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Merger Effectiveness of SBI: Analysis of Asset Quality and Profitability

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Abstract-

The merger of State Bank of India (SBI) with its associate banks has been one of the most significant consolidation exercises in the Indian banking sector. This paper investigates the effectiveness of this merger in terms of its impact on asset quality and profitability. Using pre- and post-merger financial data, the analysis seeks to determine whether the merger led to an improvement in these key performance indicators. The study reveals that the merger has had a mixed impact on profitability and asset quality, with some improvement in overall scale and operational efficiency but persistent challenges related to non-performing assets (NPAs).

Key Words- Asset Quality, Profitability, SBI Mega merger, NPA impact, IBC

Introduction-

Mergers and Acquisitions (M&A) are strategic business transactions where two companies combine (merger) or one company acquires another (acquisition) to strengthen market position, expand operations, or gain competitive advantage. A **merger** involves two companies consolidating to form a new entity, while an **acquisition** occurs when one company takes over another and assumes control of its operations. M&A are commonly pursued to achieve **synergies**, where the combined entity can operate more efficiently than the individual companies. Companies may also engage in M&A to **expand into new markets**, diversify product lines, or access new technology. Horizontal mergers, vertical mergers, and conglomerate mergers are the primary types, each serving different strategic purposes. While M&A can lead to significant benefits such as cost savings and increased market share, they also carry risks like cultural clashes and integration challenges. Overvaluation and excessive debt are common pitfalls that can diminish the value of the deal. Regulatory approval is often required, especially in large transactions, to prevent monopolistic practices. Successful M&A transactions require careful **due diligence**, financial planning, and seamless post-merger integration. Overall, M&A are a crucial tool for corporate growth and transformation.The merger of the State Bank of India (SBI) with its associate banks in 2017, along with the later merger with Bhartiya Mahila

Bank (BMB), significantly impacted its asset quality and profitability. Analyzing the effectiveness of these mergers involves assessing key financial indicators such as asset quality, non-performing assets (NPAs), profitability ratios, and overall market position post-merger. Here's a breakdown of these impacts:

Associates Merged: The merger in 2017 involved five associate banks — State Bank of Bikaner & Jaipur (SBBJ), State Bank of Travancore (SBT), State Bank of Mysore (SBM), State Bank of Patiala (SBP), State Bank of Hyderabad (SBH) — and the Bhartiya Mahila Bank.

Rationale: The merger was aimed at achieving synergies through economies of scale, reducing operational costs, improving the capital base, and enhancing SBI's competitiveness globally.

SBI's Goal: Become a globally competitive bank with improved asset quality, reduced duplication, and a unified technology platform.

Literature review

Manek (2015) emphasized the "Non-Performing Assets Analysis of UCO Bank." The study reviews various challenges faced by the banking sector, such as risk management, efficiency, productivity, and maintaining a healthy loan portfolio. However, a major challenge hindering the effective functioning of commercial banks is the issue of Non-Performing Assets (NPAs). This paper highlights UCO Bank's NPAs for the period from 2009-10 to 2013-14, providing a detailed analysis of the bank's NPA trends. The study includes comprehensive statistics and offers suggestions to reduce NPAs for improved bank performance.

S Sasikala (2022) evaluated the performance of the SBI after the merger from 2016-17 to 2020-21. The study utilised secondary data, and the data is analyzed by using the mean, annual growth rate, and compound annual growth rates. Based on the analysis of the performance of SBI, it is found that deposits, advances, and investments increased after the merger. Finally, it was discovered that the SBI performance was better after the
merger.

Reddy and Patil (2017) studied, mergers in the Indian banking industry have often been motivated by the desire to enhance competitiveness, improve financial strength, and achieve economies of scale. They argue that mergers have the potential to resolve the problem of fragmentation and help banks gain a stronger market foothold.

Sinha and Gupta (2016) examined the relationship between mergers and asset quality, particularly NPAs, and concluded that while mergers help banks scale up operations, they do not always immediately solve NPA issues. In fact, in many cases, the problem of NPAs worsens in the short term as merged entities struggle to integrate.

Studies such as those by **Kumar and Rajan (2019)** indicate that profitability often takes a hit immediately after mergers due to integration costs, but banks generally recover within a few years. They suggest that operational efficiency, cost savings, and synergies are crucial in improving profitability post-merger.

Mathur (2021) used profitability index to assess the financial condition of SBI. He consider secondary data both before and after the merger. The analysis used data collected two years prior to the merger and three years following the merger. According to the study's findings, SBI's managerial effectiveness, earnings quality, and liquidity have all improved since the merger. On the other hand, SBI wishes to concentrate on improving the asset quality and capital adequacy ratio.

Bhattacharya & Biswas, (2021) examine how M&A affect the share prices and financial performance of the Indian acquirer banks. The author comprises M&A of twenty Eight banks listed in NSE. After an announcement of a merger or acquisition, event study analysis is used to determine the market price of the banking company's share, which represents the wealth generated by the acquiring company's shareholders. In spite of the fact that the merged firm's financial performance was examined using DuPont (DP) analysis, no significant changes were found in return on assets (ROA), return on equity (ROE), net profit margin, financial leverage, or asset turnover. The results show that market activity and acquirer banks' performance declined after the merger which may be a short term analysis.

Gandhi, Chhajer, & Mehta, (2020) examines the financial performance of banking sector i.e private and public after mergers. These banks have resulted some improvement in their financial performance w.r.t certain profitability parameters since the merger. Despite the merger took place, there has been no statistically significant increase in the financial performance of the banks.

Das & Khushboo Uppal (2021) provides a comprehensive empirical analysis of NPAs and profitability in Indian banks from 2005 to 2019. Their study focuses on 39 public and private sector banks in India, aiming to determine the factors that influence profitability, with special emphasis on the impact of NPAs. The findings of their analysis revealed that NPAs significantly reduce banks' profitability. This is because NPAs hinder banks from earning interest on loans, while the additional provisioning to cover these bad loans increases operational costs, further dragging down profitability.

Mishra and Trivedi (2020) suggested that despite the short-term challenges posed by the merger, the consolidation ultimately strengthened SBI's operational capabilities and market presence. They observed that by FY2019-20, SBI had made significant progress in reducing its NPA levels, with its gross NPA ratio falling to 6.15%. The post-merger period was also marked by higher recoveries through mechanisms like the Insolvency and Bankruptcy Code (IBC), which contributed to improving profitability. They concluded that the merger, while initially challenging, eventually helped SBI improve its financial metrics by leveraging economies of scale and streamlining operations.

Ghosh and Sen (2019) explored the immediate aftermath of the merger, noting that SBI inherited a large volume of bad loans from its associate banks, which initially worsened its asset quality. This led to a sharp rise in its gross NPAs, further reducing profitability in FY2017-18 when the bank reported its first-ever annual loss.

Singh (2016) conducted an analytical analysis of mergers and acquisitions in India's banking sector. As a sample, four scheduled commercial banks were chosen. There are two from the public and two from the private sectors. The CAMEL model was used by the researcher to examine financial performance, and a t-test was used to determine significance. According to the study, mergers are a profitable strategy for banks since they allow them to grow their operations and increase profitability, liquidity, and efficiency. However, mergers cannot address general growth or financial sickness.

In line with this, studies by authors such as **Reddy (2018)** and **Kumar (2017)** have also identified NPAs as one of the most significant contributors to the decline in profitability across Indian banks, especially in public sector banks. These studies reinforce the view that effective asset quality management is essential for the sustainable profitability of banks in India.

Chawla (2018) conducted an empirical study on the profitability of Indian banks, focusing on SBI as a case study. The research showed that NPAs had a direct negative impact on key profitability indicators such as the net interest margin (NIM), return on assets (ROA), and return on equity (ROE). Chawla found that the cost of provisioning for NPAs significantly reduced SBI's net profits, with higher provisioning leading to lower ROA. The study suggested that reducing NPAs was critical for improving the bank's profitability and recommended better credit appraisal systems to prevent future bad loans.

Patel and Shah (2021) examined the impact of NPAs on profitability over a 10-year period and highlighted that high NPA levels not only eroded interest income but also increased SBI's overall cost of funds. This affected its NIM, a crucial indicator of profitability. They also found that during periods of high NPAs, SBI's operating expenses increased due to higher provisioning and recovery efforts. The study recommended that SBI adopt stricter lending practices and enhance its credit risk assessment framework to improve profitability.

In conclusion, the literature consistently suggests that NPAs negatively impact profitability in Indian banks. Das and Uppal's empirical analysis from 2005-2019 underlines the importance of reducing NPAs and associated costs to enhance profitability. The Indian banking sector's future profitability is closely tied to how effectively it can manage and reduce its stock of non-performing assets. This is the **Research gap** for the author to analyse the recent mega merger of SBI.

Research objectives

- To analyse the Asset quality of SBI in Post merger period.
- To evaluate the profitability of SBI in Post merger period.
- To do in depth analysis the effect of Asset quality on Profitability for FY2017-FY2022

Hypothesis Statement:

- H0: There is no significant impact of asset quality on profitability of SBI
- H1: There is a significant impact of asset quality on profitability of SBI

Research Methodology:

This study adopts a quantitative approach to assess the effectiveness of the SBI merger by analyzing the bank's financial data. The period of this study includes five years of post-merger (2017-2022). Few highly impactful parameters of profitability as been taken for consideration like ROA, ROE, NIM, PAT and CIR. This shows the overall profitability position of a bank. Similarly for asset quality GNPA And NNPA has taken for the study.

Data Collection

The data for this study is collected from the annual reports of State Bank of India, Reserve Bank of India (RBI) publications, and other financial databases such as Capitaline and Bloomberg. Key variables analyzed include:

- Gross NPAs
- Net NPAs
- Return on Assets (ROA)
- Return on Equity (ROE)
- Net Interest Margin (NIM)
- Profit After Tax (PAT)
- Cost-to-Income Ratio (CIR)

Sample Selection: The State Bank of India has been selected for the analysis of pre and Post Merger, because of mega merger happened in banking sector.

Source of Data: Data has been collected from secondary sources. That means data has been collected from the annual report of the SBI.

Period of Study: The study period for the research purpose is five years. The Post Merger period is five years i.e from 2017-18 to 2021-22.To know the long term impact on financial performance.

Research Technique: The financial ratios and performance metrics are analyzed using Microsoft Excel and statistical tools such as SPSS to compare the pre- and post-merger performance of SBI. A paired t-test is used to assess the statistical significance of changes in asset quality and profitability metrics before and after the merger.

Theoritical Framework

The Indian banking sector is notably fragmented, particularly when compared to other major economies. The asset concentration of the top five banks in India is significantly lower than in many other countries (as shown in the table below). Additionally, the Herfindahl-Hirschmann Index (HHI) for India's banking sector is 545.2, indicating a low level of concentration within the industry.

Country	5-Bank asset concentration in 2014 (%)
South Africa	99.80
Germany	99.38
Malaysia	95.86
Australia	94.49
Singapore (2013)	94.38
Brazil	91.19
United Kingdom	90.06
China	81.70
France	79.56
Thailand	75.72
Mexico	71.18
Japan	60.46
United States	47.86
Russian Federation	44.03
India	**40.21**

Source: Global Financial Database, June 2016

Concept of Non-Performing Asset (NPA)

A **Non-Performing Asset (NPA)** is a loan or advance that has not generated any income for the lender for a specified period of time. In simpler terms, it is a loan for which the borrower has stopped making interest or principal payments, rendering the loan at risk of default. NPAs are a critical indicator of a bank's asset quality and financial health, particularly in the banking sector.A loan is classified as an NPA when the borrower fails to pay interest or repay the principal for a period of **90 days or more** (as per RBI norms for Indian banks). It can include corporate loans, personal loans, or other types of advances (Jose & Jegadeeshwaran, 2024).

There are three major types of NPAs as follows:

- **Standard Assets**: These are assets that do not show any signs of financial distress and carry only the usual risks. They are performing assets, meaning the bank consistently receives both principal and interest payments from the borrower.
- **Sub-standard Assets**: Assets classified as NPAs for a period not exceeding two years. From March 31, 2015, sub-standard assets are those that have been NPAs for less than or equal to 18 months. Borrowers in this category fail to make three consecutive payments after 90 days, up to a year. Banks are required to set aside 10% provisions from their profits to cover potential losses from these assets.
- **Doubtful Assets**: These assets have been classified as NPAs for more than two years. Post-March 31, 2015, an asset is considered doubtful if it remains an NPA for more than 18 months. Doubtful NPAs are further classified into three categories:
  - **D1 (up to 1 year)**: Banks make a 20% provision.
  - **D2 (up to 2 years)**: Banks make a 30% provision.

  - **D3 (up to 3 years)**: Banks make a 100% provision.
- **Loss Assets**: When a loan is classified as a loss asset, banks must make 100% provision to write off the account. These assets are often transferred to recovery agents for sale. Loss assets are those where the bank or its auditors, including RBI inspectors, have identified a loss, but the entire amount has not yet been fully written off.
- **Impact on Banks**:
  - **Profitability**: NPAs directly affect the profitability of banks because they stop earning interest on these loans, and banks must also make provisions (reserves) for potential losses, which reduces their net income.
  - **Asset Quality**: High NPAs indicate poor asset quality, which can lower a bank's creditworthiness and investor confidence.
  - **Liquidity**: NPAs can strain a bank's liquidity since it cannot rely on loan repayments to fund its operations.
- **Provisioning Requirements**: Banks are required to make provisions for NPAs, i.e., setting aside a portion of their profits to cover possible losses from these bad loans. The amount of provisioning depends on the type of NPA (substandard, doubtful, or loss asset).
- **Reasons for NPAs**:
  - **Economic Downturns**: A weak economy can lead to defaults, particularly from corporate borrowers, due to reduced earnings.
  - **Poor Credit Appraisal**: Inadequate risk assessment before lending can lead to higher NPAs.
  - **Sector-Specific Issues**: Certain industries, such as real estate or infrastructure, may face issues like regulatory delays, leading to defaults.
  - **Wilful Defaults**: In some cases, borrowers intentionally fail to repay loans, despite having the means to do so.
- **Regulatory Measures**: Central banks and regulators, such as the Reserve Bank of India (RBI), play a role in monitoring and managing NPAs by issuing guidelines for asset classification, restructuring policies, and recovery mechanisms like insolvency proceedings.
- **Resolution of NPAs**: Banks can recover NPAs through legal actions, restructuring of the loan, or selling the loan to asset reconstruction companies (ARCs). Insolvency frameworks, such as India's **Insolvency and Bankruptcy Code (IBC)**, have been introduced to facilitate quicker resolution of bad loans.
- **Gross NPA vs. Net NPA**:
  - **Gross NPA**: Total amount of NPAs in a bank's loan portfolio.
  - **Net NPA**: Gross NPAs minus the provisions made by the bank to cover potential losses from those NPAs.
- **Implications for the Economy**: High levels of NPAs can lead to a **credit crunch**, where banks become more cautious in lending, reducing the availability of credit to businesses and individuals. This can slow down economic growth and affect financial stability.

NPAs are a crucial concern for banks as they affect profitability, asset quality, and liquidity. Managing NPAs through efficient credit risk assessment, regulatory interventions, and recovery mechanisms is essential for maintaining the overall health of the banking sector.

THE CONCEPT OF GROSS NPAs AND NET NPAs:

Gross NPA is the amount outstanding in the borrowers' account, in books of the bank other than the interest which has been recorded and not debited to the borrowers' account.

Net NPA is the amount of gross NPAs less (1) interest debited to borrowers' and not recovered and not recognized as income and kept in interest suspense, (2) amount of provisions held in respect of NPAs and (3) amount of claim received and not appropriated.

The RBI defines Net NPA as equal to Gross NPA –(Balance in Interest Suspense account + DICGC/ECGC claims received and held pending adjustment + Part payment received and kept in suspense account + Total provisions held).

This is generally reported as a ratio to net advances:

a) Gross NPA Ratio = (Gross NPA / Gross Advances) × 100

b) Net NPA Ratio = (Net NPA / Net Advances) × 100

The ideal value of net NPA is 0 and for practical purpose a benchmark is taken as 1 per cent. Thus, the values of net NPA which are less than one may be considered as satisfactory and the values exceeding 1 percent indicate a situation calling for improvement by reducing the NPA.

Data Analysis

Asset Quality (NPAs)

After the merger of State Bank of India (SBI) with its associate banks in April 2017, SBI faced a significant challenge with deteriorated asset quality, as it inherited a large volume of Non-Performing Assets (NPAs) from the merged entities. However, in the years following the merger (FY 2017-18 to FY 2021-22), SBI worked towards improving its asset quality through various recovery measures, write-offs, and better credit risk management. (Mehta & Singh, 2017)

Asset quality is a key element of the banking performance, used to evaluate the financial condition of banks and other financial institutions. It involves assessing a bank's assets, especially its loan portfolio, to gauge the level of risk and potential for losses. Strong asset quality signifies a lower risk of default, enhancing the institution's overall stability and profitability.

- $Gross\ NPA = \frac{Gross\ NPA}{Gross\ Advances}$
- $Net\ NPA\ Ratio = \frac{Net\ NPA}{Net\ Advances}$

The gross NPAs of SBI showed a significant increase in the first year following the merger, rising from 6.94% in 2016 to 10.91% in 2018. This spike can be attributed to the inclusion of NPAs from associate banks that were merged into SBI. However, by 2020, the gross NPA ratio had reduced to 7.53%, indicating that SBI had started addressing its bad loans more effectively. (Sahni & Gambhir, 2018)

Post-Merger NPA Situation

YEAR	Gross NPA Ratio	Net NPA Ratio	Provisions for NPAs
2017-18	10.91%	5.73%	₹32247 crore
2018-19	7.53%	3.01%	₹70680 crore
2019-20	6.15%	2.23%	₹54529 crore
2020-21	4.98%	1.50%	₹27244 crore
2021-22	3.97%	1.02%	₹14087 crore

Source- Annual Report of SBI FY2021-22

Interpretation of Post-Merger NPA Situation (FY 2017-18 to FY 2021-22)

1. **Initial Post-Merger Spike in NPAs (FY 2017-18)**:
   - **Gross NPA (GNPA) Ratio**: The merger of SBI with its associate banks in 2017 led to a significant increase in the Gross NPA ratio to **10.91%**, as SBI inherited a substantial amount of stressed assets from its associates.
   - **Net NPA (NNPA) Ratio**: The Net NPA ratio stood at **5.73%**, indicating a high level of bad loans even after provisioning.
   - **Provisions for NPAs**: SBI set aside **₹32,247 crore** as provisions to cover the anticipated losses from these NPAs. The relatively lower provisions reflect the initial impact of absorbing new NPAs from the merger.
2. **Sharp Decline in NPA Ratios in FY 2018-19**:
   - **NPA Reduction**: Both Gross and Net NPA ratios significantly improved, falling to **7.53%** and **3.01%**, respectively. This reflects SBI's initial efforts to resolve and reduce its NPA levels.
   - **Increased Provisions**: Despite the NPA ratios decreasing, provisions for NPAs sharply increased to **₹70,680 crore**.
3. **Continued Decline in NPAs (FY 2019-20)**:
   - **NPA Trends**: The Gross NPA ratio fell further to **6.15%**, while the Net NPA ratio dropped to **2.23%**. This improvement shows that SBI was successfully resolving bad loans, either through recoveries or write-offs.
   - **Lower Provisions**: Provisions for NPAs decreased to **₹54,529 crore** in line with the declining NPA ratios.
4. **Stabilizing NPA Situation (FY 2020-21)**:

- **Further Improvement**: The Gross NPA ratio continued its downward trajectory, reaching **4.98%**, while the Net NPA ratio decreased to **1.50%**. This indicates that SBI was actively managing and resolving its stressed assets, likely supported by improved recovery efforts and a favorable macroeconomic environment.
- **Provisions**: The bank's provisions for NPAs dropped significantly to **₹27,244 crore**, reflecting the improved asset quality and lower requirement for bad loan provisions.

5. **Lowest NPA Levels in FY 2021-22**:
    - **Best NPA Performance**: By FY 2021-22, SBI achieved its lowest post-merger Gross NPA ratio of **3.97%** and Net NPA ratio of **1.02%**. This marks a major success in managing its post-merger NPA situation, as the ratios dropped to pre-merger levels.
    - **Provisions**: Provisions for NPAs further decreased to **₹14,087 crore**, showcasing SBI's enhanced asset quality, which required less financial buffer to cover bad loans.

Key Insights:

1. **Steady Improvement in Asset Quality**: The Gross and Net NPA ratios consistently declined year-on-year from FY 2017-18 to FY 2021-22. This reflects SBI's focused efforts on improving asset quality post-merger through better credit management, loan restructuring, and recovery measures.
2. **Peak Provisions in FY 2018-19**: Despite a reduction in NPA ratios, SBI made its highest provisions in FY 2018-19. This could be due to a conservative approach to provisioning after absorbing the associate banks' bad loans, as well as adherence to stricter regulatory guidelines on NPA management.
3. **Impact on Profitability**: The substantial decline in both Gross and Net NPAs, along with reduced provisioning in later years (FY 2020-21 and FY 2021-22), had a positive impact on SBI's profitability. As NPAs fell, provisioning costs decreased, leading to improved net profit and financial stability.
4. **Post-Merger Success**: The consistent reduction in NPA ratios and declining provisions indicate that SBI successfully navigated the challenges posed by the merger. The bank's ability to resolve inherited bad loans while maintaining profitability demonstrates effective post-merger integration and risk management.In conclusion, SBI's focused efforts on reducing NPAs post-merger led to a significant improvement in its financial health, with lower provisioning costs boosting profitability from FY 2018-19 onward.

Gross NPA and Net NPA of SBI (Post-Merger: FY 2017-18 to FY 2021-22)

Financial Year	Gross NPA (₹ Crore)	GNPA Ratio (%)	Net NPA (₹ Crore)	NNPA Ratio (%)
2017-18	2,23,427	10.91	1,10,855	5.73
2018-19	1,72,750	7.53	65,895	3.01
2019-20	1,49,092	6.15	51,871	2.23
2020-21	1,26,389	4.98	36,810	1.50
2021-22	1,12,023	3.97	27,965	1.02

Source- Annual Report of SBI FY 2021-22

The immediate impact of the merger was a sharp increase in gross and net non-performing loans. Gross NPL ratio rose to 10.91%, the highest level in SBI's history, while net NPL ratio rose to 5.73%. This was mainly due to the weaker loan portfolio of the merged entity, many of which had high exposure to distressed sectors such as infrastructure, energy and real estate. SBI had to make a significant increase in its provisioning against NPAs during the period, amounting to Rs 1,06,757 crore, impacting its profitability.In 2018-19, SBI managed to bring down its gross NPA ratio to 7.53%, an improvement from the sharp rise it saw immediately after the merger. The decline was attributed to banks' proactive supply and collection strategies. Net non-performing loans also declined to 3.01%, indicating that banks are effectively managing their bad loans and provisions. From 2019 to 2020, gross non-performing loans ratio further declined to 6.15%, indicating continued improvement in asset quality. Net non-performing loans declined to 2.23%, indicating that SBI is proactively managing its non-performing loans and improving its loan portfolio. SBI's gross NPA ratio fell below 5 per cent for the first time since the merger, reaching 4.98 per cent in 2020-21, marking a major step in the bank's post-merger turnaround efforts. The net NPA ratio also declined to 1.50%, indicating steady progress in reducing the bank's risk exposure. (Singh, 2017) During 2021-22, SBI has significantly improved its asset quality with gross NPA ratio declining to 3.97% and net NPA ratio touching a record low of 1.02%. This represents a strong recovery from the post-merger surge in non-performing loans, driven by ongoing efforts to recover loans, build reserves and strengthen credit risk practices.

5. Findings

- The SBI merger initially resulted in a deterioration of asset quality, primarily due to the absorption of NPAs from the associate banks. However, by 2020, the bank showed signs of recovery in this regard.
- Profitability metrics such as ROA and ROE declined post-merger due to integration costs and high provisioning for NPAs. By 2020, however, profitability began to improve as the merger synergies and operational efficiencies started to take effect.

- The NIM of SBI showed steady improvement post-merger, indicating better income generation from lending activities.

Profitability

In terms of profitability, the Return on Assets (ROA) and Return on Equity (ROE) declined initially following the merger due to high provisioning for NPAs and integration costs. However, SBI's profitability began to recover by 2020 as the benefits of the merger, such as economies of scale and increased operational efficiency, started to materialize. (Singh, 2017)

Profitability Performance Overview (FY 2017-18 to FY 2021-22)

Financial Year	Net Profit (₹ Crore)	Return on Assets (ROA) (%)	Return on Equity (ROE) (%)	Net Interest Margin (NIM) (%)	Cost-to-Income Ratio (%)
2017-18	-6,547	-0.19	-3.83	2.50	54.48
2018-19	862	0.02	0.37	2.95	52.46
2019-20	14,488	0.38	6.96	2.92	52.46
2020-21	20,410	0.48	9.41	3.05	53.60
2021-22	31,675	0.67	13.92	3.15	52.46

Source-Annual Report of SBI

- $ROA = \frac{Earning\ before\ interest\ and\ tax}{Total\ Assets}$
- $ROE = \frac{Net\ Income}{Average\ Shareholder's\ Equity}$
- $CIR = \frac{Operating\ Expenses}{Operating\ Income}$
- $NIM = \frac{Interest\ income - Interest\ Expenses}{Average\ Earning\ Asset}$

1. Net Profit

- **2017-18**: SBI reported a net loss of **₹6,547 crore**, primarily due to the surge in NPAs post-merger with associate banks, which led to heavy provisioning for bad loans. This was a challenging year for profitability.
- **2018-19**: SBI bounced back with a modest net profit of **₹862 crore**, reflecting its initial recovery from the merger impact and its improved asset quality. Despite the small profit, this marked a significant turnaround from the previous year's loss.

- **2019-20**: The bank made substantial progress, posting a net profit of **₹14,488 crore**, driven by improved asset quality, higher recoveries from NPAs, and reduced provisioning. This sharp increase in profitability demonstrated the effectiveness of SBI's post-merger recovery strategy.
- **2020-21**: SBI continued its strong performance, with a net profit of **₹20,410 crore**. This increase was despite the challenges posed by the COVID-19 pandemic, showcasing the bank's resilience.
- **2021-22**: The bank reported its highest-ever net profit of **₹31,675 crore**, reflecting improved operational efficiency, strong recoveries, and a decline in NPAs.

2. Return on Assets (ROA)

- **2017-18**: SBI's ROA was **-0.19%**, reflecting the negative profitability due to losses from NPAs and provisioning.
- **2018-19**: The ROA improved slightly to **0.02%**, indicating that SBI had returned to profitability, albeit at a low level.
- **2019-20**: With a significant improvement in profitability, the ROA increased to **0.38%**. This indicates better utilization of assets to generate income.
- **2020-21**: The ROA further improved to **0.48%**, reflecting the bank's steady recovery from its earlier challenges.
- **2021-22**: SBI's ROA reached **0.67%**, a healthy improvement and a sign of enhanced profitability and better management of its assets.

3. Return on Equity (ROE)

- **2017-18**: SBI's ROE was **-3.83%**, reflecting the negative return to shareholders due to the bank's losses in the post-merger period.
- **2018-19**: ROE recovered to **0.37%**, indicating a return to profitability, though still modest.
- **2019-20**: The ROE improved significantly to **6.96%**, showing that the bank was generating better returns for its shareholders as profitability improved.
- **2020-21**: ROE further increased to **9.41%**, reflecting strong earnings growth and efficient use of shareholder funds.
- **2021-22**: The ROE reached an impressive **13.92%**, showcasing strong shareholder returns, driven by robust profit growth and improved operational performance.

4. Net Interest Margin (NIM)

- **2017-18**: The NIM stood at **2.50%**, indicating pressure on the bank's core interest-earning activities. This was due to the high level of NPAs, which reduced income from interest on loans.
- **2018-19**: SBI's NIM improved to **2.95%**, driven by better asset quality and higher interest income as the bank began resolving stressed assets.
- **2019-20**: The NIM remained stable at **2.92%**, reflecting the bank's ability to maintain profitability from its lending activities, despite market challenges.

- **2020-21**: The NIM further improved to **3.05%**, highlighting the bank's efficient management of its interest income and expenses.
- **2021-22**: SBI achieved its highest NIM of **3.15%** during this period, reflecting stronger interest earnings, lower cost of funds, and improved operational efficiency.

5. Cost-to-Income Ratio

- **2017-18**: SBI's **Cost-to-Income Ratio** was **54.48%**, indicating that more than half of the bank's income was consumed by operating expenses. This high ratio reflected inefficiencies following the merger and increased costs related to the integration of associate banks.
- **2018-19**: The ratio improved slightly to **52.46%**, suggesting that the bank was gradually becoming more cost-efficient as it integrated operations.
- **2019-20**: The ratio remained at **52.46%**, indicating that operational expenses were stable and that the bank was maintaining efficiency in its cost structure.
- **2020-21**: The ratio increased slightly to **53.60%** due to the higher costs associated with the pandemic and provisions. However, the overall efficiency of the bank remained intact.
- **2021-22**: The Cost-to-Income Ratio improved again to **52.46%**, indicating consistent operational efficiency and cost management.

Findings

- **Turnaround from Loss to Profitability**: SBI experienced a significant turnaround in profitability over the five-year period. After reporting a loss of ₹6,547 crore in FY 2017-18 due to high NPAs and merger-related costs, the bank steadily increased its profitability, culminating in a record net profit of ₹31,675 crore in FY 2021-22.
- **Improvement in ROA and ROE**: Both ROA and ROE showed a consistent upward trend, reflecting the bank's ability to generate better returns on its assets and equity. By FY 2021-22, ROE reached 13.92%, indicating strong returns to shareholders.
- **Improved NIM**: SBI's NIM increased from 2.50% in FY 2017-18 to 3.15% in FY 2021-22, reflecting improved asset quality, higher interest income, and better management of interest expenses.
- **Cost Efficiency**: The bank's Cost-to-Income Ratio remained stable and improved over time, signaling better control over operating expenses despite challenges such as the pandemic.

The **Cost-to-Income Ratio** (CIR) is a key financial metric used to measure a bank's efficiency by comparing its operating costs to its operating income. It indicates how much the bank spends to generate a unit of income, with a lower ratio implying greater efficiency.

Correlation Matrix of Profitability and Asset Quality Parameters (FY 2017-18 to FY 2021-22)

Parameter	PAT (₹ Crore)	Gross NPA Ratio (%)	Net NPA Ratio (%)	Provisions for NPAs (₹ Crore)
PAT (₹ Crore)	1.000	-0.952	-0.918	-0.564
Gross NPA Ratio (%)	-0.952	1.000	0.995	0.318
Net NPA Ratio (%)	-0.918	0.995	1.000	0.227
Provisions for NPAs (₹ Crore)	-0.564	0.318	0.227	1.000

Source- Author's Calculation

Interpretation:

1. PAT (Profit After Tax) and Gross NPA Ratio: There is a strong negative correlation (-0.952), indicating that as the Gross NPA ratio decreases, SBI's profitability improves significantly.
2. PAT and Net NPA Ratio: Similarly, a negative correlation (-0.918) suggests that a lower Net NPA ratio is associated with better profitability.
3. PAT and Provisions for NPAs: A moderate negative correlation (-0.564) exists between profitability and provisions for NPAs, implying that higher provisioning for NPAs tends to reduce profitability.
4. Gross NPA and Net NPA Ratio: A very strong positive correlation (0.995) exists, as expected, since the Net NPA is a subset of Gross NPA.

This analysis shows that reducing NPAs is critical for enhancing SBI's profitability in the post-merger period.

Conclusion

The results of the study reveal that the State Bank of India has attained better financial performance in terms of asset quality, management efficiency, earning capacity, and liquidity. The bank has able to maintain the CAR after merger as per BASEL-III report and RBI guidelines. Profit per Employee increased after merger which indicates the better efficiency and synergy of technological parameters. The most important concern of Public sector banks is the NPA which is seemingly addressed by the restructuring of banking sector and introduction of IBC (Insolvency and Bankruptcy Code). Bank has created an environment of honest willfulness between lender and borrower. Most of the analysed parameters showing and upward trend after a sudden drop in post merger period. The optimum utilization of resources can be seen by the by studying the increasing liquidity position and asset quality of the bank. The bank may not shown full proof positive sign in all the parameters , but it shows all the indicators as upward trend in just five years of merger. Author can be easily foreseen that the SBI will perform better financial stability and operational efficiency in near future. SBI's profitability over the period from FY 2017-18 to FY 2021-22 reflects a strong recovery from

the challenges posed by the merger and the subsequent increase in NPAs. The bank successfully restored profitability through effective asset quality management, strong recovery efforts, and cost control measures. SBI's steady growth in net profit, ROA, ROE, and NIM, coupled with stable cost management, demonstrates its ability to navigate through challenges and emerge as a stronger, more profitable institution.

Limitation of Study and Future research avenues

The banks profitability depends upon many factors both internal as well as external factors are affect te profitability of any bank. Here in this paper author want to study on the internal factors which author feels that it can be more controlled and regulated at banks end. SO in this paper author focused on the internal factors like NPA, Non-interest income(NII), Net Interest Margin (NIM), Capital adequacy Ratio(CAR), Operating costs. But author forcibly ignores the effect of macroeconomic determinants like GDP growth rate, Inflation, Interest rate etc which can be taken as limitation of this study. There are 20 Public Sector Banks (PSB) in India but in the process of banking sector consolidation they are synced to 12 numbers after a rigorous merger activity. But the author studied only one largest PSB i.e SBI because of megamerger. In future the study can be done on other PSBs.

Abbreviations

NPAs:Non-Performing Assets
GDP:Gross Domestic Product
FE:Fixed Effects
RE:Random Effects
RBI:Reserve Bank of India
PSB-Public Sector Bank
SBI-State Bank of India

Conflict of Interest

The Authors declare no conflict of interest regarding the publication of this paper.

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