

Impact of Bank Mergers on Financial Performance in India: CAGS Model-Based Analysis

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Abstract

The banking sector plays a vital role in strengthening national economies and facilitating economic growth in a globalised environment. A sound and responsible banking system is essential for maintaining financial stability and improving the efficiency of financial institutions. The Reserve Bank of India (RBI) uses various supervisory rating models, including CAMELS, EAGELS and CAGS for assessing the financial soundness and performance of banks. The present study aims to examine the financial performance of Indian public sector banks that underwent mergers during the period under consideration by applying the CAGS model. The study analyses thirteen financial ratios covering four major dimensions: Capital Adequacy, Asset Quality, Growth, Systems and Control. The study covers the period from 2017 to 2022, encompassing the pre- and post-merger performance of the selected public sector banks. Secondary data have been collected from the Prowess IQ database and the annual reports of the respective banks. The CAGS model has been employed as an accounting-based evaluation framework, while the paired-sample t-test has been applied to determine the significance of differences between the pre- and post-merger periods. The findings reveal that the null hypothesis is accepted, indicating that the mergers have not resulted in statistically significant improvements in the overall performance of the selected public sector banks. The results further suggest that mergers and acquisitions have not generated substantial synergies in terms of operational efficiency and financial performance during the study period. The study provides empirical evidence on the impact of banking mergers and offers useful insights for policymakers, banking institutions, and researchers concerned with the future strategic direction of the Indian banking sector.

Keywords: Merger & Acquisition, Financial Aspects, Indian Public Sector Banks, CAGS Model.

Introduction

In the corporate sector, mergers and acquisitions are not a recent occurrence. In recent decades, increased competition has given rise to new financial markets, as well as opportunities and regulatory process changes in all nations, product portfolio expansion through international and national M&A, the creation of new markets, and the purchase of new market technologies. The firm that absorbs financial assets or control is referred to as the acquiring company or bidder in mergers and acquisitions, while the company that is being acquired is referred to as the target company. The business's purchase results in the covered company getting a successor. This might come in the form of cash, shares in the firm, or a mix of the two. While we talk about Indian public sector bank's merger & acquisition, covering the period from 2017 to 2022 following banks have been merged.

S. No.	Purchaser Bank	Seller Bank	Date
1	Punjab National Bank	United Bank of India	31-03-2020
		Oriented Bank of Commerce	
2	Union Bank of India	Corporation Bank	31-03-2020
		Andhra Bank	
3	Canara Bank	Syndicate Bank	31-03-2020
4	Indian Bank	Allahabad Bank	31-03-2020

Source: Collected from Prowess IQ database.

Literature Review

Zuhri, Fahlevi & all (2020) "The Impact of Merger and Acquisition on Financial Performance in Indonesia" this paper reveals that there is no statistically significant change found between the financial indicators return on equity and debt to equity ratio before and after mergers and acquisitions, according to the Wilcoxon signed-rank test findings. It also observed that the median and average equity return before to the merger was higher than the equity return following the merger. The results of this test clearly demonstrate the same, and even see the median and average values prior to the M&A has better since it had a lower ratio.

Singh & Das (2018) "Impact of post-merger and acquisition activities on the financial performance of banks: a study of Indian private sector and public sector banks" The impact of mergers and acquisitions at his three main Indian banks was examined in this article along with mergers and acquisitions in Indian banking. This study examines the performance evaluation of mergers and acquisitions in the Indian banking industry throughout the preceding period and six years following such activity. The report used financial metrics including net profit margin, operations, etc. to examine the merged bank's post-merger financial performance. Return on investment, profit margin, and profit margin Dividends per share, equity, earnings per share, equity ratio, and more sociocultural environment of regulations and standards proved a significant impact processes after mergers and acquisitions.

Abdulwahab & Ganguli (2017) "The Impact of Mergers and Acquisitions on Financial Performance of Banks in the Kingdom of Bahrain during 2004-15" The influence of mergers and acquisitions on the financial performance of four transactions involving Bahraini banks is evaluated in this research between 2004 and 2015. The CAMEL valuation model technique has been implemented. The impact of changes in the bank's financial performance three years prior to and three years after the merger was examined using financial modelling in Excel. The performance of regional banks in the Kingdom of Bahrain did not significantly change before or after M&A. Except for Saudi Bank of Bahrain (the target bank), whose financial performance significantly improved, there was no discernible difference in the acquiring bank's or the target bank's financial performance.

Aspal & Dhawan (2014) "Financial performance assessment of banking sector in India: A case study of old private sector banks" The banking sector's indicators are regarded as useful tools for analysing the state of the economy's finances. The investigation included all 13 of India's oldest private sector banks. The CAMELS model is used to analyse supporting information for the various proportions included in the RBI's Annual Reports from 2007 to 2012. Analytical results showed that 6 out of 13 banks had exceptional and good financial performance. In terms of total rankings, Federal Bank came in second position, followed by Tamilnad Mercantile Bank. According to the CAMELS criterion, Tamilnad Mercantile Bank, Federal Bank, and Nainital Bank outperformed Catholic Syrian Bank, ING Vysya Bank, and Dhanalakshmi Bank in terms of financial performance.

Ashfaq & all (2014) "Investigating the Impact of Merger & Acquisition on Post Merger Financial Performance (Relative & Absolute) of Companies (Evidence from Non-Financial Sector of Pakistan)" This study intends to investigate the effects of merger and acquisition on the post-merger financial performance of businesses operating in Pakistan's non-financial sector (absolute and relative). Chosen a total of 16 businesses that underwent mergers and acquisitions between 2000 and 2009 For the purpose of analysing the effects of mergers and acquisitions, both absolute and relative financial performance has been employed. Financial ratios have been used to assess financial success following mergers. A straightforward survey evaluating the absolute performance of acquired firms has been used to gauge performance in absolute terms. The post-merger financial performance was examined using

descriptive statistics and the t-test. The findings indicate that following mergers and acquisitions, performance both in absolute and relative terms has decreased.

Ahmad Khan (2011) “Merger and Acquisitions (M&As) in the Indian Banking Sector in Post Liberalization Regime” This essay's goal is to investigate the many drivers behind mergers and acquisitions in the banking sector. Various criteria, including gross profit margin, net profit margin, operational profit margin, etc., have been used to compare before and after financial performance. T-tests have been used to examine the effects of mergers and acquisitions on bank performance in addition to percentage analysis. The findings demonstrate that mergers and acquisitions have favourably impacted bank development (M&A). These findings imply that merged banks can increase efficiency and profitability through mergers and acquisitions (M&A) and dividends in the form of transferred profits to shareholders.

The studies mentioned above show that no in-depth research has been done to evaluate the Indian public sector bank's financial soundness for long-term profitability during a two year before and following the merger timeframe. Consequently, this study is being carried out to close the gap.

Purpose of the Study

The main purpose of this study is to analyse the effect of merger on financial aspects of selected public sector banks before and following the merger using CAGS Model.

Research Method

Descriptive research method and analytical research method has been used in this study.

Type of Data and Data Collection

The current study is based on secondary database. The data has been collected from Prowess IQ database and various research papers.

Tool of Analysis

- **Accounting Tool**

For evaluating the financial performance various accounting ratios have been used using CAGS Model Approach.

- **Statistical Tool**

For analysing the statistical significance of data paired sample t-test has been used. Mean, Standard Deviation and Mean difference has also been used,

Hypothesis

- H01:** Bank's Capital Adequacy before and following the merger has not changed significantly using CAGS Model.
- H02:** Bank's Assets Quality before and following the merger has not changed significantly using CAGS Model.
- H03:** Bank's Growth before and following the merger has not changed significantly using CAGS Model.
- H04:** Bank's System & Control before and following the merger has not changed significantly using CAGS Model.
- H11:** Bank's Capital Adequacy before and following the merger has changed significantly using CAGS Model.
- H12:** Bank's Assets Quality before and following the merger has changed significantly using CAGS Model.
- H13:** Bank's Growth before and following the merger has changed significantly using CAGS Model.
- H14:** Bank's System & Control before and following the merger has changed significantly using CAGS Model.

Data Analysis and interpretation

Capital Adequacy

Capital Adequacy	Canara Bank				Indian bank				PNB				UBI			
	Pre		Post		Pre		Post		Pre		Post		Pre		Post	
	18-19	19-20	20-21	21-22	18-19	19-20	20-21	21-22	18-19	19-20	20-21	21-22	18-19	19-20	20-21	21-22
CAR	11.9	13.7	13.2	14.9	13.2	14.1	15.7	16.5	9.73	14.1	14.3	14.5	11.8	12.8	12.6	14.5
D/E Ratio	1.38	1.3	0.99	0.8	0.74	1.1	0.76	0.46	0.95	0.87	0.51	0.52	1.77	1.7	0.87	0.78
NA to TA	63.5	61.1	56.3	58.6	66.1	65.2	59.1	58.8	59.5	57.2	54.2	56.2	60.5	57.2	55.7	56.2
GS to TI	89.5	91.5	92.1	93.4	82.7	85.8	90.6	81.4	80.2	85.4	87.8	87.3	76.1	70.4	72.9	76.3

Ratios	Period	Average	Std Deviation	T-Test	Sig	Remarks
CAR	Before	12.67	1.49	-4.003	0.005	Significant
	After	14.53	1.25			
D/E Ratio	Before	1.23	0.38	4.734	0.002	Significant
	After	0.71	0.19			
NA to TA	Before	61.29	3.39	4.839	0.002	Significant
	After	56.89	1.75			
GS to TI	Before	82.7	6.98	-1.556	0.164	Not significant
	After	85.23	7.56			

- Capital Adequacy ratio has increased from 12.67 to 14.53 from before merger to following the merger. This may be due to synergy benefits.
- Debt-Equity ratio has decreased from 1.23 to 0.71 due to merger event. Both high ratio and low ratio is not justifiable because it should be balanced as debt equity proportion.
- Net Advances to Total Assets decreased from 61.29 to 56.89 which reveal not a good sign for a corporate.
- Govt. Securities to Total Investments has increased slightly from 82.7 to 85.23 which gives a positive symbol.
- By using paired sample t-test at 95% confidence level, it has been concluded that except Govt. Securities to Total Investments ratio all the ratios of Capital Adequacy shows that there is significant change in financial aspects due to merger since their value is less than 5% significance level. Hence concluded that there is significant change in Capital Adequacy ratios due to merger in selected public sector banks.

Assets Quality

Assets Quality	Canara Bank				Indian bank				PNB				UBI			
	Pre		Post		Pre		Post		Pre		Post		Pre		Post	
	18-19	19-20	20-21	21-22	18-19	19-20	20-21	21-22	18-19	19-20	20-21	21-22	18-19	19-20	20-21	21-22
G NPA to Adv	8.83	8.21	8.93	7.51	7.11	6.87	9.85	8.47	15.5	14.2	14.1	11.8	15	14.2	13.7	11.1
Net NPA to Adv	5.37	4.22	3.82	2.65	3.75	3.13	3.37	2.27	6.56	5.78	5.73	4.8	6.85	5.49	4.62	3.68
Invest to Assets	21.9	24.2	22.6	22.9	23.1	26.2	28.3	25.9	26.1	28.9	31.1	28.3	25.4	27.6	30.8	29.3
NPA to Assets	3.3	2.5	2.11	1.52	2.4	1.99	1.97	1.32	3.9	3.28	3.06	2.65	4.1	3.13	2.54	2.04

Ratios	Period	Average	Std Deviation	T-Test	Sig	Remarks
G NPA to Adv	Before	11.24	3.79	0.798	0.451	Not significant
	After	10.68	2.42			
Net NPA to Adv	Before	5.14	1.33	5.901	0.001	Significant
	After	3.89	1.15			
Invest to Assets	Before	25.43	2.31	-1.984	0.088	Not significant
	After	27.4	3.3			
NPA to Assets	Before	3.08	0.74	7.255	0	Significant
	After	2.15	0.58			

- Gross NPA to Advances has not significantly changed as it decreased from 11.24 to 10.68.
- Net NPA to Advances has decreased significantly from 5.14 to 3.89. This may be due to not making proper arrangements for Non-Performing Assets.

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- Investments to Assets slightly improved from 25.43 to 27.4 which have not significantly impact the merger event.
- NPA to Assets has decreased from 3.08 to 2.15 which given a positive sign for banks and it significantly impact the merger event.
- By using paired sample t-test at 95% confidence level, it has been concluded that Gross NPA to Advances and Investment to Assets have not significantly changed contrary to Net NPA to Advances and NPA to Assets because it have been changed due to merger.

Growth

Growth Rate	Canara Bank				Indian bank				PNB				UBI			
	Pre		Post		Pre		Post		Pre		Post		Pre		Post	
	18-19	19-20	20-21	21-22	18-19	19-20	20-21	21-22	18-19	19-20	20-21	21-22	18-19	19-20	20-21	21-22
Loans	115	-17	4.81	17.5	12.1	6.61	52.1	-3.3	15.6	10.9	185	22.8	27.8	-54	420	6.89
Deposits	14.2	4.39	61.6	7.47	16.2	7.5	107	10.3	5.26	4.11	57.2	3.61	1.81	8.36	105	11.8

Ratios	Period	Average	Std Deviation	T-Test	Sig	Remarks
Growth Rate of Loans	Before	14.6	47.81	-1.386	0.028	Significant
	After	88.22	147.35			
Growth Rate of Deposits	Before	7.73	5.06	-2.533	0.039	Significant
	After	45.49	43.58			

- Growth Rate of Loans has increased from 14.6 to 88.22 due to merger event and it has significant impact of merger on banks financial performance.
- Growth Rate of Deposits has increased from 7.73 to 45.49 due to merger event and it has significant impact of merger on banks financial performance.
- By using paired sample t-test at 95% confidence level, it has been concluded that both the ratios of Growth parameter i.e. Growth rate of loans and Growth rate of deposits have significant impact on banks financial performance.

System & Control	Canara Bank				Indian bank				PNB				UBI			
	Pre		Post		Pre		Post		Pre		Post		Pre		Post	
	18-19	19-20	20-21	21-22	18-19	19-20	20-21	21-22	18-19	19-20	20-21	21-22	18-19	19-20	20-21	21-22
Debt-Capital	1.38	1.3	0.99	0.8	0.74	1.1	0.76	0.46	0.95	0.87	0.51	0.52	1.77	1.7	0.87	0.78
Intt coverage	0.92	0.95	1.08	1.2	1.02	1.1	1.12	1.14	0.54	1.2	1.02	1.02	0.82	0.84	1.05	1.21
Leverage	95.2	42.2	-2.6	-7.1	-19	11.3	50.6	-8	13.3	8.9	16.2	16.5	5.7	6.7	12.1	5.7

System & Control

Ratios	Period	Average	Std Deviation	T-Test	Sig	Remarks
Debt-Capital	Before	1.23	0.38	4.734	0.002	Significant
	After	0.71	0.19			
Intt coverage	Before	0.92	0.2	-2.521	0.04	Significant
	After	1.11	0.07			
Leverage	Before	20.54	12.17	0.589	0.574	Not Significant
	After	10.43	6.72			

- Debt to Capital has decreased from 1.23 to 0.71 due to merger event and it has significantly impact of merger on banks financial performance.
- Interest coverage ratio has increased from 0.92 to 1.11 due to merger event and significantly impacted by merger announcement.
- Leverage ratio has not significantly impacted by merger.

Conclusion

- In the CAGS Model, the C abbreviation denotes Capital Adequacy and in this item of the ratios like Capital Adequacy Ratio, Debt-Equity Ratio, Net Advances to Total Assets Ratio except Govt. Securities to Total Investments ratio shown significant impact on banks performance due to merger.

- A denotes Assets Quality in which two ratios (i.e. Gross NPA to Advances and NPA to Assets) show not significantly impacted and another two ratios (i.e. Net NPA to Advances and NPA to Assets) show significantly impacted by merger event.
- G denotes for Growth in which all the two ratios i.e. Growth Rate of loans and Growth Rate of Deposits show significantly impacted by merger activity.
- S denotes for System & Control in which except Leverage all the ratios like Debt-Capital and Interest Coverage ratios show significantly impacted by merger event.
- From the above analysis it has been concluded that the null hypothesis is accepted from the CAGS model's perspective since majority of the ratios impacted significantly due to merger event.

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