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3.1 INTRODUCTION

India has emerged today as the largest producer of milk in the world. This has been achieved through "Operation Flood" one of the world's largest dairy development programmes, which created strong linkages between the rural producers and urban consumers. The Indian dairy sector contributes a large share in the agriculture at Gross Domestic Product (GDP). In the early 1990s, the Government of India initiated major trade policy reforms, which favored increasing privatization and liberalization of all sector of the economy and dairy sector was no exception to this. Dairy industry, particularly, the handling, processing and marketing of fluid milk, which was reserved mainly for the co-operative sector, was relicensed in June 1991. The private sector dairies including multi-nationals were allowed to set up milk processing and product manufacturing plants. The basic philosophy underlying relicensing was to encourage the competition in procurement and marketing of milk, thus increasing value for both producer and customers. Although relicensing attracted a large numbers of players, concerns on issue like excess capacity, sale of contaminated, substandard quality of milk etc.

Now-a-days Indian dairy industry will have to face the world dairy markets at the time in changing scenario Gujarat state is undergoing considerable modernization with latest technology. It will be right to study and analyze the performance of the district co-operative milk unions of Gujarat and to suggest measures to cost control and improve their profitability.

3.2 RESEARCH METHODOLOGY

3.2.1 TITLE OF THE PROBLEM

This research topic is on the basis of co-operative Dairy Industry in Gujarat. Now-a-days in India and in Gujarat Dairy Industry sector plays a very important role in the growth of Indian economy. Gujarat co-operative dairy industry have been running and
working successfully and producing and distributing world class dairy products to the customers at their door. I have to study all these aspects very deeply and clearly which is related to financial performance. My topic is on the basis of, "An Analysis of Financial Performance of Co-operative Dairy Industry in Gujarat"

3.2.2 OBJECTIVE OF THE STUDY

Objective is a base for any work. The objectives determine the future and outcome of the research. No one work is started without any objectives. The present research work has also some objectives.

1. To evaluate selected Co-operative Dairies annual accounts through appropriate ratios.
2. To examine profitability of the district co-operative dairy units through different ratio.
3. To examine liquidity of the district co-operative dairy units through different ratio.
4. To examine financial efficiency of the district co-operative dairy units through different ratio.
5. To suggest ways and means to improve profitability without an addition of financial resources.
6. To study the growth of dairy co-operative in India in general and Gujarat in particular.
7. To study dairy industry and Government policy.

3.2.3 HYPOTHESES

Researcher would like to examine the following broader hypothesis as under:

- **Null Hypothesis**

  **Ho**: There is no significant difference in Profitability ratios of selected dairy units during the period of the study.

  **Ho**: There is no significant difference in Liquidity ratios of selected dairy units during the study period.
**Ho:** There is no significant difference in Activity ratios of selected dairy units during the study period.

- **Alternative Hypothesis**

**H1:** There is significant difference in Profitability ratios of selected dairy units during the period of the study.

**H1:** There is significant difference in Liquidity ratios of selected dairy units during the study period.

**H1:** There is significant difference in Activity ratios of selected dairy units during the study period.

This broader hypothesis would be redrafted with each type of ratio during the analysis work.

**3.2.4 UNIVERSE OF THE STUDY**

The universe of the study consists of District Co-operative Dairy Units working in Gujarat and member unions of GCMMF.

**3.2.5 SAMPLE DESIGN**

There are many dairies private as well as co-operative in Gujarat. In Gujarat state there are Seventeen district co-operatives milk producer’s union Ltd. are working at present. They are associated with the Gujarat Milk Marketing Federation Ltd. However, this study is confined to co-operative sector only and out of seventeen district co-operative milk union limited the researcher has selected seven dairies units. They are as follows:

1. The Khaira District Co-operative Milk Producers’ Union Ltd., Anand, Dist.: Anand (AMUL DAIRY)

2. The Mehsana District Co-operative Milk Producers’ Union Ltd., Mehsana, Dist.: Mehsana (DUDH-SAGAR DAIRY)
3. The Surat District Co-operative Milk Producers’ Union Ltd., Surat, Dist.: Surat  
(SUMUL DAIRY)

4. The Valsad District Co-operative Milk Producers’ Union Ltd., Valsad, Dist.: Valsad  
(VASUDHARA DAIRY)

5. The Sabarkantha District Co-operative Milk Producers’ Union Ltd., Himmatnagar, Dist.: Sabarkantha  
(SABAR DAIRY)

6. The Gandhinagar District Co-operative Milk Producers’ Union Ltd., Gandhinagar, Dist.: Gandhinagar  
(MADHUR DAIRY)

7. The Rajkot District Co-operative Milk Producers’ Union Ltd. Rajkot, Dist.: Rajkot  
(GOPAL DAIRY)

3.2.6 PERIOD OF THE STUDY

This research study covered the data of last ten years of the functioning of the selected dairies. A longer period could have been still better but due to time and resource constraints the last ten years not very short period has been taken for analyzing the data of research program. The study period is ten years, starting from year 2003-04 to 2012-13.

3.2.7 DATA COLLECTION

The study is mainly based on secondary data. The relevant information in this regard is collected from the annual profit and loss account and balance sheet in the annual reports of the selected units. Personal visits and unstructured interviews with the officials of the dairies constitute the main source of the data. In addition to that, financial literature, journals, magazines, news papers and articles on the related aspect have also been used in this study. The collected information was classified and tabulated. With the help of statistical techniques like ratios, regression, the data were objectively analyzed and suitable conclusions were drawn. F-test and $\chi^2$ - Test has been applied to test the validity of hypothesis.
3.2.8 SCOPE OF STUDY

Co-operative dairy industry play very important role in the economic development of rural population of the country. They are expected to perform efficiently both physically and financially. Any inefficiency on it parts will weaken the co-operative dairying in the state and adversely affect the efforts towards the emancipation of living conditions of rural masses. In the time of competition, private dairies are entering into level playing field. The production of milk is being increased day by day but the demands do not increase in that proportion of milk and its products. In these circumstances, it is necessary to keep the dairy industry alive. In the dairy industry competition has already begun during the global era. To save the dairy industry, it is extremely necessary to make proper financial planning. The private dairies with limited staff, limited expenditure and modern technology are providing its products at low price and high quality to the customers. Under these circumstances, it is inevitable to have lower production cost, quality improvement, better marketing and control over expenditure to survive co-operative units operating under co-operative structure. The present study has been conducted to assess the functioning and financial analysis of co-operative dairy industry of Gujarat state. Against this background, the present study assumes a special significance.

3.2.9 RESEARCH METHODOLOGY FOR INTERPRETATION OF DATA

The collected data is duly edited, classified and analyzed by using appropriate and relevant statistical techniques. The most appropriate parametric and non-parametric tests are used by the researcher as per requirements of the study. The data has been classification with the help of percentage, average dispersion, correlation and association. The data has been analyzed and hypotheses have been tested at 5% level of significance by applying F test, $\chi^2$ - Test, etc. according to the need of the study.
3.2.10 TOOLS AND TECHNIQUES

3.2.10.1 ACCOUNTING TECHNIQUES

1. Ratio Analysis

In order to evaluate financial condition and performance of a firm, the financial analyst needs certain tools to be applied on various financial aspects. One of the widely used and powerful tools is ratio or index. Ratios express the numerical relationship between two or more things. This relationship can be expressed as percentages (25% of revenue), fraction (one-fourth of revenue), or proportion of numbers (1:4). Accounting ratios are used to describe significant relationships, which exist between figures shown on a balance sheet, in a profit and loss account, in a budgetary control system or in any other part of the accounting organization. Ratio analysis plays an important role in determining the financial strengths and weaknesses of a company relative to that of other companies in the same industry. The analysis also reveals whether the company's financial position has been improving or deteriorating over time. Ratios can be classified into four broad groups on the basis of items used: (1) Profitability Ratios (ii) Liquidity Ratio, (iii) Capital Structure/Leverage Ratios and (iv) Activity Ratios.

3.2.10.2 STATISTICAL TECHNIQUES

The main base of this study is to analyzed Financial Performance of Selected Co-operative Dairy units of Gujarat. Verifying and testing this hypothesis, some techniques have been used. Here, mainly applied test or techniques are as under.

1. Mean

The most commonly used average is the arithmetic mean, briefly referred to as the mean. The mean can be found by adding all the variables and dividing it by total number of the years taken. It gives a brief picture of a large group which is represents and gives a basic of comparison with other groups.
2. The Standard Deviation

The Standard deviation concept was introduced by Karl Pearson in 1823. It is by far the most important and widely used measure of studying dispersion. Standard deviation is also known as root mean square deviation for the reason that it is the square root of the mean of the square deviation from arithmetic mean.

3. F-Test ANOVA (Analysis of Variances)

When it is believed that one independent factor might have an effect on the responsible variable, one way classification “F” test is designed to measure the effect of the one factors simultaneously. A null hypothesis is taken that the variance appeared is not significant while an alternative hypothesis is also taken that the variance appeared is significant. Thereafter, the calculated values of “F” are compared with the table values. If the calculated value of “F” is higher than the table value at pre-assigned level of 5% significance, the null hypothesis is rejected, otherwise accepted.

Moreover, it has been assumed that the difference arose in the proportion of respective variables over the years and among the various units did not differ significantly. The difference between two variables is accidental.

4. $\chi^2$ - Test or Chi-Square Test

The chi-square test is an important test amongst the several tests of significance. It is one of the simplest and most widely used non-parametric statistical tests. It is a statistical measure used in the context of sampling analysis to (i) test the goodness of fit; (ii) test the significance of association between two attributes; and (iii) test the homogeneity or the significance of population variance. $\chi^2$ is then calculated as follows:

$$\chi^2 = \sum \left[ \frac{(f_0 - f_e)^2}{f_e} \right]$$

Ho- Reject: $\chi^2 >$ Table value & Accept: $\chi^2 \leq$ Table value
Where, \( O \) = observed values and \( E \) = expected value. Critical values of Chi-Square are obtained from the table of chi-square distribution. The expected values will be calculated with the help of Regression Analysis.

5. Diagrams & Graphs

Diagrams and graphs are visual aids, which give a bird’s eye view of a given set of numerical data. They present the data in simple readily comprehensible and intelligible form. Graphical presentation of statistical data gives a pictorial effect instead of just a mass of figures. They depict more information than the data shown in the table which through light on the existing trend and changes in the trend of the data.

3.2.11 OUTLINE OF CHAPTER PLAN

CHAPTER-1

INTRODUCTION TO CO-OPERATIVE SECTOR AND DAIRY INDUSTRY

This chapter deals with the history and development of Co-operative sector and Dairy industry in India-concept of co-operative, co-operative principles, signification of co-operation, various types of co-operatives, over view of co-operatives around the world, growth of co-operation and co-operative movement in Gujarat and India and Dairy development in India, initiative for the dairy development in the plan periods, three-tier Amul model, global dairy scenario, profile of Indian dairy industry, trade in dairy products, dairy scenario in Gujarat, contribution of GCMMF, regulatory framework for the dairy processing sector.

CHAPTER-2

CONCEPTUAL FRAMEWORK OF FINANCIAL PERFORMANCE

In this chapter includes - Concept of performance, Meaning of financial performance, Areas of performance, Concept of financial analysis, Aim of financial analysis, Significance of financial analysis, types of financial performance analysis, Techniques of financial analysis.

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CHAPTER-4
RESEARCH METHODOLOGY AND REVIEW OF LITERATURE
This chapter deals with the - title of the problem, sample design, data collection, period of the study, scope of study, objective of the study, research methodology for interpretation of data, hypotheses, tools and techniques, accounting tools, statistical techniques, outline of the chapter plan, limitations of the study, Review of existing literature on dairying.

CHAPTER -5
ANALYSIS OF PROFITABILITY
This chapter deals with the - Concept of profit and profitability, factors affecting the profitability, Significance of profitability, techniques to measure profitability, Analysis of variance (f-test) and analysis of profitability of selected Co-operative Dairy. It has done with the help of different analytical tools such as Ration analysis - Net profit ratio, Return on shareholders’ fund, Earing per share ratio and debt-equity ratio (Leverage ratio).

CHAPTER -6
ANALYSIS OF LIQUIDITY
This chapter deals with analysis of liquidity of selected Co-operative Dairy. In this chapter includes the Concept of liquidity, relationship between liquidity and profitability, measurement of liquidity and analysis of liquidity of selected Co-operative Dairy. It has done with the help of different analytical tools such as ration analysis - Current liquidity ratio - Quick liquidity ratio - liquid ratio.

CHAPTER -7
ANALYSIS OF ACTIVITY
This chapter deals with Activity analysis of selected Co-operative Dairy. In this chapter includes the Concept of activity analysis, activity in relation to total resources and analysis of Activity of selected Co-operative Dairy. It has done with the help of
different analytical tools such as ratio analysis - Total assets turnover ratio, fixed assets turnover ratio, stock turnover ratio, working capital turnover ratio.

CHAPTER - 8
SUMMARY, FINDINGS AND SUGGESTIONS

This chapter gives its emerging conclusion based on the analysis carried out and points out the variation if any from the literature. It also gives concrete suggestions for enhancing Financial Performance, profitability & liquidity for financial soundless, for cost control and liquidity position.

3.2.12 LIMITATIONS OF THE STUDY

The limitations of the present study are as under:

1. Secondary data collected for the research study is collected from the annual reports, websites and various published reports and as such finding will depend entirely on the accuracy of such data.

2. The study is limited to ten years span 2003-04 to 2012-13 only.

3. The study is limited to seven co-operative dairy units of the Gujarat.

4. This study is limited to co-operative dairies working in Gujarat State. Its conditions cannot be applied to the whole co-operative dairy industry at national level.

5. Dairy Industry may be working in private and co-operative sector but this study is based only on the function of the dairy industry in co-operative sector. Hence, the findings of this study will not be applicable to private sector dairy unit.

6. Financial statements are normally prepared on the concept of historical cost. They do not reflect values in terms of current cost. Thus, financial analysis on such financial statements or accounting figures would not portray the effects of price level changing over the period.

7. The major limitation of study is non-availability of the information as required by the research forms.
3.3 REVIEW OF EXISTING LITERATURE

Review of literature is supposed to that you understand how you project fits into the grand scheme of things in your subject. For this research study, I have read and referred some related researches has been conducted in the past are as under:

CHAKRAVARTTY AND REDDY (1973) had written an article on the financial performance of the industry for period from 1967 to 1971 by making comparison in 1973. They used ratio analysis as major tool for financial performance and had studied 22 ratios of profitability, liquidity and turnover groups.

JOHN P. (1975) “Economics of dairy development in India” prabhat prakashan, Patna. The book is divided in to four parts (1) Importance of dairying in economic development (2) Economic nature of traditional dairying (3) History and resent organization of dairying (4) Dairy industry and government support, Information also given for indigenous dairy products and economic return from dahi ghee and other minor milk products.

D.K.DESAI AND K.V.PATEL (1975) calculated the value added by dairies for Khaira and Mehsana district from three alternative formulas based on different assumption. They found that a major share of the value added in both the district goes to labour in terms of salaries and wages at the factory level and imputed wages for family labour at the farm level. In their opinion the dairy activity should be well planned if it is to be used as an instrument of gain full employment. They also observed that income from milk has improved the credit worthiness and standard of living of milk producers. Attitudes towards modern inputs in dairy farming have become more favorable. Milk co-operative have checked the exploitation of milk producers by private agencies. The large and relative stable income from dairying has encouraged the use of Modern technology fertilizers pesticides and form power in agriculture.

V.K.MADALIA AND A.S.CHARON (1976) in their study on the economics of maintenance of cows and buffaloes and their milk production in Surat district,
Gujarat, considered cost of feed, labour, miscellaneous, recurring cost, depreciation on animals to arrive at gross cost of maintenance of cows and buffaloes. They found that the feeds accounting for more than three-fourth of the total cost formed the major item of the cost structure followed by labour cost. The cost of maintenance of various types of buffaloes was also more than that of various types of cows.

**DR.D.K.GHOSH (1976)** studied the financial position of 18 Private sector companies, having paid-Up Capital of Rs. 50 lakes or more. This study relates to the period from 1971 to 1975-76. His study is confined to the analysis of the balance sheet, assets and liabilities and condenses common size income and expenditure statements etc.

**GOEL S.L (1977)** attempted a study "Organizational and Managerial problems of Apex Co-operative Organization" and concentrated on the activities of the Apex Co-operative Banks Ltd. Chandigarh. The findings of the study were that there is need to consider organizational development as a subject of long range and continuous efforts and not as an ad affair. This implies that planned change in one or more of the sub-systems of an organization should be done in such a way so that it may introduce the flexibility and adaptability into the system to cope up effectively with the complex external environment while maintaining its own dynamic forces. One organization can learn from the experience of other organizations which can suit for the ultimate objectives as stipulated for a co-operative organization.

**KAURA AND SUBRAMANIAM (1979)** published an article on the financial performance of 10 units relating to the period from 1972 to 1979 which mainly observed liquidity, profitability, financial structure and overall performance. For this study they used conventional ratio analysis and merit rating approach. They found that the financial strength of the units have declined over the years.

**SHANKARA MURTHY (1986)** based his study on the Performance of the Karnataka State Co-operative Marketing Federation Ltd., and its impact on farm market by using various financial ratios like solvency, liquidity, profitability and turnover ratio. He also used compound growth rate analysis for the selected financial
and physical indicators. He analyzed the response from three different groups of respondents by employing cluster analysis technique.

**MR. JAWAN RAM (1988)** made an attempt to analyze the organization and working of Jaipur District Co-operative Union Limited, Jaipur and Rajasthan. The study was conducted through personal interviews with management and other employees of the union. He studies the organization structure and functions. Important functions such as (i) Milk Collection (ii) Supply of technical inputs (iii) Farmer’s induction programmes and (iv) Supervision were closely observed. On the basis of the analysis he noticed some drawbacks. At the end of the study the author had made some useful suggestions for improvement.

**MATTIGATTI R.M (1990)** conducted a study on Performance of Milk Producer’s Co-operative Societies and their impact on Dairy Farming in Dharwad district. By making use of different financial ratios such as gross profit, net worth and capital ratio he assessed the financial position of the societies. He found that, 1) increasing trend of gross ratio was due to the increase in the business turnover, 2) net worth in the case of below average societies was lower but positive.3) The net capital ratio was more than unity. He inferred that the lower net worth did not affect the strength of the below average societies.

**BISHNUPRIYA (1990)** studied the Working Capital Management in Orissa State Co-operative Milk Producers’ Federation (OMFED) limited. He has used various concepts like gross working capital, net working capital in the analysis.

**PATIL B. L. (1991)** explored Karnataka State Co-operative Milk Producers Federation Ltd and its impact on Dairy Development by using different ratios such as, solvency, liquidity, profitability, turnover and efficiency, etc. The study revealed that there was a decreasing trend in the liquidity ratio due to accumulation of fixed assets. There was an increase in liabilities representing the increased trend of solvency of the organisation. Also higher inventory turnover represented the higher existence of stock carrying or unsalable units which would not adversely affect the organisation.
DR. PRAMOD KUMAR (1991) published a book “Analysis of Financial statements of Indian industries” The study covered the 17 private, 5 state owned and 1 central public sector companies. He studied analysis of activities, assessment of profitability, return on capital investment, Analysis of financial structure, Analysis of fixed assets and working capital. In this book he revealed various problems of cement industries and suggested remedies for the problems. He also suggested for the improvement of profitability and techniques of cost control.

SINGH P.K (1995) studied the trends in export of dairy products from India during 1990-91 the country exported the dairy products worth of Rs. 2.40 crores and Rs. 13 crores in 1993-94, which shown the increasing trend in export. In the post-GATT era, WTO is going to create favorable export conditions and the dairy industry of the country has the opportunity to emerge as important player in international market. Singh (1998) examined the import of dairy products such as butter, cheese, baby food, skim milk and whole milk powder. He concluded that decreasing trend of these products was due to under Operation Flood phase-I, II and III. The creation of large co-operative milk production and marketing systems will greatly enhance infrastructure for dairy development.

ANIMESH BANERJEE (1996) in his article “Indian Dairying : An Overview” traces the growth of the dairy industry from by gone ages to its present model of Co-operative structure and suggests a collaborative pattern between the Co-operatives and investment oriented private sector to reap the benefits of modern technology.

VYAS (1997) listed the documents on dairy policies and summary of the world dairy scenario in an overview for the Indian dairy industry. The list includes demographic, socioeconomic, technological and legal aspect, measures to be taken to enhance production and quality of milk were discussed and an agenda for achieving improvements were presented.

PHILLIPS (1997) studied the recent trends in the Asian dairy markets, which included the effects of trade policy, population and income on the demand for milk products and factors that are likely to put constraints on market growth. The prospects
for market development in Japan, Taiwan, Republic of Korea, Hong Kong, China, Vietnam, Thailand, Malaysia, Philippines, Singapore, Indonesia and India were briefly reviewed.

**SINGH AND SINGH (1998)** studied India's experience with dairy development in the post-independence period and documented analyzed and lessons were drawn which might be useful for India as well as other developing countries in improving the design and implementation of future dairy development projects. The rational of major policy measures that have been used since 1970 to promote dairy development were examined, which includes cross breeding policy, modern technology (milk and cattle feed processing plants), marketing of liquid milk and milk products, producer and consumer prices and price policy, organizational and institutional policies, public investments, grants and subsidies, inter-state variations in dairy development, dairy science education, training and research. The effect of India's New Economic Policy announced in 1991, and the new world-trading regime were also discussed.

**M.K. RADHAKRISHNAN (1998)** undertook a study to evaluate the performance of dairy co-operatives in Erode District of Tamilnadu. The study has been conducted in the dry block of Perundurai and one wet block of Gobichettipalayam of Erode District selecting 300 sample respondents. Field survey technique and personal interview methods have been adopted to collect relevant information. The study points out that the procurement of the union is severely affected due to the presence of private traders in large numbers, seasonality in milk production and dissatisfaction over the procurement price of the milk sold by the union. Delayed payments to the producers, payment of heavy interest on borrowing, delay in receiving payments for milk products from federation, non-payment of dividend to the inputs are identified as the major problems of the union. Low capacity utilization, lack of commercial outlook, low return on investment, political nomination, political interference and absence of elected board are the other factors responsible for the poor performance of the Erode Union.
**V.P.S. ARORA (1998)** has made a temporal analysis on the role of co-operatives in milk marketing at North-west Uttar Pradesh. The following conclusions were emerged from the findings of the study: i) In spite of the increase in gap between marketed and marketable surplus of milk, there exists potential to increase the milk supply; ii) Annual milk production and price of milk may be used as policy instruments to increase milk supply; iii) Overall, Co-operatives are playing very important role in the procurement, processing and distribution of milk, however, popularity of Village Dairy Co-operatives among small milk producer is to be enhanced; iv) Milk price received by sample milk producers vary according to the milk agency to whom sold and also among category of milk producers buffalo milk fetches higher price than cow milk. V) Village Dairy Cooperatives pay higher price for milk than other agencies and average price of milk decreases with size of dairy farming.

**J.T. DORGE ETAL (1998)** analyzed the marketable surplus of milk in Konkani region and Western Maharashtra. They made an attempt to estimate the cost of marketing of milk in the area of study. They identified that the Co-operatives were the major buyers of milk. The difference in natural topography was found to cause variation in the average cost of marketing of milk between the two regions.

**K. RAJENDRAN AND R. PRABAHARAN (1998)** has made a study on the present scenario of milk production in India. It was said that today, milk is India’s second-most important agricultural commodity in terms of value of its output, ranking next to paddy and much above wheat. For increasing the production further emphasis should be placed on bio-technological aspects of cattle production, so as to ensure a better mix of low and high-yielding milch animals.

**MRS. HEENA RAWAL (1999)** studied the profitability of five District Milk Producers Co-operative Union Ltd. of Gujarat State. She studied costing and pricing practice of milk co-operative of Gujarat State. They found that the profitability increase by reducing the cost or increasing the total sales. The co-operative has not adopted a proper costing system and Cost-Volume Profit method to control cost, Cost Centre has not been identified by any of the co-operative dairy.
KATAR SINGH (1999) studied the impact of WTO trade agreements on India's dairy industry. The study was discussed in terms of: production, terms of trade, quality standards, product mix, prices and investment. It was argued that India would benefit from trade liberalization as it does not subsidize the export of its milk and milk products and should therefore benefit from increased access to world markets. However, technical developments in the industry must continue if global competition is not to wipe out these gains.

V.KURIEN (1999) Identified the factors responsible for the success of dairy industry as i) Technology, ii) Quality, iii) Infrastructure, iv) Right investment and v) Relationship with agriculture. He has said that the success of Indian dairy industry is because dairying has been potentially remunerative to the producers. He suggested that i) the factor advantage of India has to be converted to competitive advantage; ii) world-class standards has to be maintained; iii) the Government should have no role in financing of the development of the industry and all enterprises big and small should be self reliant; iv) industry to be self-regulated; v) official pricing policy to protect the interest of milk producers and vi) timely and accurate information about happenings to be provided.

DEEPAK SHAH (2000) reviewed the book titled ‘Amul-Story of a Growth Model with a Complete Story of Operation Flood’ as to how of increased the production of milk and made it available to consumers in most of the urban areas of India and acknowledged problems faced by Kurien for his attachment with the concept & operational aspects of operation flood. The final section of the book also set out the agenda for the future growth and warned India against blindly following the model of the market-driven economy.

KURIEN (2000) examined the impact of globalization on agriculture in poorer countries with particular reference to the WTO, the convention on biodiversity, and trade liberalization, which must focus on current techno-economic conditions of the dairy industry. The study examines the growth in milk production in India since 1971,
the role of research and development in this and possible future directions of research to ensure increased productivity of Indian dairy livestock.

**P.A.Koli (2000)** in his article titled ‘Can milk co-operatives sustain in 21st century?’ said ‘Yes’ after making a empirical study on the growth performance of Kolhapur District Co-operative Milk Union. It was stated that devoted leadership along with disciplined working of staff, Co-operation of the state government and NDDB and members’ response to the union have cumulatively contributed to the progress and prosperity of the union. He stressed on the fact that milk co-operatives in order to have a sustainable development should not depend upon Government help and assistance for a long time.

**R.Masilamani (2000)** evaluated the performance of Salem District Co-operative Milk Producers’ Union Limited by analyzing 12 years data from 1986-87 to 1997-98 obtained from the records of the union. The primary data was collected from eight regions viz., Attur, Salem, Mettur, Vazhapadi, Sankari, Kahipuram, Namakkal and Velur co-operative societies. 240 members of the societies and 120 non members were interviewed. The study results showed that the estimated cost in the regions varies slightly. Labour cost was found to dominate the total cost in all regions. The ANOVA results revealed that there was no significant variation between regions and between groups (members and non-members).

**Brandt R. Allen & Paul J. Simko (2000)** On September 20, 2000, Jonathan Weill, a Wall Street Journal reporter in Dallas, Texas, published a piece questioning the profitability and accounting of Enron Corporation. He based his article on a study of Enron’s financial statements and conversations with staff at the financial Accounting Standards’ Board (FASB), accounting professors’ financial analysts, and others. “It took me a while to figure out everything I needed to... It probably took a good month or so. There was a lot of noise in the financial statements.” His piece was read by James Chanos, founder and president of Kynikos Associates, a firm that specialized in short-selling. How did Weill and Chanos figure Enron out when so many others were pushing up the stock price? How did they know to do that kind of
financial? Only the answer is simple: through study, application, and more application. You cannot develop financial analysis expertise overnight. Our objective in this document, however, is to present a very basic structure for financial analysis that will help move you toward that goal. They focus on what to look for in the financial statements, how to do basic ratio analysis what financial forecasting entails, and how analysts use financial statement data in valuation. They intentionally focus on the mechanistic nature of financial analysis because these tools are fundamental building blocks common to the analysis of most firms. Without understanding this basic structure the unique issues facing a firm would be difficult to interpret.

**DR. S. J. PARMAR (2001)** published a book in 2001. The book is a systematic study of the modern financial measurement techniques useful for management in planning and controlling corporate activities. With increasing participation by the general public and financial institutions as present and corporate bodies have to be on their guard and manage their efficient financial efficiency in the area of globalization. This book covers topics of concept and measurement of profitability, cost & sales trend, profit margin, assets turnover, analysis of return on investment common size of value added statements.

**DORON NISSIM & STEPHEN H. PENMAN (2001)** this paper presents a financial statement analysis that distinguishes leverage that arises in financing activities from leverage that arises in operations. The analysis yields two leveraging equations, one for borrowing to finance operations and one for borrowing in the course of operations. These leveraging equations describe how the two types of leverage affect book rates of return on equity. An empirical analysis shows that the financial statement analysis explains cross-sectional differences in current and future rates of return as well as in price-to-book ratios, which are based on expected rates of return on equity. The paper therefore concludes that balance sheet line items for operating liabilities are priced differently than those dealing with financing liabilities. Accordingly, financial statement analysis that distinguishes the two types of liabilities aids in the forecasting of future profitability and the evaluation of appropriate price-to-book ratios.
BUTALAL C. AJMERA (2001) has done his dissertation “Interpretation and analysis of financial statement of two selected units of Birla group”, in the year 2001 by using conceptual framework of financial statement, Research plan, profile of the cement industry. Birla group of companies a bird’s eye view, liquidity position, financial structure and suggestion, the period of 1994-95 to 1998-99. The study reveals the course of profitability.

DR. MISS KAILASH P. DAMOR (2002) has done research on “A comparative analysis of profitability trends in co-operative sugar industry of India” in the year 2002. In her research she has given clear idea about profit and profitability. Profit means; “it is an excess of Income over expenses.” Profitability means “it is a capacity of earning profit.” Profitability is related with two words, Profit and Ability. We discuss the word profit in many senses but the word profit is used as per its purpose, where as the ability shows the capability of earning profit from business. Profitability also shows our capacity of how much return we can give to our investors on their investment.

D.B.MADLAPURE ET AL (2002) evaluated the performance of dairy co-operatives in Konkan Region. Twenty dairy Co-operative societies were selected randomly and their working, financial and operational efficiency were assessed. Majority of the members of the co-operative societies were found to be cultivators. Share capital and borrowings were found to be more in the working capital. Effort has been made to find out the relationship between total turn-over, average working capital and average rate of turn-over of the dairy societies. Average total turn-over was found to increase with the increase in average working capital. Multiple regression analysis revealed that as membership, share capital and working capital increased, milk collection was also found to increase.

problems of Cement Industries and suggested remedied for the problem. He also suggested for the improvement of profitability and techniques of cost control.

**EHSAN H. FEROZ & RAYMOND L. RAAB (2003)** Ratio analysis is a commonly used analytical tool for verifying the performance of a firm. While ratios are easy to compute, which in part explains their wide appeal, their interpretation is problematic when two or more ratios provide conflicting signals. Indeed, ratio analysis is often criticized on the grounds of subjectivity that is the analysts must pick and choose ratios in order to assess the overall performance of a firm. In this paper, they demonstrate that Data Envelopment Analysis (DEA) can supplement the traditional ratio analysis DEA can provide a consistent and reliable measure of the managerial or operational efficiency of the firm. They test the null hypothesis that there is no relationship between DEA and traditional accounting ratios as a measure of performance of a firm. Their results reject the null hypothesis indicating that DEA can provide information to analysts that is additional to that provided by the traditional ratio analysis. They illustrate the application of DEA to the oil and gas industry to demonstrate how financial analysts can employ DEA as a complement to ratio analysis.

**S. SURIYAMURTHI AND S. RAMACHANDRAN (2003)** have analyzed the problems and prospects of co-operative milk producers union in Tamil Nadu. The authors opined that organizing an industry on co-operative basis has been accepted as an effective method of dairy development. The private operators were offering a better price for milk to divert milk from co-operatives to private collection centers which may result in destabilization of dairy cooperatives. This may in the long run put milk producers in the tehsil to suffer exploitation in the hands of private operators. The co-operatives have to mend the co-operative laws and adopt model act to ensure that cooperatives compete with the private sector in a level playing ground as much as commercial organization.

**BARDHAN (2004)** evaluated the India’s trade performance in livestock and livestock products on the basis of time series data pertaining to the period 1980-2004. To
examine the changes in exports and imports compound growth rates for two periods i.e. like pre-WTO (1980-94) and post-WTO periods (1995-2000) were separately computed assess the implication of WTO on livestock trade. He noticed that the share of livestock to total agricultural export although small has shown increasing trend in the recent past, which implied better growth in export earnings from livestock products than those from other agricultural commodities.

**DR. RASIK N. BAVARIA (2004)** has completed his research on “A comparative analysis of profitability vis-à-vis Liquidity performance in cement industry of India” in the year 2004. He has given importance of profitability and liquidity; by the term ‘Liquidity’ is meant the debt-repaying capacity of an undertaking. It refers to the firm’s ability to meet the claims of suppliers of goods services and capital. Study of financial statement analysis is always made objectively. Generally, the external analyst uses the information as per his requirements. Financier would like to know profitability. Management would be interested in the operational efficiency and profitability. Position of the management profitability vis-à-vis liquidity should also balance in the portfolio. But if the management likes profitability, liquidity becomes less and if the liquidity is liked more the profitability gets less, for a short period of time. In the long run both will go together.

**DR. V.K SAPOVADIA (2004)** he has done his research work in year 2004. Under his research work he studied financial performance of various co-operative sectors. For this purpose he also calculated some ratio. Title of his study “A comparative study on financial performance appraisal of Indian co-operative sector and USA based co-operative sector” in his study he focuses on historical scenario and development of co-operative, working environment structure, performance appraisal of co-operative movement, role and importance of co-operative.

**US CO-OPERATIVE INFORMATION REPORT (2005)** expressed that United State’s dairy co-operatives had shown their ability to successfully adapt to changes in the marketing environment and offer a wide variety of avenues for dairy farmers to market their milk. U.S. dairy co-operatives have adopted the World trade issues, such
as subsidy levels and import quotas, etc. In sum, the dynamics of the 21st century dairy industry presented a broad array of issues for dairy co-operatives as they planned and directed their operations to market members' milk to its best advantage.

**DR. KANAK N. ATKOTIA (2005)** “Analysis of Profitability performance of Tea Industry in India” - thesis submitted by Kanak N. Atkotia. In it, conceptual framework of financial performance, profile of the tea industry in India, analysis of profitability, financial structure, working capital and analysis of activity is included and also suggestions are given.

**GARTIA, OTTO, AMIT, KHALID, ASAAH AND TORSTEN (2006)** studied the Dairy Development Programs in Andhra Pradesh. By analyzing data collected from different households they calculated annual household income which ranges $1,000 to $4,000. The dairy activities contributed 16 percent to the daily per capita household income. This study showed that feeding programs can have an impressive impact of increasing return to dairy labor by up to 145 percent.

**CHAUHAN, KALRA, SINGH, VIR, RAINA, (2006)** jointly conducted a study on the economics of milk processing in a dairy plant in Haryana and made the observations that there was economics of manufacturing of different dairy products, viz. ghee, full cream milk, standardized milk, toned milk, double-toned milk, skimmed milk and ice cream (processing only) as they are being produced above the recommended break-even level. The study suggested that the quantity of double-toned milk production should be raised at least equal to the recommended break-even level to avoid losses.

**DR. HARISH P. DESAI (2006)** He has done his Ph.D. on “Financial performance appraisal of selected district dairies co-operative in Gujarat” in May 2006. Under this study he has made a modest attempt in assessing the financial health of the selected co-operative dairy units by applying accounting tools and techniques of the date of nine district co-operative dairy unions in Gujarat State. For this purpose he has used many accounting tools and techniques like common size statement, Ratio analysis,
etc. He has also used some statistical techniques like, mean, Regression, F-test and T-test.

**DR. A. M. PATEL (2007)** published a book in 2007 “Dairy industry and development”. The study covered nine co-operative dairy units. He made study of analysis of Profitability, common size income statement, value added statement of co-operative dairy industry of Gujarat. In his research he revealed development of dairy industry and various problems of dairy industry in India. He also suggested for the improvement of profitability and techniques of cost control.

**ANNUAL REPORT OF THE DEPARTMENT OF ANIMAL HUSBANDRY, DARING & FISHERIES OF THE GOVERNMENT OF INDIA (2010-11)** India continues to be the largest producer of milk in the world. As a result of different measures initiated by the Government the productivity of livestock and milk production have increased the milk production significantly to the level of 100.9 million tonnes at the end of the Tenth Plan (2006-07) as compared to 53.9 million tonnes in 1990-91. The estimated milk production for 2009-10 was 112.5 million tonnes.

**DR. SHIVUBHAI C. VALA (2011)** he has done his Ph.D. on “A comparative study of profitability vis-à-vis liquidity of co-operative milk producers unions of Gujarat state.” in February – 2011. Under this study he has given clear idea and importance of Profitability and liquidity. By the term liquidity is meant the debt – Repaying capacity of an undertaking. It refers to the firm’s ability to meet the claims of suppliers of goods services and capital. For this purpose he has used many accounting tools and Techniques like common size statement, Ratio analysis etc. He has also used some statistical techniques like mean, regression, F-test, T-test, Diagrammatic and graphic presentation of data.

**PARUL P. BHATI** has done a project work on “study of Sabarkantha district co-operative milk producers” she has studied on general aspect of activities of Sabarkantha dairy. In her project work she explained activities of various departments like production department, human resource department, marketing department
financial department etc. Sabarkantha dairy has a very simple distribution channel. All the products manufactured by Sabar dairy are marketed by GCMMF Ltd. All the products are manufacture and sold under the brand name of Amul. The advertising, distribution of the products and development of the marketing policies are performed by GCMMF Ltd. The main competitors of Amul are Nestlé, glax co, royal Cadbury and other private dairy. This is a good example of co-operative organization.

C.R.KOTHARI A book has been written by him on ‘Research methodology’ in which the statistical techniques related to data analysis explained very well. This book is special about the qualitative techniques of the research.
REFERENCES