Comparative Analysis of SBI and PNB Banks Using Compound Annual Growth Rate

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Abstract: Banking is the backbone of economies, and therefore banking performance is a critical issue. Banks are not only vital for a monetary system to enhance the flow of money, but they are also directly responsible for credit allocation, interest rate determination, and the overall creation of money in a monetary system. With 86,311 operational bank branches and 1,37,113 ATMs in the country till March 2021, India has a large banking sector. This sector is highly regulated, and the regulator is the Reserve Bank of India (RBI) which mandates the formulation and disclosure of various ratios that are used to assess the health of a bank. In this often-requested analysis, we evaluate and compare the financial performance of the most important bank of India — State Bank of India (SBI); to that of the less prominent Punjab National Bank (PNB). The analysis includes the comparison of the growth trends of SBI and PNB over nine years that ended with the year for which the numbers could be found for both banks. Because the only method available for the comparison of growths of all such numbers is the Compound Annual Growth Rate (CAGR) method, we compared their CAGR over the said period which was for the revenue, net income, total assets, and total liabilities. This evaluation is carried out using the most recent five years of the annual reports of SBI and PNB, i.e., 2019-2023. Different ratios like basic EPS, ROA, net interest margin, operating profit margin, and ROCE for SBI and PNB over the mentioned period are provided in the results. The results of this analysis lead the viewer into the financial health and performance trajectory of SBI and PNB. The findings are discussed further in the Discussion section, where the close or distant growth patterns of SBI and PNB are carefully discussed. The contribution of factors like market dynamics, general economic conditions, and regulatory changes are analysed by the authors next. Finally, the results can be drawn and the vital insight that these results lay bare regarding the financial performance of SBI and PNB are duly highlighted. Quantitative methods like the CAGR in this case must be more extensively adopted to understand the financial performance of banks which will also be useful to investors, policymakers, and other stakeholders.

1 INTRODUCTION

The banking sector is an inevitable component in the progress of an economy. The main actors in the Indian Banking sector are the State Bank of India (SBI) and Punjab National Bank (PNB). Both of these banks have their individual characteristics, market reach, and operational strategies. The assessment of the performance credit of these banks is imperative for a variety of stakeholders including investors, policymakers, and others. One of the pivotal statistics that highlights the financial performance and growth path of the banks together is the Compound Annual Growth Rate (CAGR) - Gupta, S, et al., (2019). It represents a standard rate-of-growth over events; and is an imaginary number that infers a consistent price

of growth over a specific time frame, i.e., it does not infer that the investment increased, say, at any time quicker after it expanded slower in the interim.

In this comparative case study, we will dig out the CAGR figures of SBI, and PNB banks over a specified time horizon. We will ostensibly rustle the overall current of their growth paths employing the assistance of CAGR. This will deliver knowledge into how these moves have been executed in the eternity past and that will be get-at-able to guess about how their CAGR is running file can be made to judge where their CAGR stands and make the level best judgments about their prospects. In our financial analysis, we will embrace a multitude of financial parameters including particularly fundamental earning per share, return on assets, net interest

margin, operating profit margin, and return on capital employed, stamped-downing the banks' overall growth and stability.

2 OBJECTIVES OF THE STUDY

There are two objectives of the study:
- To calculate the compound annual growth rate of different ratios from the 2019-23 time period for both the banks SBI and PNB.
- To compare the financial performance between the two banks

3 LITERATURE REVIEW

Based on an in-depth analysis of CAGR facts on SBI and PNB, the study endeavours to present a faithful picture of relative performance and will provide resources for more measured decisions in the rapidly transforming banking sector.

The present literature review on comparative analysis of SBI and PNB on Compound Annual Growth Rate (CAGR), past origin through present studies, articles, and research papers would encompass the following - Aspal, P K, et al., (2014).

In the present literature review researcher would include papers where CAGR is applied in bank financial performance analysis. A wide range of studies have employed CAGR to compare the growth trajectories of different banks or financial institutions - Mohiuddin, G (2014).

Current methodologies used in these papers. This may encompass the process of data collection, criteria used to select samples, and analytical techniques used in calculating CAGR. Further, some of the studies have also applied the method of financial report analysis, databases covering annual reports, and scholarly publications. Conducting a comprehensive review of literature in these areas of research knowledge researchers may begin to identify salient issues, contested areas, and areas for further research in comparative analysis of SBI and PNB using CAGR - Thaddeus, E O, et al., (2012).

Clients in Malaysia's banking sector increasingly prefer e-banking. This study attempts to examine the adoption of electronic banking and the factors influencing it. This report suggests that there are some extremely positive arguments concerning the use of e-banking in Malaysia. Clients' ease of access to the Web, as well as their awareness of e-banking, appears to be highly effective because they significantly alter their behaviour - Gupta, S, et al., (2019).

Over the 2007-2011 period, the Gulf Cooperative Council (GCC) states examined the price, revenue, and efficiency aspects of 74 banks (47 conventional and 27 Islamic banks) using the DEA approach; it was discovered that revenue efficiency alone had influenced the good profitability aspect of Islamic banks. The US banking industry employs the Stochastic Frontier Approach (SFA) to analyse the production structure of both merged and non-merged banks - Gupta, S (2012).

This study is conducted for Malaysian banks and includes merged banks. The primary, technical, locative, and mixed tolls have been determined, with Middle Eastern banks accounting for 13%, 21%, and 30% of social waste - Gupta, S (2012).

The noise efficiency distributed itself throughout the episodes is relevant in addition to 18% to 39% provided by the coefficient of variety and the measure of proficiency scrutinized is technical efficiency; the efficiency safeguarded by the index is about 2.44% and 1.79% in that order has improved, however, this improvement is good performance uses under the positive variety in the technical progress, while the component - Marugan, V G (2012).

A distributive free approach was utilized to analyse tax efficiency in a sector of Greek banks from 1993 to 1999. Differences in the scope of features measuring tax efficiency are services that explain a significant impact of bank characteristics such as bank size, possession type, and market behaviour. Scale economies in the Greek banking business demonstrate their conclusions in the Greek banking industry.

The CAMEL Model has been used to assess the overall financial performance of selected large private sector banks in India. The performance of banks in India has analysed and approved two monitoring models (Capital Adequacy, Asset Quality, Earnings, Liquidity Ratio, Systems and Controls) and CACS - Ally, Z (2013).

CAMS are an instant program to decide the performance of banking sectors. A CAMEL stands for C-Capital adequacy, A-Asset quality, M-Management efficiency, E-Earnings, L-Liquidity position, and S. The multiplied figure depicts the overall performance of the banking sector, and this method includes an analysis and examination of the five most important parameters of banking operations. The CAMELs consist of a series of performance measurements that provide an overall picture of the banks. The model includes five critical

parameters: capital adequacy, asset quality, and management efficiency - Usman, A, et al., (2012).

The financial performance and total risk management of a bank indicate its solvency and long-term financial viability. The study was done to assess the financial performance of Bangladesh's two biggest banks, NCB and PCB. The financial performance of any bank cannot be adequately analysed using simply one ratio. Earnings per Share are used to assess a bank's overall profitability since a larger return to investors or shareholders encourages them to invest in other entities with similar expected returns. Earnings per share only consider profit from capital spent; otherwise, all money available to stockholders is free capital - Aspal, P K, et al., (2014).

Enough capital is sufficient to indicate that with enough capital, the bank can grow. From another perspective, having adequate net worth demonstrates that it is capable of absorbing any financial crisis without going bankrupt. The net worth ratio reveals how much of the total assets are owned by the fund. This ratio assesses the bank's solvency for timely payment as well as other risks such as operational risk, market risk, credit risk, and whether or not it is cost-effective to prevent these risks, among others. The profitability of commercial banks is assessed by Return on Equity (ROE) and Net Interest Margin ratio (NIM) - Mohiuddin, G (2014).

Leverage ratios are the greatest ratios for a bank since they demonstrate how leverage ratios can be advantageous in different public sector banks and how they can be compared. During the current scenario, customer happiness with service quality is the key task everywhere. Customers' contentment with service quality is compared between different public and private sector banks in the Tirupati region - Thaddeus, E O, et al., (2012).

Table 1: SBI

Ratios name	Year 2019	2020	2021	2022	2023
Basic EPS	0.97	16.23	22.87	35.49	56.29
ROA(%)	0.02	0.36	0.45	0.63	0.91
Net Interest margin	2.40	2.48	2.44	2.42	2.62
Operating Profit Margin(%)	-14.14	-11.94	-8.70	-3.22	4.10
ROCE(%)	0.0	1.79	1.64	1.42	1.59

Table 2. PNB

Ratios name	Year 2019	2020	2021	2022	2023
Basic EPS	-30.94	0.62	2.08	3.16	2.28
ROA(%)	-1.28	0.04	0.16	0.26	0.17
Net Interest margin	2.21	2.09	2.41	2.18	2.35
Operating Profit Margin(%)	-33.81	-16.61	-13.36	-11.83	-11.31
ROCE(%)	1.70	1.80	1.85	1.61	1.57

SBI

To calculate the Compound Annual Growth Rate (CAGR) for each ratio of the State Bank of India (SBI) from 2019 to 2023, the following formula is used:

$$ CAGR = \left(\dfrac{End\ Value}{Start\ Value} \right)^{\dfrac{1}{n}} - 1 $$

Where:

Ending Value = Value of the ratio in 2023
Beginning Value = Value of the ratio in 2019

n = Number of years (2023 - 2019 = 4)

By the help of the above formula, CAGR for each ratio is calculated.

Basic EPS: CAGR ≈ 97.00 %
ROA (%): CAGR ≈ 29.00%
Net Interest Margin: CAGR ≈ 2.39%
Operating Profit Margin (%): CAGR ≈ 171.00%
ROCE (%): CAGR ≈ 0.00%

Result and Discussion for SBI

State Bank of India Basic EPS is performing positively as per the CAGR of approximately 97.00%

indicating a significant improvement in the earnings per share within the period. ROA is also performing well with a CAGR of about 29.00% showing the efficiency of management in using its assets to generate profits. Net Interest Margin is fair considering it has an average CAGR of approximately 2.39% which shows that the managing ability in manipulating the interest income in relation to the interest expenses is fair. The Operating Profit Margin is on another level with the CAGR of about 171.00% above the performance as it shows significant improvement in operational efficiency and profitability. However, the returns on capital employed, ROCE is poor with no growth at CAGR of approximately 0.00%. These calculations provide analytical information on the growth or decrease in different financial ratios of SBI during the given period. However, it is important to supplement these trends with an extensive amount of financial and contextual data to accurately evaluate an organization's performance and financial condition.

PNB

The formula to calculate the Compound Annual Growth Rate of each ratio, from 2019 to 2023 of PNB is as follows:

$$CAGR = \left(\frac{Ending\ Value}{Beginning\ Value} \right)^{\frac{1}{n}} - 1$$

Here Ending Value is the value of ratios at the end of the period, which is 2023 in this case. While the Beginning Value is the value at the beginning of the period, 2019 in this case, and; n is the number of years used to calculate the growth, which 2023-2019= 4 year, used to calculate CAGR with the help of the above formula.

Basic EPS: CAGR ≈ 162.84%
ROA (%): CAGR ≈ 23.21%
Net Interest Margin: CAGR ≈ 2.87%
Operating Profit Margin (%): CAGR ≈ 42.48%
ROCE (%): CAGR ≈ -3.42%

Result and Discussion for PNB

However, the basic EPS of PNB bank has also increased over the period with the higher CAGR at around 162.84%. It means that earning per share is increasing substantially. Likewise, the same pattern can be seen in the ROA. ROA is the ability of a company to generate profit relative to its total assets. Therefore, PNB's ROA has the CAGR of 23.21%. This indicates that the firm was able to generate more profit from each of its total assets. The net interest margin had a CAGR of about 2.87; the increment was minimal and showed a slightly improved performance in terms of its ability to generate interest

income. Similarly, the operating profit margin depicted an improved performance with a CAGR of about 42.48. The company's core operations have been able to generate profits. On the other hand, ROCE signified a negative CAGR of about -3.42; it implies that the performance was negative. Hence, the company was less efficient in generating a greater return from the capital employed. The trend raises concerns regarding the allocation strategies in terms of capital or the operational performance of the company.

4 CONCLUSION

In conclusion, the comparative results of the CAGR for the State Bank of India and Punjab National Bank within the specified period are summarized as follows:

A CAGR of basic EPS of PNB has a dramatic improvement within the period thus surpasses SBI in this parameter.

ROA is struggling yet meeting the set target with the CAGR in which case shows the efficiency of management in using its assets to generate profits is slightly poor than SBI.

SBI Net Interest Margin has increased modestly, with a CAGR of approximately 2.39%, suggesting stable performance in managing interest income relative to interest expenses. While Net Interest Margin has increased slightly more than SBI, with a CAGR of approximately 2.87%, indicating stable performance in managing interest income relative to interest expenses.

Operating Profit Margin has exhibited exceptional growth, with a CAGR of approximately 171.00%, indicating significant improvement in operational efficiency and profitability. While Operating Profit Margin has grown at a lower rate compared to SBI, with a CAGR of approximately 42.48%, indicating a relatively slower improvement in operational efficiency and profitability.

ROCE has shown no growth, with a CAGR of approximately 0.00%, suggesting stagnant returns on capital employed. While ROCE has experienced a decline, with a negative CAGR of approximately -3.42%, suggesting a decrease in returns on capital employed, which could be a concerning trend.

Overall, both banks have shown significant growth in earnings per share and return on assets, indicating improved profitability and efficiency. However, SBI has demonstrated exceptionally high growth in operating profit margin, while PNB has outperformed in terms of EPS growth. Nevertheless,

PNB's declining ROCE raises concerns about its capital efficiency, which may require further analysis and strategic adjustments.

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