Unleashing the Operational Efficiency of the DCCB, Mahabubnagar: A Study

[1]Prof. I. Anand Pawar, [2]V. Chakravarthy
[1]Dean, Faculty of Commerce & Business Management
Head, Dept of Business Management
Dr. B.R. Ambedkar Open University
Hyderabad - 500 033. (TS) India
Email: anandpawar@braou.ac.in
[2]Ph.D. Research Scholar
Faculty of Commerce & Business Management
Dr. B.R. Ambedkar Open University
Hyderabad - 500 033. (TS) India
Email: vcvadvca@gmail.com

ABSTRACT

Purpose: This study examined the operational efficiency of the District Cooperative Central Bank Ltd., Mahabubnagar (henceforth referred to as 'the DCCB') in Telangana State over a five-year study period, spanning from 2018-2019 to 2022-2023.

Research Methodology: This research employed statistical tools such as trend analysis and Data Envelopment Analysis (DEA) methodology to thoroughly assess the DCCB's operational performance during the specified study period. The methodology involved a comprehensive analysis of financial data and variables to evaluate the DCCB's efficiency, cost management strategies, and overall operational effectiveness.

Findings: The analysis unveiled significant insights into the DCCB's operational efficiency. A notable increase in the Cost of Funds in the 2019-2020 financial year highlighted the imperative for enhanced cost management strategies. Conversely, the successful reduction of the Cost of Deposits showcased the DCCB's effective cost-control measures. Additionally, a considerable decrease in Fixed Assets indicated the need for more efficient asset management. However, the study's results exhibited relatively low efficiency in managing employee costs, indicating a potential area for improvement in managing employee costs. By the 2022-2023 financial year, the DCCB had achieved an efficiency level equal to the base year, signifying substantial improvements in operational efficiency between 2019-2020 and 2021-2022.

Conclusion: This study underscores the importance of continuous adaptation and improvement within the ever-evolving financial landscape faced by District Cooperative Central Banks (DCCBs). It highlights the necessity for vigilant cost monitoring and control across all operational dimensions, ensuring the maintenance of an efficient cost structure while upholding exceptional service standards.

Keywords: Cost of funds, cost management strategies, DCCB, DEA, operational efficiency.

1. INTRODUCTION

Cooperatives in India have traditionally played a pivotal role in addressing rural indebtedness and poverty by offering affordable financing options to farmers (Raju, 2018). This three-tiered cooperative banking system comprises State Cooperative Apex Banks (SCABs) at the top, District Cooperative Central Banks (DCCBs) in the middle, and Primary Agricultural Credit Societies (PACS) at the base (Vaidyanathan, 2013).

While SCABs represent 21.2% of rural cooperatives' assets, DCCBs and PACS contribute 48.6% and 25.3%, respectively, making up a substantial portion of the total asset size of all cooperative banks in India (RBI, 2019-20). These rural cooperatives boast an extensive reach, serving over 120 million customers (Muley, 2007).

Cooperative banks, by definition, are financial institutions owned and operated by their members, who share common local, professional, or community interests (J Rajesh, 2018). They offer a wide array of banking and financial services, including loans, deposits, and banking accounts, distinguishing them from shareholder banks based on their organizational structure, values, and governance. Cooperative banks, much like shareholder banks, adhere to prudential banking regulations overseen by banking authorities in most countries. The supervision and control mechanisms can be managed directly by state entities or delegated to a cooperative federation or central body, depending on the nation's regulatory framework.

In India, cooperatives operate as democratically controlled entities, established to serve their members and depositors, providing them with enhanced benefits and services. With over a century of existence in India, cooperative banks play a pivotal role in the nation's financial system. The three-tier cooperative banking structure comprises State Cooperative Banks at the apex, Cooperative Central Banks at the intermediate level, and Primary Cooperative Credit Societies at the grassroots level (Prakash V, 2018).

Cooperative Central Banks are typically situated in district headquarters or prominent towns within a district. District Cooperative Central Banks, abbreviated as DCCBs, hold a significant position within the cooperative credit system, acting as advocates for the cooperative movement at the district level. DCCBs serve as federations of primary credit societies within a district, with membership from both societies and individuals. The financial resources of DCCBs encompass share capital, deposits, loans, and overdrafts from state cooperative banks and joint stocks. DCCBs extend financial support to member societies within their borrowing capacity and engage in various banking operations, akin to joint-stock banks.

In cooperative banking, the role of finance and financial management is vital, especially in the unique context of cooperative enterprises (Athmakaran Reddy P, 2018). The efficient financial functioning of DCCBs hinges on factors such as bad debts, excessive overdue payments, and prudent investments. Thus, analyzing the performance of loan operations conducted by DCCBs becomes crucial. This analytical study aims to assess the loan operation performance of DCCBs, identify any shortcomings, and shape loan operation policies and programs for the benefit of the cooperative banking community.

2. REVIEW OF LITERATURE

Over the years, a series of comprehensive studies have delved into the multifaceted landscape of cooperative banking, shedding light on critical aspects such as operational efficiency, performance disparities, and the evolving challenges faced by these financial institutions. This review synthesizes key findings from a range of studies conducted between 1996 and 2023, each contributing valuable insights into the dynamic world of cooperative banking in India.

In 1996, Sivaprakasam studied default problems in agricultural credit cooperatives, emphasizing the importance of efficient banking systems for economic health and identifying short-term agricultural credit factors that lead to defaults.

In 2015, Singh analyzed the operational efficiency of DCCBs in Punjab, emphasizing the transformation of these banks from serving only farmers to providing comprehensive banking services. Additionally, Singh highlighted the importance of maintaining efficiency for the long-term sustainability of these banks.

In 2015, Rao and Gudala conducted a performance appraisal of DCCBs in Andhra Pradesh. They used the Malmquist Index and Super-Efficiency model, revealing performance disparities among these banks and the need for additional financial resources to optimize their efficiency.

In 2016, G. Syamni and M. Majid investigated the efficiency of Saving and Credit Cooperative Units in North Aceh, Indonesia. They discovered suboptimal efficiency levels and highlighted the importance of measures to enhance operational efficiency and bolster capital reserves.

In 2016, Rani D. Uma emphasized the significance of finance in agriculture, tracing the evolution of Indian agriculture and the role of cooperative credit structures in increasing productivity.

In 2017, Sarthak Gaurav and Jisha Krishnan conducted a study on the efficiency of cooperative banks in India, revealing variations in efficiency across states and highlighting the need for innovative strategies to improve efficiency.

In 2018, Raju analyzed the efficiency of Urban Cooperative banks, focusing on core banking and off-balance sheet activities and highlighting the need for strategic measures to improve efficiency.

In 2019, Chinmaya, Prafulla, and Manoranjan evaluated the efficiency of DCCBs in Odisha, emphasizing the variability in their performance and the need for targeted improvements.

In 2021, Sabina Batra discussed the problem of non-performing advances or assets (NPAs) in cooperative banks. She identified the factors contributing to NPAs and examined the impact of NPA norms on different aspects of these banks. She emphasized the significance of selecting appropriate loans and monitoring credit effectively.

In 2022, Zaman, Zaman, and Khan analyzed the decreasing efficiency of rural cooperative banks in India and the urgent need to improve risk management practices and lending operations.

In 2023, Shamim and Monika conducted a study on the challenges faced by cooperative banks, specifically regarding deposit and liquidity management and the decline in asset quality. They stressed the importance of efficiency for the banks' long-term survival and suggested potential areas for improvement, such as better management of non-performing assets and increased borrowing.

3. RESEARCH GAP

In the existing body of research on cooperative banks in India, several studies have examined the operational efficiency and performance of District Cooperative Central Banks (DCCBs) across various states. These studies have employed diverse methodologies, including DEA, financial efficiency measurement, and performance appraisal, to assess the efficiency levels of DCCBs in different regions. They have highlighted factors contributing to variations in efficiency and the need for targeted strategies to improve the performance of these banks.

Additionally, research has explored issues related to Non-Performing Assets (NPAs) and their impact on the financial stability of cooperative banks, shedding light on the challenges and potential solutions in this context.

However, a research gap exists regarding a specific and detailed study focusing on the operational efficiency of the District Cooperative Central Bank Ltd., Mahabubnagar, in Telangana State, India. While numerous studies have examined DCCBs on a broader scale, there is a lack of in-depth analysis of the DCCB's operational efficiency, which may have unique characteristics and challenges specific to its region.

Hence, the title *"Unleashing the Operational Efficiency of the DCCB, Mahabubnagar: A Study"* addresses this gap and signifies the focus of this research.

4. OBJECTIVES

The study aims to achieve the following objectives:
1. To analyze the key financial operational indicators of the DCCB Ltd., Mahabubnagar.
2. To evaluate the operational efficiency management of the DCCB Ltd., Mahabubnagar.

5. SCOPE AND STUDY PERIOD

This study conducted a comprehensive analysis of the operational efficiency of the DCCB in Mahabubnagar over a five-year financial period spanning from 2018-2019 to 2022-2023. The analysis centered on critical operational efficiency metrics, including cost-to-funds, cost-to-deposits, employee costs, fixed assets, and loans and advances. To assess and evaluate the operational performance of the DCCB during this specified timeframe, statistical tools such as trend analysis and Data Envelopment Analysis (DEA) methodology were employed.

6. RESEARCH METHODOLOGY

The research methodology employed in this study utilizes Data Envelopment Analysis (DEA) methodology as a powerful tool to assess the operational efficiency of cooperative banks, particularly District Cooperative Central Banks (DCCBs). DEA, originally developed by Farrel in 1957 and subsequently refined by Charnes, Cooper, and Rhodes (CCR) in 1978, provides a comprehensive framework for measuring efficiency within Decision-Making Units (DMUs), such as banks. This section provides a detailed overview of the methodology's evolution, its application in banking, and the mathematical equations that underpin DEA efficiency calculations, offering a solid foundation for the subsequent analysis of DCCB efficiency over a specified period.

- *Introduction to Data Envelopment Analysis (DEA):*

Data Envelopment Analysis (DEA) was initially developed by Farrel in 1957 and later modified by Charnes, Cooper, and Rhodes (CCR) in 1978. It is a non-parametric method that employs linear programming to measure the efficiency of comparable Decision-Making Units (DMUs) using multiple inputs and outputs (Klimberg et al., 2009).

- *Basic DEA Efficiency Calculation:*

The fundamental concept of efficiency in DEA is expressed as the ratio of output to input:

Efficiency = Output ÷ Input

However, this simplified approach does not fully represent efficiency when multiple inputs produce single or multiple outputs. Therefore, the original equation was adapted to incorporate multiple inputs and outputs (Zhu and Sherman, 2006).

- *CCR's DEA Model:*

The modification of the efficiency equation resulted in Charnes, Cooper, and Rhodes (CCR) developing the basic DEA model in 1978. This model calculates efficiency as the weighted sum of output divided by the weighted sum of input (Ayadi, 1998; Zhu and Sherman, 2006; Cooper et al., 2006).

Efficiency = Weighted Sum of Output ÷ Weighted Sum of Input

- *DEA Application to Decision-Making Units (DMUs):*

DEA is used to assess the efficiency of groups of firms under study, such as banks or hospitals. It is particularly useful when dealing with a limited number of DMUs (Cooper et al., 2006; Klimberg et al., 2009; Hassan et al., 2009; Ahmad and Luo, 2010).

- *DEA in Banking:*

Sherman modified the DEA model in 1984 to measure banks' performance. Since then, it has been extensively adopted by the global banking industry to evaluate operational efficiency. DEA enables the measurement of efficiency considering multiple inputs and outputs across various DMUs (Sherman and Zhu, 2006).

- *DEA Mathematical Equations:*

The DEA efficiency measure can be expressed mathematically using 'Model One.'

$$\max \frac{\sum_{j=1}^{J} v_{mj} y_{mj}}{\sum_{i=1}^{I} u_{mi} x_{mi}}$$

Such that

$$0 \leq \frac{\sum_{j=1}^{J} v_{mj} y_{nj}}{\sum_{i=1}^{I} u_{mi} x_{ni}} \leq 1; n=1,2,\ldots,N$$

$$v_{mj,} u_{mi} \geq 0; i=1,2,\ldots,I; J=1,2,\ldots,J$$

Variable	Definition
N	Total number of DMUs
J	Weighted sum of outputs
I	Weighted sum of inputs
m	The base DMU (calculating mth DMU)
n	DMUs

Variable	Definition
i	Inputs
j	Outputs
v_{mj}	Weights for output
u_{mi}	Weights for input

However, this fractional form can be challenging to compute. To simplify, in 1978, CCR converted it into a linear programming equation known as 'Model Two' or the output-maximization CCR model. This transformation facilitated calculation and is widely used in DEA analysis (Cooper et al., 2006; Sherman and Zhu, 2006; Ramanathan, 2007; Chen et al., 2008).

$$\max \sum_{J=1}^{J} v_{mj} y_{mj}$$

Such that

$$\sum_{i=1}^{I} u_{mi} x_{mi=1};$$

$$\sum_{j=1}^{J} v_{mj} y_{nj} - \sum_{i=1}^{I} u_{mi} x_{ni \leq 0}; \quad n=1,2,\ldots,N$$

$$v_{mj}, u_{mi} \geq 0; \ i=1,2,\ldots,I; \ j=1,2,\ldots,J$$

- *DEA Efficiency Calculation Process:*

When DEA is applied to measure banks' efficiency among a set of DMUs, it employs a linear programming algorithm to assess each DMU's efficiency using identical inputs and output variables. This process identifies the DMU with the maximum ratio of the weighted sum of output to the weighted sum of input, serving as the benchmark for other DMUs. The best-practice units are positioned on the efficient frontier line, representing relatively efficient DMUs with a DEA efficiency score of 100% (efficiency = 1).

Input and Output Variables: Their Description and Usage to DCCBs

Variables		Description	Usage
Input	Cost of Funds	The average cost of acquiring funds for lending	Helps in assessing the DCCB's efficiency in acquiring funds
	Cost of Deposits	The cost associated with maintaining deposits	Aids in controlling the DCCB's deposit maintenance costs
	Employee Costs	The total staff salaries and other related costs to DCCB	Assists the DCCB in managing its operational costs and budgeting process
	Fixed Assets	Non-current assets say, buildings, equipment, etc.	Indicates the DCCB's infrastructure position
Output	Loanable Funds (Deposits and Borrowing)	Total funds available for lending	Guides the lending strategies and capital allocation by the DCCB

Source: Compiled by the Authors

In the context of assessing the operational efficiency of the DCCB, Mahabubnagar using DEA methodology, the following independent variables and their descriptions can be defined, with the dependent variable being "Loans and Advances." As DEA is a methodology for evaluating the relative efficiency of entities, such as banks, by comparing their inputs to outputs, the present study considered these financial variables as inputs (Four) and output (One).

- **Cost of Funds** *(Independent Variable)***:** This variable represents the total expenses incurred by the DCCB to acquire funds for its operations. It encompasses interest paid on deposits, borrowings, and other sources of funds. A lower cost of funds ratio (i.e., Costs of funds to Total Funds acquired) suggests efficient management of capital, potentially indicating a cost-effective financial strategy.
- **Cost of Deposits** *(Independent Variable)***:** The cost of deposits includes the expenses related to maintaining and servicing deposit accounts, including interest paid to depositors. Lower costs in this category indicate efficient management of deposit accounts, implying that the bank is effectively utilizing its deposits to generate revenue.
- **Employee Costs** *(Independent Variable)***:** Employee costs encompass the expenses associated with the workforce, including salaries, benefits, and related operational expenses. A lower employee costs typically indicate efficient staffing levels, productive workforce, and effective cost management in labour-related expenses.
- **Fixed Assets** *(Independent Variable)***:** This variable represents the capital investment in fixed assets, such as buildings, equipment, and infrastructure used in the bank's operations. Efficient utilization of fixed assets implies that the bank is optimizing its long-term investments, resulting in lower costs and higher productivity.
- **Loans and Advances** *(Dependent Variable):* Loans and advances are a key revenue-generating function for the bank. This variable represents the amount of loans disbursed by the DCCB to its customers. It is considered as the primary output of the DCCB's operations in this context. Higher loans and advances typically indicate a more profitable and productive operation.

In a DEA, the objective is to determine the efficiency of the DCCB in transforming the independent variables (inputs) into the dependent variable (output). Efficiency scores are computed, with values ranging from '0 to 1', where '1' represents perfect efficiency. Lower values suggest room for improvement. The DEA model assesses how well the bank utilizes its resources (cost of funds, cost of deposits, employee costs and fixed assets) to maximize loans and advances while considering other banks as benchmarks for comparison. This analysis helps identify areas where the DCCB can enhance its operational efficiency by optimizing resource allocation and minimizing costs.

7. DATA ANALYSIS AND INTERPRETATION

Objective 1: To analyze the key financial operational indicators of DCCB, Mahabubnagar.

The study analyzed the financial operational indicators of the DCCB, which are crucial for the improvement of loans and advances. The study used data from 2018-2019 to 2022-2023.

Table 1: Cost of Funds of the DCCB

Financial Years	Cost of Funds *(To Re. 1 of Total Funds)*
2018-2019	0.0148
2019-2020	0.0628
2020-2021	0.0611
2021-2022	0.0579
2022-2023	0.0596

Source: Annual Reports of the DCCB (2018-19 to 2022-23)

The table displays the Cost of Funds of DCCB Ltd. in Mahabubnagar, Telangana State. In 2018-2019, the Cost of Funds was recorded at 0.0148, indicating relatively low costs compared to the available funds. However, there was a noticeable increase of Cost of Funds in 2019-2020, reaching 0.0628, suggesting a significant rise in operational expenses relative to the available funds. In 2020-2021, the Cost of Funds remained high at 0.0611, indicating the need for effective cost management. Fortunately, in 2021-2022 and 2022-2023, there was a slight decrease in it, with values of 0.0579 and 0.0596, respectively.

This study suggests that, to control the cost of funds, DCCBs can focus on optimizing their interest rates on deposits and loans while efficiently managing operational expenses. Lowering the cost of funds positively impacts DCCBs by improving profitability and ensuring competitive financial services for their members.

Table 2: Cost of Deposits of the DCCB

Financial Years	Cost of Deposits *(To Re. 1 of Total Deposits)*
2018-2019	0.0666
2019-2020	0.0586
2020-2021	0.0527
2021-2022	0.0509
2022-2023	0.0516

Source: Annual Reports of the DCCB (2018-19 to 2022-23)

The table displays the Cost of Deposits of DCCB Ltd. in Mahabubnagar, Telangana State. The study focused on the financial operational indicators of DCCB, Mahabubnagar, for a five-year period from 2019 to 2023. In 2019, the Cost of Deposits was relatively high at 0.0666, indicating significant expenses relative to the total deposits held. However, a noticeable declined Cost of Deposits occurred in subsequent years, reaching 0.0586 in 2020, 0.0527 in 2021, 0.0509 in 2022, and 0.0516 in 2023. These decreasing scores suggest successful efforts in controlling the cost of deposits over the years, reflecting positively on the bank's financial health.

The study concludes that to control the cost of deposits, DCCBs can consider strategies such as optimizing interest rates on deposits, managing liquidity efficiently, and diversifying funding sources. Lowering the cost of deposits positively impacts DCCBs by enhancing their profitability and liquidity position. It allows DCCBs to allocate more resources toward productive lending activities and provides a competitive edge in the market, ultimately benefiting both the institution and its members.

Table 3: Employee Costs of the DCCB

Financial Years	Employee Costs (₹' Lakhs)
2018-2019	990
2019-2020	1133
2020-2021	1236
2021-2022	1419
2022-2023	1587

Source: Annual Reports of the DCCB (2018-19 to 2022-23)

The table shows the Employee Costs of DCCB Ltd. in Mahabubnagar, Telangana State. The study focused on the financial operational indicators of DCCB, Mahabubnagar, for a period of five years from 2018-19 to 2022-23. In 2018-19, the Employee Costs stood at 990 and gradually increased over the subsequent years, reaching 1133 in 2019-20, 1236 in 2020-21, 1419 in 2021-22, and 1587 in 2022-23. This signifies a consistent upward trend in employee-related expenses, which is an important aspect of the bank's operational costs.

The study concludes that to control Employee Costs, DCCBs can consider measures such as optimizing staffing levels, implementing cost-effective training programs, and leveraging technology for process efficiencies. Managing Employee Costs effectively impacts DCCBs by contributing to overall cost control, which can enhance the institution's profitability and competitiveness in the financial market. Efficient cost management allows DCCBs to allocate resources more efficiently, support sustainable growth, and better serve their members' financial needs.

Table 4: Fixed Assets of the DCCB

Years	Fixed Assets (₹' Lakhs)
2018-2019	1220.192
2019-2020	126.3213
2020-2021	115.8847
2021-2022	980.9299
2022-2023	889.9738

Source: Annual Reports of the DCCB (2018-19 to 2022-23)

The table displays the Fixed Assets of DCCB Ltd. in Mahabubnagar, Telangana State. The study focused on the financial operational indicators of DCCB, Mahabubnagar, for a five-year period from 2018-19 to 2022-23. The table reveals that in 2018-19, the bank had substantial Fixed Assets, amounting to 1220.192. However, over the subsequent years, there was a notable decrease in Fixed Assets, with values of 126.3213 in 2019-20, 115.8847 in 2020-21, 980.9299 in 2021-22, and 889.9738 in 2022-23. This suggests a significant shift in the DCCB's asset composition over this period.

The study suggests that to control Fixed Assets, DCCBs can consider strategies such as periodic evaluation and disposal of underutilized assets, efficient maintenance practices, and strategic planning for asset acquisitions. Managing Fixed Assets effectively can have a positive impact on DCCBs by optimizing resource allocation, improving liquidity, and potentially reducing depreciation expenses. This allows DCCBs to maintain a balanced and adaptable financial structure, ensuring they remain agile and competitive in the ever-changing banking landscape.

Table 5: Loans & Advances of the DCCB

Financial Years	Loans &Advances (₹' Lakhs)
2018-2019	68528.63
2019-2020	71263.21
2020-2021	86399.13
2021-2022	87830.77
2022-2023	97267.05

Source: Annual Reports of the DCCB (2018-19 to 2022-23)

The table displays the Loans and Advances of DCCB Ltd. in Mahabubnagar, Telangana State. The study focused on the financial operational indicators of the DCCB, for a five-year period from 2018-19 to 2022-23. In the table, the trend reveals consistent growth in Loans and Advances, starting at 68,528.63 in 2018-19 and steadily increasing to 97,267.05 in 2022-23. This demonstrates the DCCB's proactive approach to extending credit to its members and potentially expanding its lending portfolio.

This indicates that to maintain a favorable Loans and Advances, DCCBs must focus on prudent lending practices, risk assessment, and portfolio diversification while ensuring that loans are provided to creditworthy borrowers. A healthy Loans & Advances position positively impacts DCCB by generating interest income, fostering economic development in the community, and enhancing the DCCB's overall profitability. However, it is essential to strike a balance to mitigate credit risk and ensure the long-term sustainability of the institution.

Objective 2: To evaluate the operational efficiency management of the DCCB, Mahabubnagar.

The study examines the operational efficiency of the DCCB of Mahabubnagar with the application of the DEA methodology.

Table 6: Efficiency of Cost of Funds with Total Loans of the DCCB

Financial Year	CRSTE	VRSTE	Scale Efficiency
2018-2019	1	1	1
2019-2020	0.245	0.733	0.334
2020-2021	0.305	0.888	0.344
2021-2022	0.328	0.913	0.359
2022-2023	0.352	1	0.352

Source: Annual Reports of the DCCB (2018-19 to 2022-23)

The table above depicts the Efficiency of Cost of Funds with Total Loans for the DCCB over five years, from 2018-19 to 2022-23. It employs the DEA methodology to assess the DCCB's operational efficiency. The DEA's results reveal that in 2019, the 'CRSTE' (Constan Returns to Scale Technical Efficiency) scores were higher than the corresponding 'VRSTE' (Variable Returns to Scale Technical Efficiency) scores. In the year 2020-21, there was a slight improvement in both efficiency ratios, with 'CRSTE' increasing to 0.305 and 'VRSTE' to 0.888. This may suggest that the bank is making progress in managing its costs and optimizing its utilization of funds and loans.

The table also shows that in 2022-23, 'CRSTE' reaches 0.352, and 'VRSTE' equals 1, indicating that the bank has achieved an efficiency level equal to the base year in terms of cost of funds and Loans and Advances. It is noteworthy that 'VRSTE' being equal to 1 in 2022-23 suggests that the bank has become highly efficient in managing costs related to its total loans. The table reveals a gradual improvement in the DCCB's operational efficiency in managing costs relative to funds and total loans over the five years, with the most significant gains occurring between 2019-20 and 2021-22. The study suggests that to enhance the efficiency of cost of funds with total loans, the DCCB of Mahabubnagar can focus on reducing operational costs, optimizing fund allocation, and implementing effective loan management strategies. Streamlining processes, enhancing resource utilization, and rigorously monitoring expenses can help achieve higher efficiency levels.

Table 7: Efficiency of Cost of Deposits with Total Loans of the DCCB

Financial Year	CRSTE	VRSTE	Scale Efficiency
2018-2019	0.546	0.705	0.775
2019-2020	0.645	0.733	0.881
2020-2021	0.87	0.888	0.979
2021-2022	0.915	1	0.915
2022-2023	1	1	1

Source: Annual Reports of the DCCB (2018-19 to 2022-23)

The table above depicts the efficiency of Cost of Deposits with Total Loans for the DCCB over five years, from 2019 to 2023. It employs the DEA approach to evaluate the bank's operational efficiency. The DEA method results reveal that in 2019, the efficiency of Cost of Deposits 'CRSTE' is 0.546, indicating that the bank's cost-of-deposits efficiency was below par. However, the 'VRSTE' ratio at 0.705 suggests relatively better performance in managing costs concerning total loans. Over the subsequent years, there is a notable upward trend in both ratios. In 2020, 'CRSTE' improved to 0.645, and 'VRSTE' remained stable at 0.733. In 2022, both ratios exhibit further progress, with 'CRSTE' at 0.915, and 'scale efficiency' reaching 1, indicating that the bank has achieved highly efficient cost-of-deposits and Loans and Advance management, respectively. By 2022-23, both ratios peak at 1, suggesting that the DCCB, Mahabubnagar has attained an optimal level of efficiency, aligning its costs of deposits and loans effectively.

The table concludes that to enhance the efficiency of cost of deposits with total loans, the DCCB, Mahabubnagar should focus on reducing operational expenses through process optimization, embracing digital banking technologies to streamline operations, and implementing stricter cost controls. Simultaneously, the DCCB should explore strategies for boosting deposit growth and improving loan portfolio quality to enhance the ratio and overall financial health.

Table 8: Efficiency of Employee Costs with Total Loans of the DCCB

Financial Year	CRSTE	VRSTE	Scale Efficiency
2018-2019	0.489	0.881	0.556
2019-2020	0.445	0.861	0.517
2020-2021	0.494	1	0.494

2021-2022	0.438	0.954	0.459
2022-2023	0.433	1	0.433

Source: Annual Reports of the DCCB (2018-19 to 2022-23)

The table above presents the Efficiency of Employee Cost with Total Loans at the DCCB Ltd., Mahabubnagar, over five financial years from 2018-19 to 2022-23, aiming to assess the DCCB's efficiency in managing employee costs relative to total loans. The table shows that in 2018-19, the efficiency of employee cost 'CRSTE' is 0.489, indicating that the bank's employee expenses efficiency was relatively low. However, the 'VRSTE' ratio at 0.881 suggests more efficient management of employee costs concerning total loans. However, the table also depicts that in 2021-22, 'CRSTE' decreases again to 0.438, reflecting a decrease in cost efficiency, while 'VRSTE' remains strong at 0.954. In the year 2022-23, there is a minor improvement in 'CRSTE' at 0.433, while 'VRSTE' remains at 1, indicating that the bank has maintained a high level of efficiency in managing employee costs concerning total loans.

The table suggests that the DCCB, Mahabubnagar, may use workforce optimization, employee training, and development to raise productivity and automate routine jobs to minimize staffing requirements to enhance efficiency in personnel costs with total loans. Monitoring and aligning workforce numbers with loan demand can help enhance cost management within the bank's loan portfolio and operational efficiency.

Table 9: Efficiency of Fixed Assets with Total Loans in the DCCB

Financial Years	CRSTE	VRSTE	Scale Efficiency
2018-2019	0.075	0.705	0.107
2019-2020	0.757	0.823	0.919
2020-2021	1	1	1
2021-2022	0.12	0.903	0.133
2022-2023	0.147	1	0.147

Source: Annual Reports of the DCCB (2018-19 to 2022-23)

The table provides the Efficiency of Fixed Assets with Total Loans at the DCCB over five years, from 2018-19 to 2022-23, designed to assess the DCCB's ability to efficiently manage fixed assets relative to its total loans. The table shows that in 2018-19, the efficiency of Fixed Assets 'CRSTE' is notably low at 0.075, indicating that the bank's fixed assets efficiency was relatively inefficient compared to the base year. However, the 'VRSTE' of Fixed Assets at 0.705 suggests that the bank is relatively more efficient in managing fixed assets concerning total loans. In 2020-21, both 'CRSTE' and 'VRSTE' reach the optimal level of 1, indicating that the bank has achieved a perfect balance in terms of fixed assets and total loans efficiency. This suggests highly efficient utilization of fixed assets in line with its loan portfolio. However, in subsequent years, there was a slight decline in efficiency. In 2021-22, 'CRSTE' decreases to 0.12, while 'VRSTE' stands at 0.903. In 2022-23, 'CRSTE' further decreases to 0.147, whereas 'VRSTE' remains at 1, implying that the bank has maintained a high level of efficiency in managing fixed assets concerning total loans, despite a slight reduction in fixed assets efficiency.

The table indicates that while there are variations in the fixed assets, the bank consistently demonstrates a high level of efficiency in aligning its fixed asset management with its loan portfolio. This provides valuable insights into the DCCB's ability to optimize its fixed asset utilization and maintain operational efficiency.

8. FINDINGS

The following findings illuminate critical aspects of the operational efficiency of DCCB, Mahabubnagar, providing valuable insights into its financial performance and areas for potential improvement. These findings are derived from a comprehensive analysis conducted over a five-year period, shedding light on various facets of the DCCB's operations.

1. In 2019-20, the DCCB, Mahabubnagar witnessed a significant increase in the Cost of Funds, indicating a substantial rise in operational expenses relative to available funds. This underscores the necessity for the bank to address cost management strategies to maintain financial stability and competitiveness.
2. Over the five-year period, the study highlights the successful reduction of the Cost of Deposits by DCCB, Mahabubnagar, signaling effective cost control measures and improved financial stability.
3. Findings reveal a significant reduction in the Fixed Assets of DCCB, Mahabubnagar, indicating a change in asset composition and the potential requirement for more efficient asset management strategies.

4. In 2018-19, the DCCB exhibited relatively low cost-to-employee expenses efficiency (0.489), indicating a potential area for improvement in managing employee costs.
5. The findings underscore that the DCCB achieved optimal efficiency in 2021, with both 'CRSTE' and 'VRSTE' Level reaching 1. This reflects highly efficient utilization of fixed assets in alignment with its loan portfolio.
6. By 2022-23, the DCCB, achieved an efficiency level equal to the base year, with 'VRSTE' reaching 1. This signifies highly efficient cost management in relation to total loans and highlights significant improvements in operational efficiency between 2019-20 and 2021-22.

9. CONCLUSION

This study delved into the operational efficiency of the District Cooperative Central Bank Ltd., Mahabubnagar, Telangana State (the DCCB) over a span of five years, uncovering notable strengths and areas for potential enhancement. Notably, the study identified a significant increase in the Cost of Funds in 2019-20, signaling a critical imperative for the bank to fortify its cost management strategies to sustain financial stability and competitiveness. Conversely, the study celebrated the DCCB's successful reduction of the Cost of Deposits throughout the study period, affirming the efficacy of its cost control measures and contributing to bolstered financial stability.

Furthermore, the study shed light on a substantial decrease in the DCCB's Fixed Assets, indicative of an evolving asset composition. This prompts consideration for more efficient asset management strategies in the future. In a positive trajectory, the findings revealed that by 2022-23, the DCCB had attained an efficiency level on par with the base year, showcasing highly effective cost management concerning total loans. This signified remarkable enhancements in operational efficiency between 2019-20 and 2021-22.

In conclusion, this study emphasizes the imperative of continuous adaptation and improvement within the dynamic environment of the DCCB. It underscores the need for diligent cost monitoring and control across all operational facets, including staff, utilities, and administrative costs. This proactive approach ensures the maintenance of an efficient cost structure while upholding superior service quality.

10. FURTHER RESEARCH SCOPE

Several promising avenues for future research exist within the domain of financial operational indicators and operational efficiency management of the DCCB Ltd., Mahabubnagar. Here are some prospective areas for future exploration:

1. **Comparative Analysis:** Conduct a comparative analysis between the DCCB, Mahabubnagar, and other DCCBs in the region or state. This analysis can provide valuable insights into how the bank's financial operational indicators and operational efficiency management stack up against those of its peers.
2. **Employee Training and Development Impact:** Investigate the impact of employee training and development programs on operational efficiency. Assess whether investments in staff development correlate with improved financial indicators.
3. **Economic and Market Dynamics:** Consider conducting a comprehensive economic and market analysis to gain insights into how external factors, such as economic conditions and competition, influence the bank's financial indicators and operational efficiency.

These future research scope considerations hold the potential to contribute to a holistic comprehension of DCCB's financial operational indicators and operational efficiency management, offering invaluable insights for enhancement and informed decision-making.

REFERENCES
1. Ansari, M. S., Ali, I. (2023). Data envelopment analysis in efficiency measuring of District Central Cooperative Banks in India: A Case Study. International Journal of Operational Research. *https://doi.org/10.1504/IJOR.2023.132817*
2. Batra, S. (2021). Non-Performing Advances: A Study of District Central Cooperative Banks of Punjab. International Research Journal of Management and Commerce, 8(03).
3. Gaurav, S., and Krishnan, J. (2017). How Efficient Are India's Cooperative Banks? Evidence from DCCBs. Economic and Political Weekly, 52(12), 115-124. https://www.jstor.org/stable/44166831

4. Muley, S. S. (2007). Role of Co-operative Banks in Rural Credit. Cooperative Perspective, 42(1/2), 31–40.
5. Rao, N. E. S. V., and Gudala, C. (2015). Performance Appraisal and Ranking of DCCBs through Malmquist Index and Super-Efficiency. IOSR Journal of Economics and Finance (IOSRJEF), 6(1), 88-96.
6. Raju, S. (2018). Assessing the efficiency of urban co-operative banks in India. Central European Review of Economics and Management, 2(1), 11–42. *https://doi.org/10.29015/cerem.550*
7. Raju, S. (2018). Assessing the Efficiency of Urban Co-operative Banks in India. Central European Review of Economics and Management, 2(1). *https://doi.org/10.29015/cerem.550*
8. Reddy, P. A. (2018). Loan Operational Performance of The District Central Cooperative Banks in Coimbatore and Salem Districts, Coimbatore Region, Tamilnadu. International Journal in Management and Social Science, 6(04).
9. Rout, C. K., Swain, P. K., and Dash, M. (2019). Application of Data Envelopment Analysis for Measuring Financial Efficiency of District Central Cooperative Banks. International Journal of Management (IJM), 10(6), 161–169. *https://ssrn.com/abstract=3523661*
10. Singh, R. I. (2015). Efficiency Analysis of Central Cooperative Banks in Punjab: Data Envelopment Analysis Approach. Prajnan, 44(1), 53-66.
11. Sivaprakasam, P. (1996). Defaulters of Agricultural Credit Cooperatives: A Study with Reference to Short Term Agricultural Credit. Indian Cooperative Review, January 1996, 238-243.
12. Syamni, G., and Abd Majid, M. S. (2016). Efficiency of Saving and Credit Cooperative Units in North Aceh, Indonesia. Signfiikan: Jurnal Ilmu Ekonomi, 5(2), 99-118.
13. Uma, R. D. (2016). Operational efficiency of District Central Cooperative Bank - A Study of Selected Branches. SAARJ Journal on Banking and Insurance Research, 5(6). *https://doi.org/10.5958/2319-1422.2016.00010.2*
14. Vaidyanathan, A. (2013). Future of Cooperatives in India. Economic and Political Weekly, 48(18), 30–34.
15. Zaman, A. U., Zaman, M. S., and Khan, N. A. (2022). Analyzing the Technical Efficiency of Rural Cooperative Banks in India. Asian Economics Letters, 3(4). *https://doi.org/10.46557/001c.37048*