RESEARCH ARTICLE

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An Analysis of the Post-Merger Performance of Punjab National Bank and Canara Bank Using the CAMEL Model

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Abstract

Mergers and acquisitions serve as essential strategies for banks to realign their structures, broaden their portfolios, and accelerate growth. The Indian banking landscape has witnessed substantial transformation in recent years due to rising competition from new entrants, technological advancements, globalization of financial services, shifting customer preferences, and a focus on providing diverse offerings at lower costs. These changes have led to strengthened banking systems through consolidation efforts. This research utilizes the CAMEL framework to evaluate the financial performance and stability of Punjab National Bank and Canara Bank in the post-merger phase, covering the fiscal years 2019-2020 to 2023-2024. The analysis highlights that Punjab National Bank demonstrated superior performance compared to Canara Bank, which faced challenges in areas such as capital adequacy, asset quality, and liquidity. Addressing these critical aspects was imperative for Canara Bank to improve its financial standing. The results highlight a significant difference between the two banks' performance over the assessed time frame.

Keywords: Merger, Acquisitions, Banking, CAMEL approach

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Introduction:

The banking sector in India is one of the fastest-growing in the country. It supports the execution of monetary policy and is essential to capital formation, innovation, and the monetization process. It has played a crucial role in transforming the financial sector, promoting economic growth, and accelerating the overall development of economies globally. In a competitive setting, M&As are seen as a strategic way to create synergies that allow for more value creation than individual banks could accomplish alone. These programs give banks the capacity to enter new markets, increase their market share quickly, diversify their assets, boost their competitiveness, and guarantee long-term viability. The primary goal of the study is to evaluate the post-merger performance of Canara Bank and Punjab National Bank using the CAMEL model.

Review of Literature

Meenakshi Sundaram K. S. and Kannan A. S. (2020) analyzed the performance of Bank of Baroda from 2008–09 to 2016–17 using secondary data. Key metrics like ROE, Credit-Deposit Ratio, Net Interest Margin, and ROA revealed higher NPAs and lower ROA during the pre-merger phase. The study emphasized addressing NPAs and enhancing ROA as critical steps for the merged entity's stability and growth.

Anitha M. (2019) assessed the performance of the State Bank of India (SBI) from 2007-08 to 2017-18 using the CAMEL model, employing ratio analysis as the primary method. The study revealed a negative trend in SBI's debt recovery efficiency and Return on Assets (ROA).

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Furthermore, it concluded that SBI's overall performance was stronger during the pre-merger period compared to the post-merger phase.

Manish Phalke and Priyanka Bargal (2019) This study looked into how bank mergers affected consumers' knowledge of services both before and after the merger. Only primary data obtained from surveys of consumers and staff members of particular merging banks served as the basis for the analysis. The results showed a range of opinions regarding the effects of mergers, with both staff and customers reporting both good and bad experiences.

Subhankar Das and Sonia Singh (2018) Examined the financial performance of selected Indian private and public sector banks in the post-merger period, focusing on metrics like current ratio, asset turnover, profitability, and ROCE. The study found improved outcomes for SBI, unchanged current ratios for BoB and PNB, and varying asset turnover efficiency over time.

Parimalendu Banerjee and Gupta (2017) The study looked at how M & A affected a few Indian companies' financial results from 2006 to 2012. It used secondary data to analyze seven different industries and assess a range of financial parameters pertaining to liquidity and profitability. The findings showed that the acquiring companies' financial performance was not improved by mergers and acquisitions.

Objective of the Study

- The objectives of the study are as follows:
- Conduct a comparative analysis o PNB an CB post-merger using the CAMEL Model.
- Evaluate the financial health and stability of PNB and CB before merger period.
- Identify strengths and weaknesses in the operational and financial performance of both banks after the merger.
- Develop actionable recommendations to enhance the financial sustainability of PNB and CB.

Propose strategies to improve key performance indicators, including capital adequacy, asset quality, liquidity, management efficiency, and earnings.

Research methodology

This study utilizes the CAMEL model, a ratio-driven framework, adopting a descriptive and analytical approach to evaluate bank performance. The analysis focuses on Punjab National Bank and Canara Bank, with data drawn from their publicly available annual reports spanning five years (2019-2020 to 2023-2024). The performance of these banks was evaluated using fifteen key financial ratios. To ensure the reliability of the findings, a five-year average was calculated using the arithmetic mean, and data analysis was carried out through one-way ANOVA.

Hypotheses

H_o: There is no significant relationship in the performance of selected bank prior merger using the camel model.

Analysis & Interpretation

The CAMEL model evaluates banks based on five key parameters The key findings derived from these factors are the main focus of this section.

Capital Adequacy of Banks

Adequacy of capital is the amount of capital that a bank must have in order to protect stakeholders and depositors by efficiently absorbing possible losses. Sustaining this capital is essential for maintaining stakeholder trust and safeguarding banks' stability and reputation. Indicators of a bank's financial health and ability to withstand unforeseen losses are vital. Additionally, capital adequacy shows how stable a bank is overall and how well its management is able to fulfill the bank's growing capital needs. A minimum CRAR of 8% is required by Basel criteria, however the RBI has a stricter threshold of 9% for domestic banks.

Table-1: Capital Adequacy Ratio (PNB)

Bank	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	Mean	Rank
Capital Adequacy Ratio (CAR)							
Canara Bank	10.56	11.00	13.00	13.00	12.00	11.90	2
PNB	10.54	11.16	12.03	12.24	14.23	12.03	1
Total Advances to Total Assets							
Canara Bank	60.14	58.30	58.20	61.56	61.29	59.92	2
PNB	66.87	65.38	66.76	65.03	65.87	65.97	1
Govt. Securities to Total Investments							
Canara Bank	88.37	89.22	90.45	88.82	89.46	89.25	2
PNB	89.72	87.47	89.58	90.88	91.27	89.79	1

Source: Financial Reports

Table-2: Capital adequacy of banks from 2019-2020 to 2023-2024.

Banks	Capital Adequacy Ratio (Average %)	Rank	Government Securities to Total Investments (Average %)	Rank	Total Advances to Total Assets (Average %)	Rank	Group Rank
CB	11.90	2	89.25	2	59.92	2	2
PNB	12.03	1	89.79	1	65.97	1	1

Source: Financial Reports

Table 2 highlights a comparative analysis of two banks, CB and PNB, across key financial metrics. PNB demonstrates a marginally higher Capital Adequacy Ratio (12.03%) than CB (11.90%), indicating a stronger capital buffer against risk-weighted assets. Additionally, PNB allocates a marginally higher share of its investments to government securities (89.79% versus CB's 89.25%), indicating a relatively more conservative investment strategy. In terms of Total Advances to Total Assets, PNB outperforms CB with a ratio of 65.97% versus 59.92%, suggesting a more aggressive lending strategy. Overall, PNB consistently ranks higher across all parameters, achieving an average group rank of 1.00 compared to CB's 2.00, underscoring PNB's stronger financial performance and operational efficiency.

Assets Quality of Bank

A key element of the CAMEL model, which assesses the operational effectiveness and financial stability of banks, is asset quality. This measure mainly evaluates a bank's loan portfolio quality and its capacity to reduce non-performing asset (NPA) risks. Prudent lending methods, efficient risk management, and general financial stability are all reflected in high asset quality. Superior asset quality inside the bank is indicated by lower values for these ratios.

Table-3: Assets Quality

Sl. No.	Bank	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	Mean	Rank
Gross NPAs to Net Advances								
1	Canara Bank	3.95	9.74	10.00	12.43	9.17	9.05	2
2	PNB	3.17	6.86	8.81	12.22	12.03	8.63	1
Net NPAs to Net Advances								
1	Canara Bank	2.65	6.42	6.33	7.48	5.37	5.64	2
2	PNB	1.90	4.48	5.21	6.28	6.15	4.82	1
Net NPAs to Total Assets								
1	Canara Bank	1.59	3.74	3.68	4.60	3.29	3.37	2
2	PNB	1.26	2.92	3.48	4.08	4.05	3.16	1

Table-4: Assets quality of banks from 2019-2020 to 2021-2022.

Banks	Gross NPAs to Net Advances (Average %)	Rank	Net NPAs to Net Advances (Average %)	Rank	Net NPAs to Total Assets (Average %)	Rank	Group Rank
CB	9.05	2	5.64	2	3.37	2	2
PNB	8.63	1	4.82	1	3.16	1	1

Table 4 compares the performance of CB and PNB in managing their Non-Performing Assets (NPAs) PNB outperforms CB in all three metrics. The *Gross NPAs to Net Advances* ratio for PNB (8.63%) is lower than CB's (9.05%), indicating a healthier asset portfolio for PNB. Similarly, PNB's *Net NPAs to Net Advances* ratio (4.82%) is better than CB's (5.64%), suggesting that PNB has better control over its bad loans. In the *Net NPAs to Total Assets* category, PNB again leads with a ratio of 3.16%, compared to CB's 3.37%, reflecting better risk management and asset utilization. Overall, PNB ranks first across all metrics with an average rank of 1.00, while CB ranks second with an average rank of 2.00. This consistent performance suggests that PNB is more effective in managing NPAs, maintaining a stronger financial position compared to CB.

Management Efficiency of Bank

Management efficiency assesses a bank's capability to make strategic and effective decisions that drive its long-term growth, profitability, and overall success. It reflects the quality of management and its capacity to define and accomplish the bank's strategic goals and vision. Key metrics like the ratio of total advances to total deposits, business per employee, and profits per employee are used to evaluate the management effectiveness of the chosen banks. Greater managerial effectiveness and improved performance are reflected in higher values for these variables.

Table-5: Management Efficiency

Sl. No.	Bank	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	Mean	Rank
Total Advances to Total Deposits								
1	Canara Bank	67.92	67.68	69.05	72.74	71.40	69.74	2
2	PNB	77.78	76.93	76.63	77.23	78.89	77.49	1
Business Per Employee (Rs. Cr)								
1	PNB	14.35	14.45	14.43	14.81	17.07	15.03	1
2	Canara Bank	15.39	14.61	13.51	14.39	14.27	14.44	2
Profits Per Employee (Rs. Cr)								
1	PNB	0.05	-0.05	0.02	-0.07	0.01	-0.008	1
2	Canara Bank	0.06	-0.06	0.01	-0.10	-0.08	-0.034	2

Table-6: Management efficiency of banks from 2019-2020 to 2023-2024.

Banks	Total Advances to Total Deposits (Average %)	Rank	Business per Employee (Average %)	Rank	Profit per Employee (Average %)	Rank	Group Rank
PNB	69.74	2	15.03	1	-0.008	1	1.33
CB	77.49	1	14.44	2	-0.034	2	1.67

Source: Financial statement

Table 6 compares the performance of PNB and CB. CB has a higher *Total Advances to Total Deposits* ratio (77.49%) compared to PNB's 69.74%, indicating a more proactive approach to lending. However, PNB excels in *Business per Employee,* generating 15.03 lakhs per employee, compared to CB's 14.44 lakhs, reflecting better productivity. Both banks show negative *Profit per Employee*, but PNB performs slightly better with a loss of -0.008 lakhs compared to CB's -0.034 lakhs. Overall, PNB ranks first with an average group rank of 1.33, while CB ranks second with an average rank of 1.67. Despite CB's more aggressive lending approach, PNB outperforms CB in efficiency and profitability, leading to a stronger overall performance.

Earning Quality of Bank

In order to ensure a bank's long-term profitability and expansion, this criterion looks at how well the bank makes money. Banks may promote sustainable development and fortify their financial position by increasing profitability. Key ratios including Return on

Assets (ROA), Interest Income to Total Income, and Non-Interest Income to Total Income are taken into account in order to assess the selecting banks' earning quality. Better bank earnings performance is indicated by higher values of these ratios.

Table-7: Earning Quality

Sl. No.	Bank	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	Mean	Rank
Return on Assets								
1	PNB	0.55	-0.52	0.20	-0.75	0.06	-0.092	1
2	Canara Bank	0.58	-0.56	0.12	-1.05	-0.87	-0.34	2
Interest Income to Total Income								
1	Canara Bank	90.58	90.03	84.56	85.60	87.68	87.70	2
2	PNB	91.10	90.24	86.93	88.58	90.71	89.52	1
Non-Interest Income to Total Income								
1	PNB	9.42	9.97	15.43	14.40	12.32	12.31	1
2	Canara Bank	8.89	9.75	13.06	11.41	9.28	10.48	2

Source: *Financial statement*

Table-8: Earning quality of sample banks from 2019-2020 to 2020-2021.

Banks	Return on Assets (Average %)	Rank	Interest Income to Total Income (Average %)	Rank	Non-Income to Total Income (Average %)	Rank	Group Rank
PNB	-0.092	1	87.70	2	12.31	1	1.331
CB	-0.34	2	89.52	1	10.48	2	1.675

Source: *Financial statement*

Along with their overall Group Rank, Table 8 contrasts PNB and CB's performance on three important financial metrics: Return on Assets, Interest Income to Total Income, and Non-Income to Total Income. PNB outperforms CB in **Return on Assets** with a ratio of -0.092%, compared to CB's -0.34%, suggesting that PNB is slightly more efficient in generating profit from its assets, even though both banks report negative returns. In terms of **Interest Income to Total Income,** CB has a higher percentage (89.52%) compared to PNB's 87.70%, indicating that CB depends more on interest income from its core banking activities. On the other hand, PNB has a higher proportion of non-interest income, with **Non-Income to Total Income** standing at 12.31%, compared to CB's 10.48%, implying that PNB is relatively more diversified in its income sources. Overall, PNB ranks first with an average rank of 1.33, while CB ranks second with an average rank of 1.67, reflecting PNB's stronger overall performance in asset utilization and income diversification despite both banks facing challenges in profitability.

Liquidity of Bank

Liquidity represents a bank's capacity to fulfill its financial obligations, both short-term and long-term, including loan commitments. It is a crucial factor for any financial institution, indicating how well a bank can fulfill its financial duties. The most liquid assets for a bank include cash and investments. Inadequate liquidity may prevent banks from meeting immediate obligations, while excessive liquidity might suggest underuse of available cash. Striking a balance in liquidity is vital for banks to optimize profitability while maintaining enough resources to satisfy depositor needs. This study assesses the liquidity of the selected banks using key ratios like the Total Credit to Deposits Ratio, Government Securities to Total Assets Ratio, and Quick Ratios, with higher values reflecting a stronger liquidity position.

Table-9: Liquidity

Sl. No.	Bank	2014-15	2015-16	2016-17	2017-18	2018-19	Mean	Rank
Total Credit to Total Deposit Ratio								
1	Canara Bank	70.55	68.66	68.38	70.95	72.03	70.12	2
2	PNB	80.52	78.14	76.78	76.94	78.05	78.09	1
Govt. Securities to Total Assets								
1	PNB	22.88	22.80	23.13	20.64	19.61	21.82	1
2	Canara Bank	20.52	19.49	19.60	22.54	22.30	20.88	2
Quick Ratio								
1	Canara Bank	25.44	27.62	25.72	24.67	26.78	26.06	2
2	PNB	26.92	28.89	31.96	34.81	26.31	29.79	1

Table-10: Liquidity of sample banks from 2019-2020 to 2023-2024.

Banks	Total Credit to Total Deposit Ratio (Average %)	Rank	Government Securities to Total Assets (Average %)	Rank	Quick Ratio (Average %)	Rank	Group Rank
CB	70.12	2	21.82	1	26.06	2	1.677
PNB	78.09	1	20.88	2	29.79	1	1.333

Source: Financial Statement

Table 10 indicates that Punjab National Bank outperformed Canara Bank with an average Total Credit to Deposit Ratio of 78.08%, compared to Canara Bank's 70.11%. However, in the Government Securities to Total Assets Ratio, Canara Bank took the lead, recording an average of 21.81%, while Punjab National Bank had a lower average of 20.89%. Punjab National Bank also excelled in the Quick Ratio, achieving an average of 29.78%, whereas Canara Bank had a lower average of 26.04%. Punjab National Bank did better in managing liquidity, as seen by its better credit to deposit and quick ratios, even though Canara Bank did better in the Government Securities to Total Assets Ratio. Consequently, Punjab National Bank obtained a composite group rank of 1.33, whereas Canara Bank obtained a rating of 1.67, suggesting that PNB performed better overall in terms of liquidity.

Combined ranking of Canara Bank and Punjab National Bank

Table-11: Overall Combined ranking

Name of the Banks	Capital Adequacy	Assets Quality	Management Efficiency	Earning Quality	Liquidity	Mean	Rank
CB (Canara Bank)	2.00	2.00	1.333	1.331	1.67	1.666	2
PNB (Punjab National Bank)	1.00	1.00	1.676	1.675	1.33	1.334	1

Table 11 The table highlights the comparison between CB and PNB across five crucial financial metrics along with their overall *Mean* score and *Rank*. PNB leads in *Capital Adequacy* and *Assets Quality*, with scores of 1.00 compared to CB's 2.00, suggesting that PNB has better financial stability and asset management. However, CB performs better in *Management Efficiency and Earning Quality*, with lower scores of 1.333 and 1.331, respectively, indicating that CB is more efficient in managing its operations and generating earnings. In terms of *Liquidity,* PNB scores higher at 1.33, demonstrating a better ability to manage its short-term obligations. Overall, PNB ranks first with a mean score of 1.334, outperforming CB, which ranks second with a mean score of 1.666. This shows that PNB's stronger performance in capital adequacy, asset quality, and liquidity contributes to its top ranking, despite CB's relative efficiency in other areas.

Findings of the Study

The key findings of the study are summarized as follows:

- Punjab National Bank excels in capital adequacy, asset quality, and liquidity.

- Punjab National Bank requires improvements in management efficiency and earnings quality.
- Canara Bank performs poorly in capital adequacy, asset quality, and liquidity.
- Canara Bank needs significant improvement in these areas to strengthen its financial position.
- Overall, Punjab National Bank outperforms Canara Bank in most financial parameters, but both banks have areas requiring attention for better performance.

Result of One-way ANOVA based on Overall Composite Ranking

Table-12: ANOVA Results

Source of Variation	Sum of Square	Degree of Freedom	Mean Square	F-Value	Significance
Between Groups	0.276	1	0.276	2.455	0.156
Within Groups	0.898	8	0.112		
Total	1.173	9			

The p-value of 0.156 in the results is higher than the significance level of 0.05. According to the CAMEL Model, Canara Bank and Punjab National Bank's results differ significantly, so the null hypothesis is rejected.

Conclusion

This study utilized the CAMEL framework to assess the financial performance of Canara Bank and Punjab National Bank during the period from 2019–2020 to 2023–2024, prior to their merger. The findings reveal that Punjab National Bank excelled in critical areas such as capital adequacy, asset quality, and liquidity, achieving the top position in these parameters. Conversely, Canara Bank demonstrated superior performance in managerial efficiency and profitability, securing a commendable standing in these aspects. Overall, Punjab National Bank emerged as the leader in financial performance, with Canara Bank following closely behind. Statistical analysis indicates a significant disparity in the performance metrics of the two banks, shedding light on their distinct strengths and weaknesses. These insights offer a comprehensive understanding of their financial health leading up to the merger.

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