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Unveiling Financial Insights: Exploring the Dynamics of DCCB, Mahabubnagar

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ABSTRACT

Purpose: This research aims to analyse the financial performance of District Cooperative Central Bank Ltd., Mahabubnagar (hereafter referred to as 'the DCCB') from 2018-19 to 2022-23. Utilizing CAMELS ratios, the study explores the relationships between key financial indicators and the dependent variable, Return on Assets (ROA). Employing Bivariate Correlation and Ordinary Least Squares (OLS) analysis, the objective is to provide insights into the impact of various financial measures on the DCCB's overall performance.

Methodology: This study adopts a quantitative and observational approach, systematically examining financial data through a correlational research design. Secondary data from official records and regulatory publications of the DCCB, Mahabubnagar, covering the period 2018-19 to 2022-23, is analyzed using Bivariate Correlation to assess linear relationships. Additionally, Ordinary Least Squares (OLS) regression analysis is applied to quantify the effect of independent variables on Return on Assets (ROA).

Findings: The study reveals significant correlations within the financial dynamics of the DCCB, emphasizing a robust positive association ($r = 0.994$, $p < 0.01$) between Return on Assets (ROA) and Earnings/Profitability, highlighting the direct impact of efficient asset utilization on heightened profitability. Additionally, a positive correlation ($r = 0.567$, $p < 0.05$) between ROA and Asset Quality underscores the pivotal role of sound asset management in positively influencing the bank's overall profitability. Nevertheless, the delicate equilibrium required between financial stability and optimizing returns is evident, as indicated by the adverse effects of Higher Asset Quality (-0.28365) and Solvency (-0.18556) on ROA, highlighting nuanced challenges faced by the DCCB, Mahabubnagar.

Conclusion: The study establishes a strong positive link between Return on Assets (ROA) and Earning Capability, highlighting the direct impact of efficient asset utilization on increased profitability. A robust Earning Capability emerges as a critical factor for long-term sustainability. The delicate balance required between higher Asset Quality and Solvency is emphasized, revealing the intricate challenges faced by the DCCB. The positive correlation observed between ROA and Asset Quality underscores the pivotal role of sound asset management in influencing the overall profitability of the DCCB. In summary, the study concludes that a well-managed bank, optimizing capital utilization, positively influences Earning Capability, fostering a correlation with Return on Assets (ROA). However, maintaining a delicate balance between financial stability and growth potential is crucial for upholding investor confidence and ensuring sustained stock performance.

Keywords: *Asset Quality, Bivariate, CAMELS, DCCB, Mahabubnagar, OLS, ROA.*

1. INTRODUCTION

District Cooperative Central Banks (DCCBs) in Telangana State play a crucial role in promoting rural economic development and ensuring financial inclusivity. Serving as vital components of the cooperative credit structure, these banks were established with the primary goal of providing affordable and accessible credit facilities to farmers. They serve as intermediaries between primary agricultural credit societies and higher financial entities, operating at the district level. Telangana's DCCBs address diverse needs, emphasizing cooperative principles to support activities such as cooperative farming, crop loans, and various agricultural endeavors. In addition to financial assistance, these banks offer technical support and guidance, empowering farmers and rural entrepreneurs. As key contributors to the state's cooperative movement, DCCBs significantly contribute to overall economic growth by channeling funds into agriculture and allied sectors.

These institutions assume a vital role in alleviating the financial challenges confronted by farmers, ensuring prompt access to credit for agricultural inputs and other farming necessities. Moreover, DCCBs play a pivotal role in promoting sustainable agricultural practices and fostering rural self-sufficiency as active participants in developmental initiatives. This introduction highlights the instrumental role of DCCBs in constructing a robust rural economy in Telangana. In the following sections, we conduct a comprehensive analysis of DCCBs' financial performance, examining challenges and their impact on the economic landscape. This exploration provides valuable insights for policymakers, financial institutions, and researchers.

The evaluation of DCCBs' financial performance in Telangana entails a meticulous examination through key financial indicators, providing valuable insights into their stability, efficiency, and impact on the local economy. These essential financial performance indicators play a pivotal role in assessing the cooperative banks' capacity to support farmers and rural communities. Through the examination of factors such as credit distribution, asset quality, and profitability, this analysis aims to offer a comprehensive understanding of the DCCBs' role in nurturing sustainable economic development in the region.

2. REVIEW OF LITERATURE

The following reviews of literature provide comprehensive insights into various facets of cooperative banking, financial performance analysis, and the challenges faced by District Cooperative Central Banks (DCCBs) in different regions of India.

Chaudhari, V.M., and Farmer, M. (2022) conduct an empirical study on the structure and performance of State Cooperative Agriculture and Rural Development Banks (SCARDBs) and affiliated Primary Cooperative Agriculture and Rural Development Banks in India. Focusing on operational units, membership, funding sources, advances, investments, and profitability, the study highlights challenges and advocates corrective measures for improved recovery, asset quality, and reduced Non-Performing Assets.

Rout, C.K., Swain, P.K., et al. (2019) focus on Cooperative Banking in India's rural credit system, specifically Seventeen (17) District Cooperative Central Banks (DCCBs) in Odisha. Using the CAMEL model, the study assesses financial efficacy based on parameters such as Capital Adequacy, Asset Quality, Management Quality, Earning Capability, and Liquidity over a decade. Through an Index Table, DCCBs are ranked, offering predictive analytics to enhance the financial flow efficiency of Cooperative Banks.

Kumar, K., and Agdayamawar (2018) explore the growth of District Cooperative Central Banks (DCCBs) in Haryana through a comparative analysis of nineteen DCCBs. Using secondary data from RBI's publications and cooperative bank reports (2005-06 to 2014-15), they analyze growth parameters with CAGR and t-test. Findings show positive trends in share capital, membership, and investment, while noting declines in credit deposit ratio and net profits. The study, acknowledging limitations in focus and parameters, stands out for utilizing self-calculated secondary data as an unpublished work.

Mohmad, K.M., and Babu, G.R. (2018) evaluate the performance of Cooperative Central Banks in Karimnagar and Warangal districts, Telangana. Focused on the cooperative character and credit functions, the study underscores the role of District Cooperative Central Banks (DCCBs) in agricultural and rural development. DCCBs finance primary societies, attract local deposits, and oversee affiliated societies, contributing to the three-tier credit system. Using the CAMEL framework, the paper assesses the financial performance of Karimnagar and Warangal DCCBs, shedding light on their effectiveness as balancing centers for member societies, especially primary agricultural credit societies.

Arndhekar, N.D. (2016) delves into the financial performance of the District Central Cooperative (DCC) Bank in Vijayapur district. Emphasizing its cooperative nature, the study highlights the bank's role in providing banking and financial services to members. Using selective indicators, the research assesses the percentage and growth rate of investment, working capital, shares, loan distribution, and profit in the DCC Bank. Analyzing data from various secondary sources through simple statistical tools, the paper contributes valuable insights into the financial dynamics of cooperative banks, particularly in the context of Vijayapur district.

Waraich, S., Waraich, S., Dhawan, A., and Dhawan, A. (2016) analyze the Jalandhar Central Cooperative Bank Ltd. using the CAMEL Model. The study, based on 2011–2014 data, reveals the bank's commendable performance across Capital Adequacy, Asset Quality, Managerial Efficiency, Earning Capacity, and Liquidity parameters. The findings offer insights into the bank's internal strength and overall health.

Kalakkar, S., and Kalakkar, S. (2012) explore key factors influencing the financial performance of the Indian banking sector. Using an econometric approach and regression models, the research analyses internal financial values (Return on Assets, Return on Capital, Income Growth Rate, Profit per Employee) and external factors (GDP growth rate) for 83 Scheduled Commercial Banks in public, private, and foreign sectors. Data from the Reserve Bank of India (RBI) and industry experts are incorporated, presented through graphs and tables for a comprehensive analysis. The study concludes that foreign banks significantly

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impact the Indian banking sector, demonstrating higher profits, business efficiency, capital adequacy, and lower NPA levels.

Chandel, J.K. (2012) conducts a comprehensive twelve-year analysis of the Financial Performance of Five District Cooperative Central Banks (DCCBs) in Rohtak division, Haryana. The study underscores the vital role of cooperative credit institutions in the rural economy while addressing challenges such as scams, branch closures, and regulatory penalties. Through financial and Z-Score analyses, the research unveils a complex scenario, shedding light on strengths and weaknesses in liquidity, profitability, solvency, efficiency, and risk management. The findings reveal potential vulnerabilities stemming from financial mismanagement and underutilized resources, offering valuable insights to enhance the sustained viability and effectiveness of DCCBs in Haryana.

Chander, R., and Chandel, J. K. (2011) evaluate cooperative credit institutions in the Indian financial system, focusing on State, District, and Village levels. The study scrutinizes the financial and operational performance of 372 District Central Cooperative Banks (DCCBs) over ten years (1998-99 to 2007-08) using the CAMEL model, Altman Z-Score model, and other financial parameters. Despite a high recovery percentage, the banks exhibit poor performance in capital adequacy, liquidity, earning quality, and management efficiency, placing them in the bankruptcy or weak performance zone throughout the period. Recommendations include a focus on generating profits through efficient capital and asset utilization and improving employee productivity.

Chander, R., Chandel, J.K., and Chandel, J.K. (2010) critically examine the financial viability of HARCO Bank, a prominent apex cooperative credit institution in Haryana, India. Using a case study methodology and on-balance sheet data for eight financial years (1999-2000 to 2006-2007), the research assesses financial health through Altman's Multivariate Z-Score analysis and the CAMEL framework. Despite HARCO Bank's notable achievements, including recognition as the best-performing cooperative bank in the country by NABARD for three consecutive years (2001-02 to 2003-04), the analysis reveals areas of concern in its performance. The study provides valuable insights into the challenges faced by cooperative credit institutions, questioning their business models and raising doubts about sustained viability in the contemporary and dynamic financial environment.

3. RESEARCH GAP

Despite the wealth of research on the financial performance of District Cooperative Central Banks (DCCBs) in various regions of India, there exists a notable gap in the literature when it comes to evaluating the DCCB Ltd., Mahabubnagar, within the specific context of Telangana. Current scholarly works predominantly focus on broader regional analyses, often overlooking the nuanced financial dynamics unique to Mahabubnagar district. This identified research gap emphasizes the necessity for a dedicated study that delves into the performance indicators distinguishing the DCCB, Mahabubnagar, from its counterparts. A comprehensive understanding of these intricacies is essential for designing strategic interventions that specifically address the distinct financial landscape of the DCCB, thus making a significant contribution to the cooperative banking literature.

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4. RESEARCH QUESTIONS

Drawing from the insights garnered through the literature review, the subsequent research questions have been formulated to address and bridge the identified research gap:

1. What is the nature and strength of the relationship between the key financial indicators and the overall financial performance of DCCB, Mahabubnagar?
2. How do the key financial indicators individually and collectively impact the financial performance of DCCB, Mahabubnagar, and what is the magnitude of their influence?

5. OBJECTIVES

The study aims to accomplish the following objectives:

1. To investigate the relationship between key financial indicators and financial performanceof DCCB, Mahabubnagar.
2. To examine the impact of key financial indicators on financial performanceof DCCB, Mahabubnagar.

6. HYPOTHESES

Hypothesis 1 ($H_0$1): *There is no significant relationship between the key financial indicators and financial performance of DCCB, Mahabubnagar.*

Hypothesis 2 ($H_0$2): *There is no significant impact of key financial indicators on financial performance of DCCB, Mahabubnagar.*

7. PERIOD AND SCOPE

This study, covering the period from 2018-19 to 2022-23, conducts a comprehensive analysis of key financial indicators using CAMELS ratios for DCCB, Mahabubnagar. The selected independent variables, including Capital Adequacy, Asset Quality, Management Capability, Earning Capability (Profitability), Liquidity, and Solvency, are thoroughly examined to understand their individual and collective impact. The primary objective is to investigate the intricate relationships among these variables and their influence on the dependent variable, Return on Assets (ROA), serving as a proxy for the financial performance of the DCCB.

8. RESEARCH METHODOLOGY

This research comprehensively analyses the financial performance of the District Cooperative Central Bank (DCCB) in Mahabubnagar District, Telangana, spanning 2018-19 to 2022-23. Utilizing a structured research design and statistical tools like Bivariate Correlation and Ordinary Least Square (OLS) analysis, the study investigates relationships between key financial indicators and the dependent variable, Return on Assets (ROA).

Research Design: This study adopts a quantitative and observational research design, aiming to analyze available financial data for meaningful insights. Utilizing a longitudinal approach, the research assesses trends in financial performance over the specified study period. Employing a correlational research design, the focus is on exploring relationships between independent variables, represented by CAMELS ratios, and the dependent variable, ROA. This design selection facilitates the examination of the strength and direction of associations among the variables.

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Data Collection: The primary method employed for data collection is through secondary sources. Financial statements, annual reports, and pertinent documents from the DCCB, Mahabubnagar, have been obtained from official records, regulatory publications, and other authenticated platforms. Covering the period from 2018-19 to 2022-23, this study ensures a thorough analysis of the DCCB's financial dynamics over a five-year span.

Statistical Methods: The following two statistical methods have been employed:

i. **Bivariate Correlation Analysis:**This analysis examines the relationships between pairs of variables, specifically assessing the strength and direction of correlation between key financial indicators and ROA. This statistical tool provides insights into the linear associations between variables.

ii. **Ordinary Least Square (OLS) Regression Analysis:**OLS regression analysis is applied to understand the impact of independent variables on the dependent variable, ROA. This method allows for the identification of significant predictors and the quantification of their influence, providing a nuanced understanding of the factors affecting financial performance.

9. RESULTS AND ANALYSES

Objective -1: To investigate the relationship between key financial indicators and financial performance of DCCB, Mahabubnagar.

The study has focused on investigating the relationship between Key Financial Indicators and Financial Performance. The study has formulated the following null and alternative hypotheses and has applied the Karl Pearson's bivariate correlation statistical analysis method to test the null hypothesis.

$H_0$1: *There is no significant relationship between the Key Financial Indicators with Financial Performanceof DCCB, Mahabubnagar.*

$H_1$1: *There is a significant relationship between the Key Financial Indicators with Financial Performance of DCCB, Mahabubnagar.*

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Table – 1: Results of the investigation into the relationship between DCCB's Key Financial Indicators (CAMELS) and its Financial Performance (ROA) using Karl Pearson's Bivariate Correlation Analysis

		ROA	Capital Adequacy Ratio	Asset Quality	Management Capability	Earnings or Profitability	Liquidity	Solvency
ROA	Pearson Correlation	1						
	Sig. (2-tailed)							
Capital Adequacy Ratio	Pearson Correlation	0.218*	1					
	Sig. (2-tailed)	0.024						
Assets Quality	Pearson Correlation	0.567*	-0.145	1				
	Sig. (2-tailed)	0.019	0.016					
Management Capability	Pearson Correlation	0.377	-0.606	0.859	1			
	Sig. (2-tailed)	0.031	0.028	0.012				
EarningCapability	Pearson Correlation	0.994**	0.203	0.646	0.448	1		
	Sig. (2-tailed)	0.000	0.044	0.039	0.050			
Liquidity	Pearson Correlation	0.003	-0.879*	-0.053	0.439	-0.019	1	
	Sig. (2-tailed)	0.036	0.050	0.032	0.040	0.046		
Solvency	Pearson Correlation	0.026	-0.504	0.819	0.865	0.118	0.128	1
	Sig. (2-tailed)	0.037	0.037	0.000	0.049	0.050	0.037	

Source:Authors Calculated and Complied Using Secondary Source Data

The table presents bivariate correlations between DCCB's key financial indicators (CAMELS) and Return on Assets (ROA), revealing significant associations. Particularly, ROA exhibits a strong positive correlation with Earnings/Profitability ($r = 0.994^{**}$, $p < 0.01$), emphasizing the direct link between overall asset efficiency and profitability. The correlation between ROA and Capital Adequacy Ratio ($r = 0.218*$, $p < 0.05$) suggests that well-capitalized banks tend to achieve higher returns.

Additionally, the positive correlation between ROA and Assets Quality ($r = 0.567*$, $p < 0.05$) underscores the impact of sound asset management on profitability. **Consequently, the study rejects the null hypothesis ($H_0$1) and accepts the alternate hypothesis ($H_1$1), indicating a significant relationship between key performance indicators and the financial performance of the DCCB.**

These findings underscore the interdependence of key financial indicators, offering valuable insights into the factors influencing the financial performance of District Cooperative Central Banks in Telangana.

Objective – 2: To examine the impact of key financial indicators on financial performance of DCCB, Mahabubnagar

The study has examined the impact of key financial indicators, namely CAMELS, on financial performance(proxy, ROA) of DCCB, Mahabubnagar. The research has formulated the following null and alternative hypotheses and employed the Ordinary Least Squares (OLS) statistical method for analysis.

$H_0$2:*There is no significant impact of Key Financial Indicators on Financial Performance*of DCCB, Mahabubnagar.

$H_1$2:*There is a significant impact of Key Financial Indicators on Financial Performance*of DCCB, Mahabubnagar.

Table – 2: Results of the Examination of the Impact of DCCB's Key Financial Indicators on its Financial Performance using Ordinary Least Squares

Dependent Variable: ROA				
Method: Ordinary Least Squares (OLS)				
Sample: 2018-19 to 2022-23				
Included Observations: 5				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C (Intercept)	-5.77431	0.234421	-24.44485	0.7335
Capital Adequacy Ratio	0.74514	0.032187	23.38031	0.0343
Assets Quality	-0.283653	0.024195	-11.36873	0.0296
Management Capability	0.2653551	0.007539	35.23292	0.0366
Earnings or Profitability	0.3843675	0.051486	7.466346	0.0237
Liquidity	0.0573864	0.012636	4.54146	0.0278
Solvency	-0.185562	0.022077	-8.40512	0.0359
R-Squared	0.8713647	Mean (Dependent Variable)		7.936563
Adjusted R-Squared	0.7914543	S.D. (Dependent Variable)		1.247101
S.E. of Regression	0.8134681	Akaike-Info Criterion		4.018922
Sum Squared Residual	3.2886678	Schwarz Criterion		3.706472
Log Likelihood	58.047333	Hannan-Quinn Criterion		3.180338
F-Statistic	45.297221	Durbin-Watson Statistic		1.857297
Prob(F-Statistic)	0.0360276			

Source: Authors Calculated and Complied Using Secondary Source Data

The table displays coefficients reflecting the impacts of various financial factors on managerial decision-making. The *Capital Adequacy Ratio* holds a positive coefficient of 0.74514, suggesting that higher capital adequacy ratios positively influence managerial choices, potentially encouraging strategic decisions like share buybacks. *Assets Quality* bears a negative coefficient of -0.283653, indicating that lower asset quality could potentially discourage certain managerial actions. *Management Capability* and *Earning Capability or Profitability* exhibit positive coefficients of 0.2653551 and 0.3843675, respectively, signifying that stronger management capabilities and higher earnings/profitability likely prompt managerial inclinations toward certain actions, such as share buybacks. The *Liquidity* coefficient stands at 0.0573864, indicating a relatively minor positive impact of liquidity on managerial decisions.

In contrast, *Solvency* holds a negative coefficient of -0.185562, suggesting that lower solvency levels might discourage managerial actions like share repurchases. The study observed that these coefficients highlight the varying impacts of financial factors on managerial decisions. **Thus, the study rejects the null hypothesis ($H_0$2) and accepts the alternate hypothesis ($H_1$2), indicating that key performance indicators have a significant impact on the financial performance of the DCCB.**

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Factors like capital adequacy, management capability, and earnings/profitability tend to positively influence certain actions, while aspects like assets quality and solvency might potentially discourage similar strategic moves by the bank’s management.

10. FINDINGS

The following findings shed light on the intricate financial dynamics of the District Cooperative Central Bank in Mahabubnagar, unravelling the nuanced relationships between key performance indicators (CAMELS Ratios) and the bank's overall financial health (ROA):

1. The bivariate correlation analysis reveals a robust positive association between Return on Assets (ROA) and Earnings/Profitability ($r = 0.994$, $p < 0.01$), indicating that efficient asset utilization directly contributes to enhanced profitability for the DCCB, Mahabubnagar.
2. The study finds that, there is a positive correlation between ROA and Assets Quality ($r = 0.567$, $p < 0.05$) underscores the significance of sound asset management practices in positively impacting the overall profitability of the DCCB, Mahabubnagar.
3. The findings highlight that, improvements in Capital Adequacy (0.74514) and Earning Capability (0.3843675) have positive and statistically significant effects on ROA, contributing to enhanced financial performance of the DCCB, Mahabubnagar.
4. The study found that, Higher Assets Quality (-0.283653) and Solvency (-0.185562) negatively impact ROA, underscoring the delicate balance required between financial stability and optimizing return for the DCCB, Mahabubnagar.

11. CONCLUSION

This study explores the Financial Performance of the District Cooperative Central Bank (DCCB) in Mahabubnagar district, Telangana. The results reveal a strong positive association between Return on Assets (ROA) and Earnings/Profitability, indicating the direct impact of efficient asset utilization on enhanced profitability. A robust Earnings/Profitability reflects the DCCB's capacity for long-term sustainability, covering expenses, maintaining reserves, and ensuring financial stability. Additionally, the positive correlation between ROA and Assets Quality emphasizes the crucial role of sound asset management practices in positively influencing overall profitability.

The study highlights the significance of improvements in Management Capability and Earnings/Profitability for enhanced financial performance. However, it also emphasizes the delicate balance required, as higher Assets Quality and Solvency negatively impact ROA. While high Asset Quality and Solvency signify financial health, market perception influences investor confidence. If stakeholders perceive conservative measures limiting growth potential, it may negatively impact the bank's stock performance and overall investor confidence.

To wrap-up, a proficiently managed bank optimizes capital utilization by directing funds towards activities that generate profitable returns. This efficient capital deployment positively influences Earning Capability/Profitability, establishing a correlation with ROA. The study highlights the critical significance of maintaining a delicate balance between financial stability and growth potential to uphold investor confidence and ensure sustained stock performance.

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