Financial Performance Assessment of Cooperative Dairy Units: Case Study in Haryana

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Abstract

The present study deals with the analysis of efficiency of the cooperative dairy industry in Haryana which is engaged in processing and selling milk and milk products. The financial statements of the six leading district co-operative dairy units for five years have been collected, and analysed using various techniques of measuring financial health like Ratio analysis and statistical procedures like Mean have been applied to find out the reasons and suggest measures to improve efficiency.

Keywords: Dairy Cooperatives, Efficiency

Introduction

Dairy co-operatives play a crucial role in the economic development of the rural population of India.Any inefficiency adversely affects the efforts of the government towards the emancipation of living conditions of rural masses. Thus, the government treats co-operative dairy industry as a Social Institution. This has affected the efficiency and profit and loss of dairy industry at large. As a result, it is a subject of study for dairy industry how to balance between economic objectives and welfare activities.

Review of Literature

Dr. Harish Desai (2006), 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 a c c o u n t i n g tools and techniques to 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, T-test, diagrammatic and graphic presentation of data.

Mrs. Heena Rawal (1999) studied the profitability of five district milk producers' co-operative union limited 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.

Dr Ruchira Prasad and Dr Rupali Satsangi (2013) Present research paper discusses the relationship between designs of an organization and their operational efficiency indicators. The study has been carried out keeping the Amul Cooperative into context. The structure of Amul is similar to the structure which is available in the federal form where each unit works independently of other units.

T Hima Bindu, Dr S E V Subrahmnyam (2012) This research paper deals with various research tools to calculate the financial health of Dairy Industry of Andhra Pradesh. In the beginning of the study, the authors have discussed the importance of Indian dairy industry in the overall Indian Economy. The dairy industry has also shown significant development in the past few decades. The scope of development is also immence. Due to progress in the dairy industry, India today has become one of the largest producer of milk.

M A Deshmukh, SS Chopde, SD Kalyankar, VD Kele (2015) Dairy Industry has a special position in the agriculture sector

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Industries. Specialty of dairy industry lies in the fact that milk is produced every day by the farmers and it generates daily income to the farmers. Dairy Industry affects the marginal farmers and it is a labour intensive industry which provides employment to large number of population. Milk is also used to make a large number of milk products like Ice-cream, milk powder, Gulab Jamun, Cheese etc. Today, most of the dairy plants face major challenges of outdated automation system. The complex collection system, production, packaging and marketing need to be controlled and analyzed in an integrated manner to achieve the desired result.

Dr SP Mathur, Rekha Swarnkar, Yogesh Soni (2014) Aim of this research paper is to study the liquidity management of various dairy cooperatives of Rajasthan Cooperative Dairy Federation. Working capital management is the life line of any organisation/ business venture. All business organisation require certain amount of fund to continue its day today operations and also produce goods for sale in the market to earn profit. A positive working capital is a must for a business organisation so that it is able to continue its day today operations/ working and they are still left with sufficient funds so that they are able to look after its short term debt and other operational related expenses.

D.B.Madlapure et al (2002) evaluated the performance of dairy co-operatives in Konkan Region (M.S). Twenty dairy co-operative societies were selected randomly and their working, financial and operational efficiency were assessed. Majority of the members of the cooperative societies were found to be cultivators. 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 were undertaken in the said study. The important finding of the study was that as share capital and working capital increased, milk collection was also found to increase, which was through multiple regression analysis. In addition, 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 cooperatives in order to have a sustainable development should not depend upon Government help and assistance for a long time.

Objectives of the Study
1. To examine the financial and operational efficiency of the district co-operative dairy units through different ratios.
2. To find ways and means to improve efficiency without the addition of financial resources.

Sample Design

This study is based on the secondary data derived from annual published reports, from 2011 to 2016, of the six Haryana co-operative dairy units.
1. Milk Union Ambala.
2. Milk Union Kurukshetra-Karnal
3. Milk Union Hisar- Jind
4. Milk Union Ballabgarh
5. Milk Union Rohtak
6. Milk Union Sirsa

Hypothesis

In this source of the study two assumptions
1. Null hypothesis and
2. An alternative hypothesis

Has been taken, and they have been tested with the help of the chi-square test and the 'F' test.
1. H0: Difference between total assets turnover of the units under study during different years isinsignificant.
   H1: Difference between total assets turnover of the units under study during different years issignificant.
   H0: Difference between total assets turnover of the units under study during different dairies isinsignificant.
   H1: Difference between total assets turnover of the units under study during different dairies issignificant.
2. H0: Difference between fixed assets turnover of the units under study during different years isinsignificant.
   H1: Difference between fixed assets turnover of the units under study during different years issignificant.
   H0: Difference between fixed assets turnover of the units under study during different dairies isinsignificant.
   H1: Difference between fixed assets turnover of the units under study during different dairies issignificant.
3. H0: Difference between working capital turnover of the units under study during different years isinsignificant.
   H1: Difference between working capital turnover of the units under study during different years is significant.
   H0: Difference between working capital turnover of the units under study during different dairies is insignificant.
   H1: Difference between working capital turnover of the units under study during different dairies is significant.

Research Methodology

This study is based on secondary data which is taken from the annual reports of co-operative dairy units for the period from 2011-12 to 2015-16.

The data obtained have been duly classified edited and tabulated under various groups and sub-groups as per requirements of the study. Accounting tools like Ratios and Common size statements have been used and Statistical measures have been applied. "F" test

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has been used to test the validity of the hypothesis.

Framework of Analysis

The efficiency of utility of assets are measured asunder:

1. Total Assets TurnoverRatio
2. Fixed Assets TurnoverRatio
3. Working Capital TurnoverRatio

Total Assets Turnover Ratio

Total assets turnover ratio expresses the relationship between the cost of sales and total assets of a firm. This ratio is significant as it shows the enterprises ability of generation sales per rupee of investment in total assets. The ratio is expressed in integers rather than as a percentage. The total assets turnover ratio is calculated as follows:

$$\frac{Sales}{Total\ Assets}$$

Income is earned by using assets productivity. The more efficiently assets are used, the more is the profitability of the business. The return on assets is a useful measure of the profitability of the financial resources invested in the firm's assets. Total assets turnover ratio is calculated by dividing the value of total assets into sales.

Table 1: Total Assets Turnover Ratio
(In times)

	2011-12	2012-13	2013-14	2014-15	2015-16	Average
Ambala	2.73480514	2.38940628	2.89607896	5.62267619	4.34658264	3.5979098
Rohtak	3.05523724	3.83759299	2.95825091	2.91935946	2.54987725	3.064063
Sirsa	1.77322762	5.25462371	2.15819123	2.11617029	2.01604214	2.663
Hisar	3.27149418	2.32326790	3.37159196	2.64256911	2.59008447	2.839
Kurukshetra	5.82155461	5.70076139	7.88598002	4.15614327	3.84008022	5.4809039
Ballabgarh	6.5953761	4.4392551	3.2715232	2.89467741	3.387466465	4.117

Findings

The total assets turnover ratio in Ambala dairy showed a fluctuating trend over the years. It ranged from 2.73 times in 2011-12 to 5.6 times in 2014-15, the average being 3.59 times due to the increase in total assets.

In Kurukshetra dairy, the total assets turnover ratio showed an increasing trend during the first three years and decreasing in next years. It ranged from 5.82 times in 2011-12 to 7.88 times in 2013-14, the average being 5.48 times due to a decrease in totalassets accompanied by an increase in sales.

In Ballabgarh Dairy, the total assets turnover ratio was ranged from 3.12 times in 2015-16 to 6.27 times in 2011-12, the average is 3.86 times. It was registered as a fluctuating trend during the first three years. Finally, it went down during the last two years during the study period due to the increase in totalassets.

The ratio of Sirsa and Hisar dairy with an average of 2.66 times and 2.83 times showed a decreasing trend during the period of study because of a decrease in total assets.

Rohtak dairy also registered a decreasing trend from 2.95 times in 2013-14 to 2.54 times in 2015-16 because of the increase in total assets, average being 3.06 times.

Analysis of Variance F-Test for Total Assets Turnover

The tables represent the "F" test in Dairy units under study.

The statements of the hypothesis are as under.

H0: Difference between total assets turnover of the units under study during different years is insignificant.

H1: Difference between total assets turnover of the units under study during different years is significant.

H0: Difference between total assets turnover of the units under study during different dairies is insignificant.

H1: Difference between total assets turnover of the units under study during different dairies is significant.

Table 2: 'F' Test of Total Assets Turnover between Dairies

"F" Test						
		Sum of Squares	df	Mean Square	F	
Total Assets Turnover Ratio	Between Groups	27.72	5	5.54		
	Within Groups	36.95	24	1.54	3.60	2.62
	Total	64.67	29			

Findings

At 5% level of significance calculated value of F is 3.602 which is significant.

Therefore, null hypothesis H_0: Difference between total assets turnover of the units under study is insignificant, is rejected.

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Thus, the alternative hypothesis H_1: Difference between total assets turnover of the units under study is significant, is accepted.

Thus, the Total assets turnover of the dairies is different.

Table 3: 'F' Test of Total Assets Turnover between Years

"F" Test						
		Sum of Squares	df	Mean Square	F	Sig.
Total Assets Turnover Ratio	Between Groups	3.129	4	0.782	0.3177	2.7587
	Within Groups	61.541	25	2.462		
	Total	64.670	29			

At5%levelofsignificancecalculatedvalueof "F"is 0.3177 which is insignificant.

Therefore, null hypothesis H0: Difference between total assets turnover of the units under study during different years is insignificant, is accepted.

Thus, the alternative hypothesis H1: Difference between total assets turnover of the units under study during different years is significant, isrejected.

Thus, the total assets turnover for different years is insignificantly different.

Fixed Assets Turnover Ratio

Fixed assets turnover ratio expresses the relationship between the cost of sales and fixed assets of a firm. The fixed assets turnover ratio indicates the effectiveness with which different assets are utilized in a firm. The ratio can serve as an index regarding the policy which should be followed in future. This ratio measures the efficiency and profit earning capacity of the firm. Fixed asset turnover ratio can be further analyzed into turnover of each item of fixed assets to examine which asset has adequately been used and which asset has not been so used.

The fixed turnover ratio is calculated as follows:

$$\frac{Sales}{FixedAssets}$$

Fixed Assets turnover ratio indicates whether proper adjustment between long-term sources and long-term uses of capital exists or not. Fixed assets ratio more than one reveals that long-term funds have been employed to finance current assets. On the contrary, a ratio of less than one indicates that short-term funds finance a part of fixed assets. Fixed assets turnover ratio is calculated by dividing the value of fixed assets into sales.

Table 4: Fixed Asset Turnover Ratio of The Unit Under Study

	2011-12	2012-13	2013-14	2014-15	2015-16	Average
Ambala	40.03965	38.778863	41.286120	41.731374	36.490016	39.665206
Rohtak	22.58817	22.287069	20.581522	14.537038	13.941595	18.787079
Sirsa	15.66563	15.700427	2.1581912	2.1161702	13.843748	9.90
Hisar	37.33501	37.04054	40.705767	50.414203	47.210296	42.5
Kurukshetra	20.13372	13.378072	11.743770	9.3266475	9.2364335	12.763729
Ballabgarh	38.27851	40.406334	37.519043	31.553983	30.481866	35.65

Findings

The fixed assets turnover ratio in Hisar dairy recorded a fluctuating trend during the period under study. It was 37.33 times in 2011-12 which went up to 50.41 times in 2014-15 at the highest level of the study period. However, it went down to 37.04 times in 2012-13 and 47.21 times in 2015-16 due to a decrease in the sales.

The ratio of Ballabgarh Dairy witnessed a progressive trend initially during the first two years of the study period. Finally, it went down during the last three years. It was 40.40 times in 2012-13 which stepped down to 30.48 times in 2015-16.

The ratio of Ambala Dairy witnessed a progressive trend during the first four years and after that recorded a decline. It was 40.03 times in 2011-12 which stepped up to 41.73 times in 2014-15. The ratio decreased to 36.49 times in 2015-16 due to a decrease in sales.

The fixed assets turnover ratio in Sirsa dairy recorded a fluctuating trend during the period under study. It was 15.66 times in 2011-12 which went up to 15.7 times in 2012-13. However, it went down to 2.12 times in 2013-14 and then increased to 13.44 times in 2015-16 due to a decrease in Fixed assets.

The ratio of Rohtak and Kurukshetra Dairy witnessed a declining trend during the years of the study period because of addition to Fixed assets. For Rohtak, ratio reduced to 13.94 in the year 2015-16 from 22.58 in 2011-12 and For Kurukshetra, it was 20.133 times in the year 2011-12 which decreased to 9.23 times in 2015-16 average fixed assets turnover ratio of Ambala and Ballabgarh workout more than 33 times.

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Hisar Dairy gives the best footage because it has got the highest utilization of assets.

Analysis of Variance F-Test for Fixed Assets Turnover

The Table 5: 'F' Test of Fixed Assets Turnover between Years and Table 6 'F' Test of Fixed Assets Turnover between Dairies and represent the "F" test in Dairy units under study. The statements of the hypothesis are as under:

H0: Difference between fixed assets turnover of the units under study during different years isinsignificant.

H1: Difference between fixed assets turnover of the units under study during different years issignificant.

H0: Difference between fixed assets turnover of the units under study during different dairies isinsignificant.

H1: Difference between fixed assets turnover of the units under study during different dairies issignificant.

Table 5: 'F' Test of Fixed Assets Turnover between Years

"F" Test						
		Sum of Squares	df	Mean Square	F	
Fixed Assets Turnover Ratio	Between Groups	78.714	4	19.68	0.0862	2.603
	Groups	5705.385	25	228.215		
	Total	5784.099	29			

Findings

At5%levelofsignificancecalculatedvalueof"F"is0.0862which is insignificant. Therefore null hypothesis H0: Difference between fixed assets turnover of the units under study during different years is irrelevant, is accepted. Thus, the alternative hypothesis H1: Difference between fixed assets turnover of the units under investigation during different years is significant, is rejected. Therefore, the fixed assets turnover during different years is insignificantly different.

Table 6: 'F' Test of Fixed Assets Turnover between Dairies

"F" Test						
		Sum of Squares	df	Mean Square	F	
Fixed Assets Turnover Ratio	Between Groups	5019.754	5	1038.15	41.991	2.6207
	Groups	593.345	24	24.722		
	Total	5784.099	29			

At5%levelofsignificancecalculatedvalueof"F"is39.92which is significant. Therefore, null hypothesis H0: Difference between fixed assets turnover of the units under study during different dairies is insignificant, is rejected.

Thus, the alternative hypothesis H1: Difference between fixed assets turnover of the units under study during different dairies is significant, isaccepted. Therefore, the fixed assets turnover for different dairies is significantlydifferent.

Working Capital Turnover Ratio

Working Capital turnover ratio establishes the relationship between net working capital and net sales. This indicates the efficiency in the utilization of short-term funds in making the sales. In the short run, current assets and current liabilities play a significant role. A high working capital ratio indicates efficient management of overtrading and a low working capital turnover ratio implies under-trading. Higher sale in comparison to working capital means over trading and lower sales in comparison to working capital implies under trading.

The working capital turnover ratio is calculated as follows.

$$\frac{Sales}{WorkingCapitalAssets}$$

Working Capital turnover ratio evaluates effective utilization of the working capital. A high working capital turnover ratio shows efficient use of working capital and need of additional working capital. A low turnover ratio indicates excess working capital invested in the business. This ratio is obtained net sales divided by current assets employed for a given period.

Findings

Table 7: Working Capital Turnover ratio of the unit under study
(In times)

	2011-12	2012-13	2013-14	2014-15	2015-16	Average
Ambala	3.7930748	3.9219057	3.81687648	9.65478311	7.7562428	5.788
Rohtak	3.9678784	5.8840586	4.38669058	4.74447574	4.0834849	4.613
Sirsa	2.3022707	12.956528	3.56524395	3.15071611	2.9678505	4.988
Hisar	5.2629304	3.8301806	5.73588413	3.84220179	3.6076421	4.455
Kurukshetra	138.15965	-70.090952	98.5222326	12.7164106	11.424879	38.14
Ballabgarh	11.3788793	6.71467512	4.3927529	3.84714299	4.80021551	6.226

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In Kurukshetra dairy, the working capital turn over ratio has been on average 38.14 times. It was 138.15 times in 2011-12 which reduced to 11.42 times in 2015-16.

In Ambala Dairy the working capital turnover ratio has been on average 5.78 times ranging from 3.79 times in 2011-12 to 9.65 times in 2014-15 during the period under study. It was 7.75 times in 2015-16.

In Sirsa dairy, the working capital turnover ratio has been on average 4.98 times ranging from 2.3 times in 2011-12 to 12.95 times in 2012-13 during the period under study. It showed a fluctuating trend throughout the study period. After that declined during the next three years.

Rohtak and Hisar dairies showed a declining trend during the period of study with an average of 4.61 times and 4.45 times. Based on

the above, the working capital management was not satisfactory andproper.

Analysis of Variance F-Test for Working Capital Turnover

The above tables represent the "F" test in Dairy units under study. The statements of the hypothesis are as under:

H_0: Difference between working capital turnover of the units under study during different years isinsignificant.

H_1: Difference between working capital turnover of the units under study during different years is significant.

H_0: Difference between working capital turnover of the units under study during different dairies is insignificant.

H_1: Difference between working capital turnover of the units under study during different dairies is significant.

Table 8: 'F' Test of Working Capital Turnover between Years

"F" Test						
		Sum of Squares	df	Mean Square	F	
Working Capital Turnover Ratio	Between Groups	4175.709	4	1043.927		
	Groups	27233.092	25	1089.323	0.958	2.7587
	Total	31408.801	29			

Findings

At 5% level of significance calculated value of "F" is 0.958 which is insignificant. Therefore, null hypothesis H_0: Difference between working capital turnover of the units under study during different years is negligible, is accepted. Thus, the alternative

hypothesis H_1: Difference between working capital turnover of the units under study during different years is significant, isrejected. Thus, the working capital turnover during different years is insignificantly different.

Table 9: 'F' Test of Working Capital Turnover between Dairies

"F" Test						
		Sum of Squares	df	Mean Square	F	Sig.
Working Capital Turnover Ratio	Between Groups	4530.4931	5	906.099	0.8091	
	Groups	26878.308	24	1119.9295		2.6207
	Total	31428.9852	29			

At 5% level of significance calculated value of "F"is 0.809which is insignificant. Therefore, the null hypothesis.

H_0: Difference between working capital turnover of the units under study during different dairies is negligible, is accepted.

Thus, the alternative hypothesis H_1: Difference between working capital turnover of the units under study during different dairies is significant, is rejected.

Thus, the working capital turnover for different dairies is insignificantly different.

Findings

The turnover ratios highlight the efficiency of the unit and how the resources are being managed. This ratio shows the relationship between sales and the investment in various assets. Turnover ratios mirror the overall profitability of a unit to large extent.

1. Total Asset Turnover ratio of Sirsa and Hisar dairy with an average of 2.66 times and 2.83 times showed a decreasing trend during the period of study. The total assets turnover ratio, which indicates the effectiveness of utilization of assets, registered a fluctuating trend in all the

dairy units, across Haryana, during the study period. In Kurukshetra, the average ratio is the highest which was 5.48 times and the lowest was 2.66 times in Sirsa as compared to other units.

2. The result shown by "F" test reveals that the difference in total assets turnover insignificant at 5% level of significance in years and difference in Total assets turnover is significant at 5% level of significance in dairies.

3. The fixed assets turnover ratio which indicates the effectiveness of the utilization of fixed assets recorded a fluctuating trend in all the dairy units under study period. The ratio was the lowest 2.11 times in Sirsa in 2014-15 while it was the highest 50.41 times in Hisar in 2014-15. The consolidated average ratio of Hisar-Jind is the highest compared to other dairy units. The average ratio of all dairy units of the last five years was more than 14 times. They utilized its fixed assets correctly.

4. The "F" test results highlights the difference in fixed assets turnover is insignificant at 5% level of significance in years and the difference in fixed assets turnover is significant at 5% level of

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significance amongst the dairies.

5. The working capital management is essential in almost all the dairy units. In Kurukshetra, the average ratio is the highest which was 38.14 times and the lowest which was 4.45 times in Hisar-Jind as compared to other units.

6. The "F" test results show the difference in working capital turnover is 5% level of significance in years amongst the dairies. This is insignificant.

Suggestions

To make the co-operative dairy industry financially more sound following recommendations are made:

1. Sirsa dairy can increase a low asset turnover ratio by continuously using assets, limiting purchases of inventory and increasing sales without purchasing new assets.

2. Kurukshetra and Sirsa Dairy can improve their fixed asset-turnover ratio by increasing sales. They should Find ways to use assets more efficiently and Sell any fixed assets that do not improve income on a regular basis. Lease equipment to make up for the sold assets. Leased equipment does not count as a fixed asset. Computerized orders, inventory and billing can improve cash flow. This will show up in sales figures and improve asset-turnover ratio.

3. Hisar dairy should manage its inventory, accounts payable and receivable more efficiently to improve its working capital turnover ratio.

4. Financial expenses of Ambala and Sirsa dairy are higher. These units are required to reduce it by reducing loans and creating capital from equity. The capital structure of the units should be re-organized by converting part of the loan into equity.

5. To achieve the required rate of return, tools of financial management have to be brought in to play, and relevant management techniques are required to adopt. One of the powerful management tools is the budget which should be implemented correctly in the co-operative dairy units.

6. The formats of Income Statement followed by six Dairy cooperatives are different. The classification of items is also not uniform. This hampers the comparison. For example, Ambala and Rohtak showed the personnel expenses department wise while others showed as a separate item, Kurukshetra dairy didn't make proper classification of expenses and only broadly classified expenses as Direct and Indirect, Rohtak dairy is taking Chilling centre cost as manufacturing while Kurukshetra and Hisar Dairy have taken it as an indirect cost. Ballabgarh, Hisar and Sirsa Dairies are following a same appropriate format which can be referred to other dairies to by HDDCF.

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