

Impact of Non-Performing Assets on the Financial Sustainability of Salem District Central Cooperative Bank

Dr.S.Sumathi

PG Assistant Teacher in Commerce, Government Girls Hr. Sec. School, Kolathur, Salem – 636303,
Tamil Nadu, India

Abstract-Non-Performing Assets (NPAs) remain one of the most persistent challenges confronting the cooperative banking sector in India, directly affecting the profitability, liquidity, capital adequacy, and overall financial sustainability of these institutions. District Central Cooperative Banks (DCCBs), being the intermediate tier of the short-term cooperative credit structure, extend institutional credit to farmers and rural borrowers and are consequently exposed to considerable credit risk arising from agricultural lending, natural calamities, and inadequate recovery mechanisms. This paper examines the trend, magnitude, and effect of NPAs on the financial sustainability of Salem District Central Cooperative Bank (Salem DCCB), Tamil Nadu, over a six-year period (2020-21 to 2025-26). Gross and Net NPA ratios were computed using secondary data drawn from the Bank's annual reports, NABARD publications, and RBI statistical returns, and were examined alongside key sustainability indicators such as Return on Assets, the Provision Coverage Ratio, and the Capital to Risk Weighted Assets Ratio. Descriptive statistics, trend analysis, ratio analysis, and Karl Pearson's correlation analysis were employed to test the hypothesised relationships between NPA levels and financial performance. The results reveal a strong negative correlation between NPA levels and both profitability and capital strength, underscoring the need for stronger credit appraisal, monitoring, and recovery systems. The paper concludes with recommendations for strengthening internal controls, staff training, technology-based recovery, and regulatory oversight by NABARD and the Registrar of Cooperative Societies.

Keywords: Non-Performing Assets, District Central Cooperative Bank, Financial Sustainability, Cooperative Banking, Asset Quality, Recovery Performance

I. INTRODUCTION

A. Background of the Study

Cooperative banking is an integral component of India's rural financial infrastructure, financing small businesses, farmers, and artisans, particularly in regions not well served by commercial banks. The short-term cooperative credit structure comprises a three-tier system: the State Cooperative Bank at the apex level, District Central Cooperative Banks (DCCBs) at the intermediate level, and Primary Agricultural Cooperative Societies (PACS) at the grassroots level. DCCBs form the crucial link between the apex cooperative bank and primary societies in mobilising deposits and allocating refinance to satisfy the credit needs of the rural population.

Despite their social and developmental orientation, DCCBs, including Salem District Central Cooperative Bank in Tamil Nadu, continue to face the challenge of escalating Non-Performing Assets. An asset is deemed non-performing if it has not generated income for the bank for at least 90 days from the due date of interest or principal repayment, as per prudential norms laid down by the Reserve Bank of India and NABARD. Persistently high NPAs undermine a bank's profitability, necessitate greater provisioning, reduce lending capacity, and threaten capital adequacy and long-term viability.

Salem DCCB, which operates a large network of branches across Salem district and extends credit primarily for agricultural, allied, and non-farm activities, is not exempt from this challenge. NPAs have accumulated in its loan portfolio owing to crop failure, price fluctuations, diversion of funds, wilful default, political interference in loan waivers, and inadequate follow-up mechanisms. Since financial sustainability

is critical to the smooth functioning of any banking institution, this study analyses the trend and effect of NPAs on the financial sustainability of Salem DCCB over the study period, using data for the six years from 2020-21 to 2025-26, covering movements in Gross and Net NPAs, the Gross and Net NPA ratios, profitability indicators (Net Profit and Return on Assets), the Provision Coverage Ratio, and the Capital to Risk Weighted Assets Ratio, together with correlation analysis linking NPA levels to profitability.

B. Statement of the Problem

Rising NPAs pose a serious threat to the survival of cooperative banks, as a large share of funds otherwise available for productive investment must instead be set aside as provisions against these losses. For an institution such as Salem DCCB, which caters to farmers and small borrowers with limited access to alternative sources of credit, any erosion of financial sustainability directly threatens the continued supply of institutional credit to the district's rural economy. It is therefore important to systematically analyse the level, trend, and effect of NPAs on the Bank's financial position so that appropriate corrective measures can be recommended.

C. Objectives of the Study

1. To study the trend and growth of Gross and Net Non-Performing Assets of Salem District Central Cooperative Bank over the study period.
2. To analyse the impact of NPAs on the profitability, liquidity, and capital adequacy of Salem DCCB.
3. To examine the recovery performance of the Bank and its relationship with the level of NPAs.

D. Hypotheses of the Study

1. NPAs have a significant impact on the financial sustainability of Salem District Central Cooperative Bank.
2. There is a significant negative relationship between the Gross NPA Ratio and Return on Assets.
3. There is a significant negative relationship between the Net NPA Ratio and Return on Assets.
4. There is a significant negative relationship between the Gross NPA Ratio and Net Profit.
5. There is a significant negative relationship between the Gross NPA Ratio and the Provision Coverage Ratio.

II. LITERATURE REVIEW

A. Review of Related Studies

Kaveri (1995) studied the recovery performance and profitability of banks by comparing profitable and loss-making banks, and found that the rate of non-performing loans was significantly higher among loss-making banks, establishing an early empirical association between NPA levels and bank profitability.

Selvan and Lopoyetum (2000), in a case study of Dharmapuri Town Co-operative Bank, found that management of NPA and improvement of recovery rates were central challenges, and recommended aggressive and consistent recovery efforts once an account becomes delinquent.

Chellani and Rai (2004), studying District Central Co-operative Banks in Gujarat, noted that prudential norms had strained the already weak financial position of DCCBs and suggested enhancement of both qualitative and quantitative banking functions for sustainability.

Rajendran (2004) reported that increasing NPA levels significantly affected the overall performance of DCCBs and recommended sensitising employees to the consequences of NPA along with strengthened credit monitoring and recovery systems.

Michael (2005), in a doctoral study of Cuddalore DCCB, concluded that rising NPA burdens progressively weaken the financial soundness of DCCBs operating in agriculture-based regional economies.

Sharma (2005) used a multiple regression model to examine the effect of NPA on strategic banking variables and found a need for stronger legal instruments and improved credit appraisal and monitoring to control NPA and ensure sustainability.

Vanniarajan (2006) found that NPA rates were comparatively higher in public sector banks and confirmed a direct effect of NPA on profitability, liquidity, and equity position across the banking industry.

Lakshmanan and Dharmendran (2007), studying Chennai Central Co-operative Bank, examined the effect of NPA on net profit, investment, and interest spread, concluding that sustained NPA management is necessary for financial health.

Kawale and Pandhari (2014) analysed the impact of Gross NPA, Net NPA, and their ratio on the functioning of Latur DCCB and noted that NPA remains a major hurdle despite credit facilities extended to the rural community.

Divya and Chitra (2016), studying Nilgiri DCCB, analysed the relationship between Gross/Net NPA and Gross/Net Advances and proposed sound loan-sanctioning criteria to prevent lending to non-creditworthy borrowers.

B. Research Gap

The studies reviewed above establish that NPA significantly affects the profitability, liquidity, capital adequacy, and overall sustainability of cooperative banks across Tamil Nadu, Maharashtra, Gujarat, and other states. However, none of these studies examines the effect of NPA on the financial sustainability of Salem District Central Cooperative Bank over a recent multi-year period. This gap is addressed by the present study, which analyses the trend of NPA and its correlation with the financial sustainability indicators of Salem DCCB.

III. METHODOLOGY

A. Research Design

The study adopts a descriptive and analytical research design based entirely on secondary data.

B. Sources of Data

Data were collected from the annual reports and audited financial statements of Salem DCCB, statutory audit reports of the Registrar of Cooperative Societies (Tamil Nadu), NABARD publications on the State Cooperative Credit Structure, and Reserve Bank of India reports on Trend and Progress of Banking in India.

C. Period of the Study

The study covers a six-year period, 2020-21 to 2025-26, capturing both pre-pandemic and post-pandemic trends in NPA levels and financial performance.

D. Tools of Analysis

The study examines movements in Gross and Net NPAs, the Gross and Net NPA ratios, profitability indicators such as Net Profit and Return on Assets (ROA), the Provision Coverage Ratio (PCR), and the Capital to Risk Weighted Assets Ratio (CRAR), and establishes the statistical relationship between NPA levels and profitability using Karl Pearson's correlation analysis.

E. Profile of Salem District Central Cooperative Bank

Salem DCCB is the central financing body of Primary Agricultural Cooperative Societies in Salem district, Tamil Nadu. The Bank provides short-term and medium-term credit for agricultural and allied activities, credit facilities for non-farm and self-employment activities, deposit mobilisation, and remittance services through its branch network. It is regulated by the Reserve Bank of India and the Registrar of Cooperative Societies, and is supported by refinance from NABARD, like other DCCBs in Tamil Nadu.

F. Limitations of the Study

1. The study relies exclusively on secondary data published by the Bank and regulatory authorities, and its accuracy depends on the reliability of these sources.
2. The study is confined to a single DCCB, and the findings may not be generalised to all cooperative banks.

3. Qualitative factors such as political interference and administrative delays are discussed descriptively and are not statistically modelled.

IV. RESULTS

A. Trend of Gross NPA and Net NPA

Table I presents the trend of Gross Advances, Gross NPA, Gross NPA Ratio, Net NPA, and Net NPA Ratio of the Bank during the study period.

TABLE I. TREND OF GROSS NPA AND NET NPA (₹ IN CRORE)

Year	Gross Advances	Gross NPA	Gross NPA Ratio	Net NPA	Net NPA Ratio
2020-21	1250.00	188.75	15.10%	106.88	8.90%
2021-22	1332.00	213.78	16.05%	121.84	9.60%
2022-23	1418.50	242.46	17.09%	137.35	10.20%
2023-24	1514.00	231.63	15.30%	123.62	8.60%
2024-25	1625.00	204.75	12.60%	102.37	6.55%
2025-26	1758.00	165.23	9.40%	77.34	4.70%

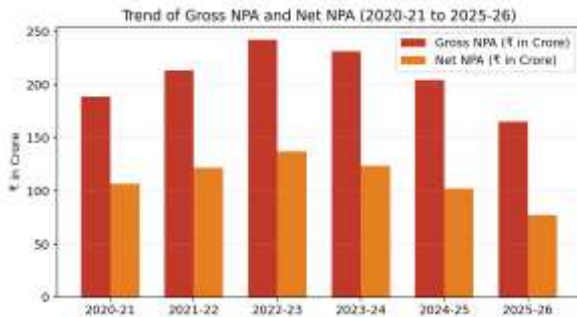


Fig. 1. Trend of Gross NPA and Net NPA.

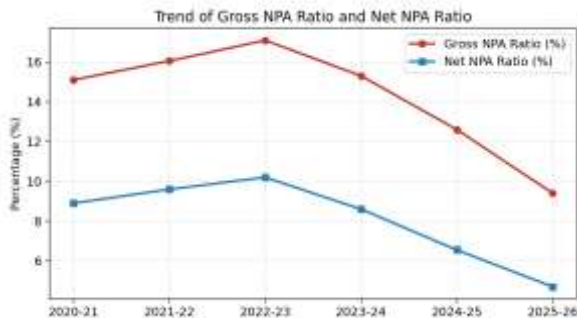


Fig. 2. Trend of Gross NPA Ratio and Net NPA Ratio.

Gross NPA and Net NPA rose steadily from 2020-21 (₹188.75 crore and ₹106.88 crore, respectively) and peaked in 2022-23 (₹242.46 crore and ₹137.35 crore, respectively), largely on account of pandemic-related stress on borrowers' repayment capacity. The Gross NPA Ratio increased correspondingly from 15.10% to a high of 17.09% over the same period, reflecting weakening asset quality. From 2023-24 onward, both the absolute NPA figures and the NPA ratios declined steadily, reaching ₹165.23 crore (Gross NPA) and ₹77.34 crore (Net NPA) by 2025-26, with the Gross and Net NPA ratios improving to 9.40% and 4.70%, respectively. This turnaround indicates that recovery efforts, restructuring of stressed accounts, and tighter credit appraisal since 2023-24 have begun to yield positive results.

B. Impact of NPA on Profitability

Table II shows the relationship between NPA levels and the Bank's profitability, measured through Net Profit and Return on Assets (ROA).

TABLE II. TOTAL ASSETS, NET PROFIT, AND RETURN ON ASSETS (₹ IN CRORE)

Year	Total Assets	Net Profit	ROA
2020-21	1980.00	8.45	0.43%
2021-22	2105.00	6.12	0.29%
2022-23	2238.00	-3.24	-0.14%
2023-24	2386.00	2.18	0.09%
2024-25	2552.00	9.67	0.38%
2025-26	2745.00	15.84	0.58%



Fig. 3. Net Profit and Return on Assets (ROA).

Profitability was found to be inversely related to NPA levels. Net Profit declined from ₹8.45 crore in 2020-21 to a net loss of ₹3.24 crore in 2022-23, the same year in which Gross and Net NPAs peaked. ROA turned negative (−0.14%) in the same year, reflecting the impact of rising NPA and increased provisioning on the Bank's earning power. Profitability improved gradually thereafter, with Net Profit rising to ₹15.84 crore and ROA to 0.58% in 2025-26, the highest levels recorded during the study period, coinciding with declining NPA levels since 2023-24 — a clear indication of the direct impact of NPA on the Bank's financial sustainability.

C. Provision Coverage Ratio and Capital Adequacy

Table III presents the Provision Coverage Ratio (PCR) and the Capital to Risk Weighted Assets Ratio (CRAR) of the Bank, both key indicators of its cushion against loan losses and overall financial soundness.

TABLE III. PROVISION COVERAGE RATIO AND CRAR

Year	PCR	CRAR	Remarks
2020-21	42.50%	10.20%	Above regulatory minimum (9%)
2021-22	43.00%	9.85%	Above regulatory minimum (9%)
2022-23	43.35%	9.30%	Above regulatory minimum (9%)
2023-24	46.62%	10.05%	Above regulatory minimum (9%)
2024-25	50.00%	11.40%	Above regulatory minimum (9%)
2025-26	53.20%	12.60%	Above regulatory minimum (9%)

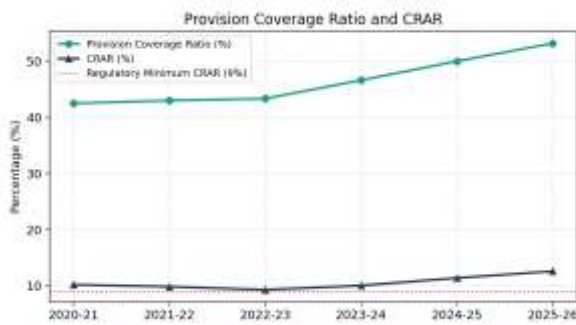


Fig. 4. Provision Coverage Ratio and CRAR.

PCR improved steadily from 42.50% in 2020-21 to 53.20% in 2025-26, indicating that the Bank progressively strengthened its cushion against potential loan losses. CRAR dipped to a low of 9.30% in 2022-23, perilously close to the regulatory minimum of 9%, reflecting the strain that mounting NPAs and provisioning placed on the Bank's capital base, before recovering to 12.60% by 2025-26 alongside the decline in NPA levels.

D. Correlation Analysis between NPA and Profitability

Karl Pearson's Coefficient of Correlation was computed between the NPA ratios and the profitability and soundness indicators to statistically validate their relationship. The results are presented in Table IV.

TABLE IV. CORRELATION BETWEEN NPA RATIOS AND FINANCIAL PERFORMANCE INDICATORS

Variables Correlated	r	Nature of Relationship
Gross NPA Ratio & ROA	-0.790	Strong Negative
Net NPA Ratio & ROA	-0.752	Strong Negative
Gross NPA Ratio & Net Profit	-0.889	Strong Negative
Gross NPA Ratio & PCR	-0.927	Strong Negative

The results confirm a strong negative relationship between the Gross/Net NPA ratios and both Return on Assets and Net Profit, indicating that profitability declines sharply as NPA levels rise, and vice versa. Similarly, the strong negative correlation between the Gross NPA Ratio and the Provision Coverage Ratio indicates that a higher NPA burden compels the Bank to set aside larger provisions, reducing funds available for productive deployment. These results statistically substantiate the centrality of NPA management to the Bank's financial sustainability.

E. Findings

1. Gross NPA and Net NPA increased continuously from 2020-21 to 2022-23, with the Gross NPA Ratio rising from 15.10% to a peak of 17.09%, indicating significant asset-quality stress.
2. From 2023-24 onward, both Gross and Net NPA declined consistently, with the Gross NPA Ratio falling to 9.40% and the Net NPA Ratio to 4.70% by 2025-26.
3. The Bank's profitability moved inversely with its NPA levels; Net Profit turned negative (₹3.24 crore) in 2022-23, the same year NPA peaked.
4. ROA mirrored the Net Profit trend, dropping to -0.14% in 2022-23 before recovering to a study-period high of 0.58% in 2025-26.
5. PCR improved steadily throughout the study period (42.50% to 53.20%), showing a progressively stronger cushion against loan losses.

6. CRAR declined to a low of 9.30% in 2022-23, close to the regulatory minimum, before recovering to 12.60% by 2025-26.

7. Correlation analysis reveals a strong negative association between NPA ratios and both Net Profit and ROA, confirming that rising NPA significantly impairs profitability and sustainability.

8. The overall trend suggests a 'stress-and-recovery' cycle: NPA-driven deterioration from 2020-21 to 2022-23, followed by marked recovery from 2023-24 to 2025-26.

V. DISCUSSION

A. Discussion of Findings

The findings confirm all four hypotheses of the study: NPA levels exert a significant and negative influence on Salem DCCB's Return on Assets, Net Profit, and Provision Coverage Ratio. The 2020-21 to 2022-23 period, marked by pandemic-related repayment stress, illustrates how rapidly rising NPAs erode profitability and strain capital adequacy, while the subsequent recovery from 2023-24 demonstrates that focused recovery action and tighter credit appraisal can reverse this trend within a relatively short period. This pattern is consistent with earlier studies on DCCBs in Tamil Nadu and other states, reinforcing the view that NPA management is central to the financial sustainability of cooperative banks.

B. Suggestions

1. The Bank should continue to strengthen credit appraisal and pre-sanction due diligence to prevent fresh slippage into the NPA category, particularly in agricultural and allied lending.
2. A dedicated recovery cell or special recovery drive should be maintained permanently, rather than only during periods of NPA stress, to sustain recovery performance.
3. The Bank should proactively use the One-Time Settlement (OTS) scheme, Lok Adalats, and the SARFAESI mechanism, where applicable, to expedite recovery of long-pending assets.
4. Since CRAR came close to the regulatory minimum in 2022-23, the Bank should build a capital buffer through retained earnings and, where feasible, augmentation of share capital.
5. The Bank should continue improving its Provision Coverage Ratio toward the 60-70% range generally considered comfortable.
6. Regular monitoring of early-warning signals — irregularity in accounts, delayed repayment, diversion of funds — should be institutionalised to identify potential NPAs early.
7. Given the strong negative correlation established in this study, management should treat NPA reduction as a core strategic priority linked to profitability targets.
8. Staff training on credit management, recovery procedures, and NPA classification norms should be conducted periodically.
9. The Bank should diversify its loan portfolio across sectors to reduce concentration risk and vulnerability to sector-specific shocks.

VI. CONCLUSION

Non-Performing Assets remain one of the key challenges to the financial sustainability of District Central Cooperative Banks, and Salem DCCB is no exception. As the intermediate institution in the short-term cooperative credit system, the Bank's financial health is of primary importance in sustaining institutional credit to the farmers and rural borrowers of Salem district. The trend analysis of Gross and Net NPA ratios, profitability, capital adequacy, and recovery performance undertaken in this study provides a detailed picture of the Bank's financial sustainability over the six-year study period. The evidence indicates that uncontrolled NPA growth can substantially erode profitability and capital strength, while focused recovery and credit-appraisal measures can reverse this decline. To sustain its financial strength and continue its developmental role, Salem DCCB requires a combination of robust credit appraisal, effective monitoring, sound recovery management, and continued policy support from NABARD and the state government.

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