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Financial Performance of Kerala State Co-operative Coir Marketing Federation Ltd. No.679

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

Aim: Established in the year 1979 as the Apex Federation of primary coir co-operatives functioning in the State, COIRFED plays a pivotal role in the coir sector of the country. It enjoys the unique status of dealing only in biodegradable and nature friendly products. With its headquarters located in the coir capital of the country, Alappuzha, COIRFED is one of the premier organizations in the coir Industry. COIRFED runs 11 factories for producing various coir related products. COIRFED runs around 50 signature shops throughout the country. Due to lack of operational efficiency, underutilization of production capacity, and lack of timely access to labour and raw materials, COIRFED and coir cooperatives are currently in a declining stage (Annual Report of COIRFED, 2019-20). COIRFED's overall performance and operation were based on the marketing of COIRFED products. Improvement is made possible by identifying the causes of loss or ineffective

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performance. Considering this, the study aimed to analyse the financial performance of COIRFED.
Methodology: For the secondary data, past 10 years data from 2010-2011 to 2019-2020 was collected from the annual reports, websites and publications of COIRFED. Statistical tools like the Ratio analysis were used for the analysis. The study was conducted during the period August to September 2023.
Results: COIRFED has been incurring losses for the past decade, reflecting poor financial performance. Solvency ratios indicate an unstable financial position, posing long-term stability risks. While liquidity and inventory turnover ratios are favorable, the net profit ratio remains consistently negative. Despite sales, COIRFED operates at a loss due to high production costs and debt burdens. As a cooperative, it prioritizes member welfare over profits. The Kerala State Cooperative Coir Marketing Federation struggles with financial challenges despite being the apex coir marketing authority.
Conclusion: COIRFED's financial analysis reveals a decade-long streak of operating losses, signaling poor financial health. Solvency ratios highlight an unstable position with negative implications for its future stability. Though liquidity and inventory turnover ratios are positive, the net profit ratio remains persistently negative. Despite sales revenue, COIRFED struggles with overall losses, prioritizing member welfare over profits due to its cooperative ethos. Heavy debts and high production costs compound its financial woes. The Kerala State Cooperative Coir Marketing Federation, the leading authority in coir product marketing, grapples with financial challenges despite its prominent position.

Keywords: Financial performance; ratio analysis; liquidity ratio; solvency ratio; activity ratio profitability ratio.

1. INTRODUCTION

The coir industry holds a vital position in the economy of Kerala, India, contributing significantly to employment generation, foreign exchange earnings, and rural development. Within this context, the Kerala State Cooperative Coir Marketing Federation Ltd (COIRFED) plays a central role in coordinating and promoting the activities of coir producers and exporters. Understanding the significance of studying COIRFED within the broader coir industry framework is essential for comprehending its impact, challenges, and potential for growth and development. The coir industry in Kerala is deeply intertwined with the state's socio-economic fabric, particularly in rural areas. Coir extraction and processing provide livelihoods to a large number of people, especially in coastal regions where coconut cultivation is prevalent. Moreover, the industry promotes sustainable practices by utilizing coconut husks, a by-product of coconut farming, thereby contributing to waste management and environmental conservation. The coir industry serves as a crucial source of income and employment, especially for marginalized communities and women in rural areas. The revenue generated from coir production, processing, and export activities significantly contributes to the state's GDP and foreign exchange earnings. Additionally, the industry fosters entrepreneurship and small-scale enterprises through its decentralized structure, empowering local communities and fostering inclusive growth. Kerala's coir products enjoy a strong demand in both domestic and international markets due to their quality, durability, and eco-friendliness. COIRFED plays a pivotal role in promoting and marketing these products globally, facilitating export opportunities for coir manufacturers and exporters. The export earnings generated by the coir industry contribute to the country's foreign exchange reserves, supporting economic stability and growth. The coir industry promotes sustainable practices by utilizing natural fibers derived from coconut husks, a renewable resource. Unlike synthetic materials, coir products are biodegradable, eco-friendly, and contribute to reducing carbon footprint. By promoting the use of coir-based products, COIRFED contributes to environmental sustainability and supports the transition towards a green economy. Despite its significance, the coir industry faces various challenges, including fluctuating raw material prices, competition from synthetic alternatives, and limited technological advancements. Additionally, issues such as quality control, infrastructure constraints, and lack of market diversification pose hurdles to the industry's growth and competitiveness. However, these challenges also present opportunities for innovation, diversification, and value addition within the coir sector. As the apex cooperative

organization in the coir industry, COIRFED plays a multifaceted role in promoting, coordinating, and supporting coir-related activities. It provides vital infrastructure, market linkages, and financial assistance to coir producers and entrepreneurs, enabling them to enhance productivity, quality, and competitiveness. Moreover, COIRFED's initiatives in research and development, skill training, and product innovation contribute to the industry's resilience and adaptability in the face of evolving market dynamics. In conclusion, studying the performance evaluation of Kerala State Cooperative Coir Marketing Federation Ltd (COIRFED) within the broader context of the coir industry reveals its significance in driving economic development, promoting sustainable practices, and empowering local communities. By addressing the challenges and leveraging opportunities within the coir sector, COIRFED can further strengthen its role as a catalyst for growth, innovation, and inclusivity in the coir industry of Kerala and beyond.

2. REVIEW OF LITERATURE

Isaac and Raghavan [1] conducted a research study titled "Policy Framework for Revitalization of Coir Industry in Kerala." The primary recommendation of the study was to implement technological upgrades in the coir industry to enhance product quality and increase labor productivity.

Jose and Sankaranarayanan [2] studied the performance, problems, and prospects of coir vyavasaya cooperative societies (CVCs) were analyzed. The study found that the operational efficiency of all categories of CVCs was remarkably poor, and member participation in coir societies' functioning was insufficient. The study suggested that government assistance should be directed towards CVCs directly, bypassing COIRFED.

Mohamed and Hameed [3] in their article titled "Indian Coir Industries: Challenges and Future Prospects," emphasized that the introduction of synthetic fibers in European countries has significantly impeded Indian exports of coir and coir products. They concluded that it is imperative for the coir industry to undergo technological enhancements to sustain its position in the global market. The authors advocated for the adoption of innovative marketing strategies, including the development of new products, as the key solution to overcome the stagnation observed in India's coir exports.

Mohamed [4] in his article addressing the issue of Sickness in Coir Industries in Tamil Nadu provided an overview of the prevailing industrial challenges within the coir sector. He highlighted that, among the 5209 coir units under examination, 3756 encountered financial distress due to factors like financial incapacity, insufficient demand, challenges in revenue realization, and managerial deficiencies in financial, technical, and operational aspects. Additionally, the author categorized the sickness based on specific problems, revealing that 50% of coir unit sickness was attributed to financial issues, 29% to production challenges, 15% to marketing issues, and 6% to problems related to pith disposal, lack of Coir Board involvement, and miscellaneous factors.

Richard Paul [5] in his study titled "A Study on Production and Marketing of Coconut in Theni District," investigated the returns to scale and resource-use efficiency in coconut production and marketing. Using the Cobb-Douglas production function and analyzing the marginal value product, he found that the total production elasticity for small, large, and overall growers suggested a diminishing return to scale.

Chandaran [6] in his article titled "The Indian Coir Industry", highlighted that the elevated labor costs in Kerala compelled manufacturers to transport coconut husks to neighboring states for defibring. Subsequently, they would bring back the processed fiber to Kerala, contributing to an increase in fiber prices. Additionally, he noted that during periods of heightened demand due to a shortage of fiber at production centers, there was a notable and unprecedented surge in fiber prices.

GouriAmma [7] discussed the Modernization of Coir Industry in her article, highlighting that in the preceding year, the industry contributed over Rs. 450 crore in foreign exchange and generated increased employment opportunities in rural regions. Given its roots in rural areas and the predominant involvement of women workers at various production stages, the coir industry held significant relevance for national income. The author concluded by emphasizing the importance of collaboration among coir workers, small and large manufacturers, industrialists, and exporters. This collective effort, along with wholehearted support for government initiatives, was deemed crucial for fortifying and advancing the industry.

Pillai [8] in his article titled "Towards Self-reliance in Coir Fibre Production" mentioned that utilizing the entire coconut husks produced in the country for coir production might face challenges. These challenges include the absence of a well-established system for husk collection, rising transportation costs, and a lack of awareness among coconut producers, dealers, and households about the economic value of husks.

Rajiv and Jasmindeep (2010) conducted a financial assessment of the Haryana State Cooperative Apex Bank spanning five years from 2002-03 to 2006-07. Their analysis of the bank's financial performance encompassed various parameters, including the number of offices, membership, paid-up capital, reserves and other funds, deposit mobilization, deposit classification, demand collection, loan issuance, outstanding loans, cost of management, and profit and loss. The study's findings indicated that factors such as deposit quality, loan portfolio composition, efficient reserve management, and the Bank's overdue status were the key determinants influencing its financial stability and overall soundness.

Sharma and Pathanin [9] conducted a study on the Ratio Analysis of the H.P State Co-operative Agricultural and Rural Development Bank, revealing an unsatisfactory financial condition. The bank's liabilities outweighed its owner's equity, with a notable surge in current liabilities. To enhance the financial well-being of the bank, the study recommended endeavors to boost business volume and advised the management to trim unnecessary expenses.

Veerakumaran and Raju [10] conducted a study on employees' job satisfaction in canning industries in Thrissur. Using the Minnesota Satisfaction Questionnaire, the findings revealed that the employees were content with the organization.

Mukkulath [11] in his study, explored the use of coir geotextiles in the decomposition of carbon compounds. Biofilters, commonly employed for denitrification, nitrification, and carbon removal, offer advantages such as compactness and high capacity for carbon, nitrogen, and phosphorus removal. Notably, biofilters integrate well into the environment, eliminating the need for secondary clarification, and certain aerobic applications do not require liquid circulation for nitrogen removal. Additionally, they exhibit minimal energy consumption and sludge production. Numerous studies have demonstrated the effectiveness of biofilters for on-site wastewater disposal. In Mukkulath's pilot plant study, coir geotextile media served as an attachment medium for biofilters treating low-volume, organic-rich industrial wastewater. The geotextiles successfully decomposed both carbonaceous and nutrient compounds. The investigation focused on biofilter performance, specifically addressing nutrient removal from organic-rich wastewater, utilizing both unwoven and woven types of coir geotextiles as media. Throughout six different cycles with various wastewater types, the results indicated a notable removal rate for nitrate and phosphate.

Rajput et al. [12] conducted a study on the consumer attitudes toward branded apparel. The main objective was to analyze how the demographic profile of consumers influences their decisions when purchasing branded garments. The study aimed to assess consumer awareness of different apparel brands in the Indian market, considering gender perspectives. Additionally, it sought to determine if there was a significant difference in the overall expenditure on branded apparel between males and females. The findings indicated a notable increase in brand consciousness among Indian consumers. Contrary to expectations, brand image did not emerge as a crucial factor in the decision-making process when choosing products or brands to purchase. Instead, factors such as quality, comfort, expectations, and demographic characteristics played a more significant role in influencing the purchasing decisions of both males and females. Among the various brands, Allen Solly ranked highest in customer recall, followed by Van Heusen and Raymond. These brands were not only the most familiar but also the favorites among brand-aware consumers, particularly within the Indian context.

Vakhariya and Chopde [13] conducted research on consumer preferences regarding private labels compared to national labels within the apparel segment of departmental stores. Their study aimed to explore consumer brand choices between national and store brands in the apparel sector and to analyze the impact of factors such as quality, price, variety, availability, and current trends on brand preferences. The findings revealed that customers perceived the quality and advertising of national brands to be superior to store brands, whereas store brands were considered more affordably priced. Consumers displayed a particular affinity for specific stores

due to factors like product variety, quality, convenient location, and discounts/offers. The study also noted that customers tended to purchase apparel without any specific reason at various times.

Vishwanath [14] conducted a study on the performance of coir industries in Karnataka, aiming to analyze the efficiency aspects of both co-operatives and private coir processing units. The study sought to draw attention to the capacity utilization of each processing unit, with the goal of facilitating modernization. The findings revealed that, on average, the total capital investment was higher in cooperative coir units (59.56 lakhs) compared to private coir units (46.00 lakhs). The average Net Present Value (NPV) in cooperative coir units exceeded that of private coir units. While the internal rates of returns for both types of units were higher than the 12 percent discount rate considered in the analysis, cooperative coir units took slightly more time to recover their investment (1.56 years) compared to private coir units (1.55 years). The study suggested that investment in cooperative coir units was relatively high, and recommended that private coir units should also consider updating their production technology through additional investment to capitalize on economies of scale in their operations.

Ramamurthy and Kanimozhi [15] in their work, highlighted challenges in the coir export sector. Firstly, maintaining the quality of coir products is a persistent issue due to the inherent variability in raw materials like fiber, yarn, dyes, and chemicals, which are sourced from natural origins. Additionally, the production infrastructure in India is often outdated and in a state of disrepair. Secondly, manufacturers, largely operating small units, face a lack of readily available information, keeping them unaware of market conditions and consumer preferences. Thirdly, a significant problem confronting the coir industry is the insufficient focus on research and development (R&D) for product innovation and diversification.

Sivanesan [16] conducted a study focusing on the challenges faced by workers in coir industries in Kanyakumari district. The research aimed to examine the working conditions and identify the problems encountered by coir workers in the area. The study highlighted that a significant portion of coir workers experiences issues related to extremely low wages and extended working hours. The process of making coir, particularly the handling of coco-husk-pith, leads to various health problems such as asthma, anemia, and tuberculosis. The study recommended that the government should take measures to increase the wages of coir industry workers. Additionally, the study suggested implementing and strictly enforcing minimum and maximum age limits to prevent the employment of children and individuals from the elderly age group.

Chunilal [17] conducted a study titled 'Financial Performance of Co-operative Societies: A Comparative Study (With Special Reference to Valsad District of Gujarat)' to analyze the overall financial efficiency of Pindaval Cooperative Society and Karchond Cooperative Society in Valsad District, Gujarat, India. The study covered a period of 6 years from 2008-9 to 2013-14, and financial efficiency was assessed using various accounting ratios related to profitability, solvency, activity, and financial stability. The study's conclusion indicated that liquidity ratios such as quick ratio and net working capital ratio, along with financial activity ratios, were above the standard. This suggests that the cooperative's financial position was good enough to meet its current obligations. However, the current ratio, absolute liquid ratio, and cash ratio of the cooperative were below the Cooperative Societies' average standard. This indicates that the financial position of the cooperative is not satisfactory for meeting its short-term obligations.

Kalyani and Acharyulu [18] carried out a demographic study on the Andhra Pradesh State Handloom Weavers Cooperative Society Limited to assess customer satisfaction with handloom products in India. The study concluded that a majority of respondents were satisfied with handloom products, but the handloom industry faced significant competition from the power loom and mill-made sector.

Meenakadevi and Tamilvanı [19] conducted a study titled "Financial Performance Analysis of Selected Cooperative Urban Banks in Tamilnadu," wherein they examined the financial performance of the sampled banks using data collected over a decade from 2003 to 2013. The analysis involved applying growth indices and ratios to interpret the gathered information. The study concluded that urban co-operative banks hold a significant position in the Indian banking landscape. In the current competitive and globalized business environment, the study emphasized the pressing need for

professionalizing management to effectively oversee the operations of urban co-operative banks. Furthermore, it underscored the importance of enhancing operational aspects by adopting robust practices to manage deposits, controlling employee numbers, and carefully planning loans, advances, and investment operations. The study also recommended a focus on achieving efficiency in resource utilization.

Mohanasundaram [20] conducted a study addressing the production problems encountered by coir units in Thanjavur district, Tamil Nadu. The research emphasized that the industry in the study area faced challenges that did not have quick-fix solutions. However, the study proposed that enhancing value addition and providing access to technology and information could effectively address most operational issues. The conclusion drawn from the study indicated that the most significant production problem for small-sized units was inadequate finance, while medium-sized units faced a shortage of workers. Notably, the shortage of workers emerged as the primary production problem for both small and medium-sized coir units in the study area. Consequently, the study suggested that both the state government and the Coir Board should encourage entrepreneurs to manufacture value-added coir products like mats, rugs, and carpets. This approach could help coir unit owners increase their earnings, enabling them to offer more attractive wages to workers. Offering competitive wages would, in turn, attract more workers, even during peak agricultural seasons.

Senthilkumar [21] conducted a study focusing on the problems and prospects of the coir industry in India. The primary objective was to identify the challenges faced by the coir industry and highlight its future potential. The study revealed that the coir sector lacks essential support from the government, banks, financial institutions, and other lending organizations to provide quality goods and services, compete effectively, create demand, and attract customers in both national and international markets. The coir industry in India grapples with various material problems, including non-availability, shortages, poor quality of raw materials, and high material costs. Coir units heavily rely on borrowed funds rather than owned funds for both establishment and operational purposes. Despite the challenges, the coir industry in India presents numerous opportunities for growth and development. It has substantial potential for future prospects, including the availability of coconut husks, employment generation, poverty alleviation, income generation, improvement of living standards, increased demand in domestic and international markets, fostering entrepreneurship, and contributing to the overall economic development of the country.

Nagaraja [22] conducted a study with the primary objectives of examining the socio-economic status of coir co-operative societies workers, analyzing the income and expenditure patterns within the coir industries, exploring the problems faced by coir industry workers, and identifying the living conditions of workers in two districts. Primary data was collected from 1000 coir workers. The findings of the study revealed that the living conditions of coir workers are distressing. To improve worker welfare, both the state and central governments can formulate various policies. The study recommended the implementation of a minimum wage system by the government and the provision of necessary training to women workers to enhance their efficiency.

Sathish and Krishnathulasimani [23] conducted a study on the determinants of issues in the coir industry in Tamil Nadu, specifically analyzing the problems in Coimbatore district and proposing policies for the industry's improvement. The research involved the random sampling of 240 units. Determinants of coir industry problems were examined using statistical tools such as Percentage and Chi-square Test. The analysis compared the variable "type of establishment" with others, including the supply of power, labor supply, labor coordination, labor performance, raw material availability, production innovation, government concessions for coir production, export-related issues, raw material cost, transportation cost, labor cost, power cost, and overhead cost. Variables like supply of power, labor coordination, labor performance, government concessions for coir production, and overhead cost showed significant associations with the type of establishment. One of the study's recommendations was to establish a dedicated department to safeguard the welfare of coir industry workers and implement labor welfare measures such as group insurance, provident fund, and medical facilities. The study also suggested setting minimum and maximum age limits, strictly enforced by the government to prevent the employment of children and the elderly, and proposed training programs for workers to enhance product quality.

Sentamilselvan and Delecta [24] conducted a study titled "Financial Performance of District Central Co-operative Bank, Cuddalore," aiming to assess the overall financial position of the mentioned bank. The study focused on a five-year period from 2006 to 2011, employing statistical tools such as mean, standard deviation, correlation, and financial ratios like current ratio, net profit ratio, return on assets ratio, and return on equity ratio for data analysis. The findings indicated that the bank exhibited favorable conditions in terms of capital adequacy, solvency position, and the relationship between current assets and liabilities. The study recommended that the bank should enhance the volume of credit disbursement to increase the yield on advances and improve the credit deposit ratio.

Shivakumara and Manjunath [25] conducted a study on the performance of Primary Co-operative Agriculture and Rural Development banks in Karnataka, aiming to assess the number of branches, membership, and share capital of the Karnataka State Co-operative Agricultural and Rural Development Bank. The investigation also delved into studying the bank's demand, collection, and balance. Utilizing secondary data and employing growth rate analysis, the study revealed several challenges faced by these banks. These challenges included issues such as document verification and ensuring proper fund utilization, timely recovery of sanctioned loans, a rise in non-performing assets, heightened demand for credit, and declining deposits. The researchers pointed out that the primary problems stemmed from poor loan recovery, characterized by differential interest rates compared to commercial and private banks, high transaction costs, and a traditional policy of undiversified lending.

Soni and Saluja [26] conducted a study on the financial ratio analysis of DCC bank ltd. Rajnandgaon for the years 2008-2011. The authors utilized financial ratio analysis, incorporating various categories such as liquidity, solvency, profitability, and efficiency, with the aim of assessing the ratios influencing the financial performance of the bank. The findings revealed that the bank maintained a reasonably sound solvency and liquidity position. However, the efficiency ratios indicated an average level of expenditure relative to gross income. Additionally, the bank's profitability was notably low, attributed to high overdue amounts and a low recovery rate. The study noted the significant role played by the bank in rural credit delivery in Rajnandgaon district, as evidenced by its recognition for excellent service and contributions to cooperative development, acknowledged by the Chhattisgarh government in 2011.

Venkatesh and Gnanammal [27] conducted a study titled "Financial Performance in Primary Agriculture Co-operative Bank Ltd in Dharmapuri." They employed ratio analysis, trend analysis, and comparative statements in their research. The study found that, during the examined period, the return on investments ratio, net profit ratio, cash to current liability position, proprietary ratio, fixed assets ratio, and debt-equity ratio were satisfactory. However, the return on total assets ratio, gross profit ratio, fixed assets turnover ratio, debtors to current asset ratio, current asset to total asset ratio, and cash position of the bank were unsatisfactory. Notably, the bank possessed substantial retained earnings, making it self-reliant for its short-term and medium-term financial needs. The study also highlighted the bank's success, attributing it to efficient human resources. To enhance performance, the study recommended the bank take specific measures to reduce expenses across various needs and utilize all available assets more effectively and efficiently to increase profitability.

Indra and Kumar [28] conducted a study titled "A Socio-Economic Analysis of Coir Workers in Kanyakumari District," where they highlighted the substantial contribution of the coir industry to women's employment, with 44.2 percent of coir workers falling in the age group of 41-50 years. Notably, workers from backward communities actively engage in this line of work. For 80 percent of the workers, agricultural income serves as an additional source of earnings. Work-related ailments are prevalent in the coir industry, with back pain affecting a maximum of 32.7 percent of the workers. Job satisfaction is relatively low, as only 32.1 percent expressed moderate satisfaction with their work. The study recommended providing more frequent training facilities by the Coir Board to encourage youth to pursue careers in the coir industry. Additionally, raising public awareness about the benefits of the coir industry was suggested.

Mohanraj and Latha [29] conducted a study on the challenges and potential for women workers in the coir industry, specifically focusing on Singampunari in Sivagangai district. The

research aimed to assess the issues and opportunities faced by women workers in the coir industry, evaluate their satisfaction levels, and propose solutions for problems in the study area. Using convenience sampling, the survey included 100 respondents, and percentage analysis and weighted average methods were employed for data interpretation. The study revealed that coir workers in the area do not receive holidays even on significant national and religious festival days. The recommendation was to designate national holidays as paid holidays for coir workers, and the government should implement labor welfare measures such as provident fund and medical facilities for them. The study concluded that despite the growth of the coir industry, there has been only marginal improvement in production levels, quality, and artistic appeal of coir products. As a result, new consumers, especially from the younger generation, are not attracted to these products. The future of the coir industry, the study suggested, depends on the development of nonconventional products.

Poornimadevi [30] conducted a study focusing on the challenges and potential of the coir industry in Pollachi, Tamil Nadu. The primary aim was to identify the issues faced by the industry and explore opportunities for its multifaceted development. The study's findings indicate that a majority of coir entrepreneurs are content with the income generated within the industry. While this appears positive, the responsibility to elevate the industry to the next level lies jointly with the government and relevant authorities. The research highlights that Indian coir product exporters have ample opportunities in the international market to capture a significant market share.

Praveenkumar and Vinayagamoorthi [31] in their article titled "A Study on Export Performance of Coir Industry in India," noted that China stands out as the primary importer of Indian coir products. Coir pith finds diverse applications in products within central European countries. The Export Promotion Council of India and the Coir Board of MSME actively support initiatives aimed at boosting the export of coir products. Additionally, various government plans are in place to foster the development of the coir industry. The authors also observed a lack of awareness among individuals involved in the industry regarding the available schemes for development, promotion, and subsidies within the coir industry.

Ashik [32] conducted a study aiming to assess the socio-economic conditions of coir workers in Kerala. The research also investigated the coir workers' ability to repay debts and examined the wage rates they required compared to the wage rates they received. Data was gathered from 200 respondents in two districts, namely Kollam and Alappuzha, with a notable concentration of coir workers in Alappuzha, the primary hub of coir industries in Kerala. The study revealed that coir workers commonly experience health issues, with allergies and lung diseases being prevalent. Additionally, they face challenges such as low wages, a lack of government support, incentives, and training assistance. The workers also demonstrated a lack of awareness regarding market prices for coir products and technological advancements in the industry.

Sambasivan and Vermilaashree [33] conducted a study titled 'A Study on Quality and Production Recital of Coir Industry.' The focus of the study was on examining the support provided by the Government, the activities of the Coir Board, and the promotion of Coir Industries in both domestic and export markets. The study highlighted that for the plan expenditure allocation of funds from 2013 to 2014, there was a 27.18% shortage of funds, followed by a 43.48% shortage in the year 2014 to 2015. In the subsequent years, there was a 20.97% shortage of funds for plan expenditure in 2015 to 2016 and a significant 62.52% shortage of funds in the year 2016 to 2017. This indicated a substantial shortage of funds for non-plan expenditure in the year 2016 to 2017.

Sujay [34] endeavored to examine the influence of technological innovation and new economic policies on the coir industry in Alappuzha and Kayamkulam. The study was situated within the context of Kerala's distinctive development model, emphasizing the state's interventions in the coir industry. The cooperative scheme, a significant intervention, was identified as having substantial impact by integrating a significant portion of household units and small-scale unorganized sector units. This integration imparted an organized character to these units.

Srinivasan [35] analysed the financial performance of Vellore Cooperative Sugar Mills using financial ratio analysis. The study disclosed unsatisfactory overall financial performance and recommended measures to control costs, increase sales volume, and enhance profitability.

Chandran et al. [36] studied the financial performance of Irinjalakuda Primary Cooperative Agricultural and Rural Development Bank Ltd. The findings revealed financial losses, and the study suggested strategies to improve profitability through enhanced mobilization practices, efficient fund deployment, and increased lending operations.

Venkatesh and Kumaran [37] in their article titled "Export Performance of Coir Industry in India," observed a gradual increase in the export performance of Handloom Mats, Power loom Mats, Rubberized Coir, and Tufted Mats following globalization. However, the export trends of other coir products were inconsistent, with Curled Coir experiencing a decline. The authors emphasized the satisfactory export performance of Handloom Mats, Power loom Mats, Rubberized Coir, and Tufted Mats, suggesting that this positive trajectory should be maintained in the future. They recommended that both the state government and the Coir Board play a role in encouraging entrepreneurs to focus on manufacturing value-added coir products. Additionally, the authors proposed support for Self-help groups in the study area, particularly those involved in the production of traditional coir items such as mats, mattresses, coir ropes, and carpets. They also advocated for motivation and assistance in undertaking the manufacturing of innovative coir products like coir composites, coco-lawn, coir bricks, and coir geo-textiles.

Rusnindita et al. [38] examined the financial performance of a civil servant cooperative, employing various ratios. The study concluded that the civil servant cooperative demonstrated commendable financial performance.

Ali and Anwar [39] analysed the level of employee satisfaction and work motivation was analyzed, considering the impact of culture on employee satisfaction. The findings indicated that non-reward incentives had a positive effect on employee success. The study recommended utilizing non-reward efforts in conjunction with reward measures to enhance internal business processes.

3. MATERIALS AND METHODS

For the secondary data, past 10 years data from 2010-2011 to 2019-2020 was collected from the annual reports, websites and publications of COIRFED. Statistical tools like the Ratio analysis were used for the analysis. The study was conducted during the period August to September 2023.

4. RESULTS AND DISCUSSION

4.1 Financial Performance of Kerala State Cooperative Coir Marketing Federation Ltd. 679

Ratio analysis stands out as a highly potent tool in financial analysis, involving the establishment and interpretation of various ratios. By leveraging financial statements, this method allows for a clearer and more in-depth analysis, facilitating informed decision-making based on the insights derived from such assessments [40,41].

There are several types of ratios. Financial ratios are categorized according to the financial aspects of the business which the ratio measures. In this analysis following ratios are used,

4. Liquidity ratio
5. Solvency or Leverage ratio
6. Activity or Turnover ratio
7. Profitability ratio

4.1.1 Liquidity Ratio

4.1.1.1 Current ratio or working capital ratio

Current ratio= (Current assets / Current liabilities)

In Table 1 and Fig. 1, there is a fluctuating pattern in the current ratio or working capital ratio observed from 2010-11 to 2019-20. The highest point in the current ratio is evident in 2012-13, while the lowest is noted during 2013-14. The timeframe spanning 2014-15 to 2019-20 exhibits an undulating trend. Following the convention that a minimum ratio of 2:1 is considered a standard for liquidity in a firm, it can be inferred that the short-term liquidity position of the firm is unfavorable [42.43].

4.1.1.2 Liquid ratio or quick ratio

Quick assets = current assets - (inventories + Prepaid expenses)
Liquid ratio= (Liquid assets/ Liquid liabilities)

Table 2 and Fig. 2 display the liquid ratio of COIRFED from 2010-11 to 2019-20, with the ratio reaching its peak in 2014-15. It remains relatively stable from 2016-17 to 2019-20, while

being quite low during 2010-11 to 2013-14. As a result, it can be inferred that the company possibly did not promptly fulfill its current liabilities within a month during that period.

4.1.1.3 Absolute liquidity ratio

Absolute Liquidity Ratio= (Absolute liquid assets / Current Liabilities)

Table 1. Current Ratio of Coirfed for the period of 2010-11 to 2019-20 (Amount in crores)

Year	Currrent assets	Current liabilities	Current Ratio
2010-11	43.18	65.17	0.66
2011- 12	44.27	66.95	0.66
2012- 13	41.33	39.84	1.03
2013- 14	32.32	66.42	0.48
2014- 15	47.62	57.35	0.83
2015- 16	44.07	69.61	0.63
2016- 17	42.26	74.14	0.57
2017- 18	50.81	66.00	0.76
2018- 19	74.37	91.07	0.81
2019- 20	86.15	125.24	0.69

(Source: Annual Reports of COIRFED for the period of 2010-11 to 2019- 20)

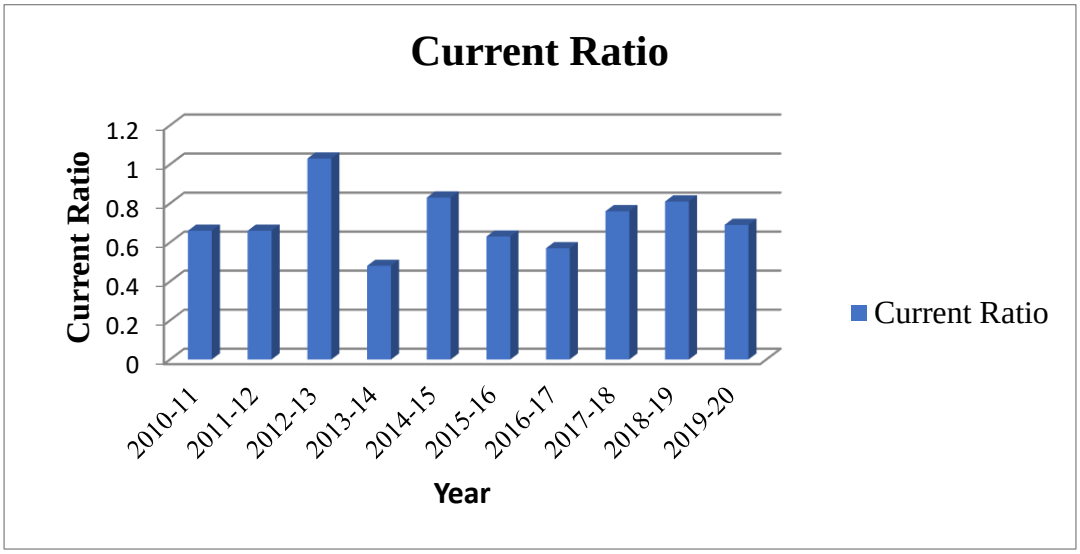

Fig. 1. Current Ratio of Coirfed for the period of 2010-11 to 2019-20 (Amount in crores)
(Source: Annual Reports of COIRFED for the period of 2010-11 to 2019- 20)

Table 2. Liquid Ratio of COIRFED for the period of 2010- 11 to 2019- 20 (Amount in crores)

Year	Quick assets	Current liabilities	Liquid ratio
2010-11	7.17	65.17	0.11
2011-12	7.36	66.95	0.11
2012- 13	9.96	39.84	0.25
2013-14	1.92	66.42	0.029
2014-15	94.05	57.35	1.64
2015-16	6.26	69.61	0.09
2016-17	37.81	74.14	0.51
2017-18	33	66.00	0.50
2018-19	38.25	91.07	0.42
2019-20	81.41	125.24	0.65

(Source: Annual Reports of COIRFED for the period of 2010-11 to 2019-20)

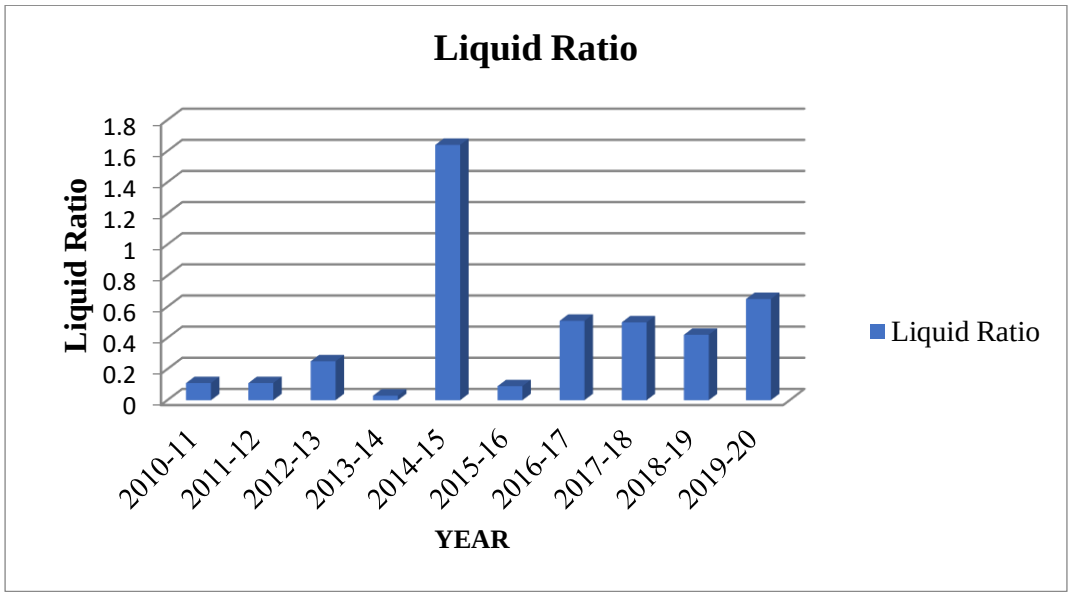

Fig. 2. Liquid Ratio of COIRFED for the period of 2010- 11 to 2019- 20 (Amount in crores)
(Source: Annual Reports of COIRFED for the period of 2010-11 to 2019-20)

Table 3 and Fig. 3 illustrate the Absolute liquidity ratio of COIRFED from 2010-11 to 2019-20. The ratio exhibits a fluctuating pattern throughout the period, reaching its peak in 2019-20 and its lowest point in 2013-14. However, the Absolute liquidity ratio consistently falls below the satisfactory level.

4.1.2 Leverage ratio or Solvency ratio

4.1.2.1 Debt equity ratio (D/E Ratio)

Debt equity ratio= (Debt/ Equity)

Table 4 and Fig. 4 illustrate the Debt-to-Equity ratio for COIRFED over the period from 2010-11 to 2019-20. The ratio displays a fluctuating pattern between 2013-14 and 2019-20, remaining somewhat stable from 2010-11 to 2012-13. The acceptable norm for this ratio is 2:1, and COIRFED's debt equity position falls short of meeting this criterion. Generally, a higher debt-to-equity ratio implies that COIRFED might struggle to generate sufficient cash to meet its debt obligations. Conversely, lower ratios may suggest that a company is not leveraging increased profits effectively. A Debt-to-Equity ratio of 2 indicates that COIRFED secures two-thirds of its capital from debt and one-third from shareholder equity, borrowing twice as much as its owned funds. The analysis of the debt equity ratio indicates that COIRFED is facing challenges in generating adequate cash to fulfill its debt obligations.

4.1.2.2 Proprietary ratio

Proprietary ratio= (Shareholders fund / Total assets)

Shareholders fund = (Equity share capital + Reserves and surplus – Fictious assets)

Total assets includes all assets including goodwill. The acceptable norm of the ratio 1:3.

Table 5 and Fig. 5 depict the proprietary ratio of COIRFED from 2010-11 to 2019-20. The ratio reaches its peak in the year 2013-14, while the subsequent years display a relatively stable trend. Consequently, the ratio consistently reflects a positive long-term solvency position for each year.

4.1.2.3 Fixed asset to net worth ratio

Fixed asset to net worth ratio = (Fixed asset/ Shareholders fund or networth)

If the ratio is greater than one, it means the creditors fund have been used to acquire a part of the fixed assets.

Table 6 and Fig. 6 present the fixed asset to net worth ratio for COIRFED from 2010-11 to 2019-20. The ratio reaches its highest point and remains steady in the years 2010-11 to 2012-13. In the subsequent years from 2013-14 to 2019-

20, the ratio demonstrates a consistent pattern. It's noteworthy that when the ratio exceeds one, it typically signifies that a portion of fixed assets has been acquired using funds from creditors. However, in this instance, the situation is the opposite.

4.1.3 Activity Ratio

4.1.3.1 Inventory turnover ratio

Inventory turnover ratio= (Cost of goods sold/ average inventory)

Average Inventory = (Opening stock + Closing stock) / 2

Cost of goods sold = (Sales – Gross Profit)

Table 7 and Fig. 7 illustrate the inventory turnover ratio for COIRFED spanning from 2010-11 to 2019-20. The ratio exhibits an upward trajectory over the years, indicating an improvement. This metric gauges the speed at which inventory is sold, with the lowest point observed in 2010-11 and the highest in 2019-20. This trend suggests effective inventory management by the firm, showcasing how efficiently it utilizes its inventory to generate sales. The growing ratio implies that COIRFED is successfully leveraging its inventory to enhance sales performance.

4.1.3.2 Fixed assets turnover ratio

Fixed asset turnover ratio= (Net sales / Fixed assets)

Table 3. Absolute Liquidity Ratio of COIRFED for the period of 2010-11 to 2019-20 (Amount in crores)

Year	Absolute Liquid Assets	Current Liabilities	Absolute Liquidity Ratio
2010-11	7.17	65.17	0.11
2011-12	7.36	66.95	0.11
2012-13	7.97	39.84	0.20
2013-14	1.93	66.42	0.029
2014-15	9.18	57.35	0.16
2015-16	6.26	69.61	0.09
2016-17	2.96	74.14	0.04
2017-18	5.94	66.00	0.09
2018-19	9.11	91.07	0.10
2019-20	32.56	125.24	0.26

(Source: Annual Reports of COIRFED for the period of 2010-11 to 2019-20)

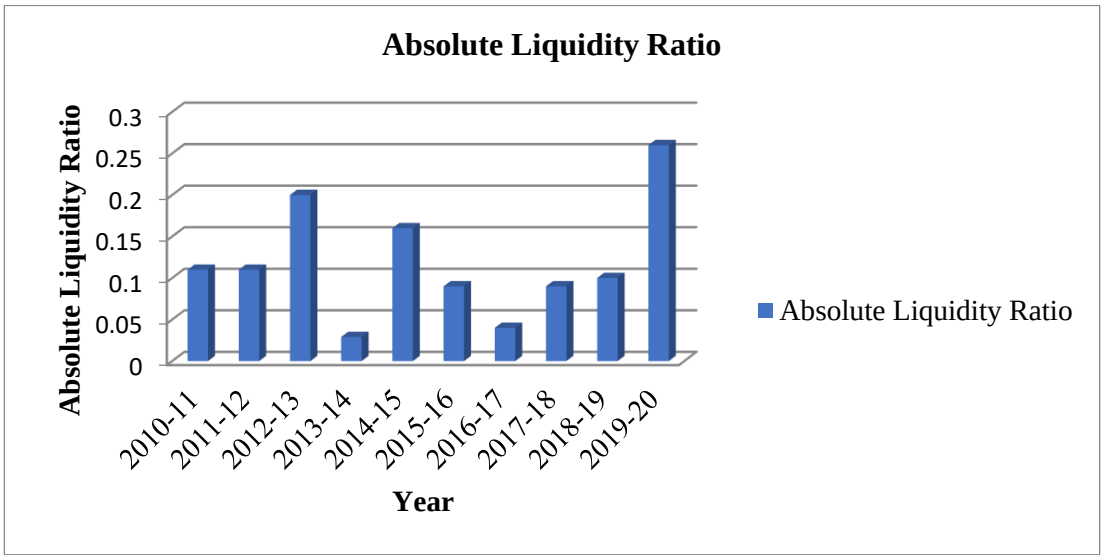

Fig. 3. Absolute Liquidity Ratio of COIRFED for the period of 2010-11 to 2019-20 (Amount in crores)

(Source: Annual Reports of COIRFED for the period of 2010-11 to 2019-20)

Table 4. Debt Equity Ratio of COIRFED for the period of 2010-11 to 2019-20 (Amount in crores)

Year	Debt	Equity	Debt Equity Ratio
2010-11	42.81	17.14	2.49
2011-12	44.81	18.16	2.47
2012-13	46.24	18.16	2.55
2013-14	37.49	38.72	0.97
2014-15	63.18	38.72	1.63
2015-16	66.42	38.72	1.71
2016-17	67.83	38.72	1.75
2017-18	77.32	48.36	1.59
2018-19	73.20	48.36	1.51
2019-20	71.29	48.36	1.47

(Source: Annual Reports of COIRFED for the period of 2010-11 to 2019-20)

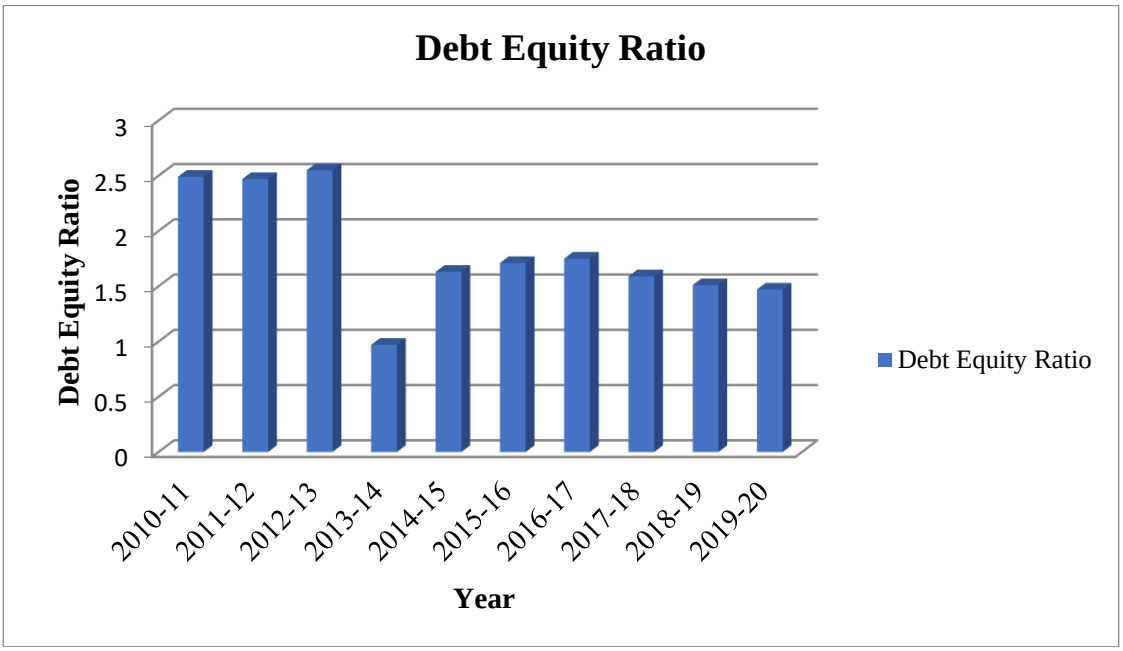

Fig. 4. Debt Equity Ratio of COIRFED for the period of 2010-11 to 2019-20 (Amount in crores)
(Source: Annual Reports of COIRFED for the period of 2010-11 to 2019-20)

Table 5. Proprietary ratio of COIRFED for the period of 2010-11 to 2019-20 (Amount in crores)

Year	Shareholders fund	Total assets	Proprietary ratio
2010-11	17.14	48.33	0.35
2011-12	18.16	49.02	0.37
2012-13	18.16	46.05	0.39
2013-14	38.72	37.67	1.02
2014-15	38.72	79.25	0.49
2015-16	38.72	101.06	0.38
2016-17	44.58	116.59	0.38
2017-18	45.87	132.87	0.34
2018-19	56.71	140.45	0.40
2019- 20	59.83	169.83	0.33

(Source: Annual Reports of COIRFED for the period of 2010-11 to 2019-20)

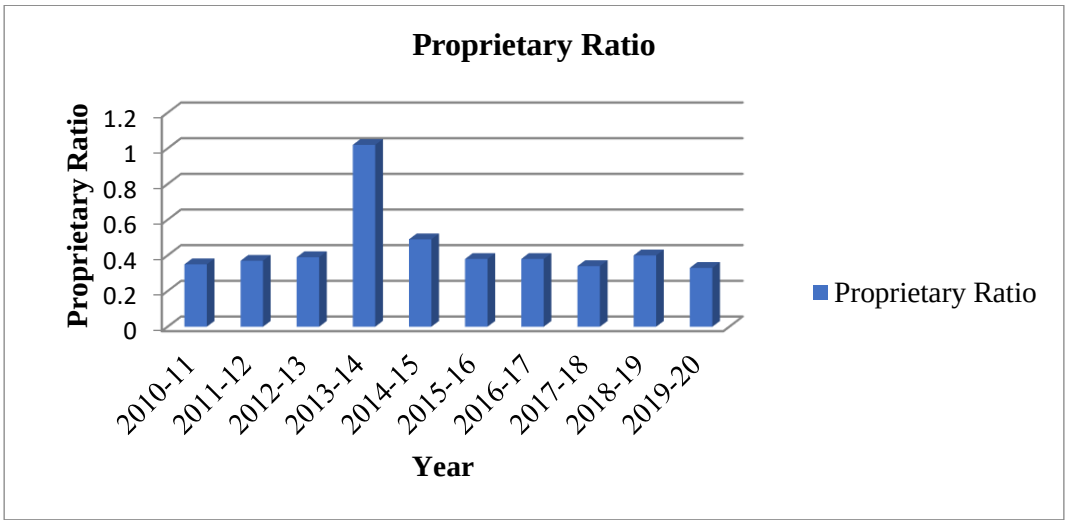

Fig. 5. Proprietary ratio of COIRFED for the period of 2010-11 to 2019-20 (Amount in crores)

(Source: Annual Reports of COIRFED for the period of 2010-11 to 2019-20)

Table 6. Fixed assets to net worth ratio of COIRFED for the period of 2010-11 to 2019-20 (Amount in crores)

Year	Fixed assets	Net worth	Fixed assets to net worth ratio
2010-11	47.22	188.88	0.25
2011-12	47.44	182.46	0.26
2012-13	47.27	181.81	0.26
2013-14	53.47	411.31	0.13
2014-15	50.71	390.08	0.13
2015-16	51.08	392.92	0.13
2016-17	64.39	495.31	0.13
2017-18	74.21	570.85	0.13
2018-19	84.32	702.67	0.12
2019-20	89.94	749.50	0.12

(Source: Annual Reports of COIRFED for the period of 2010-11 to 2019-20)

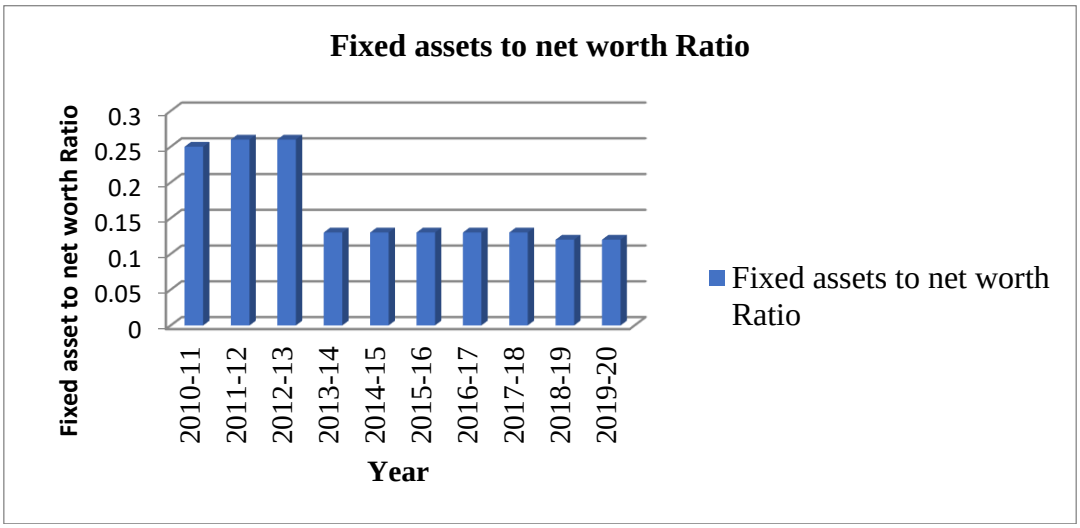

Fig. 6. Fixed assets to net worth ratio of COIRFED for the period of 2010-11 to 2019-20 (Amount in crores)

(*Source: Annual Reports of COIRFED for the period of 2010-11 to 2019-20)*

Table 7. Inventory turnover ratio of COIRFED for the period of 2010-11 to 2019-20 (Amount in crores)

Year	Cost of goods sold	Average inventory	Inventory turnover ratio
2010-11	103.63	94.21	1.10
2011-12	119.08	95.26	1.25
2012-13	135.06	92.47	1.46
2013-14	198.80	78.89	2.52
2014-15	283.83	82.51	3.44
2015-16	558.01	138.81	4.02
2016-17	792.06	158.73	4.99
2017-18	934.30	172.38	5.42
2018-19	1123.72	195.43	5.75
2019-20	1353.72	205.42	6.59

(Source: Annual Reports of COIRFED for the period of 2010-11 to 2019-20)

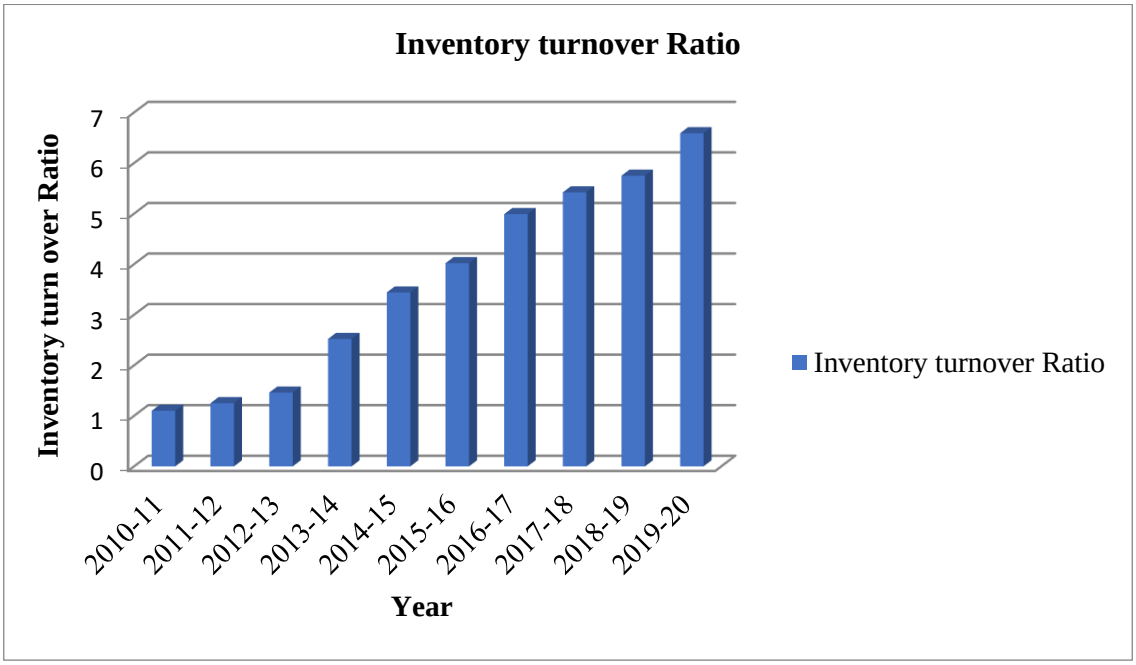

Fig. 7. Inventory turnover ratio of COIRFED for the period of 2010-11 to 2019-20 (Amount in crores)

(Source: Annual Reports of COIRFED for the period of 2010-11 to 2019-20)

Table 8 and Fig. 8 display the fixed assets turnover ratio for COIRFED from 2010-11 to 2019-20. The ratio exhibits fluctuations, reaching its peak in 2019-20 and hitting the lowest point in 2010-11 and 2011-12. From 2015-16 to 2018-19, there is a relatively stable pattern observed in the ratio. The performance of fixed assets in contributing to sales is deemed satisfactory during the period from 2015-16 to 2019-20.

4.1.3.3 Working capital turnover ratio

Working capital turnover ratio= (Net sales / Net working capital)

The Table 9 and Fig. 9 illustrate a consistently negative growth in working capital, except for the years 2012-13 and 2018-19. While a higher working capital ratio typically indicates a robust working capital position for COIRFED, the negative trend suggests that the working capital's contribution to sales is unsatisfactory.

4.1.4 Profitability Ratio

4.1.4.1 Gross profit ratio

Gross Profit Ratio= (Gross Profit / Net Sales)

Table 8. Fixed assets turnover ratio of COIRFED for the period of 2010-11 to 2019-20 (Amount in crores)

Year	Net sales	Fixed asset	Fixed asset turnover ratio
2010-11	12.11	47.22	0.25
2011-12	12.14	47.44	0.25
2012-13	143.68	47.27	3.03
2013-14	246.98	53.47	4.61
2014-15	31.65	50.71	0.62
2015-16	383.11	51.08	7.49
2016-17	476.53	64.39	7.67
2017-18	765.42	74.21	10.31
2018-19	864.25	84.32	10.24
2019-20	10594.38	89.94	11.55

(Source: Annual Reports of COIRFED for the period of 2010-11 to 2019-20)

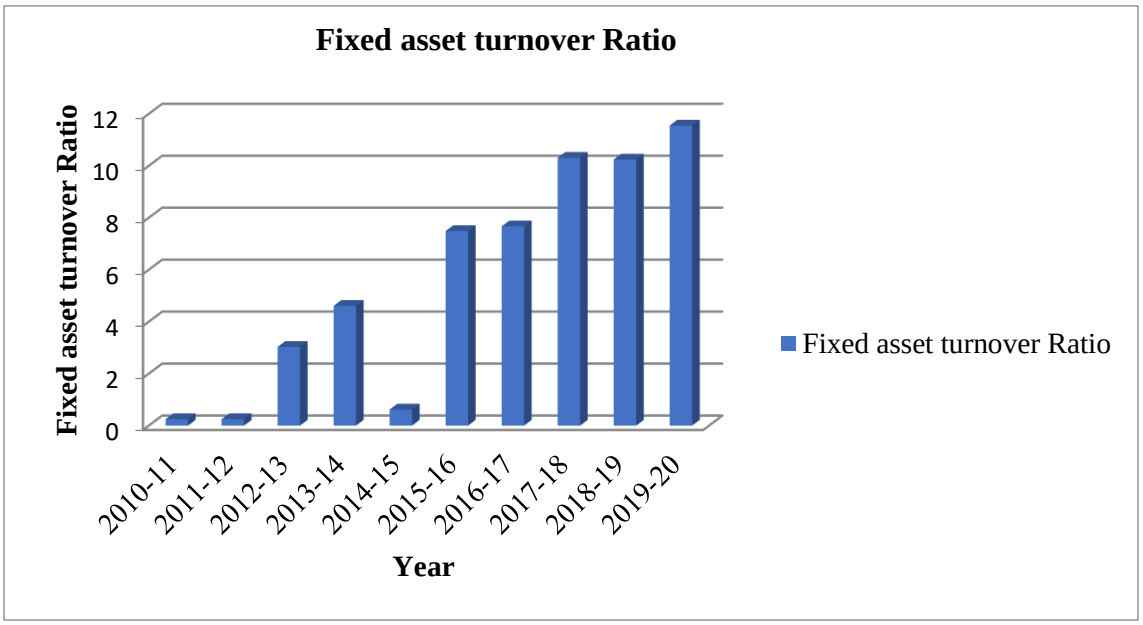

Fig. 8. Fixed assets turnover ratio of COIRFED for the period of 2010-11 to 2019-20 (Amount in crores)

(Source: Annual Reports of COIRFED for the period of 2010-11 to 2019-20)

Table 9. Working Capital turnover ratio of COIRFED for the period of 2010-11 to 2019-20 (Amount in Crores)

Year	Net Sales	Net working capital	Working Capital Turnover Ratio
2010-11	12.11	36.24	0.33
2011-12	12.14	36.48	0.33
2012-13	143.68	59.75	2.40
2013-14	246.98	74.32	3.32
2014-15	31.65	99.11	0.31
2015-16	383.11	127.44	3.00
2016-17	476.53	148.94	3.19
2017-18	765.42	184.98	4.13
2018-19	864.25	222.99	3.87
2019-20	10594.38	254.55	4.62

(Source: Annual Reports of COIRFED for the period of 2010-11 to 2019-20)

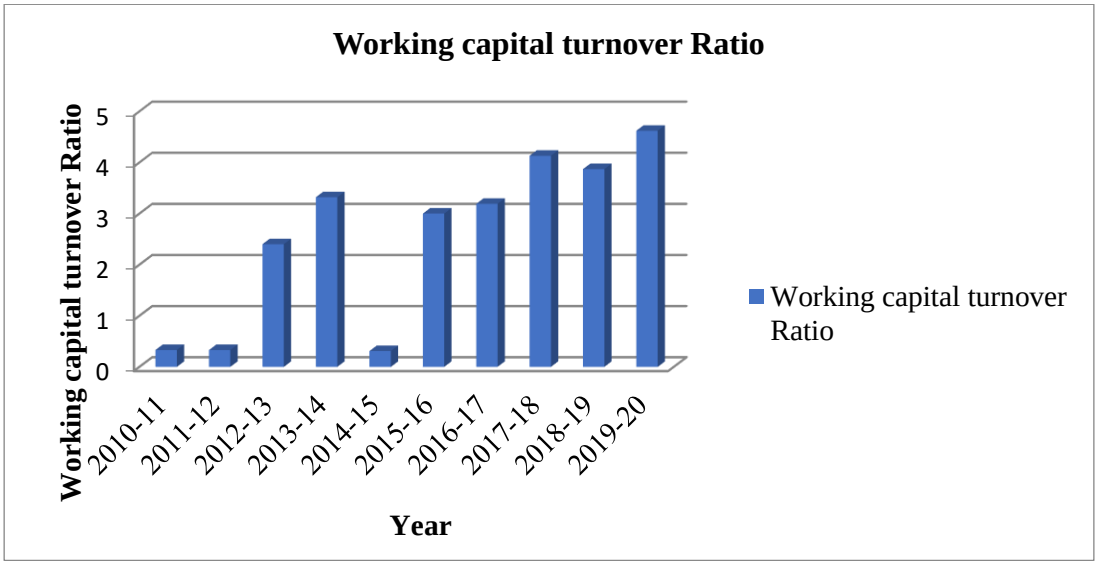

Fig. 9. Working Capital turnover ratio of COIRFED for the period of 2010-11 to 2019-20 (Amount in Crores)

(Source: Annual Reports of COIRFED for the period of 2010-11 to 2019-20)

Table 10 and Fig. 10 depict the Gross Profit ratio of COIRFED from 2010-11 to 2019-20, revealing a consistent indication of poor and lower profitability for the company throughout the period. The relationship between gross profit and sales is deemed unsatisfactory, attributed to various factors such as liabilities from financial institutions, associated interest burdens, fluctuations in government schemes, marketing variations, and challenges in the availability of raw materials. The Gross Profit ratio experiences a positive trend in 2015-16, driven by the record production and sale of coir and coir products from COIRFED's production unit. However, the persistently low ratio serves as an indicator of the company's overall low and inadequate profitability.

4.1.4.2 Operating profit ratio

Operating Profit ratio= [(Cost of goods sold + Operating expenses) / Net sales]

Table 11 and Fig. 11 portray the operating profit ratio of COIRFED from 2010-11 to 2019-20, showcasing a somewhat satisfactory relationship between operating expenses and net sales. The overall efficiency of COIRFED, encompassing aspects such as production, marketing, and administration, is deemed somewhat satisfactory.

4.1.4.3 Net Profit Ratio

Net profit ratio= (Net profit / Net sales)

Table 10. Gross Profit ratio of COIRFED for the period of 2010-11 to 2019-20 (Amount in Crores)

Year	Gross Profit	Net sales	Gross Profit ratio
2010-11	-34.09	12.11	-2.81
2011-12	-35.10	12.14	-2.89
2012-13	-79.98	143.68	-0.55
2013-14	-47.73	246.98	-0.19
2014-15	-32.89	31.65	-1.03
2015-16	-62.17	383.11	-0.16
2016-17	-43.20	476.53	-0.09
2017-18	-59.86	765.42	-0.07
2018-19	-42.87	864.25	-0.04
2019-20	-63.21	10594.38	-0.005

(Source: Annual Reports of COIRFED for the period of 2010-11 to 2019-20)

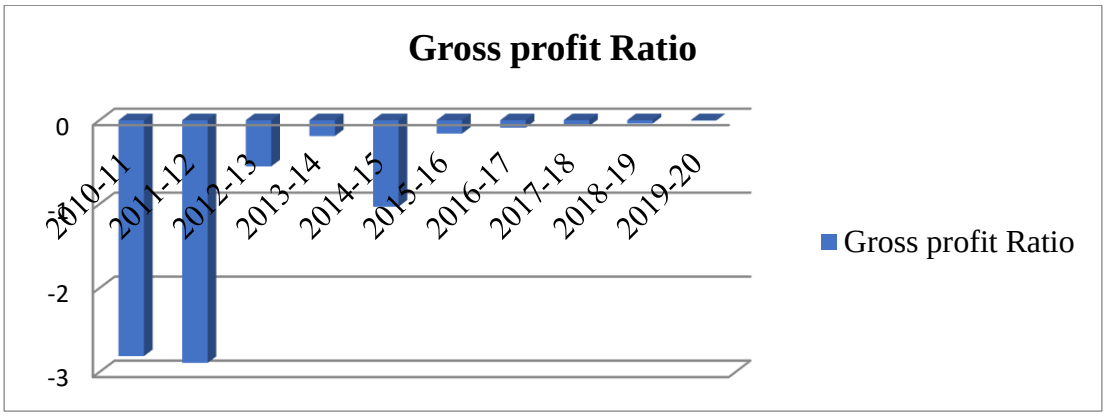

Fig. 10. Gross Profit ratio of COIRFED for the period of 2010-11 to 2019-20 (Amount in Crores)
(Source: Annual Reports of COIRFED for the period of 2010-11 to 2019-20)

Table 11. Operating Profit ratio of COIRFED for the period of 2010-11 to 2019-20 (Amount in crores)

Year	Operating cost	Net sales	Operating Profit ratio
2010-11	114.20	12.11	9.43
2011-12	117.88	12.14	9.71
2012-13	248.57	143.68	1.73
2013-14	382.82	246.98	1.55
2014-15	44.63	31.65	1.41
2015-16	486.55	383.11	1.27
2016-17	590.90	476.53	1.24
2017-18	841.96	765.42	1.10
2018-19	890.18	864.25	1.03
2019-20	12819.20	10594.38	1.21

(Source: Annual Reports of COIRFED for the period of 2010-11 to 2019-20)

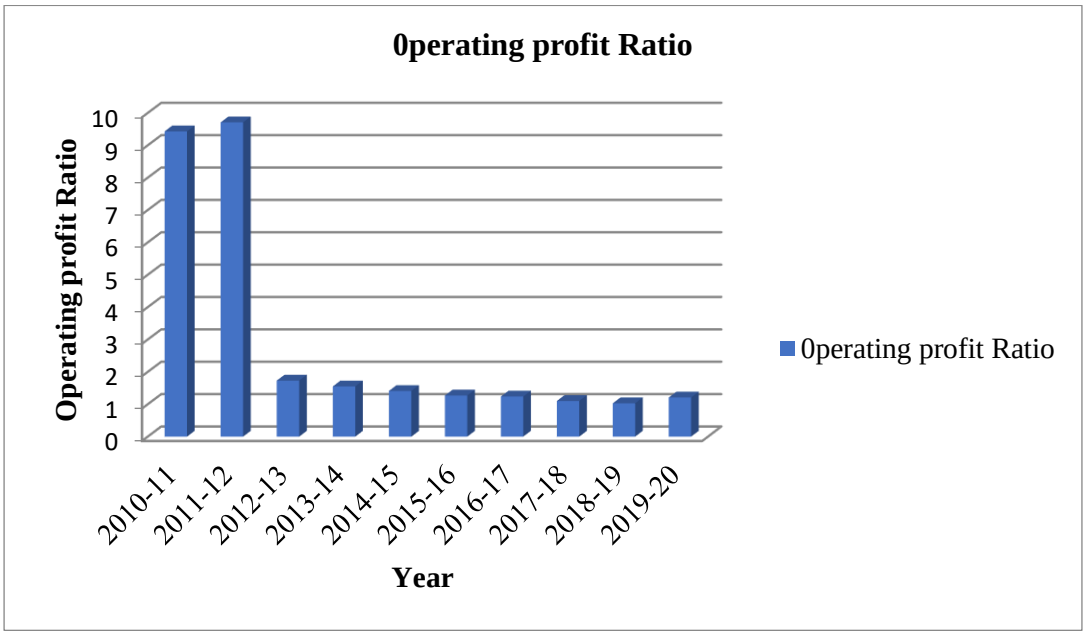

Fig. 11. Operating Profit ratio of COIRFED for the period of 2010-11 to 2019-20 (Amount in crores)
(Source: Annual Reports of COIRFED for the period of 2010-11 to 2019-20)

Table 12. Net Profit ratio of COIRFED for the period of 2010-11 to 2019-20 (Amount in crores)

Year	Net Profit	Net sales	Net profit ratio
2010-11	-72.16	12.11	-5.96
2011-12	-73.20	12.14	-6.02
2012-13	-15.56	143.68	-0.10
2013-14	-15.56	246.98	-0.06
2014-15	-56.77	31.65	-1.79
2015-16	-37.00	383.11	-0.09
2016-17	-432.00	476.53	-0.90
2017-18	-59.86	765.42	-0.07
2018-19	-42.87	864.25	-0.04
2019-20	-632.18	10594.38	-0.05

(Source: Annual Reports of COIRFED for the period of 2010-11 to 2019-20)

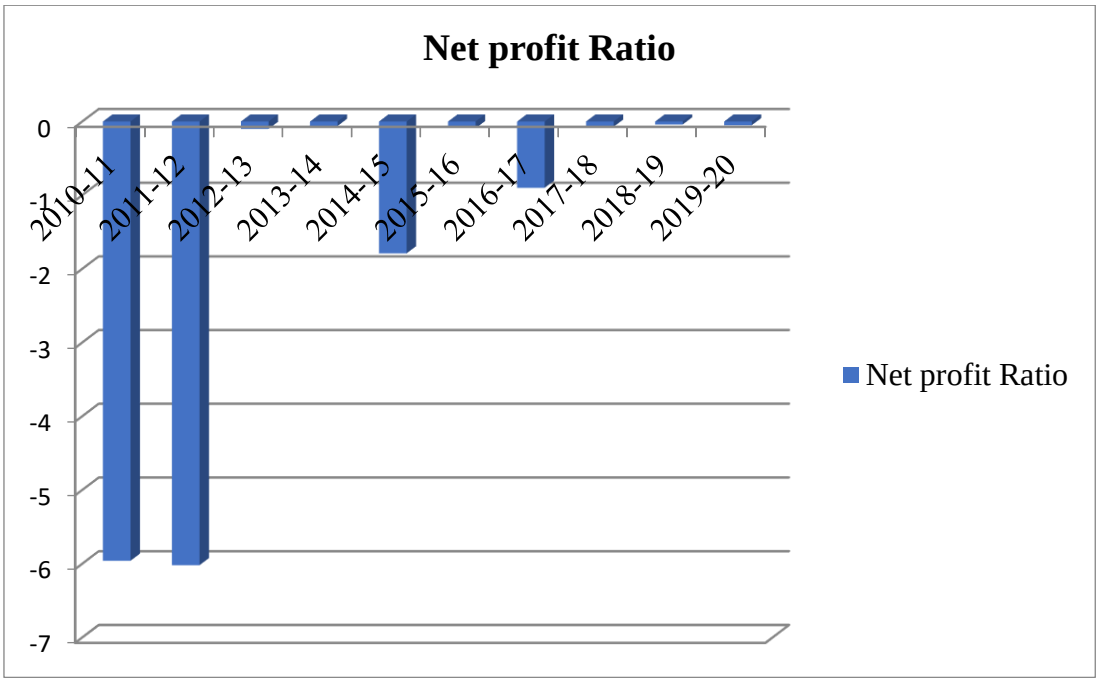

Fig. 12. Net Profit ratio of COIRFED for the period of 2010-11 to 2019-20 (Amount in crores)
(Source: Annual Reports of COIRFED for the period of 2010-11 to 2019-20)

The Table 12 and Fig. 12 illustrate the net profit ratio of COIRFED from 2010-11 to 2019-20, revealing a consistently negative trend with the exception of the year 2016-17. The overall profitability of the firm is found to be unsatisfactory, as evidenced by the net losses observed throughout the study period. Despite COIRFED's success in product sales and marketing, the cost of production exceeds the earned profit. The COIRFED has experienced an unfavorable financial position over the past decade, stemming from poor operating efficiency, underutilization of production capacity leading to a shortage of working capital, and challenges in obtaining labor and raw materials in a timely manner. Consequently, the relationship between net profit and sales exhibits a reverse nature.

5. CONCLUSION

The financial analysis of COIRFED reveals that it has been operating at a loss for the past decade, indicating it is not having good financial performance. The examination of solvency ratios indicates an unsatisfactory solvency position for the society, which has negative implications for its long-term financial stability. While liquidity ratios and inventory turnover ratios portray favourable positions, the net profit ratio has been consistently negative in recent years. Despite generating profits from sales, COIRFED is

experiencing overall losses. Given its cooperative nature, the organization prioritizes the well-being of workers and members over profit motives. The burden of debts, along with high production costs, contributes to the overall non-profitability of COIRFED. The Kerala State Cooperative Coir Marketing Federation, serving as the apex authority in coir and coir product marketing, faces challenges in maintaining a satisfactory financial position.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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