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FINANCIAL PERFORMANCE EVALUATION OF INDIAN COMMERCIAL BANKS AFTER MERGER AND ACQUISITION

(A study with reference to selected Merged Banks in India)

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ABSTRACT

The present paper evaluates the impact of Merger and Acquisition on the financial performance of selected commercial banks in India. Like any other business organization Banks also wants to safeguard against risk and wants to reach heights and recent trends. Merger and Acquisition in Banking sector is on rise in India as well as globally. The Indian banking sector is the biggest sector of the country and the soundness of banking sector plays very important role in the development of the economy. For the purpose of analyzing the impact of Merger and Acquisition on financial performance, a case of Centurion Bank of Punjab Ltd and HDFC Bank Ltd is selected through judgment as sample case. Data on variables using CAMEL (Capital Adequacy, Asset Quality, Management Quality, Earning Quality and Liquidity) model was collected from the annual reports of the selected banks using CAPITA LINE database. Secondary data were extracted from the financial records of the banks for analyses by considering financial records of ten years; comprising of five-year financial record before the Merger and Acquisition and five-year financial record after the Merger and Acquisition. The study uses T-Test for evaluating the financial performance before and after Merger and Acquisition. From the study it was found that most of the ratios related to capital adequacy, Earning quality and Asset Quality have performed well but most of the ratios related to Management quality (i.e Business per employee and profit per employee) and liquidity ratios have not performed well.

KEYWORDS: Merger, Acquisition, Banks, financial performance

INTRODUCTION

The economy of India is tending to spread very quickly and has been emerging at the highest place whether it is information technology, research and development, pharmaceutical, infrastructure, energy, consumer retail, telecom, banking,financial services, media and hospitality etc. There has been a large change in the perception and working of Commercial banks in India after the fulfillment of banking sector reforms measures. The Indian banks are anticipated to manage the large inflows and outflows of various resources which are of financial nature. For managing the inflow and outflow of financial resources a strong banking system through restructuring is needed. The banking sector of India is examined to be the biggest growing sector and the soundness of the banking system has been extremely important for the development of the country's economy.To meet this changing scenario the bank can adopt the plan of action like consolidation, Mergers and Acquisitions (M&As). Golbe & White, 1993 were among the first to observe the cyclical pattern of Merger and Acquisition (M&As) activity.

Merger and acquisition is a very important tool for the expansion of business in different countries and the researchers from all over the world are taking interest to work in this field Goyal & Joshi, 2011. The growing propensity towards (M&As) all over the world has been driven by increasing competition. There is a requirement to reduce costs, good financial planning, expansion of business. All these could be possible with the help of Mergers and Acquisitions.

MEANING AND DEFINITION OF MERGER AND ACQUISITION

Mergers, Acquisitions and takeovers, consolidation have been a part of the business world for so many years ago. In today's dynamic economic environment, the main objective of a company is to maximize the shareholder's wealth. Through mergers and acquisitions, a company can develop a competitive advantage and ultimately increase shareholder value. The said terms to a layman may seem alike but in legal/corporate terminology, they can be distinguished

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from each other. Greenwood et al., (1994) define, "A merger involves a blend of two companies, rather than mere legal enjoinment or absorption of one firm into another." Kithinji & Waweru, (2007) describe merger as a process in which one of the two companies loses its identity to make a one firm. Kishore, (2009) defined "merger as a transaction involving two or more companies in the exchange of securities and only one company survives"

There are various strategic and financial objectives that influence mergers and acquisitions. According to Sudarsanam, (2003) two organizations with often different corporate personalities, cultures and value systems are bought together.

Pandey, (2011), states a merger is said to occur when two or more companies combine into one company. Laws in India Use the term Amalgamation. According to Pandey, (2011), Merger or Amalgamation may take two forms:

a) Merger through absorption: It is a combination of two or more companies combines together into an existing company. In absorption, all companies except one lose their identity.

b) Merger through consolidation: It is a combination of two or more companies into a new company. In case of consolidation through merger, all companies are legally dissolved and a new entity is created.

According to Depamphilis, (2008) Acquisition involves purchase of another firm's assets or stock. Ross et al., (2004) explains that acquiring all the assets of target firm will avoid the potential problem of having minority shareholders as opposed to acquisition of stock however cost involved in transferring of the assets are generally costly.

Pandey, (2011), defines "Acquisition may be defined as an act of acquiring effective control over assets or management of a company by another company without any combination of business or companies"

Most of the mergers are actually acquisitions in banking sector. An organization or a business actually buys another business and integrate it into its own business representation. Due to the misuse of the term merger, many statistics on merger are presented and a combined terminology Mergers and Acquisitions is used. This gives a wider and more precise view of the merger market.

Table 1: Major Merger and Acquisition in the Indian Banking Sector from FY 1990-2010

S.No	Name of Transferor Bank	Name of Transferee Bank	Date of Amalgmation
01	Sikkim Bank Ltd	Union Bank of India	22.12.1999
02	Times Bank Ltd	HDFC Bank Ltd.	26.02.2000
03	Bank of Madura Ltd	ICICI Bank Ltd.	10.03.2001
04	Benaras State Bank Ltd	Bank of Baroda	20.06.2002
05	Nedugandi Bank Ltd	Punjab National Bank	01.02.2003
06	South Gujrat Local Area Bank Ltd.	Bank of Baroda	25.06.2004
07	Global Trust Bank Ltd.	Oriental Bank of Commerce	14.08.2004
08	Bank of Punjab Ltd.	Centurion Bank	01.10.2005
09	IDBI Bank Ltd.	IDBI Ltd.	02.04.2005
10	The Ganesh Bank of Kurundwad Ltd.	The Federal Bank Ltd.	02.09.2006
11	United Western Bank Ltd.	IDBI Ltd.	03.10.2006
12	Bharat Overseas Bank	Indian Overseas Bank	31.03.2007
13	The Sangli Bank Ltd	ICICI Bank Ltd. (Voluntary)	19.04.2007
14	Lord Krishna Bank Ltd.	Centurion Bank of Punjab Ltd.	29.08.2007
15	Centurian Bank of Punjab Ltd.	HDFC Bank	2008
16	Bank of Rajasthan	ICICI Bank	2010
17	State Bank of Indore Ltd.	State Bank of India	2010

Source: www.rbi.org

REVIEW OF LITERATURE

Over the last few years M&A in the Indian Banking sector is increasing very fast. It seems from the review that various studies are conducted on Merger and Acquisition in the Indian Banking sector especially in commercial banks, but these studies provide mixed results and not adequately explore the other varied dimensions of M&As. These days commercial banks face lot of problems for branch expansion in order to expand their area of operations because it involves a very high cost. Secondly, investors judge the performance of commercial bank on the value of its share price. Khan A. A., (2012), analyses and concluded the M&A is a useful mechanism for development, growth and expansion in the Indian Banking sector. For the purpose of research the researcher has taken two cases. Case I -Global Trust Bank and OBC and Case II- South Gujrat Local Area Bank Ltd and Bank of Baroda. The researcher uses various financial ratios like operating profit margin, Net profit Margin, RONW etc. of the pre and post Merger. For comparing these ratio t-test is applied. The researcher concluded that the various financial parameter of the bank performance have not improved in both cases. In the area of M&A there are very few studies. Kumar S., (2013),observed that after the execution and implementation of reform measures, there has been large changes in the ideas, perceptions and working of commercial banks. The author examines the pre-merger and post-merger performance of two banks i.e Bharat Overseas Bank and Indian overseas Bank by comparing their efficiency parameter like Business per employee, Return on assets, Profit per employee etc. The study concluded that smaller banking firms are less efficient and more risky than larger banking firms. Although individual bank as well as its branch too can be effective, but the combined assets, systems and technology platforms of the corporate parents will reduce the risk and extend the credit, which a single particular bank cannot do. Kouser & Saba, (2012), in the study examines the CAMEL model. The paper states that CAMEL is a suitable and simple model for evaluating the financial and managerial performance of banks. The paper evaluates that CAMEL is the most commonly used model for the assessment of performance and ranking. The ratios based on CAMEL model were analyzed using ANOVA to find out the significant difference between pre and post merger period. Prasad & Ravinder, (2012), evaluates the performance of Banks on the basis of CAMEL model which measures the performance of banks after merger. It examines important financial parameters like Capital Adequacy, Assets Quality, Management efficiency, Earning quality and liquidity. The study has chosen twenty nationalized banks. Mantravadi, P. & Reddy A. V., (2007) analyses the impact of mergers on the operating performance, taking a sampleof public limited in India by evaluating the financial ratios during the period covering 1991-2003. The study observed that there was little variation in terms of impact on operating performance after mergers in different time intervals in India. Alam et al., (2014), examines the various factors which affects the performance of banks after acquisition. The study focused on 47 acquired banks and 33 acquiring banks in ASEAN from 2003 to 2011 by applying matching strategy. The data for banks is obtained from bank scope (Global database of financial Institutions). The macroeconomic and institutional data are obtained from World Bank and Heritage foundation. The study focuses on selected banks. Some specific variables have been taken due to data availability. The study selected independent variables on the basis of CAMEL model. It concluded that before financial crises, the acquired banks are found to have greater loan activities. The study shows that financial crises bring about a change in the factors which affects the banks performance after acquisition. Anderibom et al., (2015), examines the effect of Mergers and Acquisition on the performance of commercial banks in Nigeria with a particular interest in United bank for Africa (UBA) Plc. using CAMEL Approach. The study uses secondary data which is obtained from the financial reports of banks. The author uses pre and post merger data by applying a paired sample t-test. The study reveals that M&A had positive and significant effect on the performance of commercial banks in Nigeria.

OBJECTIVES

The present study is proposed to carry out the following objectives:

1. To identify the reasons of mergers and acquisition on selected commercial banks in India.
2. To evaluate the financial performance of selected commercial banks before and after the merger using CAMEL (Capital Adequacy, Asset Quality, Management Quality, Earning Quality and Liquidity) Model.

Hypothesis of the Study

H_{01} - There is no significance difference between capital adequacy in the pre and post merger period of bank.

H_{02} - There is no significance difference between the asset quality in the pre and post merger period of bank.

H_{03}-There is no significance difference between Management quality in the pre and post merger period of Banks

H_{04} - There is no significance difference between Earning quality in the pre and post merger period of Banks

H_{05} - There is no significance difference between liquidity position in the pre and post merger period of Banks

RESEARCH METHODOLOGY

For the purpose of analyzing the impact of Merger and Acquisition on financial performance, a case of Centurion Bank of Punjab Ltd and HDFC Bank Ltd is selected through judgment as sample case.

Data on variables using CAMEL (Capital Adequacy, Asset Quality, Management Quality, Earning Quality and Liquidity) model was collected from the annual reports of the selected banks using CAPITA LINE database. Secondary data were extracted from the financial records of the banks for analyses by considering financial records of ten years; comprising of five-year financial record before the recapitalization/ consolidation exercise (that brought about merger and acquisition) and five-year financial record after the merger and acquisition strategy has been consummated.

The CAMEL MODEL

CAMEL is a model which is usedfor the performance evaluation of banks. The acronym "CAMEL" refers to the five components namely Capital adequacy, Asset quality, Management, Earnings and Liquidity. For applying the model five main dimensions of performance (Capital adequacy, Assets Quality, Management Efficiency, Earning Quality and Liquidity) are assessed.

THE CAMEL MODEL REPRESENTATION

C: Capital Adequacy: Capital Adequacy Ratio, Total Advances. to total Asset Ratio, Govt. Securities to total investment

A: Asset Quality: Total Advance to Total Deposit Ratio, Credit Deposit Ratio, Investment deposit Ratio, Cash Deposit Ratio, Net NPA to Net Advances

M: Management Efficiency: Business Per Employee, Profit Per employee

E: Earning Quality: Dividend Payout Ratio, Return on Assets, Operating profit by average working fund, Return on equity, Return on Net Worth, Net Profit to total funds, P/E Ratio

L: Liquidity: Liquid Assets to Total Assets, Approved Securities to Total Assets, Liquid Assets to Demand Deposits, Liquid Assets to Total deposits

RESULTS & ANALYSIS

Reasons for the merger of Centurion Bank of Punjab Ltd. & HDFC Bank

Centurion Bank of Punjab Ltd. has not been performing well operationally its costs were high and growth was low as compared to industry standards (Digital Inspiration, 2011).HDFC Bank was looking to grow and keep up with the fast growing economy by increasing their scale and geographical reach. They picked to do this with Centurion Bank of Punjab as they have the similar beliefs with respect to the 'terms of culture, strategic intent and approach to business' and 'also desperately need experienced staff to expand their services'. HDFC Bank planned to expand overseas and already has acquired a license for a branch in Bahrain.' Centurion Bank of Punjab's has expertise in international markets and this will help set the platform to compete in local and global markets(Arora & Abraham, 2011). The amalgamation added significant value to HDFC Bank in terms of increased branch network, geographic reach, and customer base, and a bigger pool of skilled manpower. The reasons for merger were that HDFC bank was looking for appropriate merger opportunity that would add scale, geography, experienced staff to its branches.

Analysis & Interpretation of Centurion Bank of Punjab Ltd. based on t-Test for evaluating the financial performance after Merger & Acquisitions

The Descriptive table 2 displays the sample size, mean, standard deviation, and standard error for both Pre and Post-Merger banks. On average after merger, the capital adequacy ratio of Centurion bank of Punjab Ltd. increased by 4.26%, total advance to total asset increased by 5.22%, Government securities to total investment ratio is decreased by 8.84%, Total Advances to Total deposit Ratio increased by 13.05%, Credit deposit ratio increased by 14.48%, Investment Deposit Ratio increased by 4.35%, Cash deposit Ratio increased by 1.44%, Net NPA to Net advances ratio decreased by 3.12%, Business per employee increased by 2.1223 (Cr.), Profit per employee increased by .0487 (Cr.), Dividend payout ratio is increased by 19.82%, Return on Assets is increased by 1.87%, Operating profit by Average Working Fund is increased by 2.17%, Return on Equity is increased by 12.01%, Return on Net Worth is again increased at same percentage i.e. 12.01%, Net Profit to Total funds is increased by 1.83%, Price Earning Ratio decreased by 4.23%, Liquid Assets to Total Assets decreased by 1.06%, Approved Securities to Total Assets is decreased by 0.0041%, Liquid Assets to Demand Deposits Ratio decreased by 37.29%, Liquid Assets to Total Deposits is decreased by .12%.

The t column displays the observed t statistic for each sample, calculated as the ratio of the difference between sample means divided by the standard error of the difference. The df column displays degrees of freedom. For the independent samples t test, this equals the total number of cases in both samples minus 2. The column labelled Sig. (2-tailed) displays a probability from the t distribution with 9 degrees of freedom. The value listed is the probability of obtaining an absolute value greater than or equal to the observed t statistic, if the difference between the sample means is purely random. The Mean Difference is obtained by subtracting the sample mean for group 2 (the most merger group) from the sample mean for group 1. The 95% Confidence Interval of the Difference provides an estimate of the boundaries between which the true mean difference lies in 95% of all possible random samples (years) of Pre and Post merger of Centurion Bank of Punjab .

The procedure produces two tests of the difference between the two groups. One test assumes that the variances of the two groups are equal. The Levene statistic table 3 tests this assumption. In case of Centurion Bank of Punjab, the significance values of all the statistical variables except Capital adequacy Ratio, total advances to total assets ratio, credit deposit ratio, Net NPA to Net Advances Ratio, Business per employee, Profit per employee, dividend payout ratio, return on assets, operating profit by average working fund, Net profit to total funds ratio, P/E Ratio, Approved Securities to Total Assets, is greater than 0.10 (for Govt. securities to total investment .461>.10 and for Capital Adequacy ratio 0.052<.10), researcher has assumed that the groups have equal variances and ignore the second test. So, in many tables where "equal variances" is assumed, it is only displayed and in others "unequal variances" is displayed.

Variables (ratios), where the significance value of the test is less than 0.05 (for capital adequacy ratio its greater .162>.05 and not significant but for credit deposit ratio its 0.026<0.05 hence significant.

Table 2: Group Statistics of Centurion Bank of Punjab Ltd.

Group Statistics					
Pre-Post-Merger		N	Mean	Std. Deviation	Std. Error Mean
Capital Adequacy Ratio	Pre-Merger	5	11.1000	6.83447	3.05647
	Post-Merger	6	15.3517	.98170	.40078
Total Adv. to Total Asset Ratio	Pre-Merger	5	50.3520	8.07305	3.61038
	Post-Merger	6	55.5650	4.36451	1.78181
Govt. Securities to total Investment	Pre-Merger	5	87.1320	5.28386	2.36301
	Post-Merger	6	78.2917	8.93000	3.64566
Total advances to Total Deposit ratio	Pre-Merger	5	60.9700	12.15489	5.43583
	Post-Merger	6	74.0250	6.75946	2.75954
Credit Deposit Ratio (%)	Pre-Merger	5	58.6180	11.60502	5.18992
	Post-Merger	6	73.0967	6.09933	2.49004
Investment ratio (%)	Pre-Merger	5	35.5700	3.56026	1.59220
	Post-Merger	6	39.9200	4.88745	1.99529
Cash Deposit Ratio (%)	Pre-Merger	5	7.8200	.98572	.44083
	Post-Merger	6	9.2583	2.02301	.82589
Net NPA to Net Advances	Pre-Merger	5	3.4460	2.83025	1.26573
	Post-Merger	6	.3300	.18385	.07506
Business Per Employee (Cr.)	Pre-Merger	5	3.8760	.30411	.13600
	Post-Merger	6	5.9983	1.10342	.45047
Profit Per employee(Cr.)	Pre-Merger	5	.0180	.00447	.00200
	Post-Merger	6	.0667	.02160	.00882
Dividend Payout ratio	Pre-Merger	5	0.0000	0.00000	0.00000
	Post-Merger	6	19.8117	.40750	.16636
Return on Assets (%)	Pre-Merger	5	-.2980	1.72763	.77262
	Post-Merger	6	1.5633	.24369	.09949
Operating Profit by Average Working fund (%)	Pre-Merger	5	.9980	.64005	.28624
	Post-Merger	6	3.1617	.13288	.05425
Return on equity (%)	Pre-Merger	5	4.6280	4.69151	2.09811
	Post-Merger	6	16.6467	3.13557	1.28009
Return on Net Worth(%)	Pre-Merger	5	4.6280	4.69151	2.09811
	Post-Merger	6	16.6467	3.13557	1.28009
Net Profit to Total Funds(%)	Pre-Merger	5	-.2620	1.75629	.78544
	Post-Merger	6	1.5600	.16334	.06668
P/E Ratio (%)	Pre-Merger	5	30.2780	28.30335	12.65764
	Post-Merger	6	26.0333	4.75952	1.94306
Liquid Assets to Total Assets	Pre-Merger	5	10.4300	2.75947	1.23407
	Post-Merger	6	9.3700	2.65000	1.08186
Approved Securities to Total Assets	Pre-Merger	5	.0043	.00315	.00141
	Post-Merger	6	.0002	.00023	.00009
Liquid Assets to Demand Deposits	Pre-Merger	5	96.5380	39.19346	17.52785
	Post-Merger	6	59.2433	12.32885	5.03323
Liquid Assets to Total deposits	Pre-Merger	5	12.4840	2.88317	1.28939
	Post-Merger	6	12.3667	3.45315	1.40974

Table 3: Independent Samples Test of Centurion Bank of Punjab Ltd.

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Capital Adequacy Ratio	Equal variances assumed	5.032	.052	-1.522	9	.162	-4.25167	2.79434	-10.57289	2.06956
	Equal variances not assumed			-1.379	4.138	.238	-4.25167	3.08263	-12.69921	4.19588
Total Adv. to Total Asset Ratio	Equal variances assumed	3.625	.089	-1.369	9	.204	-5.21300	3.80806	-13.82743	3.40143
	Equal variances not assumed			-1.295	5.906	.244	-5.21300	4.02612	-15.10289	4.67689
Govt. Securities to total Investment	Equal variances assumed	.592	.461	1.939	9	.084	8.84033	4.56006	-1.47523	19.15590
	Equal variances not assumed			2.035	8.261	.075	8.84033	4.34449	-1.12324	18.80390
Total advances to Total Deposit ratio	Equal variances assumed	2.605	.141	-2.259	9	.050	-13.05500	5.77786	-26.12542	.01542
	Equal variances not assumed			-2.142	6.008	.076	-13.05500	6.09617	-27.96689	1.85689
Credit Deposit Ratio (%)	Equal variances assumed	3.485	.095	-2.665	9	.026	-14.47867	5.43373	-26.77062	-2.18671
	Equal variances not assumed			-2.515	5.807	.047	-14.47867	5.75635	-28.67802	-.27931
Investment ratio (%)	Equal variances assumed	1.024	.338	-1.652	9	.133	-4.35000	2.63278	-10.30576	1.60576
	Equal variances not assumed			-1.704	8.889	.123	-4.35000	2.55270	-10.13557	1.43557
Cash Deposit Ratio (%)	Equal variances assumed	.990	.346	-1.444	9	.183	-1.43833	.99600	-3.69144	.81478
	Equal variances not assumed			-1.536	7.494	.166	-1.43833	.93618	-3.62277	.74611
Net NPA to Net Advances	Equal variances assumed	12.340	.007	2.720	9	.024	3.11600	1.14554	.52460	5.70740
	Equal variances not assumed			2.458	4.028	.069	3.11600	1.26795	-.39472	6.62672
Business Per Employee (Cr.)	Equal variances assumed	5.649	.041	-4.138	9	.003	-2.12233	.51292	-3.28264	-.96203
	Equal variances not assumed			-4.510	5.892	.004	-2.12233	.47055	-3.27887	-.96579
Profit Per employee(Cr.)	Equal variances assumed	6.401	.032	-4.908	9	.001	-.04867	.00992	-.07110	-.02624
	Equal variances not assumed			-5.382	5.509	.002	-.04867	.00904	-.07128	-.02605
Dividend Payout ratio	Equal variances assumed	34.390	.000	-107.719	9	.000	-19.81167	.18392	-20.22772	-19.39561
	Equal variances not assumed			-119.088	5.000	.000	-19.81167	.16636	-20.23931	-19.38402
Return on Assets (%)	Equal variances assumed	8.771	.016	-2.636	9	.027	-1.86133	.70604	-3.45851	-.26415
	Equal variances not assumed			-2.389	4.133	.073	-1.86133	.77900	-3.99704	.27438

Cont.

Operating Profit by Average Working fund (%)	Equal variances assumed	23.841	.001	-8.157	9	.000	-2.16367	.26525	-2.76370	-1.56363
	Equal variances not assumed			-7.427	4.288	.001	-2.16367	.29134	-2.95156	-1.37577
Return on equity (%)	Equal variances assumed	1.561	.243	-5.084	9	.001	-12.01867	2.36424	-17.36695	-6.67038
	Equal variances not assumed			-4.890	6.781	.002	-12.01867	2.45778	-17.86874	-6.16859
Return on Net Worth(%)	Equal variances assumed	1.561	.243	-5.084	9	.001	-12.01867	2.36424	-17.36695	-6.67038
	Equal variances not assumed			-4.890	6.781	.002	-12.01867	2.45778	-17.86874	-6.16859
Net Profit toTotal Funds(%)	Equal variances assumed	10.047	.011	-2.556	9	.031	-1.82200	.71282	-3.43450	-.20950
	Equal variances not assumed			-2.311	4.058	.081	-1.82200	.78826	-3.99835	.35435
P/E Ratio (%)	Equal variances assumed	34.796	.000	.365	9	.723	4.24467	11.62587	-22.05488	30.54421
	Equal variances not assumed			.331	4.189	.756	4.24467	12.80591	-30.68682	39.17615
Liquid Assets to Total Assets	Equal variances assumed	.001	.972	.649	9	.533	1.06000	1.63445	-2.63738	4.75738
	Equal variances not assumed			.646	8.496	.535	1.06000	1.64115	-2.68636	4.80636
Approved Securities to Total Assets	Equal variances assumed	29.668	.000	3.183	9	.011	.00407	.00128	.00118	.00696
	Equal variances not assumed			2.877	4.034	.045	.00407	.00141	.00015	.00798
Liquid Assets to Demand Deposits	Equal variances assumed	3.161	.109	2.224	9	.053	37.29467	16.77185	-.64589	75.23522
	Equal variances not assumed			2.045	4.662	.100	37.29467	18.23620	-10.62554	85.21487
Liquid Assets to Total deposits	Equal variances assumed	.069	.799	.060	9	.953	.11733	1.94517	-4.28294	4.51760
	Equal variances not assumed			.061	8.996	.952	.11733	1.91047	-4.20478	4.43945

Analysis & Interpretation of HDFC Bank based on t-Test for evaluating the financial performance after Merger and Acquisition

The Descriptive table 4 displays the sample size, mean, standard deviation, and standard error for both Pre and Post-Merger banks. On average after merger, the capital adequacy ratio of HDFC bank increased by 3.47%, total advance to total asset increased by 9.75%, Government securities to total investment ratio is increased by 16.70%, Total Advances to Total deposit Ratio increased by 11.47%, Credit deposit ratio increased by 13.29%, Investment Deposit Ratio decreased by 16.64%, Cash deposit Ratio increased by 1.67%, Net NPA to Net advances ratio increased by .002%, Business per employee decreased by 1.8057 (Cr.), Profit per employee decreased by .0153 (Cr.), Dividend payout ratio is decreased by 1.19%, Return on Assets is increased by 1.123%, Operating profit by Average Working Fund is increased by 0.476%, Return on Equity is decreased by 2.32%, Return on Net Worth is again decreased at same percentage i.e. 2.32%, Net Profit to Total funds is increased by 0.156%, Price Earning Ratio increased by 1.76%, Liquid Assets to Total Assets decreased by 0.24%, Approved Securities to Total Assets is decreased by 0.0145%, Liquid Assets to Demand Deposits Ratio increased by 11.88%, Liquid Assets to Total Deposits is decreased by .7513%.

The t column displays the observed t statistic for each sample, calculated as the ratio of the difference between sample means divided by the standard error of the difference. The df column displays degrees of freedom. For the independent samples t test, this equals the total number of cases in both samples minus 2. The column labeled Sig. (2-tailed) displays a probability from the t distribution with 9 degrees of freedom. The value listed is the probability of obtaining an absolute value greater than or equal to the observed t statistic, if the difference between the sample means is purely random. The Mean Difference is obtained by subtracting the sample mean for group 2 (the most merger group) from the sample mean for group 1. The 95% Confidence Interval of the Difference provides an estimate of the boundaries between which the true mean difference lies in 95% of all possible random samples (years) of Pre and Post merger of Centurion Bank of Punjab .

The procedure produces two tests of the difference between the two groups. One test assumes that the variances of the two groups are equal. The Levene statistic table 5 tests this assumption. In case of HDFC Bank, the significance values of all the statistical variables except 'Dividend payout ratio, Return on Assets, Net Profit to Total funds Ratio, Approved securities to Total Assets is greater than 0.10 (for capital adequacy ratio .781>.10 and for Dividend payout ratio 0.009<.10), researcher has assumed that the groups have equal variances and ignore the second test. So, in many tables where "equal variances" is assumed, it is only displayed and in others "unequal variances" is displayed.

Variables (ratios), where the significance value of the test is less than 0.05 (for Cash deposit ratio its greater .129>.05 and not significant but for Capital Adequacy Ratio its less0.000<0.05 hence significant).

Table 4: Group Statistics of HDFC Bank

Group Statistics					
Pre-Post-Merger		N	Mean	Std. Deviation	Std. Error Mean
Capital Adequacy Ratio	Pre-Merger	5	11.8860	.76895	.34388
	Post-Merger	6	15.3517	.98170	.40078
Total Adv. to Total Asset Ratio	Pre-Merger	5	45.8200	5.41468	2.42152
	Post-Merger	6	55.5650	4.36451	1.78181
Govt. Securities to total Investment	Pre-Merger	5	61.5840	10.26145	4.58906
	Post-Merger	6	78.2917	8.93000	3.64566
Total Advancesto Total Deposit ratio	Pre-Merger	5	62.5520	7.36010	3.29154
	Post-Merger	6	74.0250	6.75946	2.75954
Credit Deposit Ratio (%)	Pre-Merger	5	59.8040	8.60435	3.84798
	Post-Merger	6	73.0967	6.09933	2.49004
Investment ratio (%)	Pre-Merger	5	56.5580	6.77951	3.03189
	Post-Merger	6	39.9200	4.88745	1.99529
Cash Deposit Ratio (%)	Pre-Merger	5	7.5960	.97428	.43571
	Post-Merger	6	9.2583	2.02301	.82589
Net NPAtp Net Advances	Pre-Merger	5	.3280	.12317	.05508
	Post-Merger	6	.3300	.18385	.07506
Business Per Employee (Cr.)	Pre-Merger	5	7.8040	1.06899	.47806
	Post-Merger	6	5.9983	1.10342	.45047
Profit Per employee(Cr.)	Pre-Merger	5	.0820	.01643	.00735
	Post-Merger	6	.0667	.02160	.00882
Dividend Payout ratio	Pre-Merger	5	21.0020	1.08343	.48452
	Post-Merger	6	19.8117	.40750	.16636
Return on Assets (%)	Pre-Merger	5	1.4300	.07517	.03362
	Post-Merger	6	1.5633	.24369	.09949
Operating Profit by Average Working fund (%)	Pre-Merger	5	2.6860	.18270	.08171
	Post-Merger	6	3.1617	.13288	.05425
Return on equity (%)	Pre-Merger	5	18.9620	1.11952	.50066
	Post-Merger	6	16.6467	3.13557	1.28009
Return on Net Worth(%)	Pre-Merger	5	18.9620	1.11952	.50066
	Post-Merger	6	16.6467	3.13557	1.28009
Net Profit to Total Funds(%)	Pre-Merger	5	1.4040	.02074	.00927
	Post-Merger	6	1.5600	.16334	.06668
P/E Ratio (%)	Pre-Merger	5	24.2800	4.61115	2.06217
	Post-Merger	6	26.0333	4.75952	1.94306
Liquid Assets to Total Assets	Pre-Merger	5	9.6060	1.03215	.46159
	Post-Merger	6	9.3700	2.65000	1.08186
Approved Securities to Total Assets	Pre-Merger	5	.0147	.01415	.00633
	Post-Merger	6	.0002	.00023	.00009
Liquid Assets to Demand Deposits	Pre-Merger	5	47.3680	9.80728	4.38595
	Post-Merger	6	59.2433	12.32885	5.03323
Liquid Assets to Total deposits	Pre-Merger	5	13.1180	1.12704	.50403
	Post-Merger	6	12.3667	3.45315	1.40974

Table 5: Independent Samples Test of HDFC Bank

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Capital Adequacy Ratio	Equal variances assumed	.082	.781	-6.406	9	.000	-3.46567	.54099	-4.68948	-2.24186
	Equal variances not assumed			-6.563	8.985	.000	-3.46567	.52809	-4.66060	-2.27074
Total Adv. to Total Asset Ratio	Equal variances assumed	.796	.395	-3.312	9	.009	-9.74500	2.94249	-16.40136	-3.08864
	Equal variances not assumed			-3.241	7.699	.012	-9.74500	3.00642	-16.72536	-2.76464
Govt. Securities to total Investment	Equal variances assumed	.208	.659	-2.891	9	.018	-16.70767	5.77961	-29.78205	-3.63328
	Equal variances not assumed			-2.851	8.070	.021	-16.70767	5.86091	-30.20243	-3.21290
Total Advances to Total Deposit ratio	Equal variances assumed	.034	.858	-2.694	9	.025	-11.47300	4.25854	-21.10648	-1.83952
	Equal variances not assumed			-2.671	8.313	.027	-11.47300	4.29526	-21.31326	-1.63274
Credit Deposit Ratio (%)	Equal variances assumed	1.005	.342	-2.999	9	.015	-13.29267	4.43205	-23.31867	-3.26667
	Equal variances not assumed			-2.900	7.061	.023	-13.29267	4.58337	-24.11171	-2.47362
Investment ratio (%)	Equal variances assumed	1.047	.333	4.733	9	.001	16.63800	3.51510	8.68628	24.58972
	Equal variances not assumed			4.584	7.143	.002	16.63800	3.62954	8.09026	25.18574
Cash Deposit Ratio (%)	Equal variances assumed	1.047	.333	-1.672	9	.129	-1.66233	.99416	-3.91129	.58662
	Equal variances not assumed			-1.780	7.449	.116	-1.66233	.93378	-3.84366	.51899
Net NPA to Net Advances	Equal variances assumed	.998	.344	-.021	9	.984	-.00200	.09673	-.22083	.21683
	Equal variances not assumed			-.021	8.687	.983	-.00200	.09310	-.21377	.20977
Business Per Employee (Cr.)	Equal variances assumed	.044	.839	2.740	9	.023	1.80567	.65897	.31498	3.29636
	Equal variances not assumed			2.749	8.743	.023	1.80567	.65686	.31305	3.29829
Profit Per employee(Cr.)	Equal variances assumed	.281	.609	1.300	9	.226	.01533	.01179	-.01134	.04201
	Equal variances not assumed			1.336	8.956	.215	.01533	.01148	-.01065	.04132
Dividend Payout ratio	Equal variances assumed	11.178	.009	2.509	9	.033	1.19033	.47446	.11702	2.26364
	Equal variances			2.324	4.944	.068	1.19033	.51229	-.13107	2.51173

Cont.

Return on Assets (%)	Equal variances assumed	4.259	.069	-1.169	9	.273	-.13333	.11410	-.39144	.12477
	Equal variances not assumed			-1.270	6.107	.250	-.13333	.10501	-.38920	.12253
Operating Profit by Average Working fund (%)	Equal variances assumed	.807	.393	-5.004	9	.001	-.47567	.09506	-.69071	-.26063
	Equal variances not assumed			-4.850	7.187	.002	-.47567	.09808	-.70636	-.24497
Return on equity (%)	Equal variances assumed	1.290	.285	1.559	9	.154	2.31533	1.48561	-1.04534	5.67601
	Equal variances not assumed			1.684	6.458	.140	2.31533	1.37452	-.99103	5.62170
Return on Net Worth(%)	Equal variances assumed	1.290	.285	1.559	9	.154	2.31533	1.48561	-1.04534	5.67601
	Equal variances not assumed			1.684	6.458	.140	2.31533	1.37452	-.99103	5.62170
Net Profit 2 Total Funds(%)	Equal variances assumed	9.735	.012	-2.103	9	.065	-.15600	.07419	-.32384	.01184
	Equal variances not assumed			-2.317	5.193	.066	-.15600	.06733	-.32715	.01515
P/E Ratio (%)	Equal variances assumed	.037	.851	-.617	9	.553	-1.75333	2.84245	-8.18341	4.67674
	Equal variances not assumed			-.619	8.743	.552	-1.75333	2.83338	-8.19177	4.68510
Liquid Assets to Total Assets	Equal variances assumed	1.974	.194	.186	9	.856	.23600	1.26654	-2.62911	3.10111
	Equal variances not assumed			.201	6.708	.847	.23600	1.17622	-2.57002	3.04202
Approved Securities to Total Assets	Equal variances assumed	5.831	.039	2.539	9	.032	.01451	.00571	.00158	.02743
	Equal variances not assumed			2.292	4.002	.084	.01451	.00633	-.00306	.03208
Liquid Assets to Demand Deposits	Equal variances assumed	.453	.518	-1.739	9	.116	-11.87533	6.82915	-27.32395	3.57328
	Equal variances not assumed			-1.779	8.994	.109	-11.87533	6.67608	-26.97920	3.22854
Liquid Assets to Total deposits	Equal variances assumed	2.413	.155	.463	9	.655	.75133	1.62358	-2.92146	4.42412
	Equal variances not assumed			.502	6.233	.633	.75133	1.49714	-2.87913	4.38179

CONCLUSION AND FUTURE DIMENSIONS

The researcher can safely conclude that the average change in the ratios of the bank after the merger of the bank is not due to chance alone. The government or bank boards can take decisions on future merger of banks. From the study it was found that most of the ratios related to capital adequacy, Earning quality and Asset Quality have performed well but most of the ratios related to Management quality (i.e Business per employee and profit per employee) and liquidity ratios have not performed well. Overall it can be concluded that the Merger and Acquisition is beneficial for both the banks.

Researcher further suggests that for future the study can be conducted for same bank for other time period also. The study can also examine the impact of Merger and Acquisition on Employees also. The study can also be conducted for various non-financial parameters also

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