Original Research Article

Physical and Financial Performance Analysis of Shivamogga Milk Union Limited (SHIMUL)

Abstract:

The study analysed the business performance of Shivamogga Milk Union Limited (SHIMUL) in Karnataka state in terms of physical and financial indicators using the data pertaining to the decade period ending 2017-18. Data were analysed using the standard descriptive statistics and financial ratios. The results of the study indicated positive annual compound growth rate (CAGR) for all the physical and financial performance indicators. The liquidity ratio of the Union revealed sufficient liquid assets to meet its current obligations as revealed by current ratio (>2) and quick ratio (>0.95). The inventory turnover ratio (39.93) and the gross profit ratio showed satisfactory turnover and profit on every rupee worth of its sales.

Key Words: Business performance, Physical & Financial performance indicators, CAGR.

Introduction

India is the highest milk producing country in the world with the greatest livestock population. The milk production is from cows, buffaloes, and goats with a share of 43 per cent, 53 per cent and four per cent, respectively. The country's milk production increased from around 55.6 million tonnes in 1991-92 to 176.3 million tonnes in 2017-18 Anonymous, 2018). The Indian Dairy Industry has made rapid progress since independence. A large number of modern milk plants and product factories have since been established. These organized dairies have been successfully engaged in the routine commercial production of pasteurized bottled milk and various value-added dairy products such as kova, peda, and lassi, etc. The milk processing market in India is expected to grow at a CAGR of 20.5 per cent over FY 2015 to FY 2020.

This rapid growth in milk supply of India and modernization of dairy is largely credited to the contribution of dairy co-operatives under the Operation Flood Project, assisted by many multilateral agencies including the European Union, the World Bank, Food and Agriculture Organization (FAO) and World Food Program (WFP). National Dairy Development Board, located at Anand, Gujarat was set up in 1965 and declared as a statutory body corporate in 1987 under the NDDB Act, is a premier institution to accelerate the pace of dairy development on cooperative lines in the country. Various phases of Operation Flood enabled dairy cooperatives to rapidly build up the basic infrastructure required to procure and market more and more milk daily. Facilities were created by the cooperatives to provide better veterinary first-aid health care services to their producer members. The milk producers of the village with the support of the milk union form a village dairy cooperative society. The dairy cooperatives of a district become members of the Milk Producer's Union

Karnataka is the ninth largest milk producing state in the country and contribute for about 4.1 per cent of the total milk production in the country. Among the 30 districts of the state, Shivamogga ranks ninth in milk production with a contribution of 3.81 per cent to the total state milk production.

The Shivamogga Milk Union limited (SHIMUL) was established in the year 1987 as part of implementing the operation flood II programme in the state of Karnataka. The area of operation of the union covers three southern districts of Karnataka *viz.,*

Shivamogga, Davanagere, and Chitradurga. The operation flood and the subsequent perspective plan program implemented in the milk shed with the financial and technical assistance of National Dairy Development Board (NDDB) has sought to develop dairying through establishment of viable three-tier co-operatives to link the rural dairy farmer with the urban consumers, thereby improving the standard of living of the underprivileged dairy farmers of this region.

There are 1061 co-operative societies in the area of operation of the union with a farmer membership of 1,38,444. The union at present procures 2.12 lakhs liters of milk per day and sells 69.81 per cent (1.48 lakhs liters) of milk per day and the remaining milk was used for the manufacture of different value added products of milk. The union had a steady growth in procurement and sales. At present Union has a processing capacity of 2.12 lakhs liters per day. The Union is taking constant steps to increase productivity and efficiency in dairies and thereby bring about cost reduction in all areas. The SHIMUL has positioned milk procurement the trust area deviating from the past practice of promoting only milk sales, and with the major emphasis on milk production enhancement schemes, it is expected that the gap between procurement and sales will come down in coming years. Shivamogga Milk Union (SHIMUL) registered and started operations in 1987 with a paid-up share capital of Rs.550 Lakhs as a financially sound organization. It has two Dairy plant of 1,00,000 LPD capacity at Shivamogga and 20000 LPD capacity at Davanagere. The SHIMUL has been operating profitably over the years with present turnover of over Rs.446 Crores. Under the aegis of GOK (Government of Karnataka), the program "Ksheerabhagya" to provide Milk to the School Children is being successfully channelized by the Union.

The present paper analyse the physical performance and financial performance indicators of SHIMUL with two testing hypotheses of 'physical performance of the SHIMUL in terms of membership, actively working MPCs, milk procurement, sale of milk is increasing over the year' and 'financial performance of the SHIMUL in terms of liquidity, solvency, turn over, financial strength and fixed assets ratios are above the standard ratio'.

Methodology

Sources of Data and Analytical Tools Used

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The study utilized both the primary and secondary data. Secondary data were collected from the annual reports of Shivamogga milk union limited for the decadal period of 2008-09 to 2017-18. The reference year of the study for primary data was 2018-19. The data were analysed using the descriptive statistics, compound annual growth rate analysis and standard financial ratios.

Compound Annual Growth Rate

In order to study the growth performance of milk societies in jurisdiction of SHIMUL, the following form of growth model was used.

$$Y = ab^t e^{ut}$$

Where, Y= Variable for which growth rate is estimated, a = Intercept, b = Regression coefficient t = Time variable, e^{ut} = Error term

The model was estimated using OLS technique by transforming into logarithmic as below:

$$Ln\ Y = ln\ a + t\ ln\ b + u$$

Then the per cent compound growth rate (g) was arrived using the relationship g = [(Anti ln of b) – 1] x100. The pattern of growth rates over the years was identified using the "b" coefficient. The statistically significant value of "g" indicates that the parameter under consideration has significant growth.

Financial ratio analysis

In order to know the financial performance of the SHIMUL, the popular financial ratios revealing solvency, liquidity, profitability, turnover have been calculated using the data drawn from the audited annual statements of the Balance sheet, Trading account, Profit and loss account of the SHIMUL for a period of ten years from 2008-09 to 2017-18. The estimation procedure of various ratio was briefed here.

A. **Liquidity ratios:** Liquidity ratios are used to measure the ability of a firm to cover its expenses. The two most common liquidity ratios used are the current ratio and the quick ratio. Both are based on balance sheet items

   1. Current ratio = Current Assets / Current Liabilities

   2. Acid-test ratio or Quick ratio = (Total Current Assets - Total Inventory) / Total Current Liabilities

B. Solvency ratios: Solvency ratios measure the stability of an organisation and its ability

to repay debt. These ratios are of particular interest to a bank loan. The solvency ratios give a strong indication of the financial health and viability of any business.

1. Debt – Equity Ratio = Long term Borrowings / Share Capital + Reserves

2. Total debt ratio: It measures the extent of an organisation leverage. The total debt ratio is defined as the ratio of total debt to total assets, which is expressed as a decimal or percentage. It can be understood as the proportion of an organisation assets that are financed by debt.

C. Tests of turnover: The turnover ratios point out the effectiveness with which different assets were utilized in the business.

1. Inventory turnover ratio= Annual sales / Average inventory

2. Total assets turnoverratio= Total Sales / Total Assets

3. Working capital turnover ratio= Total Sales / Total Working Capital

D. Tests of Efficiency and Profitability: The tests of efficiency indicate the usage of capital and income, whereas the profitability tests are meaningful measures which can be used to analyzed the financial status and the overall productiveness of business organisation.

1. Gross Profit Ratio = Gross Profit / Net Sales

2. Net Profits to Total Sales Ratio = Net Profits / Total Sales

E. Tests of Financial Strength: These measures were employed to assess the real worth of the milk union.

1. Networth = Total Assets – Total Liabilities

2. Net Capital Ratio = Total Assets / Total Liabilities

3. Fixed Assets to Total Assets Ratio = Fixed Assets / Total Assets

4. Fixed Assets to Networth ratio = Fixed Assets / Networth

5. Sales to Fixed Assets Ratio = Net Sales / Fixed Asset

Result and Discussion

Physical Performance Indicators of Shivamogga Milk Union Limited

The physical performance of the Shivamogga Milk Union Limited (SHIMUL) was analysed using the information on important variables like Membership, Number of actively working Milk Producers Cooperative Societies (MPCS), Number of employees, Quantity of milk procured in litres per day (LPD), Quantity of liquid milk sales in LPD

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and Quantity of milk used for manufacturing of value added products in LPD using the descriptive statistics.

The physical performance generally conveys the estimated magnitude and direction of the difference between groups, without regard to whether the difference is statistically significant. These descriptive statistics of each variable have been used separately to compare between variables. Higher the values of the physical indicators represent better performance in all cases.

It could be observed from the results presented in Table 1 that the physical performance of the Shivamogga Milk Union Limited was found to be satisfactory and very encouraging. The membership and the employees of the Shivamogga Milk Union Limited showed an annual compound growth rate of about one per cent during the decadal period ending 2017-18, while the number of actively working MPCS showed an impressive growth rate of over five percent per annum. With regard to annual milk procurement, the Shivamogga Milk Union Limited procured about 1.57 lakhs litre of milk, of which 69.81 per cent (1.12 lakhs litre tones) was sold and remaining was manufactured into various milk products. The milk procurement, milk sales and milk used for manufacturing of milk products by the Shivamogga Milk Union Limited registered an impressive growth rates of 7.75 per cent, 6.11 per cent and 13.57 per cent, respectively.

Similar findings were reported by Jain *et al*. (2002) while studying the growth of milk producers' cooperatives in Mehasana district of Gujarat and reported sizable increase in the number of village level milk producer's cooperatives, membership of those cooperatives and increase in the number of persons employed and the daily milk collection.

Financial performance of Shivamogga Milk Union Limited

The financial performance of Shivamogga Milk Union limited was analysed using standard ratio indicators. These provide for the possible comparison of actual performance with industrial indicative standards. These ratios were computed using the data related to the study period of ten years ending 2017-18.

Liquidity ratios

Liquidity ratios are used to measure the ability of an organisation to cover its expenses. The two most commonly used liquidity ratios are the current ratio and the quick ratio. These ratios are based on the information from balance sheet. Current

assets include closing stock, deposits, debts, loans, advances, sundry debtors, cash in hand and bank accounts. Current liabilities include grants, other liabilities, salary, recoveries, security deposits a/c, unpaid salary/wages duties, taxes and sundry creditors.

The ratio of current assets to current liabilities gives current ratio. Ideally, the current ratio of 1.5:1 to 2:1 indicates satisfactory performance. It could be observed from the results presented in Table-2 that the current ratio of the Union for the decade showed an increasing trend. The ratio during the year 2017-18 surpassed the standard norm indicating comfortable liquidity position of the Union. Thus the research hypothesis of liquidity ratio for the Union lower than the standard norm was rejected.

The Acid test ratio or quick ratio provides a better measure of liquidity than current ratio, as inventories are deducted from current assets for the calculation of this ratio. The Quick ratio in the range of 0.5 to 1 is considered as an indicator of satisfactory performance. Results quick ratio for the milk union presented in Table 2 showed that ratio ranged from 0.79 (2016-17) to 1.29 (2015-16) indicating a higher volume of assets maintained as quick assets. Hence, it is an indication of sufficient liquid assets to meet its current obligations.

Turnover ratios

Turnover ratio indicates the effectiveness with which different assets were utilized in the business. Turnover means the number of times an asset flows through organization operations into its total sales. The important turnover ratios *viz*, inventory turnover ratio, total assets turnover ratio, and working capital turnover ratio for the Shivamogga Milk Union were calculated for the study decade and are presented in Table 2. During the study period, the inventory turnover ratio was found to be the highest in the year 2014-15 (39.93) and the least ratio was observed in the year 2012-13 (26.11). This ratio indicates the quick sales of the milk and milk products of Shivamogga Milk Union Limited and hence Union showed the better liquidity during the year 2014-15 compared to other years. On an average the inventories turnover was in the range of 26 to 40 times in a year.

The total assets turnover ratio for Milk Union was above the standard norm of 2:1. During various years of study, the highest ratio was observed in the year 2008-09 (5.59) and was the least in the year 2016-17 (3.17). Hence, it could be inferred from the results that the Shivamogga Milk Union Limited had used its assets efficiently to

generate sales. Working capital turnover ratio ranged between 2.17 to 3.01 with the highest ratio (3.01) recorded in the year 2009-10 and the least ratio (2.17) in the year 2011-12. Thus perusal of the results in the table indicated that the value of the ratio greater than two during all the study years indicated efficient utilization of the working capital by the Shivamogga Milk Union Limited.

Solvency ratios

Solvency ratios, another category of important financial analysis ratio measure the stability of a business concern and its ability to repay debt. These ratios are indicative of financial health of the institution about which, the creditors are most interested.

Results on Debt-equity ratio indicated that the ratio during the year 2009-10 (2.07), while the least ratio was observed during the year 2012-13 (1.68). Ratio of 2 is considered adequate. From the results in Table 2 it could be observed that in some years the ratio was below the standard norm. hence there is a need for Milk Union to strengthen the equity position through increased share capital

Total debt ratio was above 0.5, except during the year 2011-12 (0.23). The standard norm is 0.5 to 1. Hence, it is seen that the total debt ratio during the period of study was above the standard norm in most of the years and thus the null hypothesis of solvency ratio of below the standard norm was rejected. Thus there were fewer risks for the Shivamogga Milk Union Limited to strengthen the equity position through increased share capital as its total assets being more than total liabilities. The Milk Union has stronger position of equity capital compared to borrowings.

Tests of efficiency and profitability

The tests of efficiency are used indicate the utilization of capital and income, whereas the profitability ratios reflect the overall efficiency of business organization. The efficiency and profitability for the Shivamogga Milk Union Limited were measured by employing the various profitability ratios.

Over the years, the gross profit ratio was found to be the highest in the year 2014-15 (2.69) and the least was observed during the year 2008-09 (1.35). Higher gross profit ratio reflects better performance. The adequate gross profit ratio for the study period indicated the profitable run of the Shivamogga Milk Union (Table 3). This ratio indicate the profit for every rupee worth of goods sold by the Milk Union. In other

words, Union could able to generate attractive profits during the study period.

Similarly, the net profit to total assets ratio also indicates profit earned by every rupee asset. The highest net profit to total assets ratio was recorded in 2017-18 (0.08) and the least (0.035) in the year 2008-09. This ratio indicated that Milk Union was able to generate profits on assets through adoption viable technologies and could able achieve the efficient business performance.

The Union exhibited the net profit to total sales ratio from 0.063 (2008-09) to 0.011 (2017- 18). This indicates that Shivamogga Milk Union Limited was able to earn profits after meeting all direct and indirect costs of business and hence indicate the efficient conduct of the business by the Union. The findings of the study are in conformity with Bhagyashree and Sanjay (2017) who analyzed the financial performance analysis of selected dairy units of Maharashtra and reported that return on investment, profitability and turnover of units were satisfactory during the study period.

Test of financial strength analysis

The financial strength assessed in terms of net-worth and net capital ratio of the Shivamogga Milk Union Limited and results are presented in Table 3.

The net-worth of the union was negative during the initial three years of study period from 2008-09 to 2010-11 as could be seen from Table 3. From 2011-12 onwards Union exhibited positive net-worth and the highest net-worth of more than 72 lakhs was observed during the year 2016-17, but it again reduced to about 25 lakhs in the next year (2017-18), this could be attributable to lower profits compared to the previous year, decrease in the retained earnings and stake holders equity.

Net capital ratio showed increasing trend over the study period except in the year 2011-12 and 2013-14. Any organization need to maintain the net capital ratio of below 15:1 (assets: liabilities). In the present study, net capital ratio was the highest during 2015-16 (10.46) and the least net capital ratio was found during 2011-12 (4.29). The higher ratio indicated more liquid assets possession by the union.

Fixed assets ratios

Fixed assets ratio act supplementary to the earlier ratios presented above. The important fixed assets ratios considered were fixed assets to total assets, fixed assets to net worth, and fixed assets to total sales of the Milk Union.

Fixed assets to total assets ratio shows the share of fixed assets in every rupee of total assets, it ranged from 0.6 paise (2008-09) to a maximum of 8 paise (2010- 11) as presented in the Table 3. Fixed assets to net worth ratio was negative in the initial three years (-0.12 to -2.8) during 2008-2011. This might be due to vulnerability of the Union to unexpected events and changes in business climate. However, from 2011-12 year onwards the ratio showed increasing trend and revealed good amount of Union's cash in the form of fixed assets.

Total sales to fixed assets ratio shows how well the business used its fixed assets to generate sales, if union requires a large investment in fixed assets over time. The ideal value for this ratio is 0.5. The total sales to fixed assets ratio for most of the year was not in the desirable range. Hence, the Union need to improve sales using fixed assets and the ratio was found to be the highest in the year 2008-09 (0.558) and the least ratio corresponds to the year 2011-12 (0.001).

A study by Patil (1991) on Karnataka state cooperative milk producer's federation Ltd. revealed decreasing trend in the liquidity ratio due to accumulation of fixed assets, while author reported increased trend of solvency and higher inventory turnover ratio representing the non-existence of huge unsold stocks which would otherwise adversely affect the organization. Similar findings are also observed in the present study, revealing better performance and higher turnover of sales.

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Conclusions

The growth rate analysis on physical performance of the Union revealed that the membership and the number of employees increased at about four per cent, while number of actively working milk producer's cooperative societies increased by about five percent per annum. SHIMUL annually procured about 2.12 lakhs litres of milk, of which 69.81 per cent was sold as liquid milk and remaining was used for manufacturing of various milk products. The milk procurement, milk sales and milk used for manufacturing of milk products by the Shivamogga Milk Union Limited registered a growth of 7.75 per cent, 6.11 per cent and 13.57 per cent, respectively during the study period.

The financial performance of the Union in terms of current ratio and acid test ratio during 2008-09 to 2017-18 was above the standard norm and comfortable liquidity position. The inventory turnover ratios revealed that Union used its assets to generate sales efficiently. The solvency ratios were almost close to the standard ratio and revealed

comfortable financial strength of the Union too. Gross profit ratio revealed attractive profits to the Union. Fixed assets to net worth ratio analysis revealed higher net-worth by augmenting current and intermediate assets, rather than long term investment in land or buildings.

COMPETING INTERESTS DISCLAIMER:

Authors have declared that no competing interests exist. The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

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Table 1: Physical performance indicators of SHIMUL during the study period

Sl. No.	Particulars	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	CAGR (%)
1.	Membership (No.)	125251	125801	126351	128951	129451	129751	135347	138440	138692	139013	1.04**
2.	Actively Working DCS (No.s)	735	772	801	854	890	950	1034	1058	1165	1203	5.05**
3.	Numbers of Employees (No.)	204	214	223	237	245	263	272	284	295	300	3.93**
4.	Milk Procured (LPD)	74845	75872	77464	80024	105024	117145	131480	147370	151851	157940	7.75*
5.	Sale of liquid Milk (LPD)	62115	64491	63537	68020	93210	102710	112486	122438	123798	1122486	6.11*
6.	Milk used for value added product(LPD)	12730	11381	13927	12004	11814	14435	131480	147370	28053	45454	13.57*

Source: Annual Reports of Shivamogga Milk Union Limited from 2008-09 to 2017-18

Note: * and ** indicates significant at one per cent and five per cent probability levels,

Table 2: Financial performance of SHIMUL during the study period

Ratios		Liquidity ratios		Turnover ratios			Solvency ratio	
Sl. No.	Year	Current ratio	Acid test ratio	Inventory turnover ratio	Total assets turnover ratio	Working capital turnover ratio	Debt equity ratio	Total debt ratio
1.	2008-09	0.62	1.28	29.25	5.59	2.35	2.01	1.52
2.	2009-10	0.71	0.95	38.99	4.78	3.01	2.07	1.42
3.	2010-11	0.67	1.12	34.06	4.16	2.38	1.94	1.15
4.	2011-12	1.00	1.13	28.84	3.91	2.17	1.99	0.23
5.	2012-13	0.75	0.80	26.11	4.03	2.66	1.68	0.98
6.	2013-14	0.78	1.28	34.61	3.33	2.40	1.8	0.97
7.	2014-15	1.41	0.95	39.93	3.51	2.20	2.05	0.99
8.	2015-16	1.60	1.29	27.16	3.54	2.5	1.95	0.95
9.	2016-17	1.36	0.79	35.13	3.17	2.23	1.91	0.96
10.	2017-18	2.09	1.12	31.63	3.47	2.87	2.09	0.98

Table 3: Financial performance of SHIMUL during the study period

	Ratios	Tests of efficiency and profitability			Financial strength		Fixed ratios		
Sl. No.	Year	Gross Profit ratio	Net profit to total assets ratio	Net profit to total sales ratio	Net worth (Rs. In lakhs)	Net capital ratio	Fixed assets to total assets ratio	Fixed assets to net worth ratio	Total sales to fixed assets ratio
1.	2008-09	1.35	0.035	0.063	-12.96	6.54	0.654	-0.120	0.558
2.	2009-10	2.14	0.065	0.034	-12.90	7.03	0.703	-0.122	0.319
3.	2010-11	1.95	0.077	0.018	-6.76	8.64	0.864	-2.886	0.017
4.	2011-12	1.80	0.051	0.013	19.62	4.29	0.290	1.107	0.001
5.	2012-13	1.95	0.063	0.032	67.41	10.17	0.170	0.355	0.041
6.	2013-14	2.59	0.050	0.060	22.97	9.02	0.120	11.572	0.086
7.	2014-15	2.67	0.082	0.023	10.43	10.08	0.080	30.934	0.032
8.	2015-16	1.49	0.044	0.012	64.03	10.46	0.046	6.440	0.155
9.	2016-17	1.47	0.037	0.011	72.59	10.39	0.041	6.367	0.157
10.	2017-18	2.12	0.083	0.037	25.07	10.43	0.035	21.800	0.045