

Financial Health of Bangladesh's State-Owned Commercial Banks: An Empirical Study on Profitability and Solvency

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Abstract

This study examines the financial health of Bangladesh's state-owned commercial banks (SOCBs) with a specific focus on profitability and solvency during the period 2018–2023. Using trend analysis, ratio analysis, and comparative evaluation, the research investigates four major banks—Sonali, Janata, Agrani, and Rupali—to assess their performance before, during, and after the COVID-19 pandemic. The findings reveal that Sonali Bank demonstrated the most stable and consistent growth, marked by increasing returns on assets and equity, along with a balanced solvency position. Janata Bank showed occasional profit surges, particularly in 2021, but struggled to sustain its performance. Agrani Bank exhibited fluctuations with declining profitability in recent years, while Rupali Bank consistently underperformed with low profitability and excessive leverage, signaling significant solvency risks. Overall, the study highlights varying degrees of financial resilience among SOCBs and underscores the need for improved debt-equity management, stable profitability margins, and stronger risk mitigation strategies. These insights contribute to understanding the financial sustainability of Bangladesh's SOCBs and provide guidance for policymakers and banking regulators in enhancing their long-term stability.

Keywords

Financial Health, Profitability, Solvency, State-Owned Commercial Banks, Bangladesh Banking Sector, Post-COVID Financial Performance

Introduction

The economy of Bangladesh is growing very rapidly with the help of large banking sector. The State-owned Commercial Banks Sonali, Agrani, Janata, and Rupali bank limited are the large parts of financial sector in terms of market share and profitability in Bangladesh with high profit growth. Current Commercial Banking is the main character of present economy as it makes flow of the resource. Finance is blood of the trade; commerce and they play the role of vanes in the Circulation of the funds in economy, and the primary growth of any country depends upon the solvency of banking system. Commercial banks are the main pillar of the financial system in Bangladesh as banks provide different opportunity and services to clients. The importance of the banking sectors is immense in the progress and richness

of any state. The economic development and prosperity come from the well-rounded developed and perfect banking system. Strong banking system plays important role in efficient allocation and utilization of credit (Khair et al., 2024). Govt. owned commercial Banks are a backbone of all the industries, because every transaction where money is involved, the bank is the main pillar of funding.

Objectives of the Study

- To measure the profitability condition of state-owned commercial Banks in Bangladesh.
- To measure the solvency condition of state-owned commercial Banks in Bangladesh.
- To show a comparative picture of profitability and solvency condition of state - owned commercial Banks before and after Covid-19.
- To identify the problems faced by (SOCBL) during Covid-19 and afterwards and give some suggestions based on present analysis and findings.

Rationales of the work

Financial sectors, especially banking and more specifically state-owned commercial banks, are comparatively more reliable than private commercial banks. Every stakeholder is very much concerned about bank's profitability and solvency. Without this, state-owned commercial banks play vital role in the overall economic development of a country. Since recently the world has been suffering a lot financially so it is high time to go for a study about it.

Literature Review

The financial health of banks is a subject of longstanding academic interest, particularly in the domains of profitability and solvency. Profitability ensures banks' ability to generate income and sustain shareholder value, while solvency reflects their resilience and ability to meet long-term obligations. Together, these indicators determine the stability of the banking system. Various theoretical and empirical studies have explored these dimensions, offering a foundation for evaluating Bangladesh's state-owned commercial banks (SOCBs).

Theoretical Foundations

Several theories explain the relationship between capital, profitability, and risk. According to the signaling theory, banks with higher capital ratios signal financial strength and attract depositors, which in turn improves profitability (Berger, 1995; Trujillo Ponce, 2013). The expected bankruptcy cost hypothesis posits that higher capital reduces the probability of failure but may reduce returns (Athanasoglou, Brissimis, & Delis, 2008). The risk–return hypothesis also highlights the trade-off between profitability and risk, where banks with greater leverage can potentially earn higher returns but face increased insolvency risk (Olweny & Shipho, 2011). These theories emphasize that profitability and solvency are interlinked and must be studied together.

Global Determinants of Profitability

Empirical studies reveal that bank profitability is shaped by both internal and external factors. Staikouras and Wood (2004) found that European banks' profitability is determined not only by management decisions but also by macroeconomic changes such as inflation and GDP growth. Similarly, Scott and Arias (2011) showed that U.S. bank profitability is influenced by capital-to-asset ratios and changes in per capita income. In emerging economies, Sufian and Habibullah (2009) found that Malaysian banks' profitability is closely tied to capitalization, size, and expense management, indicating that efficient internal practices are vital to financial health.

Solvency and Capital Adequacy

Solvency is central to banking stability, as it reflects the capacity to withstand external shocks. Berger (1995) argued that higher capital ratios reduce bankruptcy risks, while Aggarwal and Jacques (2001) highlighted that regulatory reforms such as the FDIC Improvement Act significantly improved U.S.

banks' solvency without undermining profitability. Saona (2011) similarly reported that excessive capital can reduce banks' profitability, as it limits risk-taking opportunities. In South Asia, Gul, Irshad, and Zaman (2011) found that Pakistani banks with strong capital adequacy achieved higher profitability, whereas undercapitalized banks faced solvency risks. Almazari (2014) concluded that in Saudi Arabia and Jordan, solvency indicators such as debt-to-equity ratios significantly affected profitability, especially in times of crisis.

Evidence from Bangladesh

In the Bangladeshi context, Jahangir, Shill, and Haque (2007) highlighted that efficiency in expense management plays a crucial role in banks' profitability. Sarker and Rashid (2015) emphasized that effective risk management in Islamic banks enhanced both profitability and solvency. However, performance gap between SOCBs and private banks remains a concern. Uddin and Suzuki (2011) argued that SOCBs in Bangladesh lag private banks in efficiency due to political interference, poor governance, and weak loan recovery practices. Hossain and Ahamed (2015) similarly found that SOCBs face higher credit risks, undermining their solvency.

The COVID-19 crisis amplified these vulnerabilities. Karim, Haque, and Anis (2021) showed that Bangladeshi banks, particularly SOCBs, faced severe profitability pressures due to declining lending opportunities and surging non-performing loans (NPLs). However, banks with stronger pre-crisis capital adequacy ratios demonstrated greater resilience. This finding mirrors international evidence: Demirgüç-Kunt, Pedraza, and Ruiz-Ortega (2021) revealed that globally, banks with robust solvency indicators before the pandemic maintained relatively better profitability despite the crisis.

Regional and Comparative Insights

Studies from other South Asian countries provide useful parallels. Bhattarai (2017) found that Nepali banks with higher capital adequacy weathered external shocks more effectively, while Sri Lankan banks struggled with solvency issues despite moderate profitability growth. These findings suggest that capital adequacy and solvency management are universal concerns across developing economies with structurally weak banking systems.

Synthesis and Research Gap

Overall, literature underscores the interplay between profitability and solvency. Banks with strong capital positions tend to be more resilient, though overly conservative capital structures can dampen profitability. In Bangladesh, SOCBs play a vital role in the economy but remain constrained by political intervention, weak governance, and persistent NPLs. The existing body of research has largely focused on profitability determinants, with fewer works integrating solvency indicators in a post-COVID context.

Therefore, this study contributes by conducting an empirical, integrated assessment of both profitability and solvency of Bangladesh's SOCBs over 2018–2023, bridging theoretical perspectives with contemporary evidence.

Methodology

Sources of data and analysis: In this study to measure the profitability and solvency of (SOCBL), Trend Analysis, and Ratio analysis was used. Secondary was used from the bank's annual report from 2019 to 2023 (Before Covid19-to After Covid-19). Primary data was collected from formal and informal discussions with employees of the bank and from direct observation in the bank. Other sources of secondary data are books, magazines, journals, and other internet sources.

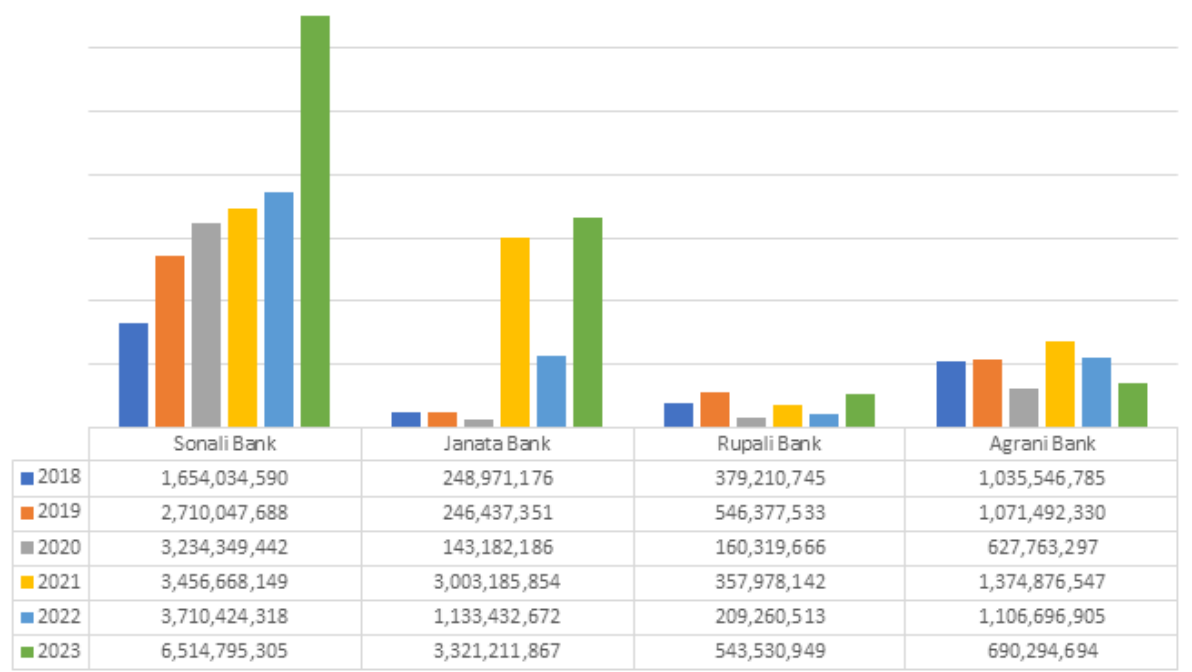
Sample Size: For the study all 4 state-owned Commercial banks 6 years data (2018-2023) has been collected such as Total assets, Total Liabilities, Retained Earnings, Net operating income, Net income before and after tax, Total debt, Shareholder's equity, Interest expenses, Net interest income etc. from the selected banks of each category. Then required ratios have been calculated from the audited financial statements of selected banks.

Analysis of the Study

Table 1: showing the Net income after tax

Bank Name	2018	2019	2020	2021	2022	2023
Sonali Bank	1,654,034,590	2,710,047,688	3,234,349,442	3,456,681,49	3,710,424,318	6,514,795,305
Janata Bank	248,971,176	246,437,351	143,182,186	3,003,185,854	1,133,432,672	3,321,211,867
Rupali Bank	379,210,745	546,377,533	160,319,666	357,978,142	209,260,513	543,530,949
Agrani Bank	1,035,546,785	1,071,492,330	627,763,297	1,374,876,547	1,106,696,905	690,294,694

Source: Annual Report from 2018 to 2023



Graph 1: Showing the trend of Net income after tax

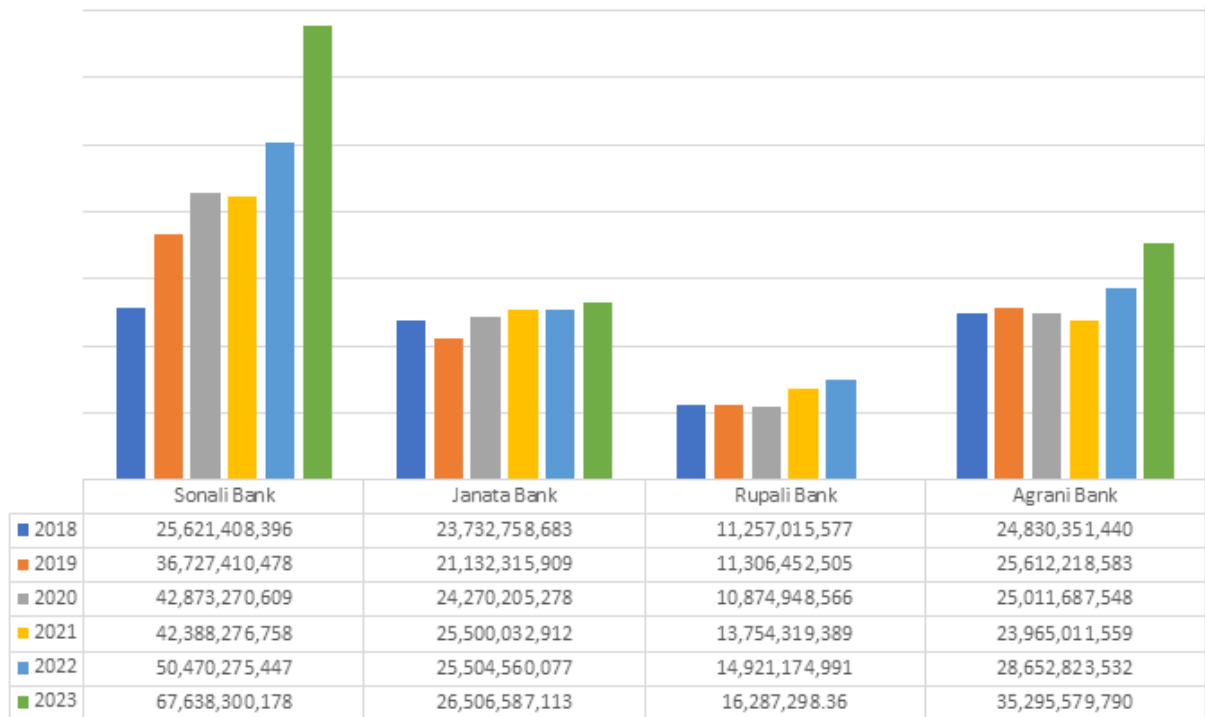
In the above analysis after Covid-19 the net income after tax is comparatively increasing in trend specially Sonali Bank, janata Bank and Agrani Bank but before Covid-19 and during covid-19 it was not satisfactory. In case Rupali Bank Net profit after tax was both before and after Covid -19 was not satisfactory. It is also necessary to mention that Sonali Bank shows a consistent and continuous increasing trend, especially in 2023. Janata Bank had a sudden spike in 2021. Rupali Bank shows volatility and poor profitability. Agrani bank shows consistency in declining trend in 2023.

Table 2: Showing Operating income

Bank Name	2018	2019	2020	2021	2022	2023
Sonali Bank	25,621,408,396	36,727,410,478	42,873,270,609	42,388,276,758	50,470,275,447	67,638,300,178
Janata Bank	23,732,758,683	21,132,315,909	24,270,205,278	25,500,032,912	25,504,560,077	26,506,587,113
Rupali Bank	11,257,015,577	11,306,452,505	10,874,948,566	13,754,319,389	14,921,174,991	16,287,298,363
Agrani Bank	24,830,351,440	25,612,218,583	25,011,687,548	23,965,011,559	28,652,823,532	35,295,579,790

Source: Annual Report

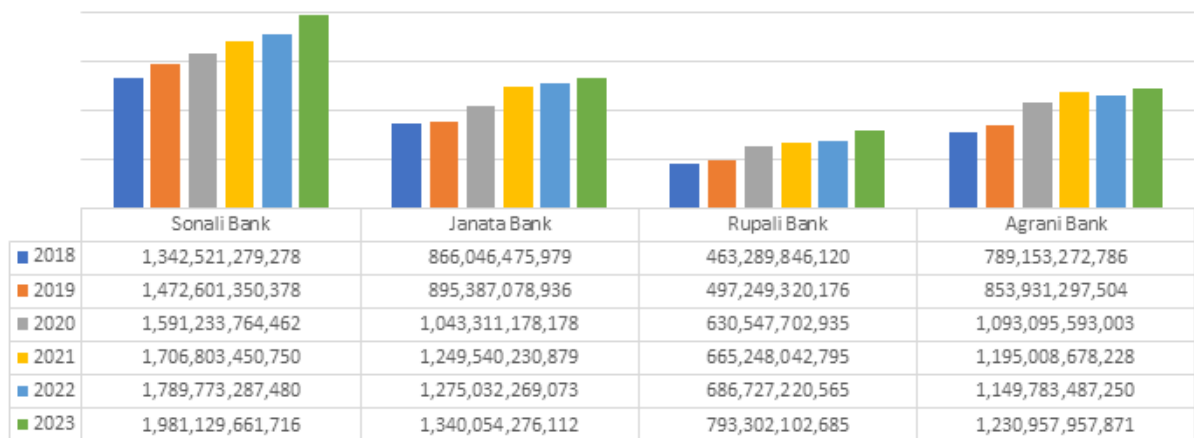
In context of operating income before and during Covid-19 each 4 banks' operating income was not enough but after Covid-19 they are trying to stand. Although it is slowly moving for standing sprightly. In detail Sonali Bank performs with high growth in operating income, Rupali and Agrani advanced post 2020. Jana is relatively stagnant despite a slight post Covid recovery.



Graph 2: Showing the trend of Net income after tax

Table 3: Showing total Assets

Bank name	2018	2019	2020	2021	2022	2023
Sonali Bank	1,342,521,279,278	1,472,601,350,378	1,591,233,764,462	1,706,803,450,750	1,789,772,287,480	1,981,129,661,716
Janata Bank	866,046,475,979	895,387,078,936	1,043,311,178,178	1,249,540,230,879	1,275,032,269,073	1,340,054,276,112
Rupali Bank	463,289,846,120	497,249,320,176	630,547,702,935	665,248,042,795	686,727,220,565	793,302,102,685
Agrani Bank	789,153,272,786	853,931,297,504	1,093,095,593,003	1,195,008,678,228	1,149,783,487,250	1,230,957,957,871

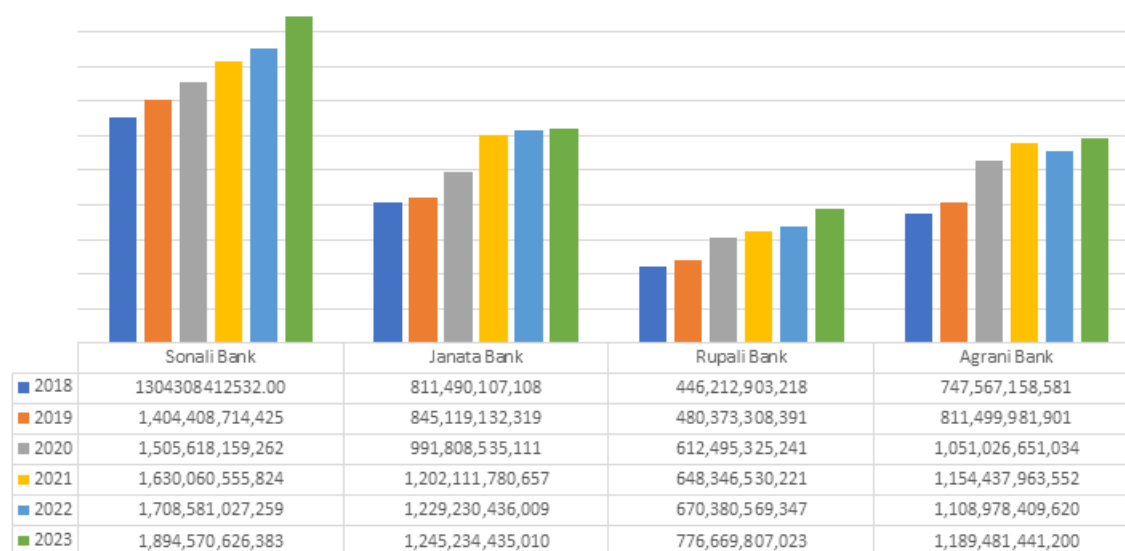


Graph 3: Showing trend of total Assets

In considering total Assets Sonali bank is in higher position than other 3 banks and for the time being it has been increased day by day. Agrani Bank shows slight fluctuations post 2021.

Table 4: Showing total Liabilities

Bank Name	2018	2019	2020	2021	2022	2023
Sonali Bank	1,304,308,412,532	1,404,408,714,425	1,505,618,159,262	1,630,060,555,824	1,708,581,027,259	1,894,570,626,383
Janata Bank	811,490,107,108	845,119,132,319	991,808,535,111	1,202,111,780,657	1,229,230,436,009	1,245,234,435,010
Rupali Bank	446,212,903,218	480,373,308,391	612,495,325,241	648,346,530,221	670,380,569,347	776,669,807,023
Agrani Bank	747,567,158,581	811,499,981,901	1,051,026,651,034	1,154,437,963,552	1,108,978,409,620	1,189,481,441,200



Graph 4: Showing the trend of total Liabilities

In the discussion of total liability every bank is in normal position year to year the amount of liability increased. It also shows that liabilities are growing in line with assets, especially for Sonali bank and Rupali and Janata Bank maintain high liability levels compared to equity.

Table 5: All Relevant Ratios of Sonali Bank Limited Sonali Bank

Year	2023 %	2022 %	2021 %	2020 %	2019 %	2018 %
Net interest Income Ratio	.24	.12	-.59	.65	-.28	-.14
Net Profit Ratio	9.63	9.63	7.35	8.15	7.55	7.38
Return on Asset Ratio	33	33	21	20	20	18
Return on Equity Ratio	7.53	4.57	4.50	3.78	3.97	2
Loan To deposit Ratio	67	60	51	47	48	46
Debt to Asset Ratio	76	79	79	79	79	78
Debt to Capital Ratio	76	79	79	79	79	79
Debt to Equity Ratio	21.49	21.04	21.24	17.59	20.59	20.58
Equity Ratio	4.37	4.37	4.53	4.50	5.37	4.63

Net Interest income fluctuated positively in 2023(0.24%) after negative years, Net profit margin is healthy and consistent, ROA is steady increase, reached 33% in 2023, ROE is improving 7.53in 2023, Debt Ratio is stable, moderate leverage equity ratio at 4.37% is acceptable.

Table 6: All Relevant Ratios of Janata Bank Limited

Year	2023 %	2022 %	2021 %	2020 %	2019 %	2018 %
Net interest Income Ratio	0.03	0.02	-0.07	17	48	86
Net Profit Ratio	4.44	4.44	11.77	0.59	1.17	1.05
Return on Asset Ratio	9	9	.24	1	3	3
Return on Equity Ratio	2.48	2.48	0	0	0.	0
Loan To deposit Ratio	93	84	79	73	79	79
Debt to Asset Ratio	81	80	81	79	77	78
Debt to Equity	26.8	26.8	25.37	19.87	16.83	14.88
Equity Ratio	3.59	3.59	3.79	4.93	5.61	6.29

Net Interest income is declining trend, dropping from 86% in 2018 to 0.03% in 2023. Net profit margin peaked at 11.77% 2021 but declined sharply. ROA and ROE low. Debt to equity ratio is high indicates risk. Equity ratio falling trend down from 6.29% to 3.59%.

Net Interest income is fluctuating peaked at 53% in 2018. Net profit margin is very low 3.34% in 2023.ROA and ROE is low value. Debt to equity ratio is high and increasing, indicating excessive leverage. Equity ratio dropped to 2.10% in 2023, indicating poor capital base.

Table 7: All Relevant Ratio of Rupali Bank Limited

Year	2023 %	2022 %	2021 %	2020 %	2019 %	2018 %
Net interest Income Ratio	3	45	51	-54	39	53
Net Profit Ratio	3.34	1.40	2.60	1.48	4.83	3.37
Return on Asset Ratio	7	3	5	3	11	8
Return on Equity Ratio	3.27	0	0	0	0	0
Loan To deposit Ratio	72	74	66	63	74	64
Debt to Asset Ratio	84	86	87	84	83	84
Debt to Equity	46.7	41.0	38.4	33.9	28.4	26.2
Equity Ratio	2.10	2.38	2.54	2.86	3.40	3.69

Table 8: All Relevant Ratio of Agrani Bank Limited

Year	2023 %	2022 %	2021 %	2020 %	2019 %	2018 %
Net interest Income Ratio	0.03	2.88	-0.64	-0.02	0.74	1.13
Net Profit Ratio	1.96	3.87	5.73	2.51	4.18	4.17
Return on Asset Ratio	6	10	11	6	12	13
Return on Equity Ratio	1.67	0	0	0	0	0
Loan To deposit Ratio	0.80	0.78	0.59	0.56	0.67	64
Debt to Asset Ratio	80	81	84	84	81	79
Debt to Equity	28.73	27.15	28.43	24.97	19.13	17.98
Equity Ratio	3.37	3.55	3.39	3.85	4.97	5.27

Net Interest income is decreasing post 2021; 0.03% in 2023. Net profit margin fell from 5,73%. ROA and ROE both deteriorated significantly. Debt to equity ratio high leverage needs reduction. Equity ratio decreased to 3.37%.

Results of Profitability

- Sonali Bank had the highest profitability ratio, with satisfactory increasing ROA, ROE is average Debt to asset and Debt to equity is standard, Net profit margin is ideal in nature. So, in conclusion Sonali Bank profitability position is in standard nature.
- Janata Bank represents a material improvement in profitability in 2021 but had lower ROA and ROE and Equity share in compared to Sonali Bank.
- Rupali Bank had fluctuated in profitability in comparison to Sonali and Janata Bank its performance is lower although it is increasing in nature over the year.
- Agrani Bank has had different fluctuating profitability, with a notable drop in ROA, ROE and Net Profit Margin in recent years.

Results of Solvency

- Sonali and Agrani Banks have moderate Debt-to-Equity Ratios, indicating relatively balanced leverage.
- Janata Bank and Rupali Bank have high Debt-to-Equity Ratios, with Rupali Bank showing the highest leverage, which suggests higher risk.
- Equity Ratios are low across all banks, indicating that equity contributes a small portion of total assets. Which is unexpected all time.
- These insights provide a comprehensive view of the banks' financial performance and stability over the years. For a more detailed evaluation, further analysis of trends and additional financial metrics would be beneficial.

Major Findings

The study sought to measure the profitability and solvency of the four state-owned commercial banks in Bangladesh—Sonali Bank, Janata Bank, Agrani Bank, and Rupali Bank—covering the period from 2018 to 2023. The findings derived from trend analysis, ratio analysis, and comparative evaluation highlight substantial differences in performance across the banks, both in profitability and solvency dimensions.

Profitability Trends

Sonali Bank emerged as the strongest performer among the four institutions. Its net income after tax consistently increased, particularly in the post-COVID years, with 2023 marking a substantial rise. Both its operating income and net profit margin reflected steady growth, supported by an upward trajectory in return on assets (ROA) and return on equity (ROE). This indicates that Sonali Bank not only expanded its asset base but also managed those assets efficiently to generate sustainable earnings.

Janata Bank demonstrated a mixed trend. Although its profitability spiked sharply in 2021 and again in 2023, the improvements were not stable across the observed period. Net profit ratios showed significant fluctuation, and ROA and ROE remained relatively weak compared to Sonali Bank. This suggests Janata Bank experienced occasional profit surges without establishing a consistent growth pattern.

Agrani Bank showed erratic profitability patterns. After moderate improvement post-COVID, its net profit and ROA fell in 2023. While operating income increased after 2020, net interest income ratios and profitability margins weakened over time. The declining ROE indicates that returns to shareholders diminished, raising concerns over long-term performance sustainability.

Rupali Bank persistently lagged the other three banks. Its net profit after tax remained low and unstable throughout the period. Despite moderate growth in operating income, profitability ratios such as net profit margin, ROA, and ROE were consistently poor. The high volatility in net interest income further revealed inefficiencies in income generation, with excessive reliance on leverage and a weak earnings base.

Solvency Position

A comparative solvency analysis revealed that Sonali Bank maintained a relatively balanced leverage profile. Its debt-to-asset and debt-to-equity ratios remained moderate and stable, supported by a healthy equity ratio. This reflects a sound capital structure and effective risk management practices.

Janata Bank, in contrast, exhibited rising financial risks. Its debt-to-equity ratio grew substantially over the years, and the equity ratio showed a declining trend, indicating increasing dependence on borrowed funds and reduced financial cushioning.

Rupali Bank stood out as the most vulnerable in terms of solvency. The debt-to-equity ratio rose steadily to one of the highest levels among the SOCBs, while the equity ratio fell to just 2.10% in 2023. This excessive leverage signals heightened insolvency risk, leaving the bank in a precarious financial condition.

Agrani Bank's solvency indicators were moderate but showed signs of deterioration. While its debt-to-asset ratio was like Janata Bank's, its declining equity ratio and high debt-to-equity ratio in 2023 suggest increasing reliance on debt financing, which may compromise long-term stability.

Comparative Insights

Taken together, the findings show that Sonali Bank maintained the most stable and favorable financial position, with consistent growth in profitability and a balanced solvency profile. Janata Bank exhibited occasional profitability gains but lacked sustainability, while its solvency position weakened over time. Agrani Bank faced declining profitability in recent years, accompanied by increasing leverage. Rupali Bank consistently displayed the weakest performance, marked by low profitability and excessive financial risk.

Overall, while state-owned commercial banks remain vital to Bangladesh's economy, their financial health varies widely. Strengthening solvency ratios, improving profitability margins, and reducing dependence on debt are critical for ensuring their long-term sustainability and resilience.

Recommendations

The findings, after analysis of the above study, are prescribed the following recommendations.

- According to findings except Sonali Bank other four banks have a question of solvency. So, the management of the bank concerned should pay attention to addressing the problem.

- Though the profitability ratio of each bank fluctuates in nature the management should take necessary actions to make it stable.
- Since in each bank Net interest income is relevantly low the management should make attempt to increase Net interest income.
- After Covid-19 every bank has been suffering because non-performing loan management should take proper action and policy for recovering the huge amount of non-performing loan.
- Since in each bank amount of debt in compared to equity is large amount which is always unexpected. It is necessary to take necessary actions to balance debt and equity.
- All 4-state-owned commercial banks should concentrate on increasing income, since all the govt. owned commercial banks enjoy the more credibility and trust from the people they should use the advantage.
- Service quality of every bank needs to be increased so that the customers can be motivated and encouraged by their banking activities.
- Presently it is obvious that the banks are concentrating on some non-banking activities it should be stopped.
- The banks should act against all non-performing loans as early as possible so that the realized amount can be utilized as working capital.
- Since these four banks are directly state owned but, in sometimes unexpected intervention of the government is creating huge problems. These types of intervention need to be stopped.
- Modernization of all banking work and internal environment should be customer friendly.
- Employee recruitment system, training system and Banks infrastructure should be updated.

Conclusion

This is an age of globalization. In the rapid development of business and industry financial sector is very much significant to all level of people. To increase trade and commerce, agriculture, industrial development in all aspects financial stability is must. Economic development of country, political stability and matter of inflation and deflation all issues can be well controlled by financial optimization and proper management of financial sectors. Since these sectors are very much crucial and flexible Govt. of our country should have special care and management system. Accidentally if it collapses then the whole economic system will fall in danger. In today's world banking system is getting more attention because of international politics, issues of currencies, electronic banking, E- commerce and due to some other close issues. After that from the very beginning to the present world banking system has made a huge contribution to the modern economy and the beautiful earth. From the very beginning of our liberation war these four banks have been playing very significant role in our economy. Without these four-state-owned commercial banks there are some private commercial banks working in our economy and some other specialized banks. In last few years these four banks had to face some unexpected interruption from different angles consequently these banks had suffered a lot. Since these four commercial banks are fully controlled by the government our balanced economic development and the stability of our economy is basically dependent upon these four banks. So, the policy makers should have maintained close eyes about these four banks the overall and rapid development of our economy and Bangladesh as whole.

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