JAMEK (JURNAL AKUTANSI MANAJEMEN EKONOMI DAN KEWIRAUSAHAAN)
Vol 06, No 02, Bulan Mei 2026
ISSN 2774-809X (media online)
Hal 455-464

The NPA Menace: A Study of Non-Performing Assets in India's Co-Operative Banks

Abhijith Sankar, Dr. P. Natarajamurthy[2*]

[1]Ph.D. Research Scholar, Department of Economics, Bharathidasan University, Tiruchirappalli, Tamil Nadu
[2*]Professor, Department of Economics, Bharathidasan University, Tiruchirappalli, Tamil Nadu
Email: [1]sambhu.abhijith@gmail.com , [4*]natarajamurthy.p@bdu.ac.in
(*: corresponding author)

Abstract

The prevalence of Non-performing Assets has been a persistent problem faced by the Indian banking sector in general and the Indian co-operative banking sector in particular. In this context, the present study undertakes a descriptive and trend-based empirical examination of NPA patterns among the various types of urban and rural co-operative banks in the country over the period of more than two and a half decades (1996-97 to 2022-23). This study conducted a descriptive, trend-based, and CAGR-based examination of the Gross Non-performing Assets of the various segments of India's co-operative banking sector. The study finds a bifurcation in Gross NPA ratios across the co-operative sector during this period: Urban Co-operative banks and the short-term rural credit structure (StCBs and DCCBs) showed sustained improvement in asset quality, whereas the long-term rural cooperative credit structure (SCARDBs and PCARDBs) recorded deterioration. These findings imply that policy attention has been concentrated on the urban cooperative segment, while the long-term rural credit structure, despite a greater need for intervention, has received less sustained reform focus. A comprehensive strategy across the cooperative credit structure is imperative to ensure India's cooperative banking sector's long-term sustainability and credit access for underserved populations.

Keywords: Co-operative banking, Non-Performing Assets, Indian Banking Sector, NPA, CAGR Analysis.

1. INTRODUCTION

Non-Performing Assets (NPAs), loans, or advances on which principal or interest payments remain overdue for 90 days or more, are one of the most persistent structural challenges faced by the Indian banking system. Non-Performing Assets (NPAs) are loans which dispersed by banks, to which borrowers default in making payments of the principal or interest amount [1]. NPAs are conventionally classified as substandard, doubtful, or loose assets, depending on the duration and severity of the payment delay, and govern provisioning requirements and, ultimately, bank profitability and lending capacity [2]. An asset becomes non-performing when it ceases to generate income for the bank, a status that is a critical marker of financial distress.

NPAs have been a persistent challenge for the Indian banking sector over the last few decades. The Government of India and the Reserve Bank of India (RBI) have taken various steps to reduce the NPA menace in the Indian banking sector over the last two decades. These policies were very effective in the scheduled commercial banking segment, compressing the public, private, and foreign banks. The segment documented significant improvements in asset quality over the past decade, with the gross NPA ratio falling to a multi-decadal low of approximately 2.1 to 2.2 percent by 2024-25 [3]. Although these measures have positively impacted Scheduled Commercial Banks (SCBs) in India, the co-operative banking sector in the country tells a markedly different story.

The Indian co-operative banking sector comprises Urban co-operative banks (UCBs) and Rural co-operative banks. While the UCBs have their own separate regulations, the rural co-operative banking sector is organised into two functionally distinct verticals, the short-term credit structure and the long-term co-operative credit structure.

The short-term co-operative credit structure has a three-tier federal structure in which State Co-operative Banks (StCBs) operate at the state level, District Central co-operative Banks (DCCBs) operate at the district level, and Primary Agricultural Credit Societies (PACS) operate at the grassroots village level. While StCBs serve as the principal interface with the National Bank for Agricultural and Rural Development (NABARD) for refinancing operations and routing government credit support to lower levels, DCCBs intermediate between StCBs and the primary societies below, mobilising deposits and extending credit to member societies. PACs constitute the foundational tier, interacting directly with their individual members, the farmers, to disburse crop loans and other short-term production credits [4] [5]. These types of co-operative banking institutions are grouped together as short-term structures, as they concentrate primarily on financing seasonal, self-liquidating agricultural production needs, such as crop loans, rather than long-gestation investments [5].

The long-term co-operative credit structure comprises the State Co-operative Agriculture and Rural Development Banks (SCARDBs) at the apex level and the Primary Co-operative Agriculture and Rural Development Banks (PCARDBs) at the grassroots level. SCARDBs, the apex institutions, refinance and supervise the affiliated PCARDBs. Long-term co-operative credit structure institutions are primarily mandated to dispense long-term investment credit (periods extending up to 25 years) for purposes such as land development, minor irrigation, farm mechanisation, and other capital-intensive rural and agricultural investments. In contrast, short-term credit structure institutions finance short-duration production credit [6].

The classification of the country's co-operative sector into short-term and long-term credit structures is based not only on geographical coverage or administrative levels but also on loan tenor and functional purpose. This also helps fulfil the objective of rural co-operatives, the provision of affordable credit to farmers, and addresses the issue of last-mile delivery persisting in rural India by bifurcating credit provisioning in the country structurally and financially, with production finance being handled by short-term credit structures (StCBs, DCCBs, and PACs) and investment finance being handled by long-term credit structures (SCARDs and PCARDBs). Finally, urban co-operative banks are excluded from both the short-term and long-term rural structures, as they operate under a unitary (non-tiered) structure serving urban and semi-urban clienteles rather than the tiered, agriculture-oriented rural credit delivery chain that defines the STCCS and LTCCS [5].

Co-operative banks have been a crucial provider of formal credit to borrowers, particularly farmers and the working class, who were not hitherto covered by and provisioned with formal credit by Commercial Banks and other Non-Banking Financial Institutions. These institutions, including Urban Co-Operative Banks (UCBs) and a vast network of rural co-operative credit institutions, are instrumental in mobilising the limited savings of the middle and working-class populations and channelling credit to small borrowers, farmers, and weaker sections of society [7]. It can be found that the co-operative banks and financial institutions have been greatly successful in bringing in more people under the ambit of formal credit provisioning and formal banking sector, freeing them from the clutches of informal money lenders and associated high interest rates and debt traps. This is in line with the foundational purpose of co-operative banks to provide an alternative to traditional money lenders, ensuring that timely and affordable institutional credit reaches the grassroots of the Indian economy [7]. Despite their vital role in formal credit provisioning in the country's economy, co-operative banks in India have struggled for decades with a disproportionately high burden of NPAs.

The asset quality stress faced by co-operative banks in the country is due to the confluence of several internal governance weaknesses and external vulnerabilities. The major internal governance issues faced by co-operative banks in the country include inadequate professional management, political interference in loan sanctioning, and weak credit approval. The external vulnerabilities confronting co-operative banks in India primarily include heavy exposure to the agricultural economy and its susceptibility to monsoon failure, price volatility, and natural disasters. The co-operative sector in the country also faces a pertinent gap in oversight and supervision. This gap in oversight and supervision persists because of the existence of a dual regulatory architecture in which banking-related functions are supervised by the RBI, while incorporation, registration, and management-related matters remain under the State Registrars of Co-Operative Societies or the (Central Registrar for multi-state entities), preventing the coordinated oversight of co-operative banks [8][9].

The persistence of the NPA burden has substantial economic stakes, both for the financial health and survival of banks and their borrowers' and clients' access to formal credit. The accumulation of NPAs directly erodes banks' profitability, depletes capital reserves, and constrains their ability to extend fresh credit. This deterioration in banks' financial health may occur when the banks' core clientele, rural farmers, or small urban borrowers may not have safe and accessible alternate sources for formal credit. This is not only an accounting issue but also a systemic vulnerability, as this credit crunch can adversely affect the overall economic growth of the country. The risk posed by concealed or mismanaged NPAs to depositor confidence and broader financial stability has been demonstrated

by the collapse of high-profile co-operative institutions, most notably the collapse of the Punjab and Maharashtra Co-operative Bank in September 2019 [10].
In this context, the present study undertakes a descriptive and trend-based empirical examination of NPA patterns among the various types of urban and rural co-operative banks in the country over the period of more than two and a half decades (1996-97 to 2022-23).

2. RESEARCH METHODS

This study adopts a trend-based and compound annual growth rate (CAGR)-based research design using secondary time-series data. This study is organised around two major research objectives.

1. To examine the trends in the Gross Non-Performing Asset (NPA) Ratio (as a percentage of gross advances) in the Indian co-operative banking sector to understand the level, pace, and direction of change in the NPA in the co-operative sector in the country, at both an aggregate level and at sub-aggregate levels, that is, the various types of co-operative banking institutions operating in the country.
2. To evaluate and analyse the Compound Annual Growth Rate (CAGR) of the NPA Ratio of various types of co-operative banking institutions operating in the country.

The present study is based on secondary time series data on the Gross Non-performing Asset (GNPA) ratios for India's Co-operative banking sector across the post-economic reform period, spanning from 1996-97 to 2022-23. The secondary time-series data were sourced from the Reserve Bank of India's Handbook of Statistics on the Indian Economy [11]. This study analyzes the trend in the Gross NPA ratios of the country and the CAGR of the Gross NPA ratios by disaggregating the co-operative banking sector into Urban Co-operative banks (UCBs) and the Rural Co-operative Banking Structure. The Rural Co-operative banking structure has been further divided into a short-term structure, comprising State Co-operative Banks (StCBs), District Central Co-operative banks (DCCBs), and Primary Agricultural Credit Societies (PACS), and a Long-Term Structure, comprising State Co-operative Agriculture and Rural Development Banks (SCARDBs) and Primary Co-operative Agriculture and Rural Development Banks (PCARDBs).
The trend in the Gross NPA ratios (as a percentage of gross advances) across the post-economic reform period (1996-97 to 2022-23) is analysed by interpreting the table depicting the Gross NPA ratios of the various types of Co-operative banks in the country and also by interpreting the trendline graph, bar diagrams, and histograms depicting the Gross NPAs of the various types of co-operative banking institutions in the country. The study also examines the Compound Annual Growth Rate (CAGR) of the Gross NPAs in the various types of co-operative banking institutions in the country to understand the transformation in the NPA situation in the country over the study period. Together, these two analyses shall provide a comprehensive understanding of the trend, trajectory, and transformation of the NPA situation of the various types of co-operative banking institutions in the country across the post-economic reform period.

3. ANALYSIS AND DISCUSSION

Table 3.1 Gross Non-Performing Assets of Co-Operative Banks (Per Cent of Gross Advances)

YEAR (END-MARCH)	**URBAN CO-OPERATIVE BANKS (UCBS)**	**RURAL CO-OPERATIVE BANKS**				
		Short-Term Structure			**Long-Term Structure**	
		State Co-operative Banks **(StCBs)**	District Central Co-operative Banks **(DCCBs)**	Primary Agricultural Credit Societies **(PACS)**	State Co-operative Agriculture and Rural Development Banks **(SCARDBs)**	Primary Co-operative Agriculture and Rural Development Banks **(PCARDBs)**
1996-97	13.2	-	-	34.9	-	-

JAMEK (JURNAL AKUTANSI MANAJEMEN EKONOMI DAN KEWIRAUSAHAAN)
Vol 06, No 02, Bulan Mei 2026
ISSN 2774-809X (media online)
Hal 455-464

1997-98	11.7	12.5	17.8	35.3	18.6	16.5
1998-99	11.7	12.6	17.8	35.0	19.2	16.1
1999-00	12.2	10.7	17.2	35.4	18.7	20.0
2000-01	16.1	13.0	17.9	34.9	20.5	24.3
2001-02	21.9	13.4	19.9	32.4	18.5	30.2
2002-03	19.0	18.2	21.2	38.2	20.9	33.8
2003-04	22.7	18.7	24.0	36.8	26.7	35.8
2004-05	23.2	16.3	19.9	33.6	31.3	31.9
2005-06	18.9	16.8	19.7	30.4	32.7	35.6
2006-07	18.3	14.2	18.5	29.1	30.3	35.4
2007-08	15.5	12.8	20.5	35.7	34.5	53.7
2008-09	13.4	12.0	18.0	44.8	30.1	39.0
2009-10	10.1	8.8	13.0	41.4	45.1	51.9
2010-11	8.4	8.5	11.2	25.2	32.3	40.6
2011-12	7.0	7.0	10.2	26.8	33.1	36.7
2012-13	6.0	6.1	9.7	24.7	36.0	37.7
2013-14	5.7	5.5	10.3	19.0	31.6	38.0
2014-15	6.2	4.9	9.5	22.4	30.3	36.2
2015-16	6.1	4.5	9.4	18.9	22.0	36.6
2016-17	7.2	4.1	10.5	26.6	23.6	33.0
2017-18	7.2	4.7	11.2	28.2	25.0	38.3
2018-19	7.3	4.3	11.9	45.2	26.5	39.3
2019-20	10.6	6.7	12.6	31.0	33.0	42.8
2020-21	12.1	6.7	11.4	33.5	33.2	42.3
2021-22	10.3	6.0	10.8	32.2	36.1	40.7
2022-23	8.8	5.4	9.6	-	36.5	40.4
NOTES :						
(-) : Data Not Available						

Sources: Reserve Bank of India's Handbook of Statistics on Indian Economy [11]

The above table, Table 3.1, presents comprehensive time-series data on the Gross Non-Performing Asset (GNPA) ratios of various types of co-operative banking institutions across the post-economic reform period, sourced from Table 59 (Gross Non-Performing Assets of Co-Operative Banks) of the Reserve Bank of India's Handbook of Statistics on Indian Economy [11]. The table disaggregates the GNPA data of the Indian co-operative banking sector into various types of co-operative banking institutions, including Urban Co-operative banks (UCBs), State Co-operative Banks (StCBs), District Central Co-operative banks (DCCBs), Primary Agricultural Credit Societies (PACS), State Co-operative Agriculture and Rural Development Banks (SCARDBs), and Primary Co-operative

JAMEK (JURNAL AKUTANSI MANAJEMEN EKONOMI DAN KEWIRAUSAHAAN)
Vol 06, No 02, Bulan Mei 2026
ISSN 2774-809X (media online)
Hal 455-464

Agriculture and Rural Development Banks (PCARDBs). The data from the above table have been presented below in various data visualisation figures, illustrating a detailed reading of the aggregated and disaggregated trajectories of the GNPA ratios of the Indian co-operative banking sector and its various segments, depicting asset-quality stress in the country's co-operative banking sector across the post-reform period (1996-97 to 2022-23).

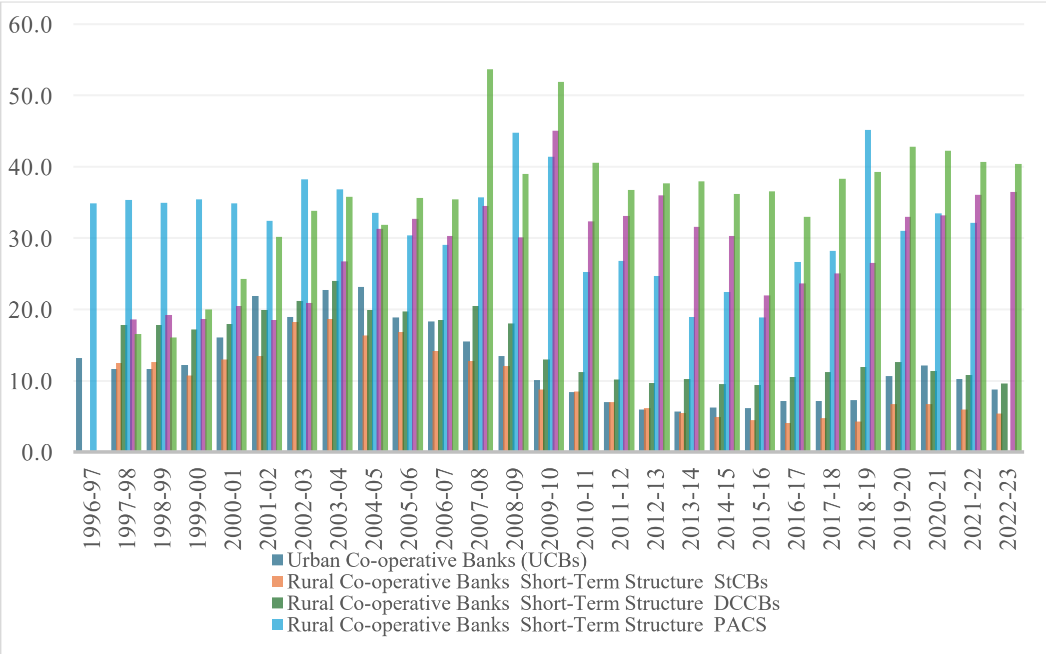

Figure 3.1 Gross Non-Performing Assets of Co-Operative Banks (Per Cent of Gross Advances)
Source: Authors' Computation based on data from Reserve Bank of India's Handbook of Statistics on Indian Economy [11]

Figure 1 presents the GNPA ratios of the co-operative banking institutions as a clustered column bar chart, showing the GNPA ratios across all types of co-operative banking institutions in the country by year. This illustrates the changes in the compositional weight of each type of co-operative banking institution in the country during the study period (1997-98 to 2022-23). The figure shows that Primary Agricultural Credit Societies (PACS) had the highest GNPA ratios in the initial years (1997-98 to 2004-05), and Primary Co-operative Agriculture and Rural Development Banks (PCARDBs) had the highest GNPA ratios in most years thereafter that (2005-06 to 2022-23) except for the years 2008-09 and 2018-19 in which PACS had the highest GNPA ratios among the co-operative banking institutions in the country. The GNPA ratio of the State Co-operative Agriculture and Rural Development Banks (SCARDBs) has also increased from its initial value and has remained high throughout the study period, along with the GNPA ratios of PACS and PCARDBs. The GNPA ratios of the other co-operative banking institutions, that is, Urban Co-operative banks (UCBs), State Co-operative Banks (StCBs), and District Central Co-operative banks (DCCBs) have remained relatively lower in comparison to the PACS, PCARDBs, and SCARDBs in the country during the post-reform period (1997-98 to 2022-23), although the GNPA of UCBs, StCBs, and DCCBs have fluctuated during the period.
While examining the GNPA ratio of the country's co-operative banking institutions as clusters based on the credit structure, that is, short-term credit structure and long-term credit structure, it is found that the GNPA ratios of the long-term credit structure co-operative banking institutions are higher than the GNPA ratios of the short-term credit structure co-operative banking institutions and the urban co-operative banking institutions (which do not come under long-term or short-term credit structures). This holds for all short-term credit structure co-operative banking financial institutions other than the Primary Agricultural Societies (PACS), which had one of the highest GNPA ratios among all co-operative institutions in the country during the post-reform period. The GNPA ratio of

the PCAS in the country is one of the highest among the GNPA ratios of the co-operative banking institutions in the country, which is understandable since the PCAS are the largest source of credit to the rural population, particularly farmers, and have the largest borrower base among the co-operative banking institutions in the country [12]. The GNPA ratio of long-term credit structure co-operative banking institutions being higher than that of the short-term co-operative banking institutions (other than PACS) is also understandable since the long-term credit structure banking institutions generally provide long-term, high-value credit, and short-term credit structure co-operative institutions provide short-term loans of lower value [5], [6].

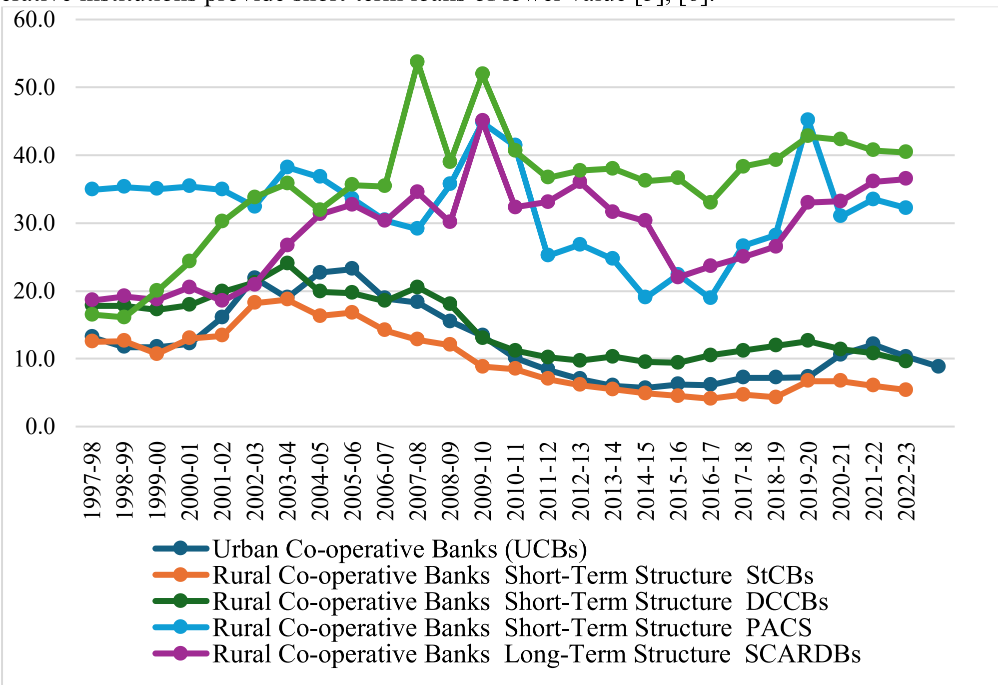

Figure 3.2 Trends in the Gross Non-Performing Assets of Co-Operative Banks in India (Per Cent of Gross Advances)
Source: Authors' Computation based on data from Reserve Bank of India's Handbook of Statistics on Indian Economy [11]

The above figure depicts the trend in Gross Non-performing Asset ratio of the various types co-operative banking institutions in the country, i.e. Urban Co-operative banks (UCBs), State Co-operative Banks (StCBs), District Central Co-operative banks (DCCBs), Primary Agricultural Credit Societies (PACS), State Co-operative Agriculture and Rural Development Banks (SCARDBs) and the Primary Co-operative Agriculture and Rural Development Banks (PCARDBs) as desegregated categories. The trend lines demonstrate a clear bifurcated structure in the trend of the Gross NPA of the co-operative banking institutions in the country, with the Urban Co-Operative Banks (UCBs), State Co-operative Agriculture and Rural Development Banks (SCARDBs), and the Primary Co-operative Agriculture and Rural Development Banks (PCARDBs) representing one cluster and the State Co-operative Banks (StCBs), District Central Co-operative banks (DCCBs), and Primary Agricultural Credit Societies (PACS) representing the other cluster. Therefore, the former cluster, consisting of short-term credit structure rural co-operative banking institutions and Urban Co-operative Banks (UCBs), has recorded relatively lower Gross NPA ratios, while the latter cluster, consisting of long-term credit rural co-operative banking institutions and Primary Agricultural Credit Societies (PACS), has maintained relatively higher Gross NPA ratios. The PACS behaves as a volatile intermediate outlier, periodically spiking toward the levels of the long-term structure before reverting to the upper end of the short-term cluster. The long-term credit structure co-operative banking institutions, the SCARDBs and the PCARDBs, demonstrate high GNPA ratios throughout the study period, with their trend lines never overlapping very minimally with other categories (except PCAS) of co-operative banking institutions in the country after the early 2000s and no discernible convergences in the most recent years. The trend analysis here illustrates that the NPA situations of the co-operative banking sector in the country are not homogeneous and are heterogeneous in nature. The policy addressing the co-operative sector in the country and its NPA situation needs to consider this heterogeneity.

Table 3.2 Compound Annual Growth Rate (CAGR) of Gross NPA Ratio in India (1996-97 to 2022-23)

Category	First Year (Value %)	Last Year (Value %)	No. of Years	CAGR (%)
Urban Co-operative Banks (UCBs)	1996-97 (13.2%)	2022-23 (8.8%)	27	-1.49%
State Co-operative Banks (StCBs)	1997-98 (12.5%)	2022-23 (5.4%)	26	-3.18%
District Central Co-operative Banks (DCCBs)	1997-98 (17.8%)	2022-23 (9.6%)	26	-2.35%
Primary Agricultural Credit Societies (PACS)	1996-97 (34.9%)	2021-22 (32.2%)	26	-0.31%
State Co-operative Agriculture and Rural Development Banks (SCARDBs)	1997-98 (18.6%)	2022-23 (36.5%)	26	2.63%
Primary Co-operative Agriculture and Rural Development Banks (PCARDBs)	1997-98 (16.5%)	2022-23 (40.4%)	26	3.50%

Source: Authors' Computation based on data from Reserve Bank of India's Handbook of Statistics on Indian Economy [11]

Table 3.2 presents the $CAGR_{GNPA\ Ratio}$, that is, the Compound Annual Growth Rate (CAGR) of the Gross Non-Performing Assets (GNPA) ratios for each of the six categories of co-operative banking structures in the country during the study period (1996-97 to 2022-23). The CAGR of the GNPA ratios is calculated using the following formula:

$$CAGR_{GNPA\ Ratio} = \left(\frac{Last\ Year\ GNPA\ Ratio\ Value}{First\ Year\ GNPA\ Ratio\ Value}\right)^{\frac{1}{n}} - 1 \qquad (1)$$

where n denotes the number of annual observations made for each data point for each series. The CAGR analysis of the GNPA ratios of the various types of the co-operative banking institutions reveals a clear and analytically significant bifurcation in the compounded direction of and quality change across the sector.

Urban Co-operative banks (UCBs) recorded a $CAGR_{GNPA\ Ratio}$ of -1.49% in the GNPA ratio over the 27 years (1996-97 to 2022-23). The $CAGR_{GNPA\ Ratio}$ of UCBs decreased from 13.2% (1996-97) to 8.8% (2022-23), indicating a modest but genuine compounded annual improvement in the asset quality of UCBs. This decrease in the GNPA ratio of UCBs is consistent with the consolidation of weaker UCBs through licence cancellations and mergers, together with progressively tightened supervisory norms that have characterised the segment since the mid-2000s [13].

The examination of short-term rural credit structure co-operative banking institutions reveals a mixed picture. The State Co-operative Banks (StCBs) recorded the steepest decline in the GNPA ratio of any category in the dataset, with a $CAGR_{GNPA\ Ratio}$ of -3.18%. The District Central Co-operative Banks (DCCBs) recorded a comparably strong decline of -2.35%. Primary Agricultural Credit Societies (PACS), on the other hand, recorded a $CAGR_{GNPA\ Ratio}$ of only -0.31%, demonstrating that the asset quality of the PACS in the country remained unchanged on a compounded annual basis during the study period. The low $CAGR_{GNPA\ Ratio}$ of PACS is consistent with the proven structural vulnerabilities of PACS, since they are minimally diversified, village-

JAMEK (JURNAL AKUTANSI MANAJEMEN EKONOMI DAN KEWIRAUSAHAAN)
Vol 06, No 02, Bulan Mei 2026
ISSN 2774-809X (media online)
Hal 455-464

level institutions whose credit quality is driven more by episodic agricultural shocks than by a sustained directional trend (Mishra et al.,2021; [13].

Notably, only the banking institutions in the long-term credit structure cluster exhibit a positive $CAGR_{GNPA\ Ratio}$ among the co-operative banking institutions in the country during the study period. While the SCARDBs recorded a $CAGR_{GNPA\ Ratio}$ of +2.63%, the PCARDBs recorded the highest $CAGR_{GNPA\ Ratio}$ among all categories of co-operative banking institutions in the country, +3.50%. When expressed in compounded annual terms, these $CAGR_{GNPA\ Ratio}$ values confirm that the GNPA ratios of the long-term credit structure rural banking institutions have remained persistently high and that the long-term credit structure rural banking institutions have undergone a genuine, sustained, year-on-year worsening of asset quality across the study period. It is significant that this trajectory of the $CAGR_{GNPA\ Ratio}$ is markedly different from every other category in the co-operative sector of the country.

The positive $CAGR_{GNPA\ Ratio}$ of the long-term credit structure rural co-operative banking institutions, marking a divergence from other categories of co-operative banking institutions in the country, is explained by the distinct risk architecture of long-gestation agricultural credit. Long-gestation agricultural credit finances land development, irrigation, and farm mechanisation over multi-year repayment horizons. This exposes the long-term credit structure of banking institutions and their long-gestation agricultural credit to compounding agricultural income risk across the life of the loan, combined with historically weaker recovery infrastructure relative to short term co-operative credit [14].

The results of the $CAGR_{GNPA\ Ratio}$ analysis are similar to the findings of the trend analysis of the GNPA ratio of the co-operative banking institutions in the country. The $CAGR_{GNPA\ Ratio}$ analysis reveals that the reform and consolidation appear to have generated a genuine compounding improvement in the urban and short-term credit structure rural co-operative banking institution segments (UCBs, StCBs, DCCBs), a broadly flat compounded trajectory in the GNPA ratio of PACS, and a compounding deterioration in the long-term credit structure rural co-operative banking institutions (SCARDBs, PCARDBs).

4. TESTING AND IMPLEMENTATION

The segment-wise analysis of the GNPA ratios for India's co-operative banking institutions from 1997-98 to 2022-23, highlights the shifts in the relative burden of non-performing assets across different tiers of the credit structure. The Primary Agricultural Credit Societies (PACS) recorded the highest Gross Non-performing Assets (GNPA) ratios in the early years, reflecting their extensive rural borrower base. From 2005-06 onward, PCARDBs generally exhibited the highest GNPA ratios, except in 2008-09 and 2018-19 when PACS again peaked. In subsequent years, SCARDBs also showed persistently high GNPA ratios, rising from their initial levels and remaining elevated throughout the period. In contrast, UCBs, StCBs, and DCCBs maintained comparatively low GNPA ratios, although their values fluctuated over time. When grouped by credit structure, long-term credit structure rural banking institutions consistently displayed higher GNPA ratios than short-term credit structure rural banking institutions and urban co-operative banks. The exception within the short-term structure was PACS, whose GNPA ratios remained among the highest owing to their role as the primary credit providers to rural households and farmers, resulting in a large and risk-prone borrower base. The relatively higher GNPA ratios of long-term institutions are understandable, given their focus on high-value, long-duration loans, whereas short-term institutions typically extend smaller, short-tenure credit with lower default risk.

The shift in GNPA ratios of the various types of co-operative banking institutions indicates that the asset qualities and GNPA ratios of the urban and short-term credit structure rural banking institutions have improved (except for the PCAS) as long-term credit structure rural banking institutions have come to account for progressively larger shares of the Indian co-operative sector's asset-quality stress. This has a direct bearing on policy and regulatory design, as it reveals that the present regulatory interventions in the co-operative sector, such as the Banking Regulation (Amendment) Act,2020 address the issues in UCBs and the aggregate asset quality stress in the co-operative sector of India but overlook the segments that are dominant sources of co-operative sector NPA stress in India [13], [10].

The trend analysis of the GNPA ratios of the various categories of co-operative banking institutions in India reveals two distinct clusters. UCBs, StCBs, and DCCBs form a low-GNPA cluster, while PACS, SCARDBs, and PCARDBs consistently exhibit higher GNPA ratios. PACS behaves as a volatile outlier, periodically spiking toward long-term credit institutions before returning to the upper range of the short-term cluster. SCARDBs and PCARDBs maintained persistently high GNPA levels, with minimal overlap with other institutions after the early 2000s. The trend analysis demonstrates significant heterogeneity in NPA patterns across the co-operative banking sector, underscoring the need for differentiated policy responses. The differentiated policy response is necessitated by the failure of the reforms, consolidation, and supervisory tightening that has delivered improvements in asset quality and NPAs for UCBs, StCBs, and DCCBs, which have not had a similar positive effect on the long-term credit structure rural banking institutions. This is because the trajectory of the GNPA ratios of the long-term credit structure rural banking institutions seems to be driven by different structural and agricultural sector dynamics [15], [14], [13].
The results of the $CAGR_{GNPA\ Ratio}$ analysis of the various categories of co-operative banking institutions indicate an improvement in the asset quality of the short-term credit structure and a deterioration in the asset quality of the long-term credit structure. This finding has direct implications for the design of regulatory interventions, such as the Banking Regulation (Amendment) Act, 2020, which has primarily focused on the governance features of UCBs, as demonstrated by cases such as the collapse of the Punjab and Maharashtra Co-operative (PMC) bank [10]. The evidence from the $CAGR_{GNPA\ Ratio}$ analysis of the various types of co-operative banking institutions in the country suggests that similar policy interventions are required for the long-term credit structure rural co-operative banking institutions, as the compounded asset quality trajectory of the long-term credit structure rural co-operative banking institutions remains a concerning trend in the co-operative sector of the country.

5. CONCLUSION

This study conducted a descriptive, trend-based, and CAGR-based examination of the Gross Non-performing Assets of the various segments of India's co-operative banking sector over more than a quarter of a century. The findings of the study point to a clear bifurcation with regard to the Gross NPA ratio situation of the various segments of the co-operative sector during this period, with the Urban Co-operative banks and the short-term rural credit structure (StCBs and DCCBs) achieving sustained improvement in asset quality, while the long-term rural cooperative credit structure (SCARDBs and PCARDBs) recording a deterioration in asset quality over the same period.
These findings have direct implications for policy design, as they suggest that policy attention has been asymmetrically concentrated on the urban cooperative segment, while the long-term rural credit structure, arguably in more urgent need of intervention, has received comparatively less sustained reform focus. A more comprehensive strategy addressing governance, professional management, regulatory coherence, and category-specific recovery infrastructure across the entire cooperative credit structure is imperative for ensuring the long-term sustainability of India's cooperative banking sector and its continued role in extending credit to underserved rural and urban populations.

REFERENCES

[1] R. S. Kumar and Dr. I. Prasad, "NPA: Conceptual exposition," *Int. J. Finance Manage.*, vol. 7, no. 1, pp. 545–548, Jan. 2024, doi: 10.33545/26175754.2024.v7.i1f.335.
[2] Reserve Bank of India, "REPORT ON TREND AND PROGRESS OF BANKING IN INDIA 2023-24," Reserve Bank of India, 2024. [Online]. Available: https://rbi.org.in/Scripts/AnnualPublications.aspx?head=Trend+and+Progress+of+Banking+in+India
[3] Reserve Bank of India, "REPORT ON TREND AND PROGRESS OF BANKING IN INDIA 2024-25," Reserve Bank of India, 2025. [Online]. Available: https://rbi.org.in/Scripts/AnnualPublications.aspx?head=Trend+and+Progress+of+Banking+in+India
[4] National Bank for Agriculture and Rural Development, "Empowering rural financial institutions [Chapter, Annual Report 2023-24]," NABARD, 2024. [Online]. Available: https://www.nabard.org/annual-report/empowering-rural-financial-institutions.html
[5] P. Ranjan, "Cooperative banks in India: A critical examination of structure, performance, and reform imperatives," *Journal of Academic Trends & Innovative Research*, vol. 2, no. 6, pp. 2888–2897, 2026.

[6] V. M. Chaudhari and M. Farmer, "An empirical study of structure and performance of State Co-operative Agriculture and Rural Development Banks and affiliated Primary Cooperative Agriculture and Rural Development Banks in India," *Gujarat Journal of Extension Education*, vol. 33, no. 1, pp. 45–52, 2022.
[7] A. Bala, "Non- performing Assets in Co-operative Banks," *RRIJM*, vol. 6, no. 5, May 2021, doi: 10.31305/rrijm.2021.v06.i05.022.
[8] J. C. Juhi Chaturvedi and Dr. K. D. Dr. Kavita Dive, "A Study of the Banking System and Urban Co Operative Banks in India," *IJITM*, vol. 18, no. 2, pp. 28–34, Sep. 2024, doi: 10.29070/k6tfz273.
[9] M. K. Mishra and S. Dharmaraj, "RBI's Role in Prompting the Compliance and Stability of Primary (Urban) Cooperative Banks," *maj*, pp. 80–83, Jul. 2024, doi: 10.33516/maj.v59i7.80-83p.
[10] M. R. Shakeel, T. A. Siddiqui, and S. Siddiqui, "PMC Bank Debacle: A Failed Corporate Governance Case," *Emerging Economies Cases Journal*, vol. 7, no. 2, pp. 62–66, Dec. 2025, doi: 10.1177/25166042241274843.
[11] Reserve Bank of India, "Table 59 : Gross Non-Performing Assets of Co-Operative Banks," Reserve Bank of India, 2024. [Online]. Available: https://www.rbi.org.in/SCRIPTs/PublicationsView.aspx?id=22533
[12] N. Sahore, "Study on Primary Agricultural Cooperative Credit Societies financial management in Indian states", *Journal of Informatics Education and Research*, vol. 4, no. 3, pp. 2723–2730, 2024.
[13] Reserve Bank of India, "Report of the Expert Committee on Urban Co-operative Banks," Reserve Bank of India, 2021. [Online]. Available: https://nafcub.org/assets/docs/latest-news/Report%20of%20Expert%20Committee%20on%20Urban%20Cooperative%20Banks%20-%20July%2031,%202021.pdf
[14] P. Chavan and L. Gambacorta, "Bank lending and loan quality: the case of India," Monetary and Economic Department, Bank for International Settlements, BIS Working Papers 595, 2016. [Online]. Available: https://www.bis.org/publ/work595.pdf
[15] S. Y. Deshpande, P. Ingale, and S. Walke, "Importance of cooperative credit system in Indian economy: Role of short-term and long-term cooperative credit structure & urban cooperative banks," *Vaikunth Mehta National Institute of Cooperative Management*, 2023.