBI		HDFC		ICICI	
	K-S	S-W	K-S	S-W	K-S	S-W	K-S	S-W	K-S	S-W
	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.
CDR			0.001	0.004	0.004	0.000			0.033	0.010
IDR	0.001	0.002	0.004	0.004	0.000	0.000			0.008	0.001
PSA							0.04	0.033		
DPE					0.046	0.039				
APE										
IITI										
NIITI										
IETE	0.021	0.039								
EETE										
OOETE			0.022	0.003	0.002	0.001			0.011	0.035
STA							0.033	0.032		
IIAWF										
NIIAWF			0.000	0.005			0.002	0.005		
OPAWF			0.001	0.005						
ROA										
NNPANA	0.025	0.016							0.002	0.001
CAR					0.001	0.000	0.008	0.001	0.024	0.016
Wilcoxon Signed Rank Test- Eligible	3	3	5	5	5	5	4	4	5	5
Pair T-Test - Eligible	14	14	12	12	12	12	13	13	12	12

Source: Author's own estimate

Table 6.33: By using Wilcoxon signed rank test, we find that all the parameters/ratios, the noteworthy value of all are more than 0.05 except PSA as percentage of total advance and spread as percentage of total assets (STA) of HDFC banks only. In other words, except PSA and STA of HDFC Bank, we find that there are no significant difference of ratios

such as IDR, IETE and NNPANA of PNB bank, CDR, IDR, OOETE, NIIAWF and OPAWF of OBC, CDR, IDR DPE, OOETE and CAR of IDBI, NIIAWF and CAR of HDFC and CDR, IDR, CAR, OOETE and NNPANA of ICICI Bank as their significant level are more than 0.05. Therefore, there is no noteworthy effect of increase or decrease on the merged banks..

Table 6.33: Summary of Wilcoxon Signed Ranks Test Merged Banks

PNB					
	IDRpost - IDRpre	IETEpost - IETEpre	NNPANApost - NNPANApre		
Z	-1.342[a]	-1.342[b]	-1.342[b]		
Asymp. Sig. (2-tailed)	0.18	0.18	0.18		
OBC					
	CDRpost - CDRpre	IDRpost - IDRpre	OOETEpost - OOETEpre	NIIAWFpost - NIIAWFpre	OPAWFpost - OPAWFpre
Z	-1.826[a]	-1.826[b]	-1.461[a]	-1.461[b]	-1.461[b]
Asymp. Sig. (2-tailed)	0.068	0.068	0.144	0.144	0.144
IDBI					
	CDRpost - CDRpre	IDRpost - IDRpre	DPEpost - DPEpre	OOETEpost - OOETEpre	CARpost - CARpre
Z	-1.342[a]	-1.342[a]	-1.342[b]	-1.342[a]	-1.342[a]
Asymp. Sig. (2-tailed)	0.18	0.18	0.18	0.18	0.18
HDFC					
	PSApost - PSApre	**STApost - STApre**	NIIAWFpost - NIIAWFpre	CARpost - CARpre	
Z	**-1.992[a]**	**-2.201[a]**	-1.572[a]	-.943[a]	
Asymp. Sig. (2-tailed)	**0.046**	**0.028**	0.116	0.345	
ICICI					
	CDRpost – CDRpre	IDRpost - IDRpre	CARpost - CARpre	OOETEpost - OOETEpre	NNPANApost - NNPANApre
Z	-.365[a]	-1.095[b]	-1.826[a]	-1.826[b]	-1.826[b]
Asymp. Sig. (2-tailed)	0.715	0.273	0.068	0.068	0.068
a. Based on negative ranks.					
b. Based on positive ranks.					
c. Wilcoxon Signed Ranks Test					

Source: Author's own estimate

Table 6.34: By analyzing the Paired sample‘t’ test, we observe that the following common financial parameters/ratios have significant influence on the merged banks on post-merger period. The parameters are CDR, IDR, PSA, DPE, APE, IETE, EETE, STA, IIAWF, OPAWF and ROA. These parameters may be in one same bank or may common to all other banks.

Table 6.34: Significant Paired Differences for all Sample Banks

		PNB and NBL		**OBC and GTB**		**IDBI and UWB**		**HDFCand CBOP**		**ICICI Bank and BOR**	
Pair	**Variables (Pre-Post)**	**t**	**Sig. (2 tailed)**	**t**	**Sig. (2 tailed)**	**t**	**Sig. (2 tailed)**	**t**	**Sig. (2 tailed)**	**t**	**Sig. (2 tailed)**
1	**CDRpre - CDRpost**							-4.242	0.024		
2	**IDRpre - IDRpost**							4.362	0.022		
3	**PSApre - PSApost**			7.698	0.005	-256.700	0.002			5.856	0.010
4	**DPEpre - DPEpost**	23.720	0.027	-4.990	0.015						
5	**APEpre - APEpost**			-5.992	0.010					-3.474	0.040
6	IITIpre - IITIpost										
7	NIITIpre - NIITIpost										
8	**IETEpre - IETEpost**							-4.242	0.024		
9	**EETEpre - EETEpost**			-20.630	0.000			-19.758	0.000	-14.868	0.001
10	**OOETEpre - OOETEpost**							5.113	0.014		
11	**STApre - STApost**	-41.300	0.015			-28.000	0.023			-15.358	0.001
12	**IIAWFpre - IIAWFpost**							-8.764	0.003		
13	NIIAWFpre - NIIAWFpost										
14	**OPAWFpre - OPAWFpost**	-13.100	0.048							-8.125	0.004
15	**ROApre - ROApost**									-7.268	0.005
16	CARpre - CARpost										
17	NNPANApre - NNPANApost										

Source: Author’s own estimate

6. D: Test of Multicolinearity:

Combining data of all financial parameters of all five merged entities, Backward Elimination (BE) technique has been adopted to identify the principal predictors

(independent variables) which are lying behind affecting dependent variable (ROA) in our estimate. Backward elimination (BE) technique, which is the easiest way of selecting all variable. , it can be simple run without special software package. In this method, we delete weak independent variables individually from the table matrix until all residual variables give something noteworthy to the dependent variable. Backward Elimination (BE) technique begins with a model which includes all variables. Variables are subsequently remove from the model individually until all the variables residual in the model have the noteworthy values higher than the present value. We start with all the predictors in the model and remove the predictor with highest *p*-value upper than the critical value and subsequently obtained six independent variables – STA, CDR, CAR, OOETE, NNPANA, NIITI which are used gradually to regress on dependent variable(ROA) in respective bank merger.

Table 6.35 presents the pair wise correlation matrix for the variables used in our estimation. Prior to estimation, we examined the correlation among independent variables and we find that different independent variables are weakly correlated with each other. None of the pairwise coefficient of correlation was 0.90 or larger.

From our analysis to test whether there exist multicolinearity, we find that correlations among independent variables are moderate which do not exceed the general rule of thumb. Moreover tolerance for these variables are moderately high which also are beyond the specified minimum ceiling (0.10) and VIFs do not exceed the specified rule of thumb of 10. This indicates that multicolinearity is not an issue of concern in this study.

Table-6.35: Correlation Matrix among Independent Variables

Merger of Punjab National Bank and Nedungadi Bank						
	STA	CDR	CAR	OOETE	NNPANA	NIITI
STA	1.000000	-0.631318	-0.116604	0.430527	0.038435	0.502426
CDR	-0.631318	1.000000	0.284663	-0.397160	-0.430105	-0.561243
CAR	-0.116604	0.284663	1.000000	0.423846	-0.804324	0.513715
OOETE	0.430527	-0.397160	0.423846	1.000000	-0.531193	0.584864
NNPANA	0.038435	-0.430105	-0.804324	-0.531193	1.000000	-0.286149
NIITI	0.502426	-0.561243	0.513715	0.584864	-0.286149	1.000000
Merger of Global Trust Bank and Oriental Bank of Commerce						
	STA	CDR	CAR	OOETE	NNPANA	NIITI
STA	1.000000	-0.546395	0.468391	0.247273	-0.114308	0.759776
CDR	-0.546395	1.000000	-0.157404	-0.291548	-0.259795	-0.563591
CAR	0.468391	-0.157404	1.000000	-0.094510	-0.373609	0.467132
OOETE	0.247273	-0.291548	-0.094510	1.000000	-0.465187	0.349023
NNPANA	-0.114308	-0.259795	-0.373609	-0.465187	1.000000	-0.259021
NIITI	0.759776	-0.563591	0.467132	0.349023	-0.259021	1.000000
Merger of IDBI Bank and United Western Bank						
	STA	CDR	CAR	OOETE	NNPANA	NIITI
STA	1.000000	-0.726647	-0.489563	-0.681359	0.468233	-0.844553
CDR	-0.726647	1.000000	0.485795	0.773217	-0.057623	0.811527
CAR	-0.489563	0.485795	1.000000	0.554883	-0.031264	0.394508
OOETE	-0.681359	0.773217	0.554883	1.000000	0.001579	0.815972
NNPANA	0.468233	-0.057623	-0.031264	0.001579	1.000000	-0.160528
NIITI	-0.844553	0.811527	0.394508	0.815972	-0.160528	1.000000
Merger of HDFC Bank and Centurion Bank of Punjab						
	STA	CDR	CAR	OOETE	NNPANA	NIITI
STA	1.000000	0.827508	0.058552	0.132062	-0.120982	0.187706
CDR	0.827508	1.000000	0.093787	0.101467	-0.526281	0.208109
CAR	0.058552	0.093787	1.000000	-0.170705	0.128963	0.084328
OOETE	0.132062	0.101467	-0.170705	1.000000	-0.189628	0.507854
NNPANA	-0.120982	-0.526281	0.128963	-0.189628	1.000000	0.126584
NIITI	0.187706	0.208109	0.084328	0.507854	0.126584	1.000000
Merger of ICICI bank and Bank of Rajasthan						
	STA	CDR	CAR	OOETE	NNPANA	NIITI
STA	1.000000	-0.285973	0.235706	-0.600715	-0.693812	-0.496558
CDR	-0.285973	1.000000	0.004899	-0.323454	0.499963	0.188499
CAR	0.235706	0.004899	1.000000	-0.217813	-0.101207	0.035422
OOETE	-0.600715	-0.323454	-0.217813	1.000000	0.102945	0.435701
NNPANA	-0.693812	0.499963	-0.101207	0.102945	1.000000	0.179610
NIITI	-0.496558	0.188499	0.035423	0.435701	0.179610	1.000000

Source: Author's own estimate

6. E: Test of Auto Correlation and Heteroscedasticity:

6. E.1: Breusch-Godfrey (BG) Serial Correlation LM test:

The diagnostic tests are performed to the equation regarding problems such as autocorrelation and heteroscedasticity. Diagnostics are necessary to establish the power of the results in respect to robustness, biasness and efficiency of the estimates. We have conducted different diagnostic tests in order to see whether our results are free from problem of serial autocorrelation. The top part of the output presents the test statistics and associated probability values. The Obs*R-squared statistic is nothing but only the Breusch-Godfrey LM test indicator for the null hypothesis of no sequential correlation.

Table 6.36 shows that the calculated BG LM test statistic of 3.325032 which does not exceed the critical χ^2 (1) value (i.e 3.84) in case of Merger of PNB vs. NED (Nedungadi Bank), we cannot discard the hypothesis of no autocorrelation up to lag order 1 at the 95% confidence level. The (effectively) high probability value (.>0.05) corresponding to 'Obs*R-squared' strongly indicates the nonappearance of sequential correlation in the residuals. Thus, the outcome from analytical inspection displays that model does not suffer from serial correlation/autocorrelation.

Table 6.36: Residual Test

Table 6.36: Breusch- Godfrey Serial Correlation LM Test				
Merger of Punjab National Bank and Nedungadi Bank				**Value at 95% Confidence Level**
F-statistic	1.140470	Probablity	0.366631	
Obs* R-Squared	3.325032	Probablity	0.189661	Critical Vaue (i.e. 3.84)
Merger of Oriental Bank of Commerce and Global Trust Bank				
F-statistic	1.079926	Probablity	0.270188	
Obs* R-Squared	3.525326	Probablity	0.138286	Critical Vaue (i.e. 3.84)
Merger of IDBI Bank and United Western Bank				
F-statistic	1.353770	Probablity	0.424850	
Obs* R-Squared	3.212658	Probablity	0.152286	Critical Vaue (i.e. 3.84)
Merger of HDFC Bank and Centurion Bank of Punjab				
F-statistic	0.227036	Probablity	0.803438	
Obs* R-Squared	1.050040	Probablity	0.591543	Critical Vaue (i.e. 3.84)
Merger of ICICI Bank and Bank of Rajasthan				
F-statistic	1.060030	Probablity	0.288403	
Obs* R-Squared	3.100006	Probablity	0.147359	Critical Vaue (i.e. 3.84)
Source: Author's own estimate by using E-Views Softare				

Source: Author's own estimate

As the planned BG LM test indicator of 3.525326 does not high the critical $\varkappa^2$ (1) value (i.e. 3.84) in case of Merger of GTB vs.OBC (Table 6.36), we cannot reject the hypothesis of no auto correlation up to lag order 1 at the 95% confidence level. The (effectively) high probability value (.>0.05) corresponding to 'Obs*R-squared' strongly indicates the absenteeism of sequential correlation in the residuals. Therefore, the outcome from analytical inspection displays that model does not hurt from autocorrelation. Since the intended BG LM test statistic of 3.212658 in case of merger of IDBI vs. UWB does not exceed the critical $\varkappa^2$ (1) value (i.e. 3.84), we cannot discard the hypothesis of no sequential connection up to lag order 1 at the 95% assurance level. The (effectively) high probability value (.>0.05) corresponding to 'Obs*R-squared' strongly

indicates the nonappearance of sequential connection in the residuals. Therefore, the outcome from analytical inspection displays that model does not hurt from autocorrelation. Since the calculated BG LM test digit of 1.050040 and 3.100006 does not surpass the critical $\varkappa^2$ (1) value (i.e.3.84) in case of M&As of HDFC and ICICI bank with Centurion Bank of Punjab and Bank of Rajasthan respectively, we cannot discard the hypothesis of no sequential connection up to lag order 1 at the 95% confidence level. The (effectively) high probability value (.>0.05) corresponding to 'Obs*R-squared' strongly indicates the absence of sequential connection in the residuals. Therefore, the result from diagnostic checking shows that model does not suffer from autocorrelation.

6. E.2: Durbin –Watson Statistic (D-W Statistics):

Table 6.37: Model Summary[b] (Both pre&post merger period[c])

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
Merger of Punjab National Bank and Nedungadi Bank					
1	.878[a]	0.772	0.6	0.16945	1.873
Merger of Global Trust Bank and Oriental Bank of Commerce					
1	.982[a]	0.965	0.938	0.11234	1.89
Merger of IDBI Bank and United Western Bank					
1	.941[a]	0.886	0.619	0.10233	2.089
Merger of HDFC Bank and Centurian Bank of Punjab					
1	.910[a]	0.828	0.699	0.13232	1.864
Merger of ICICI bank and Bank of Rajasthan					
1	.944[a]	0.891	0.783	0.15941	1.855
a. Predictors: (Constant), NIITI, NNPANA, STA, OOETE, CAR, CDR					
b. Dependent Variable: ROA					
c. Both pre&post merger period					

Source: Author's own estimate.

From table 6.37, the results of autocorrelation from BG LM test has been substantiated by applying Durbin-Watson Statistics (D-W Statistics). It is found that in case of M&As of Punjab National Bank and Nedungadi Bank, in both pre and post-merger period, illustrative rule of the models as specified by R^2 (manifold coefficient of determination) and adjusted R^2 is impartially decent. The model clarifies about 77% of the difference in the reliant variables/ROA. The Durbin-Watson statistic (D-W Statistic) being nearly 2 (1.873) advocates that there is no auto-correlation among residuals. In case of M&As of GTB vs. OBC, in both pre and post-merger period, illustrative authority of the models as specified by R^2 (numerous coefficient of determination) and adjusted R^2 is impartially decent. The model clarifies around 96% of the difference in the dependent variable/ROA. The Durbin-Watson statistic (D-W Statistic) being nearly 2 (1.890) advocates that there is no auto-correlation among residuals. In case of M&As of IDBI vs. UWB , in both pre and post-merger period, illustrative authority of the models as specified by R^2 (numerous coefficient of determination) and adjusted R^2 is impartially decent. The model clearly clarifies around 88% of the deviation in the dependent variable/ROA. The D-W Statistic being nearly 2 (2.08) advocates that there is no auto-correlation among residuals.

In case of M&As of HDFC Bank and Centurion Bank of Punjab, in both pre and post-merger period, illustrative authority of the models as specified by R^2 (numerous coefficient of determination) and adjusted R^2 is impartially decent. The model clarifies around 82% of the deviation in the dependent variable/ROA. The D-W Statistic being nearly 2 (1.864) advocates that there is no auto-correlation among residuals.

In case of M&As of ICICI bank and Bank of Rajasthan, in both pre and post-merger period, illustrative authority of the models as specified by R^2 (numerous coefficient of

determination) and adjusted R^2 is impartially decent. The model clarifies around 89% of the deviation in the dependent variable/ROA. The D-W Statistic being nearly 2 (1.855) advocates that there is no auto-correlation among residuals.

Table 6.38:- Model Summary ((Post-merger period)[c])

Model Summary[b] ((Post merger period)[c])					
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**	**Durbin-Watson**
Merger of Punjab National Bank and Nedungadi Bank					
1	.934[a]	0.873	0.746	0.1315	1.992
Merger of Global Trust Bank and Oriental Bank of Commerce					
1	.992[a]	0.984	0.973	0.07716	2.015
Merger of IDBI Bank and United Western Bank					
1	.954[a]	0.932	0.896	0.1215	2.007
Merger of HDFC Bank and Centurian Bank of Punjab					
1	.956[a]	0.889	0.794	0.1339	1.982
Merger of ICICI bank and Bank of Rajasthan					
1	.981[a]	0.957	0.841	0.1315	1.997
a. Predictors: (Constant), NIITIpost, NNPANApost, STApost, OOETEpost, CARpost, CDRpost					
b. Dependent Variable: ROApost					
c. Post merger period					

Source: Author's own estimate using SPSS.

Table 6.38: In case of Merger of Punjab National Bank and Nedungadi Bank, in post-merger period, illustrative authority of the models as specified by R^2 (numerous coefficient of determination) and adjusted R^2 is impartially decent. The model clarifies around 87% of the difference in the dependent variable/ROA. The D-W Statistic being nearly 2(1.992) advocates that there is no auto-correlation among residuals. In case of Merger of Global Trust Bank and Oriental Bank of Commerce, in post-merger period,

illustrative authority of the models as specified by R^2 (multiple coefficient of determination) and adjusted R^2 is impartially decent. The model clarifies around 98% of the difference in the dependent variable/ROA. The D-W Statistic being nearly 2(2.015) advocates that there is no auto-correlation among residuals. In case of Merger of IDBI Bank and United Western Bank, in post-merger period, illustrative authority of the models as specified by R^2 (numerous coefficient of determination) and adjusted R^2 is impartially decent. The model clarifies around 93% of the deviation in the dependent variable/ROA. The D-W Statistic being nearly 2(2.007) advocates that there is no auto-correlation among residuals. In case of Merger of HDFC Bank and Centurion Bank of Punjab, in post-merger period, illustrative authority of the models as specified by R^2 (numerous coefficient of determination) and adjusted R^2 is impartially decent. The model clarifies around 89% of the difference in the dependent variable/ROA. The D-W Statistic being nearly 2(1.982) advocates that there is no auto-correlation among residuals. In case of Merger of ICICI bank and Bank of Rajasthan, in post-merger period, illustrative authority of the models as specified by R^2 (numerous coefficient of determination) and adjusted R^2 is impartially decent. The model clarifies around 95% of the deviation in the dependent variables /ROA. The D-W Statistic being nearly 2(1.997) advocates that there is no auto-correlation among residuals.

6. E.3: Regression Analysis:

We have taken following six independent variables CAR, CDR, STA, OOETE, NNPANA and NIITI into our analysis based on the backward calculation method because these variables are free from multicolinearity and also one dependent variable specifying profitability (ROA) is considered. From our analysis to test whether there exist multicolinearity, we find that correlations among independent variables are moderate which do not exceed the general rule of thumb. Moreover tolerance for these variables are moderately high which also are beyond the specified minimum ceiling (0.10) and VIFs do not exceed the specified rule of thumb of 10. This indicates that multicolinearity is not an issue of concern in this study (Result not shown).

Due to paucity of data, for proper understanding of impact of merger, we fail to conduct regression analysis in pre-merger and after merger period separately. Instead, for better understanding of the impact of merger, we have conducted regression for entire period (taking both pre and post-merger period) and separately for post-merger period.

Table-6.39:- Regression analysis of merged Punjab National Bank (Post-merger period)

Regression analysis of merged entity of Punjab National Bank (Post merger period)								
Coefficients[a]								
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**	**Collinearity Statistics**	
		B	**Std. Error**	**Beta**			**Tolerance**	**VIF**
1	(Constant)	-1.446	2.401	-	-0.602	0.569		
	STApost	0.638	0.291	0.685	2.194	0.071	0.217	4.604
	CDRpost	-0.003	0.013	-0.106	-0.229	0.826	0.109	9.174
	CARpost	0.19	0.079	0.717	2.388	0.054	0.234	4.268
	OOETEpost	-0.128	0.066	-0.609	-1.944	0.1	0.215	4.644
	NNPANApost	-0.165	0.051	-0.867	-3.218	0.018	0.291	3.431
	NIITIpost	-0.034	0.033	-0.375	-1.029	0.343	0.159	6.287
	a. Dependent Variable: ROApost							

Source: Author's own estimate using SPSS.

Table 6.39 shows the summary results for regression analysis (considering ROA as dependent variable) in the post-merger period. The indicator estimates in table 6.39 reveal that out of six independent variables, four variables (STA, CAR, OOETE and NNPANA are found to have statistically noteworthy effect on ROA at 5% level respectively. Result shows that STA and CAR have noteworthy affirmative effect on ROA, which is theoretically true and sound. Theoretical research predicts positive relationship between STA and ROA, CAR and ROA, negative relation between OOETE and ROA, NNPANA and ROA. Result also suggests that NNPANA has noteworthy adverse effect on ROA at 5% level and OOETE has also noteworthy adverse effect on ROA at 10 % level, which are also theoretically true. There are also negative non-significant impact of CDR and NIITI on ROA.

In brief, results in post-merger period are grouped into three classes: positive significant impact of STA and CAR on ROA, negative significant impact of OOETE and NNPANA on ROA and negative insignificant impact of CDR and NIITI on ROA.

Table 6.40: Regression analysis of Punjab National Bank and Nedungadi Bank and merged of Punjab National Bank (Both pre & post-merger period)

Regression analysis of Punjab National Bank and Nedungadi Bank and merged entity of Punjab National Bank (Both pre&post merger period)								
Coefficients[a]								
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**	**Collinearity Statistics**	
		B	**Std. Error**	**Beta**			**Tolerance**	**VIF**
1	(Constant)	2.906	2.234	-	1.301	0.229		
	STA	0.092	0.261	0.685	0.354	0.733	0.446	2.243
	CDR	-0.023	0.013	-0.106	-1.744	0.119	0.1	9.993
	CAR	0.11	0.092	0.717	1.194	0.267	0.16	6.261
	OOETE	-0.161	0.083	-0.609	-1.936	0.089	0.212	4.726
	NNPANA	-0.16	0.066	-0.867	-2.438	0.041	0.112	8.939
	NIITI	-0.033	0.042	-0.375	-0.789	0.453	0.162	6.179
	a. Dependent Variable: ROA							

Source: Author's own estimate using SPSS.

Table 6.40 shows the summary results for regression analysis (considering ROA as dependent variable) in both the before and after the merger period taken together. The parameter guesses in table reveal that out of six independent variables, three variables (CDR, OOETE and NNPANA are found to have statistically noteworthy adverse effect on ROA at 10% and 5% level respectively. Theoretical research predicts positive relationship between CDR and ROA, negative relation between OOETE and ROA, NNPANA and ROA.

In our study, negative impact of CDR on ROA may probably be because of the circumstance that the bank is giving out more of its customer deposits in the form of interest bearing credit or loans but the difficulties are failure in repayment of credit or loan on the part of the customer which made the banks legally responsible to pay back the deposit money to their customers resulting in reduction of profitability (ROA). There are also positive non-significant impact of STA and CAR on ROA.

In brief, results in both before and after the merger period are taken together and divided it into three categories: negative significant impact of CDR, NNPANA and NIITI on ROA, negative insignificant impact of NIITI on ROA and positive insignificant impact of STA and CAR on ROA.

Table 6.41 shows the summary results for regression analysis (considering ROA as dependent variable) in after the merger period. The parameter guesses in table 6.41 reveal that out of six independent variables, four variables (CAR, OOETE, NNPANA and NIITI are derived to be have statistically noteworthy effect on ROA at 5% level respectively. Result shows that OOETE, NNPANA have noteworthy positive effect on ROA, which is contrary to the theoretical prediction. However, impacts of NIITI and CAR on ROA are

significantly negative which is not theoretically true and does not support our theoretical assumption. Result also suggests that CAR has noteworthy negative effect on ROA at 5% level. There are also negative non- significant impact of CDR on ROA and positive non-significant impact of STA on ROA.

Table 6.41: Regression analysis of merged Oriental Bank of Commerce (Post- merger period)

Regression analysis of merged entity of Oriental Bank of Commerce(Post merger period)								
Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.622	0.873	-	4.152	0.014		
	STApost	0.033	0.134	0.023	0.245	0.818	0.371	2.693
	CDRpost	-0.015	0.015	-0.180	-1.030	0.361	0.105	9.556
	CARpost	-0.147	0.056	-0.311	-2.623	0.059	0.227	4.402
	OOETEpost	0.119	0.039	0.617	3.040	0.038	0.321	3.115
	NNPANApost	-0.232	0.043	-0.490	-5.381	0.006	0.385	2.596
	NIITIpost	-0.064	0.027	-0.232	-2.340	0.079	0.327	3.062
	a. Dependent Variable: ROApost							

Source: Author's own estimate using SPSS.

In brief, results in post-merger period are divided into three classes: positive significant impact of OOETE and NNPANA on ROA, negative significant impact of NIITI and CAR on ROA and negative non- significant impact of CDR on ROA and positive non-significant impact of STA on ROA.

Table 6.42 shows the summary results for regression analysis (considering ROA as dependent variable) in both the before and after merger period taken together. The parameter guesses in table reveal that out of six independent variables, three variables - CDR, CAR and NNPANA are derived to have statistically noteworthy negative effect on ROA at 5% level. Theoretical research predicts positive relationship between CDR and ROA and CAR and ROA, negative relation between OOETE and ROA, NNPANA and ROA.

Table 6.42: Regression analysis of Global Trust Bank and Oriental Bank of Commerce and merged Oriental Bank of Commerce (Both pre & post- merger period)

Regression analysis of Global Trust Bank and Oriental Bank of Commerce and merged Oriental Bank of Commerce (Both pre & post-merger period)								
Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.582	0.781	-	3.306	0.011		
	STA	0.305	0.092	0.362	3.319	0.011	0.372	2.686
	CDR	-0.019	0.005	-0.424	-3.829	0.005	0.378	2.647
	CAR	-0.088	0.034	-0.256	-2.612	0.031	0.459	2.177
	OOETE	0.054	0.023	0.248	2.382	0.044	0.409	2.446
	NNPANA	-0.274	0.047	-0.675	-5.847	0	0.332	3.014
	NIITI	-0.002	0.019	-0.014	-0.119	0.908	0.318	3.145
	a. Dependent Variable: ROA							

Source: Author's own estimate using SPSS.

Positive significant impact of STA on ROA is noticed which supports our hypothesis but positive significant impact of OOETE on ROA is contrary to our hypothesis.

In our study, negative impact of CDR on ROA may probably be because of the circumstance that the bank is disbursing its deposits in the system of interest carrying loans but the main concern is failure in return back of loan amount on the part of the customer which made the banks responsible to repay the deposit money to their customers resulting in reduction of profitability (ROA). There is also negative non-significant impact of NIITI on ROA, which is contrary to our theoretical assumption.

In brief, results in both before and after merger period taken together are divided into three classes: negative significant impact of CDR, CAR and NNPANA on ROA, positive

significant impact of STA and OOETE on ROA and negative insignificant impact of NIITI on ROA.

Table 6.43: Regression analysis of merged IDBI Bank (Post-merger period)

Regression analysis of merged entity of IDBI Bank (Post merger period)								
Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-1.2145	1.964	-	-0.618	0.461	-	-
	STApost	0.468	0.216	0.641	2.166	0.067	0.198	5.05
	CDRpost	0.116	0.051	0.783	2.274	0.062	0.227	4.405
	CARpost	0.217	0.082	0.794	2.646	0.073	0.213	4.694
	OOETEpost	-0.134	0.092	-0.398	-1.456	0.114	0.341	2.932
	NNPANApost	-0.182	0.059	-0.867	-3.085	0.029	0.279	3.584
	NIITIpost	-0.0426	0.239	0.346	-1.782	0.324	0.259	3.861
	a. Dependent Variable: ROApost							

Source: Author's own estimate using SPSS.

Table 6.43 shows the summary results for regression analysis (considering ROA as dependent variable) in the after merger period. The parameter guesses in table 6.43 reveal that out of six independent variables, four variables (STA, CDR, CAR and NNPANA) are derived to have statistically noteworthy effect on ROA at 5% level and NIITI on ROA at 10% level respectively. Result shows that STA and CAR have noteworthy affirmative effect on ROA, which is theoretically true and sound. Theoretical research predicts positive relationship between STA and ROA, CAR and ROA, negative relation between OOETE and ROA, NNPANA and ROA. Result also suggests that NNPANA has noteworthy adverse effect on ROA at 5% level, which is also theoretically true, NIITI has noteworthy adverse effect on ROA at 10% level, which is contrary to the theoretical assumption, and OOETE has insignificant adverse effect on ROA.

In brief, results in post-merger period are divided into three classes: positive significant impact of STA, CDR and CAR on ROA, negative significant impact of NIITI and NNPANA on ROA and negative insignificant impact of OOETE on ROA.

Table 6.44: Regression analysis of IDBI Bank and United Western Bank and merged IDBI Bank (Both pre & post- merger period)

Regression analysis of IDBI Bank and United Western Bank and merged IDBI Bank (Both pre&post merger period)								
Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.304	0.63	-	2.07	0.13	-	-
	STA	0.155	0.177	0.559	0.872	0.447	0.223	4.484
	CDR	0.009	0.004	3.832	2.387	0.097	0.129	7.752
	CAR	-0.003	0.014	-0.075	-0.216	0.843	0.154	6.493
	OOETE	-0.135	0.172	-1.019	-0.782	0.491	0.312	3.205
	NNPANA	-0.16	0.087	-0.618	-1.841	0.163	0.338	2.956
	NIITI	-0.008	0.029	-0.175	-0.274	0.802	0.193	5.181
	a. Dependent Variable: ROA							

Source: Author's own estimate using SPSS.

Table 6.44 shows the summary results for regression analysis (considering ROA as dependent variable) in both the before and after merger period taken together. The parameter guesses in table 6.44 reveal that out of six independent variables, only one variable (CDR) is found to have statistically noteworthy affirmative effect on ROA at 5% level of significance, which supports our theoretical presumption. Theoretical research predicts positive relationship between CDR and ROA, negative relation between OOETE and ROA, NNPANA and ROA. There are also negative significant impact of NNPANA

on ROA at 10% level of significance, positive non-significant impact of STA and negative non-significant impact of CAR, OOETE and NIITI on ROA.

In brief, results in both before and after merger period taken together are divided into four classes: negative non-significant impact of CAR, OOETE and NIITI on ROA, positive insignificant impact of STA on ROA and positive significant impact of CDR on ROA, negative significant impact of NNPANA on ROA.

Table 6.45: Regression analysis of merged entity of HDFC Bank (Post-merger period)

Regression analysis of merged HDFC Bank (Post-merger period)								
Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-5.631	2.973	-	-1.894	0.642		
	STApost	0.044	0.091	0.021	0.4835	0.094	0.941	1.063
	CDRpost	0.065	0.021	0.871	3.095	0.036	0.685	1.459
	CARpost	0.164	0.074	0.417	2.216	0.041	0.168	5.942
	OOETEpost	-0.146	0.057	-0.419	-2.561	0.0424	0.302	3.311
	NNPANApost	-1.064	0.43	-0.262	-2.474	0.0467	0.125	8.021
	NIITIpost	-0.52	0.47	-0.297	-1.106	0.314	0.324	3.09
	a. Dependent Variable: ROApost							

Source: Author's own estimate using SPSS.

Table 6.45 shows the summary results for regression analysis (considering ROA as dependent variable) in the after merger period. The parameter guesses in table 6.45 reveal that out of six independent variables, four variables (CDR, CAR, OOETE and NNPANA are derived to have statistically noteworthy effect on ROA at 5% level respectively. Result shows that CDR and CAR have noteworthy affirmative effect on ROA, which is theoretically true and sound. Theoretical research predicts positive relationship between

CDR and ROA, CAR and ROA, negative relation between OOETE and ROA, NNPANA and ROA. Result also suggests that NNPANA has noteworthy adverse effect on ROA at 5% level and OOETE has noteworthy adverse effect on ROA at 5% level, which are also theoretically true. There are also negative non-significant impact of NIITI on ROA and positive non-significant impact of STA on ROA.

In brief, results in post-merger period are divided into four classes: positive significant impact of CDR and CAR on ROA, negative significant impact of OOETE and NNPANA on ROA and negative insignificant impact of NIITI on ROA and positive insignificant impact of STA on ROA.

Table 6.46: Regression analysis of HDFC Bank and Centurion Bank of Punjab and merged of HDFC Bank (Both pre & post- merger period)

Regression analysis of HDFC Bank and Centurian Bank of Punjab and merged HDFC Bank (Both pre&post merger period)								
Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.208	0.449	-	7.143	0.000		
	STA	-0.390	0.213	-0.754	-1.828	0.105	0.126	7.924
	CDR	0.021	0.009	1.235	2.399	0.043	0.181	5.524
	CAR	-0.010	0.009	-0.167	-1.074	0.314	0.886	1.129
	OOETE	-0.025	0.019	-0.267	-1.272	0.239	0.488	2.048
	NNPANA	-0.017	0.521	-0.01	-0.033	0.974	0.229	4.365
	NIITI	-0.058	0.029	-0.433	-1.999	0.081	0.458	2.184
	a. Dependent Variable: ROA							

Source: Author's own estimate using SPSS.

Table 6.46 shows the summary results for regression analysis (considering ROA as dependent variable) in both before and after merger period taken together. The parameter guesses in table 6.46 reveal that out of six independent variables, three variables (STA, CDR and NIITI) are derived to have statistically noteworthy effect on ROA at 10%, 5% and 5% level respectively. Theoretical research predicts positive relationship between STA and ROA, CDR and ROA, NIITI and ROA.

The profitability of banks is depend upon the rate of interest, which is fluctuated from time to time as per Reserve Bank of India (RBI)'s policy. Interest income is main source of income of commercial bank. Interest income of banks is depend upon the rate of interest of each every bank. Net interest income means the gross interest income minus interest paid on deposit & borrowing received from customers. Interest income is a major source of banks and financial services. Net interest income is the incremental income over its interest payment in a normal course of operations if banks. In other words, interest income is the net interest margin of two rates i.e. the rate of interest at which the loan are provided to outside customers and the rate of interest at which the deposit and borrowing are accepted. Loan- deposit ratio is an important for generating profitability of banks as well as to determine the bank liquidity, which is very important aspect to protect banks from defaulting its liability. The bank profit is generated through the positive difference between interest income on loans and interest paid on deposits. Among other various important factors, loans provided and deposits received are the major operations of every commercial banks, which would determine the profitability of the commercial banks. Both are closely inter-linked each other and have a positive correlation of each other and have equally important in the banking operations of banks like two sides of the

same coin. Obviously, the banks are normally providing more credit in the form of interest bearing loan and advances with the intention of generating more t revenue; on the other hand, there is a possibility of non –recovering money with principal and interest, which is called as a risk of failure of repayment of loan. As a result, on the other side, banks liable to repay the deposit money along with interest to their customers. Therefore, there is high possibility of defaults of discharging its liability because of the liquidity issues of banks. Alternatively, on the reverse side, bank is at low risk because the bank would not be a situation for using its assets for generating revenue. Therefore, a positive relation between STA & ROA is anticipated. Therefore, unfortunately the above merger also reveals that the impact of STA is negative on ROA. This means that the banks' capacity to generate interest income with their interest-bearing assets are decreasing because of the low capacity of generating profit with their same total assets (Return on Assets).

In our study, positive impact of CDR on ROA may arise in the circumstances, where bank is using more of its deposit in the form of interest bearing loan to customer and the customer is refunding their loan in time without any default, resulting in increase of profitability (ROA). There is also significant negative impact of NIITI on ROA, which is beyond our expectation.

In brief, results in the total time horizon (both pre and post-merger period) taken for bank merger are divided into three categories: negative significant impact of STA and NIITI on ROA, negative insignificant impact of CAR, OOETE and NNPANA on ROA and positive significant impact of CDR on ROA.

The parameter guesses in table 6.47 (below) reveal that out of six variables taken for regression analysis (considering ROA as dependent independent variable), four variables (STA, CDR, OOETE are found to have statistically noteworthy effect on ROA at 1% level respectively and NIITI is derived to have statistically noteworthy effect on ROA at 5% level. Result shows that STA, CDR and NIITI have noteworthy positive effect t on ROA, which is theoretically true and sound. Theoretical research predicts positive relationship between STA and ROA, CDR and ROA and NIITI and ROA, negative relation between OOETE and ROA. Result also suggests that NIITI has noteworthy negative effect on ROA, which is not theoretically true and sound. OOETE has also noteworthy positive effect on ROA at 1% level, which are also theoretically true and sound (Negative OOETE means control of other operating outlays which in turn, may have affirmative effect on ROA. There are also positive non-significant impact of CAR on ROA, which indicates that equity holders of commercial banks need not have too much concern on capital adequacy being an vital indicator in the determination of their earnings because changing level of CAR does not supposed to have any impact on earnings.

Table 6.47: Regression analysis of merged ICICI Bank Ltd (Post-merger period)

Regression analysis of merged entity of ICICI Bank Ltd (Post merger period)								
Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-2.227	1.974	-	-1.128	0.132		
	STApost	0.617	0.131	0.998	4.709	0.022	0.341	2.932
	CDRpost	0.132	0.043	0.216	3.069	0.0341	0.197	5.076
	CARpost	0.096	0.068	0.296	1.411	0.297	0.347	2.881
	OOETEpost	-0.267	0.086	-0.452	-3.110	0.034	0.392	2.551
	NNPANApost	-0.042	0.067	-0.753	-0.630	0.583	0.167	5.988
	NIITIpost	-0.068	0.029	-0.492	2.330	0.046	0.413	2.421
	a. Dependent Variable: ROApost							

Source: Author's own estimate using SPSS.

In brief, results in post-merger period are classified into three classes: positive significant impact of STA, CDR and NIITI on ROA, negative significant level of OOETE on ROA, negative insignificant impact of NNPANA on ROA and positive insignificant impact of CAR on ROA.

Table 6.48: Regression analysis of ICICI Bank Ltd and The Bank of Rajasthan and merged ICICI Bank Ltd (Both pre & post- merger period)

Regression analysis of ICICI Bank Ltd and The Bank of Rajasthan and merged ICICI Bank Ltd (Both pre&post merger period)								
Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-2.400	1.002	-	-2.395	0.048		
	STA	0.801	0.180	1.422	4.442	0.003	0.151	6.606
	CDR	0.003	0.004	0.159	0.654	0.534	0.262	3.819
	CAR	-0.021	0.010	-0.256	-2.143	0.049	0.887	1.128
	OOETE	0.022	0.021	0.245	1.076	0.318	0.300	3.335
	NNPANA	-0.060	0.055	-0.262	-1.100	0.308	0.273	3.663
	NIITI	0.0570	0.020	0.586	2.887	0.023	0.273	3.663
	a. Dependent Variable: ROA							

Source: Author's own estimate using SPSS.

Table 6.48 shows the summary results for regression analysis (considering ROA as dependent variable) in both the before and after merger time horizon taken together. The parameter guesses in table 6.48 reveal that out of six independent variables, two variables (STA and NIITI) are derived to have statistically noteworthy affirmative effect on ROA @t 1% level and one variable CAR has noteworthy negative effect on ROA @5% level respectively. Theoretical research predicts positive relationship between STA and ROA, NIITI and ROA, CAR and ROA. Results are consistent in case of STA and ROA, NIITI and ROA. In our study, significant negative impact of CAR on ROA implies that capital adequacy is a determinant of earnings in commercial banks when measured in terms of ROA. Equity holders of commercial banks need have too much concern on capital

adequacy being a crucial factor in the determination of their earnings because with increasing level of CAR, earning diminishes.

In brief, results in both before and after merger period taken together are divided into three classes: negative significant impact of CAR on ROA, positive significant impact of STA and NIITI on ROA and positive insignificant impact of CDR and OOETE on ROA.

6. E.4: Summary Regression Analysis of all Banks:

Table 6.49: Regression analysis of (Both pre & post- merger period)

Regression analysis Acquiring and Target bank (both Pre & Post merger period)										
		PNB		OBC		IDBI		HDFC		ICICI	
Model		t	Sig.	t	Sig.	t	Sig.	t	Sig.	t	Sig.
	(Constant)	1.301	0.229	3.306	0.011	2.070	0.130	7.143	0.000	-2.395	0.048
	STApost	0.354	0.733	3.319	0.011	0.872	0.447	-1.828	0.105	4.442	0.003
	CDRpost	-1.744	0.119	-3.829	0.005	2.387	0.097	2.399	0.043	0.654	0.534
	CARpost	1.194	0.267	-2.612	0.031	-0.216	0.843	-1.074	0.314	-2.143	0.049
	OOETEpost	-1.936	0.089	2.382	0.044	-0.782	0.491	-1.272	0.239	1.076	0.318
	NNPANApost	-2.438	0.041	-5.847	0.000	-1.841	0.163	-0.033	0.974	-1.100	0.308
	NIITIpost	-0.789	0.453	-0.119	0.908	-0.274	0.802	-1.999	0.081	2.887	0.023
	a. Dependent Variable: ROApost										
	1.64 > t value> 1.96 = 10%		1.96 > t value> 2.58 = 5%			2.58 > t value = 1%					

Source: Author's own estimate using SPSS.

Table 6.49 (above) and Table 6.50 (below) shows that summary results for regression analysis in one table for all banks considering ROA as dependent variable in both before and after merger period and post-merger period only. Both Tables shows the change of significant value of variable/ financial parameter either increase or decrease @ 10%,

where t value are lying between 1.64 and 1.96 and @ 5%, where t value are lying between 1.96 and 2.58 and 1%, where t value are lying more than 2.58. The detailed analysis are done based on the Table 6.51: Comparison of t value both pre & post-merger period (both banks) and post-merger period (only merged bank).

Table 6.50: Regression analysis of (Post- merger period only)

Regression analysis of merged bank/acquiring Bank (Post merger period only)											
		PNB		OBC		IDBI		HDFC		ICICI	
Model		t	Sig.	t	Sig.	t	Sig.	t	Sig.	t	Sig.
	(Constant)	-0.602	0.569	4.152	0.014	-0.618	0.461	-1.894	0.642	-1.128	0.132
	STApost	2.194	0.071	0.245	0.818	2.166	0.067	0.484	0.094	4.709	0.022
	CDRpost	-0.229	0.826	-1.030	0.361	2.274	0.062	3.095	0.036	3.069	0.034
	CARpost	2.388	0.054	-2.623	0.059	2.646	0.073	2.216	0.041	1.411	0.297
	OOETEpost	-1.944	0.100	3.040	0.038	-1.456	0.114	-2.561	0.0424	-3.110	0.034
	NNPANApost	-3.218	0.018	-5.381	0.006	-3.085	0.029	-2.474	0.047	-0.630	0.583
	NIITIpost	-1.029	0.343	-2.340	0.079	-1.782	0.324	-1.106	0.314	-2.330	0.046
	a. Dependent Variable: ROApost										
	1.64 > t value> 1.96 = 10%		1.96 > t value> 2.58 = 5%				2.58 > t value = 1%				

Source: Author's own estimate using SPSS.

Table 6.51: Regression analysis: Comparison of value:

Regression analysis: Comparison of t value both pre & post merger period (both banks) and post merger period (only merged bank)											
		PNB		OBC		IDBI		HDFC		ICICI	
Model		t value for pre-post merger period	t value for post merger period	t value for pre-post merger period	t value for post merger period	t value for pre-post merger period	t value for post merger period	t value for pre-post merger period	t value for post merger period	t value for pre-post merger period	t value for post merger period
	STApost		2.194	3.319			2.166	-1.828		4.442	4.709
	CDRpost	-1.744		-3.829		2.387	2.274	2.399	3.095		3.069
	CARpost		2.388	-2.612	-2.623		2.646		2.216	-2.143	
	OOETEpost	-1.936	-1.944	2.382	3.040				-2.561		-3.110
	NNPANApost	-2.438	-3.218	-5.847	-5.381	-1.841	-3.085		-2.474		
	NIITIpost				-2.340		-1.782	-1.999		2.887	-2.330
	a. Dependent Variable: ROApost using SPSS										
	1.64 > t value> 1.96 = 10%		1.96 > t value> 2.58 = 5%				2.58 > t value = 1%				

Source: Author's own estimate using SPSS

Table 6.51 shows the t value, which have significant influence both before and after merger and post-merger period of all sample banks at 10%, 5% and 1% level of six variables on ROA. Based on all five merged banks, the results may suggest that:

STA: During post-merger period, STA has influenced positively on ROA in majority of merger (PNB, IDBI & ICICI), which corroborated our results with same financial parameter.

CDR: In post-merger period, CDR has impacted positively on ROA which also support our arithmetic inference

CAR: During post-merger period, in most cases, CAR influenced positively on ROA which support our arithmetical inference.

OOETE: In majority of merger, OOETE has influenced negatively, which has reversely influenced ROA (except OBC) as per our arithmetical inference.

NNPANA: It has reversed impact on ROA. In most of the cases, NNPANA has influenced negatively, which has positively influenced ROA as per our arithmetical inference.

NIITI: In majority of merger, NIITI has influenced negatively on ROA indicating that with the decrease in NIITI (already shown in financial parameter analysis), ROA increases. This result is beyond our expectation and contrary to our explanation.

6. E.5: Unit Root Test: The result of ADF test:

The conclusion on whether we examine a time series in stages or deviation is a vital part of predicting. Visual method are being used for a long period. Of late, statistical test for null hypothesis have emerged. Null hypothesis is that series is non-stationer. It means that differencing is needed. Therefore, we should start test for stationery from intercept, intercept trend in level (i.e no differences) and if the result is non-stationery, data need to be differenced at intercept, intercept and trend respectively in first differences to attain stationery of time series. Table 6.52 offerings the results of the unit root test.

Table 6.52:-Unit Root Test: The Results of the Augmented Dickey Fuller (ADF) Test

VARIABLES	Punjab National Bank and Nedungadi Bank			Global Trust Bank and Oriental Bank of Commerce			United Western Bank and IDBI Bank			Centurion Bank of Punjab and HDFC Bank			Bank of Rajasthan and ICICI bank		
	Level/First difference	Calculated ADF	Inference	Level/ First difference	Calculated ADF	Inference	Level/ First difference	Calculated ADF	Inference	Level/ First difference	Calculated ADF	Inference	Level/ First difference	Calculated ADF	Inference
ROA	Level, Intercept & Trend,lag-1	-3.84 (-3.82) *	Stationery	Level, Intercept & Trend, lag-1	-3.84 (-3.82)	stationery	Level, Intercept & Trend, lag-2	-3.52 (-3.33)	Stationery	Level, Intercept & Trend ,lag-2	-3.92 (-3.87)	stationery	Level, Intercept & Trend ,lag-2	-3.93(-3.87)	Stationery
CAR	Level, Intercept .lag-1	-3.23 (-3.12)	Stationery	Level, Intercept ,lag-0	-3.88 (-3.10)	stationery	Level, Intercept & Trend, lag-1	-4.51 (-4.08)	Stationery	Level, Intercept,lag-0	-4.07 (-3.10)	stationery	Level, Intercept,lag-0	-3.49 (-3.10)	Stationery
CDR	Level, Intercept ,lag-1	-3.38 (-3.14)	Stationery	Level, Intercept & Trend, lag-1	-3.88 (-3.10)	stationery	Level, Intercept & Trend, lag-1	-14.31 (-3.99)	Stationery	Level, Intercept,lag-1	-3.21 (-3.12)	stationery	Level, Intercept,lag-0	-6.88(-3.10)	stationery
STA	Level, Intercept & Trend,lag-1	-3.84 (-3.82)	Stationery	Level, Intercept & Trend	-3.84 (-3.82)	stationery	Level, Intercept & Trend lag-2	-4.69 (-4.19)	Stationery	Level, Intercept lag-2	-4.01 (-3.14)	stationery	Level, Intercept & Trend ,lag-0	-9.68(-3.79)	Stationery
OOETE	Level, Intercept & Trend lag-1	-3.87 (-3.82)	Stationery	Intercept & Trend, lag-1	-3.87 (-3.82)	stationery	Level, Intercept,lag-0	-4.82 (-3.22)	Stationery	Level, Intercept & Trend ,lag-2	-4.16 (-3.87)	stationery	Level, Intercept & Trend ,lag-2	-3.92(-3.87)	Stationery
NNPANA	Level, Intercept lag-0	-3.53(-3.10)	Stationery	Level, Intercept & Trend, lag-2	-3.90 (-3.87)	stationery	Level, Intercept & Trend, lag-0	-4.54 (-3.99)	Stationery	Level, Intercept & Trend ,lag-0	-4.06 (-3.79)	stationery	Level, Intercept,lag-1	-4.73(-3.12)	Stationery
NIITI	Level, Intercept & Trend,lag-o	-3.81	stationery	Level, Intercept & Trend, lag-0	-3.83 (-3.79)	stationery	Level, Intercept& Trend, lag-0	-4.35 (-3.99)	stationery	Level, Intercept lag-0	-3.69	stationery	Level, Intercept & Trend ,lag-0	-4.33(-3.79)	stationery

*Figure in the parenthesis indicates ADF critical value (at 5%); #included in test equation
Ho: series has unit root; H_1: series is trend stationary

Source: Author's own estimate

Table 6.53: Unit Root Test: The Results of the Augmented Dickey Fuller (ADF) Test

Summary Results of the Augmented Dickey Fuller (ADF) Test					
VARIABLES	**PNB**	**OBC**	**IDBI**	**HDFC**	**ICICI**
	Calculated ADF	**Calculated ADF**	**Calculated ADF**	**Calculated ADF**	**Calculated ADF**
R O A	-3.84 (-3.82)	-3.84 (-3.82)	-3.52 (-3.33)	-3.92 (-3.87)	-3.93 (-3.87)
C A R	-3.23 (-3.12)	-3.88 (-3.10)	-4.51 (-4.08)	-4.07 (-3.10)	-3.49 (-3.10)
C D R	-3.38 (-3.14)	-3.88 (-3.10)	-14.31 (-3.99)	-3.21 (-3.12)	-6.88 (-3.10)
S T A	-3.84 (-3.82)	-3.84 (-3.82)	-4.69 (-4.19)	-4.01 (-3.14)	-9.68 (-3.79)
O O E T E	-3.87 (-3.82)	-3.87 (-3.82)	-4.82 (-3.22)	-4.16 (-3.87)	-3.92 (-3.87)
N N P A N A	-3.53 (-3.10)	-3.90 (-3.87)	-4.54 (-3.99)	-4.06 (-3.79)	-4.73 (-3.12)
N I I T I	-3.81 (-3.10)	-3.83 (-3.79)	-4.35 (-3.99)	-3.69 (-3.12)	-4.33 (-3.79)

Source: Author's own estimate

To determine the stationarity property of the variables under our study, results from table 6.52 & 6.53 revealed that the ADF values are upper than the critical t-value at 5% level of significance for all variables at level [I(0)]. Based on these results, which indicates that series have unit roots at level can be rejected. Therefore, the outcomes display that variable of our interest in each cases of merger - namely ROA attained stationary at level [I(0)] using augmented Dickey Fuller Test. The outcomes show that the null hypothesis, which indicate that series of a unit root, may be rejected for the given variable. Therefore in can be infer that variables like ROA -is stationary at level [I(0)]. Thus, the ADF tests also prove that the namely return on assets (ROA) series is stationary. Other variables

like CAR , credit deposit ratio (CDR), spread on total assets (STA), OOETE (other operating expenses to total expenses), net non-performing asset to net asset (NNPANA), NIITI (non-interest income to total assets) have also attained stationary at level I(0) signifying that they are integrated of order zero, I (0). The results show consistency with different lag structures and to the presence of the intercept or intercept and trend.

Since all the variables of our interest like ROA, CDR, CAR, STA, OOETE, NNPANA, NIITI attained stationery at level, simple regression is sufficient to explain properly the impact of several independent variables like CDR, CAR, STA, OOETE, NNPANA and NIITI on profitability (ROA).

6. F: Analysis of results based on Executives (Primary) Survey on Merger of Indian Commercial Banks:

The executives' survey is the innovative way with the focus on factors leading to taking decisions for M&As of Indian commercial Banks. The object of this research is to find out the various factors that affect M&As decision of Indian commercial bank. The study is also encouraged to find out the motives for M&As of Indian commercial banks, which are based on industry executives' survey and their perception about the corporate restructuring process for M&As of Indian commercial banks.

Table-6.54 pronounces the sharing of the positions of the managerial executives, working experience and location of their place of working, who participated in the research process and filled up the questionnaires.

Table: 6.54 Nature of employment of respondents

Nature of employment of respondents	Total no of respondents
Banks & Financial Institutions	40
Corporate Executives	40
Professionals(Corporate)	80
Total	160

Source: Authors' estimation from collected primary data

The final self-structure questionnaire comprising 15 questions in pdf format has been finalized and circulated through email among nearly 160 respondents located in PAN India basis. The questionnaire attached with a request letter clarifying briefly the purpose of the study. It was also provided an additional comfort to make an assurance to the confidentiality of the opinion shared by the executives/respondents. Finally, the duly filled up questionnaire from executives/respondents were acknowledged after putting numerous reminders over tele calling, e-mail or sometimes SMS or WhatsApp messaging etc. After examining 115 complete filled questionnaires, 107 are found to be fits and proper for use and residual 8 questionnaires are excluded on ground of improperness (incomplete in nature).

The table 6.55 displays that about 24% (26) of the executives/respondents are working in Bank & Financial Institution, holding the position of VP/CEO in the merging bank, while 26% are Corporate Executives and 49.5% are Professional (Corporate). Most of the executives responded in the survey belong to corporate bodies. The views they perceived and conveyed in questionnaire are theoretical to be voluntary, pre-thought, unbiasedness and well constructive.

Table: 6.55 Job Titles of Respondent Executives

Nature of employment of respondents	Total respondent	% of total respondent
Bank & Financial Institution	26	24.30
Corporate Executive	28	26.17
Professional (Corporate)	53	49.53
Total	107	100

Source: Authors' estimation from collected primary data

For insight in details information about the perception of respondents and uniformity of study, we have classified the respondents into four clutches such as Legal & regulatory experts, Financial and Professional executives, Engineering, Technical & Executive Manager and others. Job skill of executives/respondents are judged by looking over their name and designation written on the questionnaire and partly it has been confirmed and supported by means of personal contact with them over telephone, email, SMS and WhatsApp etc.. It should be obviously cited to escape any kind of doubt in understanding that the executives/respondents expected their view in respect to transferee/acquiring bank closely after merger took place. Actually, legal & regulatory expert having qualification of CS (Company Secretary) & LLB assist internal legal restructuring of business as well as external and regulatory approval of corporate entities by managing regulatory approval from different agencies like RBI, Competition Commission of India (CCI), SEBI, National Company Law Board Tribunal (NCLT) etc. Finance professional's executives having ICWAI and CA degree assist corporate entities by way of accounting & finance, taxation, audit and preparation of financial statements, valuation of business & determination of SWAP ratio of the corporate entity at the time of M&As process.

Respondents like engineering and executive managers with BE and MBA degree are involved in grass root level of executive management having middle and lower level managerial position. Consequently, they are most right persons to judge and perceive the direct impact of M&As (merger and acquisitions) in different hierarchies.

Table: 6.56 Educational Qualifications of respondents

Region of survey	Area of survey	No of respondents	Educational Qualifications				Region wise %
			Legal Professional(CS& LLB)	Engineering & Executive Manager (BE & MBA)	Finance Professional (CA& ICWAI)	Others (Ph.D, Graduate & Post Graduate etc)	
North India	Delhi NCR	80	25	22	19	14	79%
	Ambala (HR)	4	1	1	1	1	
West India	Mumbai	11	5	3	2	1	13%
	Bengaluru	4	0	1	3	0	
South India	Chennai	3	0	1	2	0	7%
	Kochi	4	0	0	3	1	
East India	Kolkata	1	0	0	1	0	1%
Total		107	31	28	31	17	
% of different categories having educational qualification			29%	26%	29%	16%	

Source: Author's own estimate

The preference has been emphasized on selection of the executives/respondents, (such as corporate professional and executive managers) with certain extent of industry working experience, knowledge about the M&As process, programme & design and having at least one professional degree like CA, ICWAI, CS, LLB, MBA etc. rather than choosing layman or general people because these professional communities or personalities have enormous acquaintance in restructuring procedure of the corporate bodies or banking

entities. Therefore, the opinion they do have and expressed in the questionnaire are pre-thought and well structured & compatible with present scenario of the banking sector.

Out of 107 usable questionnaires collected from respondents scattered at several parts of India, maximum of the manager executives/respondents resides in the northern part of India(about 79% of total respondents) whereas west India (13% of respondents), south India (7% of respondents) and east India (1% of respondents) are far behind North Indian respondents. The survey reveals that maximum of the executives are legal and financial professionals (about 58% of total respondents).

Based on the differential experience viewed from feedback sheet, we have categorized job knowledge & experience of executives/respondents into 6 parts i.e. 2-5 years, 6-10 years, 11-15 years, 16-20 years, 21-25 years, More than 25 years. In the survey, nearly 70% of the executives are having experience of up to 15 years and remaining 30% are having working experience of more than 15 years. However, prominently, we have observed that respondents having 6-10 years of Jobs Experience is the maximum in percentage.

Table 6.57: Job experience

Jobs Experience	No. of respondent	Percentage
2-5 years	19	18%
6-10 years	40	37%
11-15 years	23	21%
16-20 years	20	19%
21-25 years	4	4%
More than 25 years	1	1%
Total	107	100%

Source: Authors' estimation from collected primary data

Table 6.58: Perception of Executives on Merger Issues

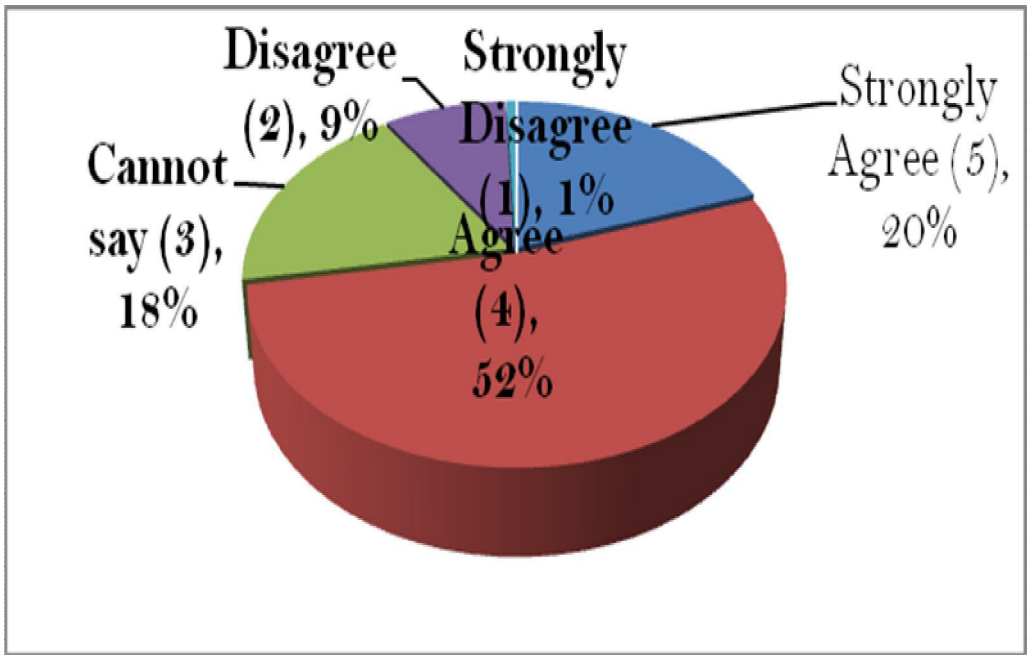
Factors	Strongly agree(5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly disagree (1)	Total no of respondent
1:inorganic growth *	26	67	6	8	0	107
% of total respondent	24%	63%	6%	7%	0%	100%
Q2:Corporate Governance*	15	48	29	14	1	107
% of total respondent	14%	45%	27%	13%	1%	100%
Q3:Shareholders' value*	26	61	11	7	2	107
% of total respondent	24%	57%	10%	7%	2%	100%
Q4:NPA reduction*	12	35	27	31	2	107
% of total respondent	11%	33%	25%	29%	2%	100%
Q5:Size advantage*	26	65	13	3	0	107
% of total respondent	24%	61%	12%	3%	0%	100%
Q6:Financial Inclusion*	20	60	22	5	0	107
% of total respondent*	19%	56%	21%	5%	0%	100%
Q7: CSR	11	37	37	22	0	107
% of total respondent*	10%	35%	35%	21%	0%	100%
Q8:Customer base*	25	66	13	3	0	107
% of total respondent	23%	62%	12%	3%	0%	100%
Q9:New Geo.area*	35	57	13	2	0	107
% of total respondent	33%	53%	12%	2%	0%	100%
Q10:Cost advantage*	32	55	16	4	0	107
% of total respondent	30%	51%	15%	4%	0%	100%
Q11:Brand quality*	17	67	20	3	0	107
% of total respondent	16%	63%	19%	3%	0%	100%
Q12:Risk perception*	10	46	32	17	2	107
% of total respondent	9%	43%	30%	16%	2%	100%
Q13:(HR) integration*	30	51	18	8	0	107
% of total respondent	28%	48%	17%	7%	0%	100%
Q14: Technological advantage*	19	63	20	4	1	107
% of total respondent	18%	59%	19%	4%	1%	100%
Q15:Compliance with more regulations*	13	64	18	10	2	107
% of total respondent	12%	60%	17%	9%	2%	100%
Combined average of all Factors*	21	56	20	9	1	107
% of combined respondent	20%	52%	18%	9%	1%	100%
Rating on perception of combined average	excellent	good	Cannot say	Bad	Very bad	

Source: Authors' estimation from collected primary data

Rating on perception of managers because of combined average suggests that around 72% of the executives are in favour of merger of the said banks posing favorable opinion

(either excellent-20% or good-52%) which indicates that factors undertaken will create positive effect on merged bank.

Fig: 6: Diagrammatic presentation of perception of executives on merger issues



Source: Authors' estimation from collected primary data

6. F.1: Motivation behind mergers in Indian Banks

The purpose of this section is to present the findings on the analysis the comparative importance of motives for M&As of Indian commercial banks. These findings are based on data collected from the questionnaire survey.

Table: 6.59 Relative Importance of Strategic Motives for M&As by Indian banks

Rank	Motivation	mean	S.D
1	Q: Inorganic growth	4.17	0.85
2	Q:Corporate Governance	4.08	0.91
3	Q:Shareholders' value	4.07	0.83
4	Q: NPA	4.06	0.82
5	Q: Size advantage	4.04	0.77
6	Q: Financial Inclusion	3.96	0.93
7	Q: CSR	3.95	0.94
8	Q: Customer base	3.92	0.82
9	Q:New Geo area	3.90	0.87
10	Q: Cost advantage	3.89	0.88
11	Q: Brand quality	3.71	0.95
12	Q: Risk perception	3.60	1.01
13	Q: (HR) integration	3.42	1.04
14	Q:Technological advantage	3.35	1.06
15	Q:Compliance with more regulations	3.22	1.14

Source: Authors' estimation from collected primary data

Notes: (N = 107). The mean is the normal average of on a scale of 1(='no importance') to 5 (= 'very important');

It is evident from the result that **inorganic growth** is ranked highest in the survey (mean 4.17). Inorganic growth arises from M&As or takeovers rather than growth in the company's own business activity. Banks that select to develop inorganically can penetrate to new marketplaces through effective M&As (mergers and acquisitions). Inorganic growth is considered to be a quicker way for a bank to develop compared to organic growth. Actually, inorganic growth tactics denote to growth by takeovers, de-merger, mergers and acquisitions etc., which assume to be fast and allow instantaneous application of acquired assets. Growing banking business inorganically through M&A

process immediately expands merged entity's assets, income, market presence and stronger line of credit.

CG (Corporate Governance) is the second major motive behind merger deal of the banks under our study (mean 4.08). It is believed to be a noteworthy factor behind merger deal of banks under our study. Good corporate governance, being transparent, accountable, approachable, unbiased and comprehensive, effective and proficient, participatory, consensus oriented, brings positive synergies. The economic performance of acquiring bank with upper corporate governance creates more value for the shareholders than the bank with lower corporate governance.

Shareholder Value is the third major motive behind merger deal of the banks under our study (mean 4.07). This suggests that the M&As process can be taken as a technique to augment the wealth of the shareholders. The most the studies show that M&As do create shareholders' value for target bank and in many cases the acquiring bank's shareholders' value tend to lose out because of their dilution of ownership and the high valuation of the target bank. In the long run, M&As usually lead to surge in the stock price of the acquiring (merged) bank. This is because the acquiring (merged) bank will advantage from synergy. M&As provide an opportunity to the buying bank to combine and judiciously utilize resources of combined banks on a broader scale.

NPA (Non-Performing Asset) is the fourth major motive behind merger deal of banks under our study (mean 4.06) which indicates that NPA (Non-Performing Asset) is presumed to be a distinguished drive behind merger deal of banks. The amount of NPA upsets not only the banking industry but also the total business organization and in turn

the economy of the country as a whole. The consolidation of banks may be unique options to decrease NPA in India. NPA denotes to a classification of loans or advances in the book of banks that they are in default. In maximum cases, debt or liability is classified as NPA when loan outlays have not been paid for a period of 90 days. The merged bank now mainly focuses on effective management of NPAs to increase their profitability and thereby provide as much funds as possible to the industry. The merged bank should formulate an innovative method to increase the recovery of loan or advances.

Size advantage is the fifth major motive behind merger deal of the banks under our study (mean 4.04) because the ranking of the transferee bank is upward in the market in aggregate of their combined assets value.

Financial Inclusion is 6th crucial motive behind merger deal of banks under our study (mean: 3.96).This signifies that financial inclusion, an unique of the strategy of M&As of bank is to distribute its network in rural India to provide the basic financial services to poor and underprivileged customers. The intention is to invite large untapped depositor to park their fund in the banking system, which would help to grow economy in the country. It is a win-win position for banks and customers. With the invent of digital banking along with financial inclusion initiative undertaken by the bank, there is an opportunity to increase their household income by exploring the positive synergy M&As process.

CSR (corporate social responsibility) is believed to be a notable drive behind merger deal of banks under our study (mean 3.95).This confirms that CSR is a vital aspect of strategic decision-making in M&A strategy of banks in India. It (CSR) is more than a management buzzword. Numerous elements of CSR motivates a Bank's tendency to pursue M&As activity, as well as its post-merger integration achievement. Banks adopt

ethical behaviors and enhance economic development with the intention of improving the quality of life of its employees, the surrounding community and society after the marriage to maximize the value of stakeholders. By using social value (SV), the merged bank can increase the economic value for the stakeholders.

Customer base is another major motive behind merger deal of banks under our study (mean 3.92). It is so because the combined customer base of transferee/merged bank would always be greater than earlier. The merged bank may be capable to provide better quality of products and services at an affordable price with greater level of satisfaction than before. The synergy effect of merged bank would increase efficiency in terms of providing service, which in turn lowers the price. Therefore, it is false that the effect of M&A of banks on consumers would always be positive but it depends upon on other factors such as nature of Industry and market competition and other factors.

Exploring new geographical area for expanding banking business opportunity is ranked highest in the survey (mean 3.90). For example, an east India based bank can explore the new opportunity in south India with a very short time only through M&A process. Market power helps transferee bank to cross sell its products in the new geographical area through its acquiring existing branch networks. Merger and acquisition are used to surge market power when the bank acquires through another bank in different geographical area.

Cost advantage is the second major motive behind merger deal of the banks under our study (mean: 3.89**)** because the transferee bank can access the low cost funds (such as CASA deposit through retail banking) by acquiring other bank which would help the merged entity to grow faster than other by creating good margin in terms of advances.

Brand quality poses a crucial motive behind merger deal of banks under our study (mean: 3.71).The M&A of bank can keep the values inherent in the brand image and the overall experience intact so that customers can still remain confident that nothing actually will change as these acquisitions often promise. Therefore, the challenge of merged bank is to retain or maintain the superior brand after the M&A and to ensure that customers' attitudes will remain loyal to their brand.

Risk perception is believed to be a remarkable factor behind merger deal of banks under our study (mean 3.60). M&A is often the right choice for growth. M&A can maximize the chances for a successful marriage while controlling the inherent risk in any business combination. The risk may be the policy risk, ethical risk, regulatory risk, labour/employment risk, operational risk, financial risk, Intellectual property risk and others. Recent deregulation allowing the development of nationwide banking has made it easier for banks to diversify their risks, but it has also made it easier for them to grow. The merged bank will take prompt action to mitigate the risk within a short time.

HR Integration is another major motive behind merger deal of banks under our study (mean 3.42).It indicates that HR integration creates a big challenge for the M&A process of our study. Post-merger HR integration has to play a strategic and critical role to achieve a successful objective of the buying (merged) bank. Previous experience shows that a main reason for M&A failures is the inability to handle proper human resource integration. The proper dealing with the issues related to its employees and cultural integration are the tough task of HR department. The formulating strategy without considering employees concern can be a big mistake for the merged bank. For efficiently managing this part, many companies undertake feasibility study before taking any

decision about what kind of people, capability and commitment the merged bank would want attain to its objective.

Technological advantage is considered a vital motive behind M&As (merger and acquisitions) deal of banks under our study (mean 3.35). This is an indication of the circumstance that banks are now chasing more M&As to gain digital competences. This deal can help organizations acquire the necessary capabilities to bolster data management functions and deliver more accurate, consistent, timely, and secure information with minimum cost. With digital driving creates new business growth. Banks are augmenting their digital progress with M&As arrangements. M&A can be a more efficient way to attain technology improvements than developing them in-house. It is likely that banks may want to allot more capital for technology infrastructure investments.

The motive as **'Compliance with more regulations'** is supposed to be a significant ingredient behind merger deal of banks under our study (mean 3.22).The interpretation lying behind the fact is that the strategies of M&A originate from commercial aspects, its implementation needs to be carried out keeping in notice with the legal framework, tax and other cost aspects, contractual obligations etc. The Indian's regulatory framework allows for several modes of carrying out M&A transactions in India. The legal complexity of a merged bank depends upon the nature of activities, size, geographical, sectoral regulation and mode of transaction finalized. The legal background for Mergers differs from Acquisitions in India. Mergers refer to process of consolidation of banks in which any single or all banks lose their legal identity, whereas Acquisitions denote to buyout of controlling majority stakes of one bank by another. In these circumstances, the legal identity of the merged/acquired bank continues.

Reliability statistics:

An investigation, through the data, had been made to check whether random Error is triggering discrepancy and in turn lower reliability is at a manageable level or not, by running reliability test.

Table 6.60 Case Processing Summary

		N	%
Cases	Valid	107	100.0
	Excludeda	0	.0
	Total	107	100.0
a. List wise deletion based on all variables in the procedure.			

Sources: Calculated from primary survey data using SPSS

From table 6.61, it is clear that the values of coefficient Alpha (Cronbach's Alpha) have been obtained; the minimum value of coefficient Alpha obtained was 0.734.

Table 6.61: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
0.734	0.739	16

Sources: Calculated from primary survey data

This shows that data has satisfactory internal consistency reliability (A reliability coefficient of 0.70 or higher is considered "Acceptable" in most social science research situation.

Table 6.62: Correlation Matrix

		IG	CG	SV	NPA	SA	FI	CSR	CB	NGA	CA	BQ	RP	HRI	TA	CWR
Correlation	IG	1.000	.352	.496	.314	.466	.323	.285	.367	-.011	.115	.204	.330	-.054	.181	.268
	CG	.352	1.000	.386	.342	-.345	.397	.450	-.216	-.187	.019	-.057	.164	-.049	-.094	.106
	SV	.496	.386	1.000	.316	-.275	.348	.023	-.092	-.172	.008	-.045	.118	.017	.086	.029
	NPA	.314	.342	.316	1.000	.358	-.327	.260	-.083	.002	-.026	.160	.298	-.051	.137	.134
	SA	.466	-.345	-.275	.358	1.000	.349	.112	.312	.348	.243	.275	-.234	.053	.156	.048
	FI	.323	.397	.348	-.327	.349	1.000	.367	.049	.087	.162	.037	-.187	.122	-.022	.022
	CSR	.285	.450	.023	.260	.112	.367	1.000	-.076	.016	.086	.017	.202	.187	-.025	.091
	CB	.367	-.216	-.092	-.083	.312	.049	-.076	1.000	.570	.363	.337	-.111	-.107	.155	-.020
	NGA	-.011	-.187	-.172	.002	.348	.087	.016	.570	1.000	.327	.267	-.017	.090	.243	-.048
	CA	.115	.019	.008	-.026	.243	.162	.086	.363	.327	1.000	.434	.178	.004	.010	.036
	BQ	.204	-.057	-.045	.160	.275	.037	.017	.337	.267	.434	1.000	.177	.058	.145	.135
	RP	.330	.164	.118	.298	-.234	-.187	.202	-.111	-.017	.178	.177	1.000	-.081	.132	.059
	HRI	-.054	-.049	.017	-.051	.053	.122	.187	-.107	.090	.004	.058	-.081	1.000	.020	-.144
	TA	.181	-.094	.086	.137	.156	-.022	-.025	.155	.243	.010	.145	.132	.020	1.000	.346
	CWR	.268	.106	.029	.134	.048	.022	.091	-.020	-.048	.036	.135	.059	-.144	.346	1.000
Sig. (1-tailed)	IG		.000	.063	.000	.050	.046	.001	.042	.455	.119	.017	.000	.291	.031	.003
	CG	.000		.089	.000	.022	.001	.000	.013	.027	.423	.278	.046	.309	.168	.140
	SV	.063	.089		.235	.120	.111	.406	.172	.038	.467	.324	.112	.432	.188	.383
	NPA	.000	.000	.235		.077	.089	.003	.197	.490	.397	.050	.001	.301	.080	.084
	SA	.050	.022	.120	.077		.005	.125	.001	.000	.006	.002	.008	.295	.054	.313
	FI	.046	.001	.111	.089	.005		.000	.309	.186	.048	.353	.027	.105	.412	.412
	CSR	.001	.000	.406	.003	.125	.000		.219	.434	.189	.432	.018	.027	.401	.176
	CB	.042	.013	.172	.197	.001	.309	.219		.000	.000	.000	.127	.135	.055	.419
	NGA	.455	.027	.038	.490	.000	.186	.434	.000		.000	.003	.433	.178	.006	.313
	CA	.119	.423	.467	.397	.006	.048	.189	.000	.000		.000	.033	.485	.459	.356
	BQ	.017	.278	.324	.050	.002	.353	.432	.000	.003	.000		.034	.276	.068	.083
	RP	.000	.046	.112	.001	.008	.027	.018	.127	.433	.033	.034		.203	.087	.274
	HRI	.291	.309	.432	.301	.295	.105	.027	.135	.178	.485	.276	.203		.417	.069
	TA	.031	.168	.188	.080	.054	.412	.401	.055	.006	.459	.068	.087	.417		.000
	CWR	.003	.140	.383	.084	.313	.412	.176	.419	.313	.356	.083	.274	.069	.000	
a. Determinant = .005																

Source: Authors' estimation from collected primary data

A correlation matrix (CM) is showing the relationships between the variables. The Exploratory Factor Analysis (EFA) process can be elucidated the relationships of

individual variables in easy way with the help of correlation matrix. Many investigators had used the popular correlation matrix for investigating their research works. Among them, Henson and Roberts (2006) and Tabachnick and Fidell (2007) are the famous investigators, who used this popular concept in their study. There was no ideal thumb rule for correlation coefficients. Tabachnick & Fidell (2007) suggested coefficient of correlation matrix (often-termed Factorability of *R*) for over 0.30. Hair et al. (1995) classified the three types coefficient of correlation as a rule of thumb such as ±0.30=minimal, ±0.40=important, and ±.50=practically significant. Exploratory Factor Analysis may not be ideal statistical tool for the researchers, if the coefficient of correlation does not go beyond 0.30. It is a data reduction technique from large number of variable to smaller common number of variables. In other words a factorability of 0.30 or 30% indicates that a third of the variable from the whole have much stronger relationship or variance. Each factor explain certain amount of total variance and explain how the few factors carry the maximum % of total variance. It also help to determine if the variables are correlated with each other or the dependent variable (multicolinearity).

Table 6.62 shows the relationship between the dimensions of executives' perception regarding merger of Indian commercial banks. There is positive correlation between IG and CG (0.352), IG and SV (0.496), IG and NPA (0.314), IG and SA(0.466), IG and FI (0.323), IG and CSR (0.285), IG and CB (0.367), IG and CA(0.115), IG and BQ (0.204), IG and RP (0.330), IG and TA (0.181), IG and CWR (0.268) and insignificant negative correlation between IG and NGA (-0.011), IG and HRI (-0.054) and so on.

6. F.2: Model Validity regarding perception of executives about banks' merger with Factor Analysis:

FA (Factor analysis) is the procedure, which have constantly been applied to conduct, recognize, identify and diminish big numbers from the questionnaire in to a small number of dependent variable in a research. Here, factor analysis is used to construct the new factors affecting executives' insight regarding M&As (merger and acquisitions) of Indian commercial banks. Bartlett's test of Sphericity is founded on chi-square transformation of the factor of correlation matrix. KMO test was done to identify whether the data is suitable for factor analysis. Bartlett's test of sphericity and the Kaiser-Meyer-Olkin find out the sampling adequacy. The said tests can be applied to find out the factorability of the matrix as a full. It is an index to look at the suitability of factor analysis. The value lies between 0.5 and 1.0 are treated as high value and specify factor analysis is suitable for use. The value less than 0.5 indicate that factor analysis may not be suitable for use.

Table 6.63: KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.63
Bartlett's Test of Sphericity	Approx. Chi-Square	317.795
	df	105
	Sig.	0

Sources: Calculated from primary survey data using SPSS

The outcomes display that Bartlett's test of sphericity is noteworthy ($p<0.001$, $p=0.000$). It showed statistically significant numbers of correlations among the variables (Approx. chi-square =317.795, degree of freedom= 105, significance=.000). In addition, the Kaiser-Meyer-Olkin measure of sampling adequacy is 0.630 (from the table 6.63),

which is greater than 0.6 indicating a strong sampling adequacy of all the statements selected in the FA (factor analysis). The FA (factor analysis) made is also significant since p=0.000. It is recommended that if the Bartlett's test of sphericity is noteworthy, and if the Kaiser-Meyer-Olkin measure is upper than 0.6, then factorability is presumed. It is observed that KMO being 0.630 specifies that there is no error in 63% of the sample and in the residual 37%, there may be approximately some sort of error. Barlett's test of silliness specifies that effectiveness of connection among variables are strong. It describes good indication to develop factor analysis for the data. Thus, based from the results, it is appropriate to proceed with factor analysis to examine factors that affect executives' opinion regarding M&As (merger and acquisitions) of Indian commercial banks.

The concept of Eigen value is used for signifying the total variance clarified by each factor and the percentage (%) of the total variance triggered to each factor. One of the common approaches used in EFA (exploratory factor analysis) is principle component analysis (PCA). In EFA, where the total variance is measured to decide the least number of factors that will account for maximum variance of data depicted.

Table 6.64: Communalities		
	Initial	Extraction
IG	1.000	0.541
CG	1.000	0.709
SV	1.000	0.789
NPA	1.000	0.573
SA	1.000	0.559
FI	1.000	0.718
CSR	1.000	0.666
CB	1.000	0.656
NGA	1.000	0.643
CA	1.000	0.693
BQ	1.000	0.534
RP	1.000	0.736
HRI	1.000	0.850
TA	1.000	0.751
CWR	1.000	0.638
Extraction Method: Principal Component Analysis.		

Sources: Calculated from primary survey data using SPSS

Table 6.65: Total Variance Explained

Component		Rotation Sums of Squared Loadings			
		Total	Total	% of Variance	Cumulative %
Dimension	1	2.470	2.470	16.465	16.465
	2	2.089	2.089	13.929	30.394
	3	1.746	1.746	11.643	42.037
	4	1.512	1.512	10.080	52.116
	5	1.154	1.154	7.691	59.807
	6	1.084	1.084	7.230	67.037

Sources: Calculated from primary survey data

Table 6.64 & 6.65 displays the actual factors that were pullout (extracted). “Rotation Sums of Squared Loadings,” where by extraction method, it will identify the factors, which satisfy the “criterion of cut off’. In the study six factor are identified, where Eigen values are greater than 1. The column showing “percentage of variance” reveals that the

total variability of all variable taken into consideration can be identified by each and every scales or factors obtained in form of summary. Factor 1 account for 16.465% of the variability in all 15 variables, and so on.

For extracting factors, Principal Component Analysis (PCA) was used. Latent Root Criterion (factors, whose Eigen value are greater than 1) was used for finalizing the number of factors. This reveals that from the 15 items affecting executives insight into M&As (merger and acquisitions) of Indian commercial banks included in factor analysis, only 6 dimensions were extracted; therefore, 6 factors have been taken depending on Eigen values and variance clarified by each factor emerged with a cumulative variance of 67 percent. This indicated that 6 dimensions explained 67 percent variance of the executives' insight into M&As (merger and acquisitions) of Indian commercial banks. Therefore, from table 6.65, it is clearly visible that Eigen values of 6 factors are more than 1. It is clearly visible from table 6.65 that approximate 67% of variance has been explained by 6 factors.

From the table, the number of 15 variables are now shortened to 6 components or factors donating 67% of the TV (total variance). It describes the factors from1 to 6, which are much closed to the required level of 67% cumulative variance. Investigator can just envisage Factors 1 to 6 which are condensed with Eigen values upper than 1.000 according to the Scree Plot as per Fig. 7.

Fig: 7: Scree Plot

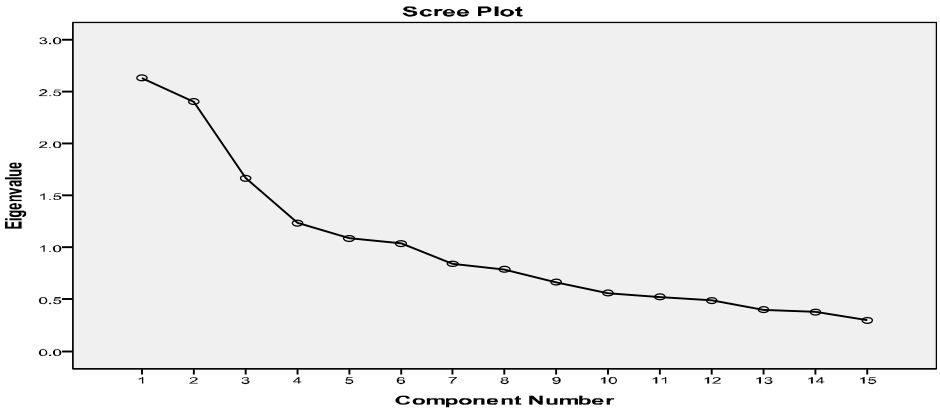


Table 6.66 shows the Rotated Component Matrix (RCM) for the questionnaire. Lastly, the RCM (Rotated Component Matrix) displays us the factor loadings for each variable. We now come across each row and highlight the factor that each variable loaded most powerfully. After performing Varimax Rotation Method (VRM) with Kaiser Normalization, Factor 1 comprised of five items with factor loadings ranging from 0.524 to 0.763. The items in Factor 1 are SA, CB, NGA, CA and BQ. Therefore, SA, CB, NGA, CA and BQ- all subtests loaded strongly on Factor 1, which we will call inorganic growth.

Table 6.66: Rotated Component Matrix						
	Component					
	1	2	3	4	5	6
IG	.133	.409	**.466**	.338	-.147	.056
CG	-.180	**.780**	.193	-.022	-.173	.021
SV	-.092	.042	.067	.127	.050	**.869**
NPA	-.030	.376	**.522**	.253	.007	-.305
SA	**.524**	.229	-.372	.244	.083	-.167
FI	.179	**.658**	-.464	-.023	.091	.171
CSR	.022	**.764**	.141	.010	.245	-.040
CB	**.763**	-.150	-.139	.063	-.133	-.098
NGA	**.707**	-.099	-.077	.111	.218	-.260
CA	**.742**	.133	.141	-.185	-.092	.250
BQ	**.663**	.022	.285	.104	.032	.035
RP	.065	.066	**.839**	-.005	.008	.151
HRI	-.004	.084	-.040	-.058	**.914**	.048
TA	.162	-.142	.087	**.810**	.195	.049
CWR	-.023	.137	.029	**.732**	-.277	.070
Extraction Method: Principal Component Analysis (PCA). Rotation Method: Varimax with Kaiser Normalization.						
a. Rotation converged in 15 iterations.						

Sources: Calculated from primary survey data using SPSS

Factor 2 (table 6.66) comprised of three items with factor loadings ranging from 0.658 to 0.780. The items in Factor 2 are CG, FI and CSR. Therefore, CG, FI, CSR -all loaded strongly on Factor 2, which we will call 'corporate governance'. Factor 3 comprised of three items with factor loadings ranging from 0.466 to 0.839. The items in Factor 3 are IG, NPA and RP. Therefore, IG, NPA, RP- all loaded strongly on Factor 3, which we will call 'shareholders value'. Factor 4 comprised of two items with factor loadings 0.732 and 0.810 respectively. The items in Factor 4 are TA and CWR. Therefore, TA, CWR-all loaded strongly on Factor 4, which we will call Non- performing assets. Each of Factor 5 and Factor 6 comprised of one item. The factor loadings are 0.914 and 0.869 respectively.

The item in Factor 5 is HRI and the item in Factor 6 is SV. HRI loaded strongly on Factor 5, which we will call size advantage and SV loaded strongly on Factor 6, which we will call financial inclusion.

Finally, we derive new six factors, which were efficaciously created by using factor analysis. We assigned serial number of each factor, which are affecting executives insight into M&As (merger and acquisitions) of Indian commercial banks. Table 6.67 shows the name of each new factors and assigned % of variance clarified of each factors. The first factor always displays the maximum % of variance explained and gradually come down on second and third and so on. When the factor 1 namely inorganic growth (covering SA, CB, NGA, CA and BQ) was extracted and explained 16.465 percent of total variance as per the table and so on.

Table 6.67: New Factors with the Percentage of Variance

Factor	Items included	Percentage of Variance
1	SA, CB, NGA, CA, BQ	16.465
2	CG, FI, CSR	13.929
3	IG, NPA, RP	11.643
4	TA,CWR	10.080
5	HRI	7.691
6	SV	7.230

Sources: Calculated from primary survey data using SPSS

6. F.3: Ordinal Logistic Regression:

Ordinal logistic regression was used because there is ordering (from small to high) in the dependent variable (quality). It models the possibility of an event in comparison to all other events. The ordinal logistic regression model is known as the proportional-odds model since the odds ratio of the outcome is independent of the category j. The odds ratio is presumed to be fixed for all categories. It concurrently generates multiple equations

(cumulative probability). The number of equations it estimates is 1 less than the number of categories in the dependent variable. Ordinal logistic regression gives only one set of coefficients for each independent variable. Thus, the coefficients for the variables do not fluctuate meaningfully if they were estimated individually. The intercepts differ, but the slopes are fundamentally the same.

OLR (Ordinal Logistic Regression) assumed that there must be one dependent variable. It means that there would be no multiple dependent variables in ordinal regression; another is Parallel lines assumption. It indicates that for each category, there would be one regression equation. This assumption is dependent upon number of cases. If there are large number of cases in the sample, it is likely to present a statistically noteworthy value and indicate that the presumption of parallel regression is violated. Third assumption is that there must be adequate cell count. It is also required that 80% of cells should have counts with more than 5. There must not be a zero count for any of the cells.

Before considering individual predictors of the model, it is important to investigate whether model provide sufficient prediction. Therefore, we shall examine the model fitting information in Table 6.68. Model-fitting information was employed to check whether there is a connection between the model without predictor variables and the model with independent variables. From Table 6.68, the entry labeled ‘Model’ indicates the parameters of the model for which the model fit is evaluated. ‘Intercept only’ shows a model that does not control for any predictor variables and simply fits an intercept to forecast the outcome variable. The entry labeled ‘Final’ describes a model that involves the specified predictor variables. This was obtained through a process, which maximized

the log likelihood of the outcome variables. The final model shows an improvement over the 'Intercept Only' model. The entry labeled 'Chi-square' is assume to be difference between two -2 log-likelihood values. The observed significance level is 0.000, which is explicitly less than 0.05. Hence, we have no other alternatives but to reject the null hypothesis, which indicate that the model without predictors is nearly equivalent to the model with the predictors.

Table 6.68: Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	240.775			
Final	117.068	123.707	6	.000
Link function: Logit.				

Before considering individual coefficients, we shall give a look at the test of the null hypothesis that the location coefficients for all of the variables in the model are '0'. We can base this on the change in–2 log-likelihood when the variables are included with a model that includes the intercept only. The change noticed in likelihood function is having a chi-square distribution even if there exists cells having small observed and predicted counts.

The goodness-of fit test was applied to check if the sample came from the population with the specified distribution. The significant chi-square statistic reveals that the model provides a noteworthy improvement over the baseline intercept-only model. It primarily depicts that the model provides a better predictions than the marginal probabilities for the outcome categories. The Goodness-of-Fit is given in Table 6.69, which contains Pearson's chi-square statistic in the model, and also chi-square statistic, which is based

upon deviance. Those statistics are used to examine whether observed data are incompatible with the fitted model. When the significant values are large, then one can come to the conclusion that there is a similarity between the data and model predictions and we can conclude that we are having a good model. The large value for significant value shows that we are having a good model. On the contrary, from Table 6.69, we see that the observed significance level for Pearson is 0.000 and Deviance is 1.000, which is more than 0.05; hence, the model fits the data well.

Table 6.69: Goodness-of-Fit

	Chi-Square	Df	Sig.
Pearson	8302.705	270	.000
Deviance	114.296	270	1.000
Link function: Logit.			

In the model with linear regression, the coefficient of determination recapitulates the proportion of variance in the dependent variable connected with the predictor variables, with high values which shows that the model explain the maximum variation. For regression models having a categorical dependent variable, it is impossible to calculate a single statistic, which has all the distinctiveness of the linear regression model. The following procedures are adopted to compute the coefficient of determination. Cox and Snell (1989) (R-Square) is dependent on log likelihood as compared to the log likelihood of a baseline model. With categorical results, it is having a theoretical maximum value which is less than 1, Nagelkerke (1991) (R-Square) is a modified version of the Cox & Snell which adjusts the scale of the statistic so that it can cover the range lying between 0 to 1**.** McFadden (1974) (R-Square) is another modified version, which is dependent on log-likelihood kernels for the model with “intercept-only”. The model having largest

statistic is “best” according to this measure. Table 6.70 shows these values, which indicate the fitting model is good according to these measures.

Table 6.70: Pseudo R-Square	
Cox and Snell	0.685
Nagelkerke	0.764
McFadden	0.508
Link function: Logit.	

Source: Calculated from primary survey data using SPSS

This test was carried out to check if the regression coefficients are similar to the various categories. The very strong assumption for the ordinal logistic regression technique is the connection between the predictor variables and the logits must be the same. Therefore, the slopes must be same.

Table 6.71 shows that the row labeled ‘Null’ contains -2 log-likelihood values for the constrained model, the model that assumes the lines are parallel. The row labeled ‘General’s for the model with separate lines or planes. The entry labeled ‘Chi-square’ is the deviation between the two -2 log-likelihood values. The p-value is 0.066, which is not less than 0.05, so we accept null hypothesis and come to the conclusion that there noteworthy variance in the coefficients between the models. This is a strict agreement of the parallel line assumption since the connection between the predictor variables are identical for all the logits. For our models, the test of parallel lines will assist us to judge whether the presumption that the parameters are identical for all categories is justifiable. This test contrast the estimated model with one set of coefficients for all categories to a model with a separate set of coefficients for each category. We see from Table 6.71 that the assumption is plausible for this problem where the observed significant level is large.

Table 6.71:Test of Parallel Lines[a]				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	117.068			
General	97.013	20.055	12	.066
The null hypothesis describe that the location parameters are identical across response categories.				
a. Link function: Logit.				

We also want to test the presumption that the regression coefficients are identical for all categories. If we reject the presumption of parallelism, we should take into consider using multinomial regression that assesses separate coefficients for everycategory. Since the observed significance level in Table 6.70 is large, we do not have adequate proof to reject the parallelism hypothesis.

Table 6.72: Parameter Estimates								
							95% Confidence Interval	
		Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Threshold	[mg = 2.00]	7.379	2.452	9.058	1	.003	2.574	12.185
	[mg = 3.00]	12.278	2.668	21.175	1	.000	7.049	17.508
	[mg = 4.00]	17.683	3.030	34.047	1	.000	11.743	23.622
Location	IG	-.073	.342	.045	1	.831	-.743	.597
	CG	3.756	.516	53.071	1	.000	2.746	4.767
	SV	.071	.269	.069	1	.793	-.457	.598
	NPA	.316	.263	1.441	1	.230	-.200	.831
	SA	.049	.371	.017	1	.896	-.679	.776
	FI	-.272	.344	.628	1	.428	-.946	.401
Link function: Logit.								

**The Wald statistic is the square of the ratio of the coefficient to its standard error.

The examination of the estimated parameters (table no. 6.72) reveals that the effect of corporate governance upon merger deal of selected Indian commercial banks has statistically significant importance over the merger decision. The coefficient value of factor 2 is significantly positive, meaning that the executives who consider CG-corporate governance, FI-financial inclusion and CSR-corporate social responsibility to be the most vital factors in merging decision of different Indian banks will go on supporting frequently by casting their preference to corporate governance, financial inclusion and CSR compared to the executives who consider that those- corporate governance, financial inclusion and corporate social responsibility - are not so vital factor. Other notable factors like factor 1(comprising SA-size advantage, CB-customer base, NGA -new geographical

area, CA -cost advantage and BQ-brand quality), factor 3 (comprising IG-inorganic growth, NPA-non-performing assets and RP-risk perception), factor 4 (comprising TA-technological advantage, CWR-compliance with more regulations), factor5 (comprising HRI- HR integration) and at last factor 6 (comprising SV-shareholders value) are not so vital factors in determining the M&As decision of selected Indian commercial banks as suggested by ordinal regression..

In conclusion, following the application and validation of the ordinal logit model, it has resulted that the sixth factors are confirmed, which were supposed to have influence on merger decision of Indian banks. However, from the computed results, one can conclude that most of the executives think that corporate governance, corporate social responsibility and financial inclusion in particular, have an important effect on the M&As (merging and acquisitions) decision of Indian commercial banks.