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ASSESSMENT OF STATE BANK OF INDIA'S PERFORMANCE BY PAIRED SAMPLE T-TEST WITH RESPECT TO RATIO'S PRIOR TO AND AFTER THE MERGER USING SPSS.

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ABSTRACT:

Bank mergers and acquisitions, which were a major result of the financial transformation process that took place in the Indian banking sector, were caused by the banks being simultaneously exposed to global competition.In order to comprehend the synergies that result and the long-term repercussions of the merger, this research study examines mergers and acquisitions (M&A) that have occurred in the Indian banking sector.With the assistance of financial metrics, the article compared the State Bank of India's financial performance before and after the merger with its associates in April 2017.The research project's goal is to measure and evaluate changes in the growth of the resulting bank's total assets, profits, deposits, and employee base. The ratios are analyzed using SPSS, and a paired sample t-test is used**.** SBI is anticipated to rank among the top 50 major banks globally following the merger.

KEY WORDS: Acquisitions, Mergers, and the State Bank of India and its Associates.

INTRODUCTION:

The Presidency Banks were established by royal licence in 1806 and include the Bank of Bengal, the Bank of Bombay, and the Bank of Madras.A larger "bankers' bank" had to be established due to the growth of the banking industry and the development of local banks. At the same time, the Indian government required a more centralised financial organisation because it had outgrown its colonial roots. Due to these factors, it was decided to combine the three presidential banks into the Imperial Bank of India, a brand-new, unitary, and centralised financial institution.On January 27, 1921, the three banks underwent a reorganisation to become the Imperial Bank of India. The Imperial Bank of India later changed its name to the State Bank of India in 1955. The Indian Government acquired the RBI's investment in Imperial Bank in 1955, although the RBI still held a majority stake in State Bank of India.

The government enacted the State Bank of India (Subsidiary Banks) Act in 1959. As a result, eight banks that had formerly belonged to princely states—the banks of Bikaner, Jaipur, Idnore, Mysore, Patiala, Hyderabad, Saurashtra, and Travancore—became subsidiaries of the State Bank. This happened under India's first five-year plan, which gave rural development a high priority. Nevertheless, the State Bank began a period of growth, acting as a spur for India's industrial and agricultural development and transforming it into one of the most important worldwide financial networks.SBI was now compelled to brace itself for the entry of a new wave of competitors keen to enter the commercial banking system of the fast-growing Indian economy.To increase its rural outreach, the government included these institutions into the State Bank of India system. SBI

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combined the State Bank of Jaipur (founded in 1943) and the State Bank of Bikaner in 1963. (est.1944). SBI has been active in the international market for a long time, with 50 offices in 34 countries, including full-fledged subsidiaries in the United Kingdom, the United States, and elsewhere. To support its corporate and international banking services, the bank established a new subsidiary, SBI Commercial and International Bank Ltd., in 1995. SBI combined with five of its partner banks and one additional bank i.e Bhartiya Mahila Bank on April 1, 2017. This resulted in SBI acquiring the 50 largest banks in the world. The introduction of modern technologies assisted the bank in achieving significant profit improvements in the early years of the twenty-first century.

LITERATURE REVIEW:

1. **Azeem Ahmed Khan(March 2012)** : The merger of Nadungadi Bank ltd with Punjab national bank and Centurion bank of Punjab ltd. With HDFC bank ltd. This paper highlighted the goal of a merger or acquisition, which is to increase efficiency since one plus one is still more than two, and this justification persuades a firm to merge during a difficult period. The study is done on Financial parameters or financial grounds such as the debt equity ratio, return on equity, return on capital used, gross profit margin, net profit margin, and return on equity. Tools used are ratio analysis and t-test. It was analyzed that the Net profit margin improved with t-value -8.683, Return on capital employed improved with t-value -5.671, Return on equity improved with t-value-8.934, Debt equity ratio improved with t-value -3.196. All these financial parameters lead to conclusion that Merger of banks enhances overall performance and profitability and has been beneficial to equity shareholders.
2. **Devarajappa (September 2012)**: The merger of Centurion Bank of Punjab Ltd. is the subject of this essay. Using financial metrics including the gross profit margin, net profit margin, operational profit margin, return on capital used, return on equity, and debt equity ratio, HDFC Bank Ltd. examines the prior and post merger financial performance of combined institutions. Tools used are ratio analysis and t-test. The research found that while most ratios show a favourable effect and improved bank performance following merger announcement, certain ratios show no effect.
3. **Madan Mohan Dutta and Dr. Suman Kumar Dawn*(*January 2012):** The study deals with the merger of 5 Indian banks i.e. HDFC Bank Ltd. (2000), ICICI Bank (2001) ,Bank of Baroda (2002) ,Punjab National Bank (2003) ,Oriental Bank Of Commerce (2004). The research paper highlighted that the failure of banks is one of the issue of discussion and the solution to come out from this problem given by government and policy makers is , consolidation of banks and one of the effective way of consolidation is Merger. This paper attempted to study that whether the Merger and acquisition able to give the required expected benefit like economies of scale, reducing cost by diversification, increased access of market power etc. The Merger of these banks were analyzed on the parameters of Total assets, Growth of profitability, revenue and growth of deposits of merged banks by using the tool of t-test and statistical mean. The study analyzed that the merger of all the sample banks shown the significant growth on all the variables, studied under the research, It proves that the consolidation provides the desired result as expected form the merger and acquisition. The study further suggested that the suitable activities should be designed for post merger, in order to get the desired result.

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4. **Radha Naga Sai1 and Dr. Syed Tabassum Sultana(April 2013):** The study of merger of Bharat Overseas Bank, Centurian Bank of Punjab, HDFC Bank, and Indian Overseas Bank, throws light on the inorganic growth. Merger and Acquisition are one of the way of organic growth which means the fastest way of growth, which is the need of a time in this competitive scenario. 3 year pre and 3 year post merger is evaluated in this study. The study is done taking into consideration the financial parameters and t-test is applied. After the analysis of financial ratio the study has decided that the operation of the amalgamated institutions has grown significantly as a result of the merger and acquisition. Further , it specify that the merger which took place in banking industry is horizontal merger as merger took place between the same type of business, thus it also helps in reducing the cost by eliminating the competitors from the banking industry.
5. **Girnara Monaben Reshembai.(Dec 2016):** The study of Merger of kotak Mahindra bank and ING vyas bank reveals that the Merger and acquisition results in the overall development of the bank. As after Merger, there is increase in customer base, number of branches, number of ATM networks, number of product and services offered, number of employees, increase in deposit and advances and also an extension of geographical presence in the country. With help of financial ratios and simple random sampling, the study concluded that the financial performance of bank also shows the positive results as the interest income, profitability, liquidity and share price also goes up. The paper further discuss about the challenges which the bank face after Merger such as , difference in deposit rates, difficulty in managing the non performing assets and difficulty in managing the salary of employees with different salary structure. Finally we can say that this research paper strongly talks about the economies of scale.
6. **Bharat Khurana(may 2017):** This study goes on to know the reasons for the Merger and the impact of merger of SBI and its 5 associates and bhartiya Mahila bank . The reasons for merger are firstly In lieu of making several payments, the government will support one bank. secondly the profitability of sbi was going thus merger becomes the need of hour, thirdly to make the SBI a big player on global scenario,fourthly to recover the bad debts and to reduce the NPA's. After the Merger one of the biggest benefit achieved by it is that the SBI comes in 45th position of large banks ranking in world, it got the advantage of synergies as their will be increased branches and customer satisfaction. Further it was seen that its profitability got reduced ,the reason being the the sum of losses of the associated banks exhibited in amalgamated account sheet, but Merger will definitely increase the profit in long run ,so the investors should the peteints.
7. **Sonia SINGH 1; Subhankar DAS 2(March 2018):** In this research paper the post merger study of Bank of Baroda, HDFC Bank ltd., ICICI Bank Ltd., Oriental Bank of Commerce, Punjab National Bank and State Bank of India,for a period of six years i.e. 2010 to 2016, is undertaken on the basis of financial parameters using t-test and camels model ,on variables of selected banks. The financial parameters under the study includes the liquidity ratios, activity ratio and profitability ratios and most importantly the study also consider the changes in the prices of securities during the period of study, after the Merger is announced. It has been concluded that some variables shown the positive impact like in case of SBI where its working capital turned into earnings after the process of merger and acquisition. Some variable shows negative impact like in the case of Bank of Baroda acquiring Banaras State Bank where after the process, the efficiency of BOB got reduced as the working capital not turned into income as desired. Some variable shows no impact

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like in the case of Punjab National Bank and Oriental Bank of Commerce. The mixed results of Merger indicates that in order to get the desired result of a successful Merger and acquisition, the policies and strategies framed for the process plays a vital role. As far as the effect of merger announcement on stock prices are concerned the study reveals that the Securities prices are expected to increase the future cash flows after the merger but it is a fact that the expectation may differ from the actual performance. The study further apart from financial aspect, also considers the non financial parameters like perception of the employees of the merged banks and it has been viewed that the transparency and the involvement of employees in the process gives them the confidence and thus the employees seems to be happy and satisfied with the process of Merger.

8. **Ishwarya J (25th September 2019):** This research paper studies the trend and a review of the Indian banking industry's merger and acquisition activity. The pre and post merger analysis of SBI and its associates is undertaken on financial parameters. The study concluded that there is no great change in the profitability ratio of banks after merger though it expected to increase in coming future, but if we consider the cost efficiencies, it shows the great results. Further the study suggests that trend of Merging Weak banks with the strong banks is not showing positive results so the government while framing policies for merger in Indian banking sector should be cautious in promoting Merger as economies of scale.

OBJECTIVES OF THE STUDY.

1.To examine and compare the Changes in growth of total assets of State bank of India.
2.To analyse and contrast changes in the State Bank of India's Profit.
3.To assess and evaluate the variations in deposit growth at the State Bank of India.
4.To analyze and examine changes in the growth of the workforce at a few selected Indian banks.

RESEARCH METHODOLOGY:

To acquire information about the performance of banks, the study relies on secondary data from sources such as journals, academic publications, news releases, the internet, and official bank websites. The study is descriptive in nature.

The two years before and after the merger of SBI are compared (apart from the year of the merger, 2017), and paired sample t-test is used on ratio data through SPSS to determine if there is a significant mean difference or not.

Following is a list of the ratios used and the study's assigned codes for each:

Table 1.1

RATIOS	CODES
OPERATING PROFIT RATIO	**A1**
NET PROFIT RATIO	**A2**
RETURN ON ASSET	**A3**

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RETURN ON EQUITY	**A4**
ADVANCES TO DEPOSIT RATIO	**A5**
BUSINESS PER EMPLOYEE	**A6**
PROFIT PER EMPLOYEE	**A7**

The Shapiro-Wilk test is employed in the current study to determine whether the data are normal because the sample size is less than 2000. If the sig value is greater than 0.05, the data is considered regularly distributed.

TABLE 1.2. TWO YEAR PRE MERGER RATIOS OF STATE BANK OF INDIA

RATIOS/ PARAMETERS	**2015-2016**	**2016-2017**
A1	133.43	28.97
A2	7.56	9.16
A3	159.18	215.18
A4	24.46	-27.37
A5	279.95	226.45
A6	317.08	318.07

PRE MERGER GRAPHICAL PRESENTATION

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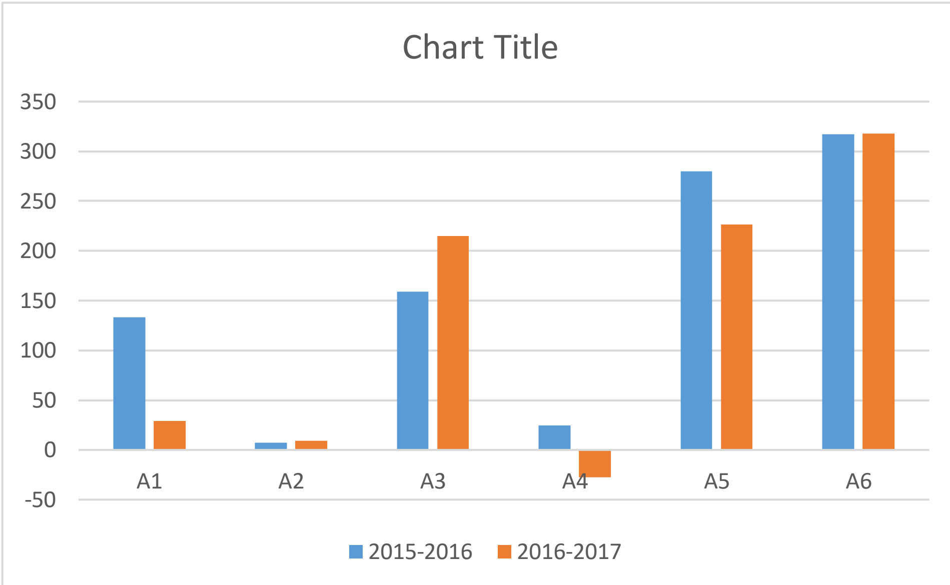

Normality of data: Pre-merger data is normally distributed as the test of normality shows the sig value **greater than 0.05**.The table and graph below shows the normality distribution of data.

SHAPIRO-WILK TEST		
Statistic	df	sig
.994	26	1.000

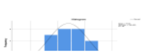

TABLE 1.3. TWO YEAR POST MERGER RATIOS OF STATE BANK OF INDIA

RATIOS/ PARAMETERS	2018-2019	2019-2020

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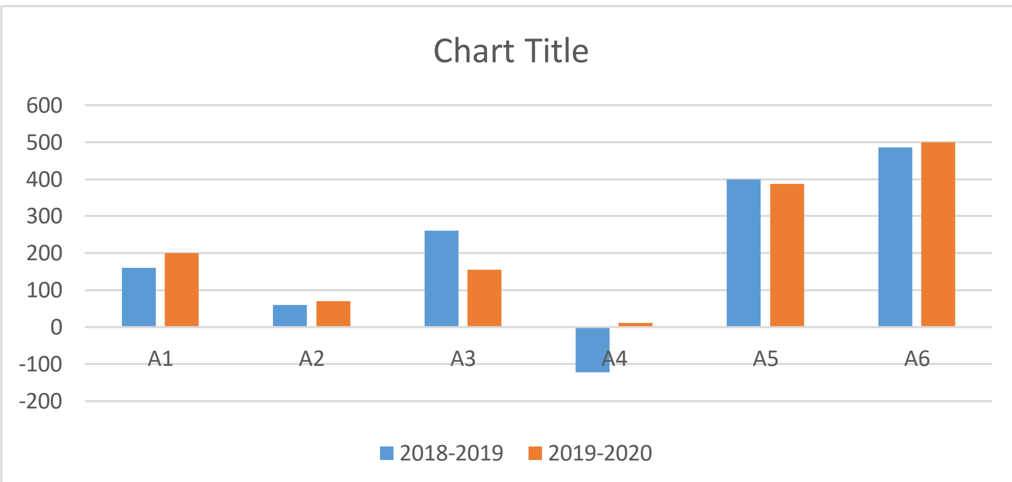
A1	160.52	199.47
A2	60.48	70.01
A3	260.34	154.88
A4	-122.01	11.06
A5	399.45	387.41
A6	486.39	498.98

POST MERGER GRAPHICAL PRESENTATION



Normality of data:

Post-merger data is normally distributed as the test of normality shows the sig value **greater than 0.05**.The table and graph below shows the normality distribution of data.

SHAPIRO-WILK TEST		
Statistic	df	sig
.994	26	1.000

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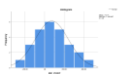

The understudy bank's data is normally distributed, so a paired sample t-test can be used to determine the significance of the mean difference.

<u>BAA1: Operating Profit ratio.</u>

A paired sample t-test was conducted to evaluate the impact of merger pre and post. The result showed a significant increase in the operating profit ratio Before (M=127.37) to After (M= 190.02), t(2)= -35.826, p< .005(two tailed). The mean increase in the test score was -62.650with a 95% confidence interval ranging from -70.17415 to -55.12585.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PRE	127.3767	2	26.06268	15.04729
	POST	190.0267	2	26.09940	15.06850

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig.(2-tailed)
Pair 1	PRE - POST	-62.65000	3.02888	1.74872	-70.17415	-55.12585	-35.826	2	.001

<u>BA2: OPERATING PROFIT RATIO.</u>

To assess the effect of the merger both before and after, a paired sample t-test was performed.

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The operational profit ratio increased significantly from Before (M=8.3600) to After (M=65.2450), according to the results (t(2)=-14.347, p.005) (two tailed). The 95 percent confidence interval for the mean test score increase ranged from -107.26510 to -6.50490, or -56.88500.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PRE	8.3600	2	1.13137	.80000
	POST	65.2450	2	6.73873	4.76500

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	PRE - POST	-56.88500	5.60736	3.96500	-107.26510	-6.50490	-14.347	1	.044

BA3: RETURN ON ASSET.

To compare the pre- and post-merger effects, a paired sample t-test was used. The outcome demonstrated a statistically significant increase in the return on asset ratio from Before (M=157.0300) to After (M=265.2600), t(2)= -36.939, p.005 (two tailed). With a 95 percent confidence interval spanning from -145.45918 to -71.00082, the mean increase in test score was -108.23000.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PRE	157.0300	2	3.04056	2.15000
	POST	265.2600	2	7.18420	5.08000

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	PRE - POST	-108.23000	4.14365	2.93000	-145.45918	-71.00082	-36.939	1	.017

BA4: RETURN ON EQUITY.

A paired sample t-test was employed to compare the effects of the merger before and after. The result showed a decline in the return on equity from Before (M=-1.4550) to After (M=-55.4750), however this decline was not statistically significant, as shown by t(2)=.584, p.005 (two tailed).

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The mean increase in test score was 54.02000, with a 95% confidence range ranging from -1120.66863 to 1228.70863.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PRE	-1.4550	2	36.64934	25.91500
	POST	-55.4750	2	94.09470	66.53500

Paired Samples Test

		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	PRE - POST	54.02000	130.74404	92.45000	-1120.66863	1228.70863	.584	1	.663

<u>AB5: ADVANCE TO DEPOSIT RATIO:</u>

To assess the effect of the merger both before and after, a paired sample t-test was performed. The Advance to deposit ratio before (M=253.2) to after (M=415.93) showed a rise, however it was not statistically significant (t(2)= -11.818, p.005) (two tailed). The 95 percent confidence interval for the mean test score increase ranged from -337.694 to 12.2344, with a mean increase of -162.73000.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PRE	253.2000	2	37.83021	26.75000
	POST	415.9300	2	57.30393	40.52000

Paired Samples Test

		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	PRE - POST	-162.73000	19.47372	13.77000	-337.69444	12.23444	-11.818	1	.054

<u>BA6: PROFIT PER EMPLOYEE:</u>

An analysis using paired sample t-test was carried out to determine the impact of the merger both before and after. There was an increase in the profit per employee from (M=317.5750) to (M=492.640), which was statistically significant (t(2)= -31.346, p.005) (two tailed). The mean increase in test scores was -175.06, with a 95% confidence interval for that increase ranging from -246.02915 to -104.10085.

Paired Samples Statistics

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		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PRE	317.5750	2	.70004	.49500
	POST	492.6400	2	8.59842	6.08000

Paired Samples Test

	Paired Differences							
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1 PRE - POST	-175.06500	7.89838	5.58500	-246.02915	-104.10085	-31.346	1	.020

CONCLUSION:

The act of merging is often regarded as a strategic instrument used by those involved in the activity to acquire specific synergies. The study concentrated on SBI, which has taken part in mergers for various reasons, and examined its pre- and post-merger performance. Through the use of statistical methods, it has been determined that banks' performance has increased overall across all important indicators and productivity ratios. As the operating profit ratio and net profit ratio both significantly increased. Return on asset and return on equity both had higher mean values, though return on equity did not experience a significant increase. When we discuss the profit per employee, it also aims for a considerable growth in values.SBI will benefit from a merger, as anticipated by the research.The conclusion that mergers are beneficial for the Indian banking industry can thus be drawn without being erroneous.