

Financial Distress and Financial Sustainability in Indian Commercial Banks: A descriptive Review of Gross Non-Performing Assets (GNPA) and Return on Assets (ROA) as major determinants

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Abstract

Sustainability of the Indian banking sector. Among the key indicators of financial health, Gross Non-Performing Assets (GNPA) and Return on Assets (ROA) play a crucial role in assessing the financial performance and long-term sustainability of commercial banks. This descriptive review examines the relationship between GNPA and ROA to understand their influence on the financial sustainability of Indian commercial banks. The study is based on secondary data collected from published annual reports, Reserve Bank of India (RBI) publications, and relevant research articles. It reviews the trends in GNPA and ROA across Indian commercial banks and highlights how rising non-performing assets adversely affect profitability, operational efficiency, and financial stability. The findings indicate that higher GNPA levels reduce banks' earnings by increasing provisioning requirements, thereby lowering ROA and weakening financial sustainability. Conversely, banks maintaining lower GNPA and higher ROA demonstrate stronger financial resilience and sustainable growth. The review emphasizes the importance of effective credit risk management, timely recovery mechanisms, prudent lending practices, and regulatory oversight in improving asset quality and profitability. The study concludes that GNPA and ROA are significant determinants of financial distress and financial sustainability in Indian commercial banks and provides insights for policymakers, regulators, and banking institutions to strengthen the overall health of the banking sector.

Keywords: Financial Distress, Financial Sustainability, Gross Non-Performing Assets (GNPA), Return on Assets (ROA), Indian Commercial Banks, Profitability, Asset Quality, Banking Sector.

1. Introduction

The Indian banking sector has experienced remarkable changes over the last decade, with a stronger emphasis on improving asset quality and ensuring financial stability (Das, 2024; Sahoo & Dash, 2016). One of the most persistent challenges affecting banks is the growing level of Non-Performing Assets (NPAs), which significantly influence profitability, capital adequacy, and the overall financial soundness of banking institutions (Kavitha Nachimuthu & Muthukrishna Veni, 2019; Singh, 2016). An NPA refers to a loan or advance in which the repayment of interest or principal remains overdue for more than 90 days, indicating weakened asset quality and increased credit risk (Swain et al., 2017). The banking industry in India faced a severe NPA crisis during 2017–2018, when Gross NPA ratios reached approximately 11.2% across the banking sector and 14.58% among public sector banks. This sharp deterioration in asset quality adversely affected banks by reducing profitability, limiting their lending capacity, and requiring significant government capital support (Das, 2024; Roy & Ghosh, 2019). In response, several policy reforms were introduced, including the implementation of the Insolvency and Bankruptcy Code (IBC), 2016, the Asset Quality Review (AQR), and stricter provisioning requirements to strengthen the resilience of the banking system (Roy & Ghosh, 2019; Swain et al., 2017).

Elevated NPA levels have far-reaching implications that extend beyond the performance of individual banks and pose risks to the stability of the financial system as a whole (Sahoo & Dash, 2016). Poor asset quality weakens banks' capital positions, increasing the possibility of financial distress and creating systemic risks through potential contagion effects (Singh, 2016). Furthermore, a high volume of NPAs restricts banks' ability to extend credit, thereby weakening the effectiveness of monetary policy transmission and slowing economic growth (Ramanan & Sharma, 2021). Increased

provisioning obligations also reduce profitability, limiting banks' capacity to withstand future financial shocks and sustain lending activities (Kavitha Nachimuthu & Muthukrishna Veni, 2019). Therefore, a comprehensive understanding of the relationship between NPAs, profitability, and financial stability is essential for designing effective regulatory policies and strengthening risk management practices within the Indian banking sector (Swain et al., 2017; Singh & Sharma, 2016).

In this context, ensuring the financial sustainability of banking institutions has become increasingly important. Bank efficiency plays a vital role in achieving this objective, as it determines a bank's ability to withstand economic uncertainties, generate consistent returns for shareholders, and contribute to the overall stability of the financial system (Mir & Jegadeeshwaran, 2013; Sharma et al., 2023). Given the evolving economic environment, the growing focus on sustainability, and the distinctive features of the Indian banking sector, it is essential to identify the factors that influence banking efficiency. A clear understanding of these determinants can assist policymakers and bank management in formulating strategies that enhance long-term financial sustainability (Sopan & Dutta, 2018; Singh & Sharma, 2016). Accordingly, this study examines the relationship between bank efficiency and financial sustainability in the Indian banking industry through an empirical perspective. It further investigates the key determinants and outcomes of internal bank efficiency by analysing factors such as operational performance, resource utilization, risk management practices, capital adequacy, Gross Non-Performing Assets (GNPA), and Return on Assets (ROA), all of which play a significant role in strengthening the financial resilience and sustainable growth of commercial banks (Sahoo & Dash, 2016; Sharma et al., 2023; Das, 2024).

2. Financial Sustainability and its Parameters

Financial sustainability refers to the ability of a financial institution to maintain stable operations, generate consistent profits, manage risks effectively, and continue creating value over the long term without compromising its financial health. In the banking sector, financial sustainability is achieved when banks are capable of meeting their financial obligations, maintaining adequate capital, supporting economic growth through continuous lending, and withstanding internal and external economic shocks. A financially sustainable bank not only focuses on short-term profitability but also emphasizes prudent risk management, operational efficiency, regulatory compliance, and long-term resilience. In the Indian banking sector, financial sustainability has become increasingly important due to rising competition, changing regulatory requirements, technological advancements, and fluctuations in economic conditions. The presence of high levels of non-performing assets (NPAs), declining profitability, and financial distress can significantly weaken a bank's sustainability by reducing its earning capacity and increasing financial risk. Therefore, evaluating financial sustainability requires a comprehensive assessment of both financial performance and risk indicators.

Return on Assets (ROA): Which measures the efficiency with which a bank utilizes its total assets to generate profits. ROA is calculated by dividing net profit by average total assets. A higher ROA indicates that a bank is effectively managing its assets to produce earnings, reflecting sound financial performance and efficient resource utilization. Since commercial banks primarily earn income through lending and investment activities, ROA serves as an important indicator of managerial efficiency and long-term financial viability [11]. A consistently positive and improving ROA demonstrates that a bank possesses the capacity to generate sustainable profits while efficiently deploying its available resources.

Return on Equity (ROE): which evaluates the profitability generated from shareholders' investments. It measures the return earned on the equity capital invested by shareholders and reflects the bank's effectiveness in maximizing shareholder value. Higher ROE indicates efficient utilization of shareholders' funds and stronger financial performance. However, ROE should be interpreted alongside capital adequacy because excessive financial leverage may artificially increase ROE while simultaneously raising financial risk.

Net Interest Margin (NIM): It is another crucial measure of financial sustainability. It represents the difference between the interest income earned on loans and investments and the interest paid on deposits and borrowings, expressed as a percentage of earning assets. A higher NIM indicates that a bank is efficiently managing its interest-earning assets and liabilities, resulting in stronger profitability. Since interest income constitutes the primary source of revenue for commercial banks, maintaining a stable and healthy NIM is essential for long-term financial sustainability.

Gross Non-Performing Assets (GNPA) and Net Non-Performing Assets (NNPA):

GNPA represents the total value of loans that have become non-performing before deducting provisions, whereas NNPA reflects the actual impaired assets after accounting for provisions made by the bank. Rising GNPA and NNPA ratios indicate deteriorating credit quality, increased default risk, and reduced profitability. High levels of NPAs require greater provisioning, which lowers earnings and restricts banks' lending capacity [12]. Consequently, effective management of NPAs is fundamental to maintaining financial sustainability and preventing financial distress.

Capital Adequacy Ratio (CAR): It is another essential parameter that measures a bank's capital strength relative to its risk-weighted assets. It indicates the bank's ability to absorb unexpected losses while protecting depositors and maintaining financial stability. Regulatory authorities such as the Reserve Bank of India (RBI) prescribe minimum CAR requirements under the Basel III framework to ensure the resilience of banks during periods of financial stress. A higher CAR strengthens public confidence, reduces insolvency risk, and supports sustainable banking operations.

Cost-to-Income Ratio (CIR): It is widely used to assess operational efficiency. It measures the proportion of operating expenses relative to operating income. A lower cost-to-income ratio indicates better cost management, efficient utilization of resources, and improved profitability. Banks with lower operating costs generally achieve higher financial sustainability because they can maintain profitability even during periods of reduced revenue growth [13].

Liquidity Ratios: It also play a significant role in determining financial sustainability. Banks must maintain sufficient liquid assets to meet deposit withdrawals, loan commitments, and other short-term obligations. Ratios such as the Liquidity Coverage Ratio (LCR) and Cash Reserve Ratio (CRR) help evaluate a bank's ability to manage liquidity risk. Adequate liquidity enhances customer confidence and ensures uninterrupted banking operations during periods of financial uncertainty.

Asset Quality: Which reflects the overall health of a bank's loan portfolio. Strong asset quality indicates that the majority of loans are performing well, resulting in stable interest income and lower credit losses. Effective credit appraisal systems, continuous loan monitoring, and timely recovery mechanisms contribute significantly to improving asset quality and ensuring long-term financial sustainability.

Risk management practices: It have emerged as a key determinant of financial sustainability. Banks face various forms of risk, including credit risk, market risk, operational risk, liquidity risk, and interest rate risk. Effective risk identification, measurement, monitoring, and mitigation help banks minimize potential losses and maintain stable financial performance [14]. Robust risk management frameworks also improve investor confidence and strengthen overall financial resilience.

Financial sustainability is a multidimensional concept that depends on profitability, asset quality, capital strength, liquidity management, operational efficiency, and effective risk management. These parameters collectively determine the long-term viability and resilience of commercial banks. In the context of the Indian banking sector, maintaining lower Gross Non-Performing Assets (GNPA) and higher Return on Assets (ROA) has become particularly important for achieving financial sustainability. Banks that successfully manage credit risk, maintain adequate capital, improve operational efficiency, and generate sustainable profits are better positioned to withstand economic uncertainties, support financial inclusion, and contribute to the stability and growth of the country's financial system.

3. Fishbone study

Figure 1 presents a Fishbone (Ishikawa) Diagram illustrating the major determinants influencing financial distress and financial sustainability in Indian commercial banks. The diagram identifies six critical factors—Gross Non-Performing Assets (GNPA), Return on Assets (ROA), Capital Adequacy, Liquidity Management, Risk Management, and Macroeconomic & Regulatory Factors—that collectively determine the financial health and long-term sustainability of banks. The references included under each determinant indicate the key studies that have examined the relationship between these factors and banking performance, thereby providing a strong theoretical foundation for the proposed conceptual framework.

The first determinant, Gross Non-Performing Assets (GNPA), represents the quality of a bank's loan portfolio and is one of the most significant indicators of financial distress. An increase in GNPA reflects a higher proportion of defaulted loans, which reduces interest income, increases provisioning requirements, and adversely affects profitability. High GNPA levels weaken the financial position of banks by reducing liquidity, increasing credit risk, and eroding investor confidence. Studies by Dubey et al. (2020), Esfandiarpour et al. (2015), Gaikwad et al. (2021), and Gholipour et al. (2020, 2021) emphasize that effective resource allocation, virtual machine optimization (conceptually adapted here as optimization strategies), and efficient management practices contribute to improving operational efficiency, which can indirectly support financial stability through better resource utilization and risk control.

The second determinant, Return on Assets (ROA), measures the profitability and operational efficiency of banks by indicating how effectively total assets are utilized to generate net income. A higher ROA signifies efficient asset management, stronger financial performance, and greater institutional sustainability. Conversely, a declining ROA may indicate inefficient utilization of assets, rising operational costs, or reduced earnings, all of which contribute to financial distress. The studies of Gholipour et al. (2021), Hsieh et al. (2020), Jararweh et al. (2018), and Jayanetti et al. (2022) highlight the importance of intelligent resource optimization, predictive management, and efficient scheduling mechanisms, which conceptually align with improving operational efficiency and maximizing returns on available assets.

The third determinant, Capital Adequacy, reflects the ability of banks to absorb unexpected financial losses while maintaining operational continuity. Adequate capital serves as a financial cushion against credit, market, and operational risks and ensures compliance with regulatory requirements such as the Basel norms. Banks with strong capital adequacy ratios are better positioned to withstand economic shocks and maintain depositor confidence. The studies cited under this determinant, including Dubey et al. (2020), Esfandiarpour et al. (2015), Gholipour et al. (2020), and Gill et al. (2019), emphasize sustainable management practices, efficient resource utilization, and resilience as essential components for maintaining long-term financial stability.

The fourth determinant, Liquidity Management, focuses on the ability of banks to meet their short-term financial obligations without disrupting normal business operations. Effective liquidity management ensures sufficient availability of cash and liquid assets to satisfy depositor withdrawals, loan disbursements, and operational expenses. Poor liquidity management increases the risk of financial distress, whereas optimal liquidity enhances financial flexibility and institutional sustainability. The research conducted by Helali and Omri (2021), Gholipour et al. (2020, 2021), and Islam et al. (2018) highlights the significance of efficient consolidation, dynamic resource allocation, and optimized utilization strategies that can be conceptually associated with maintaining adequate liquidity and minimizing financial risk.

The fifth determinant, Risk Management, encompasses the identification, assessment, monitoring, and mitigation of risks, including credit, market, liquidity, and operational risks. Effective risk management enables banks to minimize potential financial losses, strengthen governance, and improve decision-making processes. Institutions with robust risk management frameworks are better equipped to maintain profitability and financial sustainability even during periods of economic uncertainty. Studies by Gill et al. (2019), Jararweh et al. (2018), Dubey et al. (2020), and Gaikwad et al. (2021) emphasize that proactive management strategies, intelligent optimization techniques, and efficient operational planning significantly contribute to reducing organizational risk and enhancing overall performance.

The sixth determinant, Macroeconomic and Regulatory Factors, represents the influence of external economic conditions and government policies on banking performance. Variables such as GDP growth, inflation, interest rates, monetary policy, banking regulations, and financial reforms directly affect loan demand, repayment capacity, profitability, and financial sustainability. Favourable macroeconomic conditions generally improve bank performance, whereas economic recessions, inflationary pressures, or stringent regulatory requirements may increase financial distress. The contributions of Gartner (2011), Gupta et al. (2016), Guitart (2016), and Brito et al. (2024) emphasize that technological advancement, sustainable operational practices, infrastructure development, and an appropriate regulatory environment play an essential role in supporting long-term institutional sustainability.

The fishbone diagram demonstrates that financial sustainability in Indian commercial banks is not determined by a single variable but by the combined influence of internal financial indicators and external environmental factors. GNPA reflects asset quality and credit risk, ROA measures profitability and operational efficiency, Capital Adequacy ensures financial

resilience, Liquidity Management maintains short-term financial stability, Risk Management minimizes uncertainty and potential losses, and Macroeconomic and Regulatory Factors shape the external environment within which banks operate. Together, these six determinants provide a comprehensive framework for understanding the causes of financial distress and identifying the key drivers of sustainable financial performance in Indian commercial banks. The studies cited within each determinant further validate their importance and establish a strong theoretical basis for future empirical investigations.

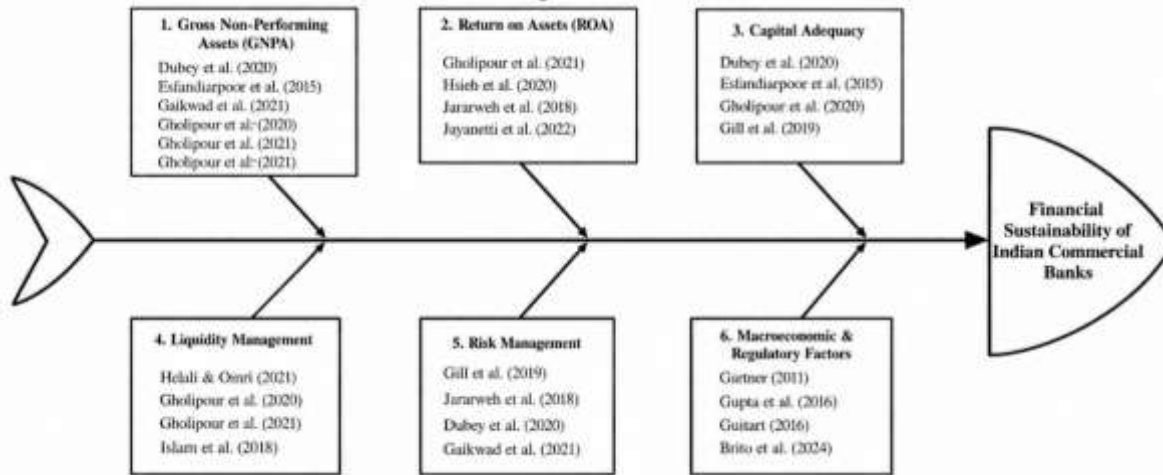


Figure 1: Illustrating the major determinants influencing financial distress and financial sustainability in Indian commercial banks

4. Studies on Gross Non-Performing Assets (GNPA) and Return on Assets (ROA)

Collectively, these studies demonstrate that Gross Non-Performing Assets (GNPA) and Return on Assets (ROA) are closely interconnected indicators of bank performance. High GNPA levels increase credit risk, reduce liquidity, weaken profitability, and lower ROA, thereby increasing the likelihood of financial distress. In contrast, effective credit risk management, sound regulatory policies, adequate capital, and efficient asset utilization contribute to lower NPAs, improved ROA, and enhanced financial sustainability. The literature therefore establishes that controlling NPAs while improving ROA is fundamental for ensuring the long-term stability, profitability, and resilience of Indian commercial banks. The existing literature consistently demonstrates that Non-Performing Assets (NPA) and Return on Assets (ROA) are among the most significant indicators of the financial health and sustainability of Indian commercial banks. Researchers have emphasized that an increase in NPAs adversely affects bank profitability, liquidity, operational efficiency, and overall financial stability, while ROA serves as a key measure of management efficiency and effective utilization of banking assets. Kavitha Nachimuthu and Muthukrishnan Veni (2019) examined the impact of NPAs on the profitability of Indian scheduled commercial banks and found a strong negative relationship between NPAs and profitability. The study concluded that rising NPAs reduce interest income, increase provisioning requirements, and significantly lower the Return on Assets (ROA), thereby weakening the financial performance of banks. Malaya Das (2024) analysed the performance of NPAs in Indian commercial banks and reported that although recent banking reforms have improved asset quality, NPAs continue to remain a major challenge for maintaining financial sustainability. The study highlighted that effective credit monitoring and timely loan recovery are essential for improving profitability and reducing financial distress. Mir and Jegadeeshwaran (2013) evaluated the financial performance of private sector banks using the CAMEL approach and identified asset quality as one of the most critical determinants of banking performance. Their findings indicated that banks with lower levels of NPAs consistently achieved better profitability, stronger operational efficiency, and higher ROA. The relationship between NPAs and liquidity was investigated by Ramanan and Sharma (2021), who found that increasing non-performing assets significantly reduce liquidity levels in public sector banks. Higher NPAs restrict the availability of funds for lending activities, resulting in lower earnings and declining ROA. Roy and Ghosh (2019) examined the impact of the Prompt Corrective Action (PCA) framework introduced by the Reserve Bank of India. Their study demonstrated that banks operating under PCA regulations showed gradual improvements in asset quality and capital adequacy, although profitability recovery remained slow due to the continued burden of NPAs. The study by Sahoo and Dash (2016) established that asset quality is one of the strongest predictors of banking stability. Their findings revealed that better asset quality leads to lower financial risk, improved profitability, and greater financial sustainability. Conversely, deteriorating asset quality significantly increases financial distress within the banking sector. Sharma, Mathur, and Kumar (2023) investigated liquidity stress in Indian commercial banks

during the period 2018–2022 and found that adequate capital buffers significantly reduce liquidity risk even during periods of financial uncertainty. The study suggested that strong capital adequacy improves resilience against losses arising from non-performing assets. Sopan and Dutta (2018) analysed the determinants of liquidity risk in Indian banks using panel data techniques and concluded that asset quality, capital adequacy, and bank size significantly influence liquidity management. Banks with lower NPAs were found to maintain healthier liquidity positions and better financial performance. Singh and Sharma (2016) examined both macroeconomic and bank-specific factors affecting liquidity and reported that efficient management of credit risk, asset quality, and capital structure plays a vital role in improving profitability and maintaining higher ROA under varying economic conditions. Singh (2016) focused specifically on asset quality risk and concluded that inadequate credit appraisal, poor monitoring of borrowers, and ineffective recovery mechanisms are the primary causes of rising NPAs in Indian banks. The study emphasized that reducing asset quality risk directly contributes to higher profitability and stronger financial sustainability. Swain, Sahu, and Dash (2017) investigated the impact of regulatory norms on NPAs and found that stricter regulatory supervision, improved governance mechanisms, and timely implementation of banking reforms significantly reduce non-performing assets and strengthen the financial stability of scheduled commercial banks.

5. Conclusion

This descriptive review highlights that Gross Non-Performing Assets (GNPA) and Return on Assets (ROA) are the two most influential determinants of financial distress and financial sustainability in Indian commercial banks. The reviewed literature consistently demonstrates that rising GNPA levels adversely affect banks by increasing credit risk, provisioning requirements, and operational costs, thereby reducing profitability and weakening overall financial performance. In contrast, a higher ROA reflects efficient asset utilization, sound managerial practices, and stronger profitability, making it an important indicator of long-term financial sustainability. The review further reveals that financial sustainability depends not only on profitability but also on a combination of factors including capital adequacy, liquidity management, asset quality, effective risk management, and a supportive macroeconomic and regulatory environment. Banks that maintain lower GNPA levels, higher ROA, adequate capital buffers, and efficient liquidity management are better positioned to withstand economic uncertainties and sustain long-term growth. Regulatory initiatives such as the Reserve Bank of India's Asset Quality Review (AQR), the Insolvency and Bankruptcy Code (IBC), and Prompt Corrective Action (PCA) framework have contributed significantly to improving asset quality and strengthening the resilience of the Indian banking sector. The literature also indicates that prudent lending practices, robust credit appraisal systems, continuous monitoring of borrowers, timely loan recovery mechanisms, and strong corporate governance are essential for reducing NPAs and improving financial performance. Moreover, maintaining adequate capital and effective liquidity management enables banks to absorb unexpected losses while ensuring operational continuity and depositor confidence. These factors collectively enhance profitability, improve ROA, and promote sustainable banking operations. The study concludes that the long-term sustainability of Indian commercial banks depends on achieving an appropriate balance between asset quality and profitability. Effective management of GNPA, together with continuous improvement in ROA, should remain the primary strategic objective for bank management and policymakers. Strengthening credit risk management, improving operational efficiency, adopting advanced risk assessment practices, and ensuring strict regulatory compliance will not only minimize financial distress but also enhance the resilience, competitiveness, and sustainable growth of the Indian banking sector in the evolving financial environment.

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