

CHAPTER - 7

FINANCIAL ANALYSIS OF MARKFED AND HAFED

Finance is the lifeblood of any organization. All kinds of organizations whether public, private or co-operative require finance for conducting their various activities smoothly. Without adequate amount of finance no concern can possibly achieve its objectives. Therefore, finance should be properly generated, utilized and managed in a concern; and all the financial information of a concern must be properly recorded. Financial information of a concern is required to predict, compare and evaluate its earning ability. Financial information is essential for financial planning, analysis and decision-making. All types of financial information of a concern is recorded in its financial statements. Financial statements are organized collection of data as per logical and consistent accounting procedures. Hence, financial statements of a concern must be properly examined through proper financial analysis to draw conclusions regarding profitability and financial position of a concern.

Financial analysis is, basically, the process of identifying financial strengths and weaknesses of an organization by establishing relationships between the items of balance-sheet, profit and loss account, and other operative data. Financial analysis helps to judge profitability and financial soundness of an organization. A number of methods can be used for the financial analysis of a concern.

The financial analysis of MARKFED and HAFED, the organizations under study, has been done taking into account their liquidity, solvency, turnover and profitability. For this purpose, various ratios have been calculated. The other techniques used for analysis of the data are average, coefficient of variation, Motaal's comprehensive ranking test (Liquidity Ranking), Pearson bivariate correlation analysis and step-wise regression analysis. Further, multi-discriminant analysis Z-score has been applied for analyzing the financial health of both these organizations. The financial analysis of MARKFED and HAFED is made as hereunder:

Liquidity Analysis

The liquidity refers to ability of a concern to meet its current obligations as and when these become due. A concern should have an adequate liquidity position. The liquidity position of the federations under study has been analyzed through liquidity ratios and liquidity ranking.

Liquidity Ratios

Liquidity ratios measure a firm's ability to meet its current obligations (liabilities). Current ratio (CR), Liquid Ratio (LR) and Absolute Liquid Ratio (ALR) have been calculated to measure the liquidity position of the federations. The current ratio is the ratio of current assets to current liabilities. The liquid ratio expresses the relationship between liquid assets and current liabilities, where liquid assets are obtained by subtracting inventories and pre-paid expenses from the current assets. Absolute liquid ratio establishes relationship between cash & bank balances and current liabilities. The data pertaining to liquidity analysis of MARKFED and HAFED for the period 2000-01 to 2011-12 is presented below in Table 7.1.

Table 7.1
Liquidity Analysis of MARKFED and HAFED

Years	MARKFED			HAFED		
	CR	LR	ALR	CR	LR	ALR
2000-01	1.04	0.34	0.008	1.13	0.27	0.002
2001-02	1.03	0.37	0.016	1.04	0.18	0.011
2002-03	1.04	0.47	0.025	1.08	0.15	0.010
2003-04	1.06	0.67	0.035	1.27	0.46	0.031
2004-05	1.12	0.86	0.049	1.27	0.99	0.017
2005-06	1.12	0.87	0.052	1.26	1.15	0.020
2006-07	1.09	0.77	0.040	1.27	1.20	0.008
2007-08	1.06	0.68	0.028	1.20	1.01	0.011
2008-09	1.03	0.45	0.017	1.09	0.63	0.005
2009-10	1.02	0.41	0.011	1.09	0.20	0.042
2010-11	1.02	0.50	0.002	1.06	0.41	0.003
2011-12	0.99	0.47	0.005	1.04	0.27	0.001
Average	1.05	0.57	0.024	1.15	0.58	0.013
C.V. (%)	3.84	33.10	70.91	8.40	69.94	92.63

Table 7.1 given above reveals that the current ratio of MARKFED increased from 1.03 in 2001-02 to 1.12 in 2004-05, remained constant for the next year and then decreased to 0.99 in 2011-12. The mean value of the current ratio was 1.05 during the period of study. The quick ratio of this organization increased from 0.34 in 2000-01 to 0.87 in 2005-06, then decreased to 0.41 in 2009-10 and was 0.47 in 2011-12. The absolute liquid ratio increased from 0.008 in 2000-01 to 0.052 in 2005-06 and then declined to 0.002 in 2010-11. The mean value of the absolute liquid ratio was 0.024 with a variation of 70.91 per cent during the period of study. The analysis indicates that MARKFED has the ability to pay its current liabilities, but the liquidity position of the organization has declined in the later years which show improper management of its current assets. The organization in the later years invested more in inventories as compared to the other highly liquid assets.

The table further provides that the current ratio of HAFED increased from 1.04 in 2001-02 to 1.27 in 2003-04, remained constant for the next year and then declined to 1.04 in 2011-12. The mean value of the current ratio was 1.15 during the period of study. The liquid ratio of the organization declined from 0.27 in 2000-01 to 0.15 in 2002-03, then increased to 1.20 in 2006-07, then again declined to 0.20 in 2009-10 and was 0.27 in 2011-12. The absolute liquid ratio of HAFED was fluctuating (92.63%) and the mean value of the absolute liquid ratio was 0.013 during the period of study. The analysis indicates that the organization has the ability to pay current obligations but declining level of liquidity in the later years due to lesser proportion of debtors, cash and other liquid assets in the composition of current assets is an area of concern.

Liquidity Ranking

The liquidity position of an organization is largely affected by the composition of its working capital. To determine the overall liquidity position of MARKFED and HAFED, a statement of ranking in order of liquidity (Motaal's comprehensive test) has been presented in Tables 7.2 and 7.3. In this method, four different factors such as inventory to current assets ratio (ITCAR), debtors to current assets ratio (DTCAR),

cash & bank to current assets ratio (CTCAR) and other assets (including loan & advances and deposits) to current assets ratio (OATCAR) have been calculated and combined in a points score. In the case of DTCAR, CTCAR and OATCAR a high value indicates a relatively favourable position. So, ranking has been done in that order. On the other hand, a low ITCAR shows a more favourable position. Hence, ranking has been done in that order. Ultimate ranking has been done on the principle that lower the points scored, the more favourable would be the liquidity position.

Table 7.2
Statement of Liquidity Rankings of MARKFED

Years	ITCAR (%)	DTCAR (%)	CTCAR (%)	OATCAR (%)	Liquidity Rankings				Total Ranks	Ultimate Ranks
					ITCAR	DTCAR	CTCAR	OATCAR		
2000-01	67.19	27.99	0.77	4.05	12	12	10	7	41	11
2001-02	63.68	31.61	1.54	3.17	11	11	8	8	38	9
2002-03	54.28	39.19	2.37	4.16	8	8	6	6	28	5
2003-04	36.94	53.39	3.28	6.39	5	5	4	4	18	4
2004-05	23.27	61.76	4.34	10.63	2	2	2	2	8	2
2005-06	22.50	61.79	4.59	11.12	1	1	1	1	4	1
2006-07	29.23	57.95	3.70	9.12	3	3	3	3	12	3
2007-08	36.10	55.52	2.65	5.73	4	4	5	5	18	4
2008-09	56.54	38.67	1.68	3.11	9	9	7	9	34	6
2009-10	59.80	36.76	1.05	2.39	10	10	9	10	39	10
2010-11	50.78	46.99	0.20	2.03	6	6	12	11	35	7
2011-12	52.29	45.49	0.47	1.75	7	7	11	12	37	8

Table 7.2 explains that the year 2005-06 registered the most sound liquidity position which was followed by the years 2004-05, 2006-07, 2003-04, 2007-08, 2002-03, 2008-09, 2010-11, 2011-12, 2001-02, 2009-10 and 2000-01. The rankings show the fluctuation in liquidity position over the different years of study period. The analysis further indicates that liquidity position of MARKFED has continued to decline since 2005-06. Due to the declining level of liquidity in later years as is evident from the rankings, the organization faced difficulty to pay off its liabilities which increased in recent years. In 2011-12, the level of current liabilities (Rs. 10616.98 crore) was more than that

of the current assets (Rs. 10526.36 crore). Thus, the rankings indicate that MARKFED needs to improve its liquidity position in the coming years.

Table 7.3
Statement of Liquidity Rankings of HAFED

Years	ITCAR (%)	DTCAR (%)	CTCAR (%)	OATCAR (%)	Liquidity Rankings				Total Ranks	Ultimate Ranks
					ITCAR	DTCAR	CTCAR	OATCAR		
2000-01	75.90	20.26	0.14	3.70	9	2	11	11	33	10
2001-02	82.50	14.14	1.02	2.34	11	3	5	12	31	9
2002-03	86.52	8.54	0.92	4.02	12	5	6	10	33	10
2003-04	63.96	20.66	2.48	12.90	7	1	2	8	18	2
2004-05	22.28	6.24	1.34	70.14	4	8	4	4	20	3
2005-06	8.84	4.05	1.59	85.52	2	10	3	2	17	1
2006-07	5.94	3.45	0.66	89.95	1	11	8	1	21	4
2007-08	15.74	3.27	0.88	80.11	3	12	7	3	25	6
2008-09	42.53	4.97	0.47	52.03	5	9	9	5	28	7
2009-10	81.69	9.91	3.85	4.55	10	4	1	9	24	5
2010-11	61.12	6.28	0.25	32.35	6	7	10	6	29	8
2011-12	74.07	6.79	0.11	19.03	8	6	12	7	33	10

Table 7.3 reveals that the liquidity position of the organization was most satisfactory in the year 2005-06, followed by the years 2003-04, 2004-05, 2006-07, 2009-10, 2007-08, 2008-09, 2010-11, 2001-02, 2000-01, 2002-03 and 2011-12. The analysis further indicates that the liquidity position of HAFED continued to decline from the year 2005-06 till 2011-12.

Thus, both the federations under study have current assets to pay their current obligations but the declining level of liquidity in the later years is an area of great concern. The two federations are investing more in inventories as compared to other highly liquid assets.

Solvency Analysis

Solvency refers to the ability of a concern to meet its long-term obligations as they become due. The long-term creditors of a firm include debenture holders, financial institutions providing medium

and long-term loans and other creditors selling goods on installment basis. Solvency position of the federations under study has been analyzed through solvency ratios.

Solvency ratios indicate a firm's ability to meet the fixed interest and costs and repayment schedules associated with long-term borrowings. Debt-equity ratio (DER), Funded Debt to Total Capitalization Ratio (FDTC), Proprietary Ratio (PR), Fixed-Assets to Net-Worth Ratio (FANW) and Fixed-Assets Ratio (FAR) have been calculated to test the solvency position of the federations under study. DER establishes a relationship between outsiders' funds (long-term loans and current liabilities) and shareholders' funds; FDTC ratio expresses relation between long-term funds raised from outsiders and capital employed; PR establishes a link between shareholders' funds and total assets; FANW is a ratio between fixed assets after depreciation and shareholders' funds, whereas FAR shows a relationship between fixed assets after depreciation and total long-term funds including shareholders' funds and long-term loans.

Table 7.4
Solvency Analysis of MARKFED and HAFED

Years	MARKFED					HAFED				
	(In per cent)					(In per cent)				
	DER	FDTC	PR	FANW	FAR	DER	FDTC	PR	FANW	FAR
2000-01	15.75	1.79	5.97	41.02	40.28	4.88	0.37	17.02	31.09	30.98
2001-02	17.03	1.23	5.54	50.76	50.14	7.66	0.24	11.55	45.09	44.98
2002-03	13.41	0.89	6.94	49.80	49.36	4.43	6.12	18.40	46.36	43.52
2003-04	8.64	0.56	10.38	42.30	42.06	1.35	5.84	42.57	46.85	44.11
2004-05	4.99	0.00	16.69	37.13	37.13	1.31	5.54	43.28	46.42	43.85
2005-06	5.39	0.38	15.66	31.93	31.80	1.70	5.90	37.05	38.48	36.21
2006-07	7.23	0.32	12.15	30.58	30.48	1.84	4.50	35.15	34.03	32.50
2007-08	10.98	0.20	8.35	29.13	29.07	2.32	4.33	30.08	39.17	37.47
2008-09	18.78	0.08	5.06	37.83	37.80	4.37	3.50	18.64	44.81	43.24
2009-10	23.74	0.00	4.04	43.78	43.78	3.96	2.41	20.17	49.69	48.50
2010-11	28.44	0.00	3.40	45.18	45.18	4.45	4.71	18.36	58.08	55.34
2011-12	152.65	0.00	0.65	214.38	214.38	6.18	5.49	13.94	63.85	60.35
Average	25.59	0.45	7.90	54.49	54.29	3.70	4.08	25.52	45.33	43.42
C.V. (%)	158.94	126.67	62.45	93.32	93.74	54.87	50.65	44.71	20.45	19.87

Table 7.4 reveals that the debt-equity ratio of MARKFED decreased from 17.03 in 2001-02 to 4.99 in 2004-05 and then increased sharply to 152.65 in 2011-12 with a variation of 158.94 per cent during the period. On an average, debt-equity ratio is quite high in the federation, i.e., 25.59 which indicates that the total claims of outsiders' especially short-term creditors are greater than those of owners, and these have increased in the later years. The table further shows that funded debt to total capitalization ratio of the federation has declined from 1.79 per cent in 2000-01 to 0 per cent in 2004-05, then increased to 0.38 per cent in 2005-06 and finally declined to 0 per cent in 2011-12. The ratio has been very low (0.45%) during the period of study. It indicates lesser reliance of the federation on outside sources for raising long-term funds. Proprietary ratio of the federation increased from 5.54 per cent in 2001-02 to 16.69 per cent in 2004-05, and then declined to 0.65 per cent in 2011-12. The mean value of the ratio was 7.90 per cent during the period of study. This shows lesser share of the shareholders in the total capital of the federation. Further, the fixed assets to net worth ratio declined from 50.76 per cent in 2001-02 to 29.13 per cent in 2007-08 and then increased to 214.38 per cent in 2011-12. The ratio remained less than 100 per cent during most of the study period, thereby indicating that the owner's funds are more than total fixed assets and a part of the working capital is being provided by shareholders. The fixed assets ratio of the MARKFED declined from 50.14 per cent in 2001-02 to 29.07 per cent in 2007-08 and then increased to 214.38 per cent in 2011-12. The ratio shows that the total long-term funds (including shareholders' funds and long-term loans) are more than total fixed assets which implies that some working capital requirements are being met out of the long-term funds of the federation except the year 2011-12. Thus, the analysis reveals that MARKFED relies more on outsiders' funds especially short-term funds. The federation was using

long-term loans from time to time, but its usage was less and there was also variation in the usage of shareholders' funds for financing working capital requirements of the federation.

The table further reveals that the debt-equity ratio of HAFED decreased from 7.66 in 2001-02 to 1.31 in 2004-05 and then increased to 6.18 in 2011-12. Debt-equity ratio of the federation indicates that the total claims of the outsiders' especially short-term are greater than those of the owners. Funded debt to total capitalization ratio of the federation has declined from 6.12 per cent in 2002-03 to 5.54 per cent in 2004-05, increased to 5.90 per cent during the next year, then declined to 2.41 per cent in 2009-10, and finally, increased to 5.49 per cent in 2011-12. The mean value of the ratio was 4.08 per cent during the period of study which shows lesser reliance of the federation on outside sources for raising long-term funds. Proprietary ratio of the federation increased from 11.55 per cent in 2001-02 to 43.28 per cent in 2004-05, then declined to 18.64 per cent in 2008-09, again increased to 20.17 per cent during the next year, and finally, declined to 13.94 per cent in 2011-12. This shows that the share of shareholders in the total capital of the federation has been fluctuating, the highest being 43.28 per cent in 2004-05. Further, the fixed assets to net worth ratio increased from 31.09 per cent in 2000-01 to 46.85 per cent in 2003-04, then declined to 34.03 per cent in 2006-07, and again increased to 63.85 per cent in 2011-12. The ratio is less than 100 per cent during the whole period of study, thereby indicating that the owners' funds are more than total fixed assets and a part of the working capital is being provided by the shareholders of the federation. The fixed assets ratio of HAFED declined from 44.11 per cent in 2003-04 to 32.50 per cent in 2006-07, and then increased to 60.35 per cent in 2011-12. The ratio shows that total long-term funds (including shareholders' funds and long-term loans) are more than total fixed assets which implies that some

working capital requirements are being met out of long-term funds of the federation. Thus, the analysis reveals that HAFED relies more on outsiders' funds especially short-term funds, and shareholders' funds and long-term loans are also being used to finance working capital requirements.

Thus, the analysis reveals that the two federations under study rely on outsiders' funds especially short-term funds, but the level of such funds is more in MARKFED as compared to that in HAFED. The amount of long-term loans used as a source of finance was more in HAFED than MARKFED. Both the federations are using shareholders' funds and long-term loans to meet the working capital requirements, but their usage varies more over the years in MARKFED as compared to HAFED.

Turnover Analysis

The organization invests funds in the assets of the business to make sales and earn profits. The efficiency or effectiveness with which a concern manages its resources or assets is measured through activity or turnover ratios. Turnover ratios reflect the efficiency in the use of working capital and its components. These ratios indicate the speed with which assets are converted or turned over into sales. The turnover position of the federations has been analyzed on the basis of Inventory Turnover Ratio (ITR), Debtor Turnover Ratio (DTR) and Net Working Capital Turnover Ratio (NWCTR). The inventory turnover ratio establishes the relationship between sales turnover and average inventory; debtor turnover ratio measures relationship between sales turnover and average debtors; and net working capital turnover ratio expresses relationship between sales turnover and average net working capital. These ratios have been presented in Table 7.5.

Table 7.5**Turnover Analysis of MARKFED and HAFED**

Years	MARKFED			HAFED		
	ITR	DTR	NWCTR	ITR	DTR	NWCTR
2000-01	0.91	2.29	11.76	0.92	3.45	6.30
2001-02	1.26	2.74	26.34	1.07	5.18	12.77
2002-03	1.95	3.32	37.81	1.76	12.42	27.89
2003-04	3.17	3.33	33.04	3.73	25.62	27.20
2004-05	6.49	3.61	25.82	8.68	27.80	17.70
2005-06	9.78	3.62	20.57	25.44	74.35	17.72
2006-07	5.63	2.48	15.46	35.68	69.23	12.13
2007-08	3.88	2.29	18.64	15.76	54.19	9.62
2008-09	2.01	2.18	23.68	4.08	30.85	11.75
2009-10	1.65	2.57	37.33	2.32	19.36	17.15
2010-11	1.73	2.25	47.89	2.44	21.61	24.14
2011-12	1.66	1.86	208.17	1.74	18.15	25.16
Average	3.34	2.71	42.21	8.64	30.18	17.46
C.V (%)	80.24	22.34	126.24	130.61	77.82	41.47

Table 7.5 shows that the inventory turnover ratio of MARKFED increased from 0.91 times in 2000-01 to 9.78 times in 2005-06. Thereafter, it decreased to 1.65 times in 2009-10 and was 1.66 times in 2011-12. The debtor turnover ratio increased from 2.29 times in 2000-01 to 3.62 times in 2005-06, then declined to 2.18 times in 2008-09, again increased to 2.57 times during the next year, and finally, declined to 1.86 times in 2011-12. The net working capital turnover ratio increased from 11.76 times in 2000-01 to 37.81 in 2002-03, then fell to 15.46 times in 2006-07, and then increased rapidly by reaching 208.17 times in 2011-12 with a variation of 126.24 per cent during the period. Thus, the analysis reveals that the inventory, debtors and net working capital are being effectively turned into sales but in the later years of the study there has been lower degree of efficiency in management of working capital circulation in MARKFED due to excessive investment in stocks.

Table 7.5 further reveals that the inventory turnover ratio of HAFED increased from 0.92 times in 2000-01 to 35.68 times in 2006-07, then the ratio declined sharply to 2.32 times in 2009-10, and it was 1.74 times in 2011-12 with a variation of 130.61 per cent during the period. The debtor turnover ratio increased from 3.45 times in 2000-01 to 74.35 times in 2005-06, but thereafter fell sharply to 19.36 times in 2009-10, and was 18.15 times in 2011-12. The average value of debtor turnover ratio of the federation was 30.18 times during the period of study. Further, the table reveals that the net working capital ratio increased from 6.30 times in 2000-01 to 27.89 times in 2002-03, then declined to 17.70 times in 2004-05, increased next year to 17.72 times during the next year, then declined to 9.62 times in 2007-08 and again increased to 25.16 times in 2011-12. The mean value of the ratio was 17.46 times during the study period. The analysis reveals that there has been an improvement in the management of inventories and debtors since 2000-01, but in the later years of the study some inefficiencies appeared at various levels of working capital circulation. This has been due to over investment in inventories and federation's inability to sell on credit in recent years.

Thus, the turnover ratios indicated that the inventory, debtors and net working capital are being effectively turned into sales in both the federations but in the later years there has been a low degree of efficiency in the management of working capital circulation. The problem relating to the turnover in MARKFED was excessive investment in the stocks, whereas in HAFED it was federation's inability to sell on credit in the later years and at the same time over investment in inventories.

Profitability Analysis

Profits are essential for the survival of any business. All kinds of organizations need profits not only for their existence, but also for their expansion and diversification. So, profitability is a measure of overall efficiency of a business. Profitability of the federations has

been measured through profitability ratios like the Net Profit Ratio (NPR), Return on Shareholder Investment Ratio (ROSI) and Return on Assets (ROA). The NPR establishes a relationship between net profit after interest & taxes and sales; ROSI shows a relationship between net profit after interest & taxes and shareholders' funds (which include share capital + reserves & surplus+ net profit after interest & taxes + profit and loss appropriation/unappropriated profits - deferred revenue expenses); and ROA establishes a link between net profit after taxes and average total assets. The profitability position of MARKFED and HAFED for the period 2000-01 to 2011-12 has been presented in Table 7.6.

Table 7.6

**Profitability Analysis of MARKFED and HAFED
(In per cent)**

Years	MARKFED			HAFED		
	NPR	ROSI	ROA	NPR	ROSI	ROA
2000-01	0.24	1.84	0.14	1.77	6.79	1.16
2001-02	0.65	8.66	0.52	1.13	6.24	0.89
2002-03	0.25	4.45	0.28	0.59	5.24	0.78
2003-04	0.28	4.66	0.40	0.41	3.76	0.99
2004-05	0.50	7.19	0.96	0.66	3.89	1.69
2005-06	0.54	6.91	1.15	1.89	12.57	5.10
2006-07	0.25	2.58	0.35	2.67	13.85	5.39
2007-08	0.32	3.97	0.40	2.23	9.77	3.30
2008-09	0.24	3.60	0.23	1.09	5.42	1.26
2009-10	0.15	3.12	0.14	1.02	6.31	1.29
2010-11	0.01	0.30	0.01	0.74	5.57	1.10
2011-12	-2.92	-364.20	-2.47	0.85	5.45	0.89
Average	0.04	-26.41	0.18	1.25	7.07	1.99
C.V. (%)	2233.60	-402.89	510.34	57.19	46.09	83.71

Table 7.6 reveals that the net profit ratio of MARKFED increased from 0.25 per cent in 2002-03 to 0.54 per cent in 2005-06. However, it declined to 0.25 per cent during the next year, then increased to 0.32 per cent in 2007-08, and finally, declined to -2.92 per cent in 2011-12. Return on shareholder investment ratio was fluctuating with a negative mean value of 26.41 per cent during the period of study. Return on assets ratio also fluctuated (510.34%) during the study period. The mean value of ratio during the period of study was 0.18 per cent. The analysis indicates a low degree of profitability and also a decline in profitability of MARKFED in the later years of the study.

Table 7.6 further reveals that the net profit ratio of HAFED declined from 1.77 per cent in 2000-01 to 0.41 per cent in 2003-04. However, it then increased to 2.67 per cent in 2006-07, thereafter declined to 0.74 per cent in 2010-11, and was 0.85 per cent in 2011-12. The mean value of the net profit ratio was 1.25 per cent during the study period. Further, the return on shareholders' investment ratio was fluctuating (46.09%) during the study period. The ratio declined from 6.79 per cent in 2000-01 to 3.76 per cent in 2003-04. However, it increased to 13.85 per cent in 2006-07, again declined to 5.42 per cent in 2008-09, increased to 6.31 per cent during next year, and finally, declined to 5.45 per cent in 2011-12. Return on assets ratio declined from 1.16 per cent in 2000-01 to 0.78 per cent in 2002-03, then increased to 5.39 per cent in 2006-07, and again declined to 0.89 per cent in 2011-12. The analysis indicates a decline in profitability of HAFED in the later years of the study.

Thus, the profitability analysis of both the federations indicates a decline in their profitability in the later years of the study. But the profitability of MARKFED was lesser as compared to that of HAFED.

Relationship between Profitability of the Federations and Other Parameters of Financial Efficiency

For testing the relationship between profitability of the federations and other parameters of financial efficiency, tools like Pearson Bivariate correlation and step-wise regression analysis have been used. Correlation analysis attempts is meant to determine the degree and direction of relationship between two variables under study, whereas regression analysis ascertains the strength of relationship between one dependent variable and a series of other changing variables known as independent variables. For testing the relationships, net profit ratio (Y) has been used as dependent factor, while liquidity, solvency and turnover ratios including current ratio (X₁), liquid ratio (X₂), absolute liquid ratio (X₃), debt-equity ratio (X₄), funded debt to total capitalization ratio (X₅), proprietary ratio (X₆), fixed-assets to net-worth ratio (X₇), fixed-assets ratio (X₈), inventory turnover ratio (X₉), debtor turnover ratio (X₁₀) and net working capital turnover ratio (X₁₁) have been used as independent factors. The results showing relationship between profitability of the federations and other parameters of financial efficiency are presented in Tables 7.7 to 7.9.

Table 7.7

Relationship between Profitability of the Federations and Other Parameters of Financial Efficiency

Federations	Factors	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇	X ₈	X ₉	X ₁₀	X ₁₁
MARKFED	Y	0.558 (0.059)	0.227 (0.479)	0.444 (0.149)	-0.987** (0.000)	0.291 (0.360)	0.546 (0.067)	-0.975* (0.000)	-0.976* (0.000)	0.278 (0.382)	0.525 (0.079)	-0.980** (0.000)
HAFED	Y	0.368 (0.239)	0.624* (0.030)	-0.215 (0.502)	-0.235 (0.461)	-0.218 (0.496)	0.148 (0.647)	-0.701* (0.011)	-0.698* (0.012)	0.785** (0.002)	0.674* (0.016)	-0.718** (0.009)

Note: ** Correlation is significant at 0.01 level (2-tailed).

* Correlation is significant at 0.05 level (2-tailed).

Table 7.7 shows that the values given in the table are standardized from 0 to 1. In the case of MARKFED, there is a positive

correlation between net profits (Y) and current ratio (X_1), liquid ratio (X_2), absolute liquid ratio (X_3), funded debt to total capitalization ratio (X_5), proprietary ratio (X_6), inventory turnover ratio (X_9) and debtor turnover ratio (X_{10}), whereas there is a highly negative and statistically significant relation between Y and debt-equity ratio (X_4), fixed-assets to net-worth ratio (X_7), fixed-assets ratio (X_8) and net working capital turnover ratio (X_{11}), with the respective values of 0.987, 0.975, 0.976 and 0.980 showing their significance at 5 per cent level. Thus, in the case of MARKFED, there is positive relation between profitability and liquidity. Profits of the federations are inversely related to outsiders' funds especially short-term sources, and positively related to long-term sources of finance. There exists a positive relation between profits and inventory and debtor turnover ratios, whereas working capital turnover ratio was negatively associated with the profits. So, in order to increase profits of the federation, long-term sources of finance and shareholders' funds need to be increased; and current assets and liabilities require their proper management.

In the case of HAFED, there was a moderate and significant positive association between Y and liquid ratio (X_2), inventory turnover ratio (X_9) and debtor turnover ratio (X_{10}). Further, there was a significant and negative correlation between Y and X_7 (0.701), X_8 (0.698) and X_{11} (0.718). However, the variables such as X_3 , X_4 and X_5 are negatively related to Y, whereas X_1 and X_6 are positively related. Thus, in HAFED, profitability is found to be positively associated with liquidity having a negative relation with outsiders' funds. There exists a positive relation between profits and inventory and debtor turnover ratios, whereas working capital turnover ratio is negatively associated with profits. So, in order to increase the profits of the federation shareholders' funds need to be increased; and the working capital demands to be managed properly.

Thus, in both the federations, profits are related with efficient management of other parameters of financial efficiency.

Table 7.8

Relationship Model between Profitability and Other Parameters of Financial Efficiency of MARKFED

Step	Intercept	X₄	R²	Adjusted R²	F-ratio
I	0.632 (11.403)	-0.023* (19.368)	0.974	0.971	375.106*

Note: The figures given in parentheses represent the t-values.

* Refers to 5 per cent significance level

Table 7.8 reveals that in MARKFED, debt-equity ratio (X₄) enters in the regression model at the first step, and singularly explains 97.10 per cent variation in the net profits (Y) of the federation. Thus, one unit of increase in debt-equity ratio (X₄) will lead to 0.023 units decrease in net profits (Y).

The F-test for the model was also highly significant (375.106). The multivariate analysis for the period concludes:

$$Y = 0.632 + (-) 0.023 X_4 + e \text{ ----- (1)}$$

Where, e is the error term.

After the first step, no other variable enters in the regression model. So, in MARKFED, in order to increase profits, outsiders' funds especially short-term sources of finance must be decreased and managed properly.

Table 7.9

Relationship Model between Profitability and Other Parameters of Financial Efficiency of HAFED

Steps	Intercept	X₉	X₁₁	R²	Adjusted R²	F-ratio
I	0.835 (4.906)	0.047* (4.011)	-	0.617	0.578	16.090*
II	1.844 (7.400)	0.038* (5.207)	-0.053* (4.426)	0.879	0.853	32.792*

Note: The figures given in parentheses represent the t-values.

* Refers to 5 per cent significance level

Table 7.9 depicts that in HAFED, inventory turnover ratio (X_9) enters in the regression model at the first step and singularly explains 57.80 per cent variation in the net profit (Y). Thus, one unit of increase in X_9 will lead to 0.047 units increase in the Y . At the second step, X_{11} enters in the regression model along with X_9 and explains 85.30 per cent variation in Y . Thus, one unit of increase in X_9 and X_{11} will lead to 0.038 units increase and 0.053 units decrease in the Y .

The F-test for the model is also highly significant. The multivariate analysis for the period concludes:

$$Y = 1.844 + 0.038 X_9 + (-) 0.053 X_{11} + e \text{ ----- (2)}$$

Where, e is the error term.

After the second step, no other variable enters in the regression model. So, in order to increase profits of HAFED, stock turnover need to be increased; and working capital demands to be managed properly.

Comparative Analysis of Financial Health of MARKFED and HAFED

Ratios help to understand condition of a concern whether it is growing or suffering. Multivariate model is an improvement over single ratio analysis. It is a single measure of the probability of sickness or failure of a concern. Multivariate discriminant analysis (MDA) can be used to classify a firm on the basis of its characteristics as measured by financial ratios into those which are likely to fail (and go bankruptcy) and those not likely to fail. Edward Altman applied multi-discriminant analysis in finance for studying bankruptcy and derived a Z-score model for studying bankruptcy. It is one of the most accepted and tested predictors of bankruptcy potential for a firm and enables to understand the financial health of a concern. The Z-score is calculated by multiplying each of several financial ratios by an appropriate coefficient and then summing the results. Financial health of the organizations under study as observed through Z-score analysis during the study period has been exhibited in Tables 7.10 to 7.12 and in Figure 7.1.

Table 7.10
Z-score of MARKFED

Years	Weighted Z-score					Z-score				
	X ₁	+	X ₂	+	X ₃		+	X ₄	+	X ₅
2000-01	0.042	+	0.077	+	0.0033	+	0.0378	+	0.463	0.6231
2001-02	0.0324	+	0.0728	+	0.0165	+	0.0354	+	0.740	0.8971
2002-03	0.0408	+	0.091	+	0.0099	+	0.045	+	1.247	1.4337
2003-04	0.0696	+	0.1358	+	0.0165	+	0.0696	+	1.751	2.0425
2004-05	0.1212	+	0.2198	+	0.0396	+	0.12	+	2.416	2.9166
2005-06	0.1248	+	0.2072	+	0.0363	+	0.1116	+	1.986	2.4659
2006-07	0.0984	+	0.161	+	0.0099	+	0.0828	+	1.254	1.6061
2007-08	0.0684	+	0.1106	+	0.0099	+	0.0546	+	1.050	1.2935
2008-09	0.036	+	0.0672	+	0.0066	+	0.0318	+	0.774	0.9156
2009-10	0.0264	+	0.0532	+	0.0033	+	0.0252	+	0.840	0.9481
2010-11	0.0216	+	0.0448	+	0.0003	+	0.021	+	0.873	0.96073
2011-12	(-)0.0096	+	0.007	+	(-) 0.0792	+	0.0042	+	0.811	0.7334
Average	0.056	+	0.1040	+	0.0061	+	0.0532	+	1.1837	1.403

Table 7.10 reveals that the value of Z-score for the MARKFED was 0.6231 in the year 2000-01 and the firm was placed in distress zone. During the next 2-3 years, working capital, equity and retained earnings of the MARKFED increased significantly. As a result, the value of Z-score showed a constant increase and grew to 2.9166 in the year 2004-05. This high value of Z-score in 2004-05 indicated that the financial health of the federation was quite good in 2004-05. However, a declining trend in Z-score values continued during the period 2004-05 to 2011-12. The Z-score value declined to 0.9156 in the year 2008-09. It kept on increasing during the next two years to reach at 0.96073 in the year 2010-11, and then declined to 0.7334 in 2011-12. This decline in the value of Z-score can be attributed mainly to the decline in working capital and earnings, and also due to the higher rate of increase in the total assets. MARKFED had the highest Z-score of 2.9166 in the year 2004-05 and the lowest of 0.6231 in the year

2000-01. The mean value of Z-score of the federation during the period of study is 1.403 which indicates that financial crisis looms large before the federation and suitable steps need to be taken immediately to overcome the problem.

Table 7.11
Z-score of HAFED

Years	Weighted Z-score	Z-score
	$X_1 + X_2 + X_3 + X_4 + X_5$	
2000-01	0.1248 + 0.2338 + 0.0396 + 0.123 + 0.653	1.1742
2001-02	0.0432 + 0.1596 + 0.0231 + 0.0786 + 0.640	0.9445
2002-03	0.078 + 0.2534 + 0.033 + 0.1356 + 1.640	2.1400
2003-04	0.1752 + 0.5852 + 0.0528 + 0.4446 + 3.953	5.2108
2004-05	0.1752 + 0.595 + 0.0561 + 0.4578 + 2.572	3.8561
2005-06	0.1896 + 0.5096 + 0.1551 + 0.3534 + 2.470	3.6777
2006-07	0.2076 + 0.483 + 0.1617 + 0.3252 + 1.825	3.0025
2007-08	0.1656 + 0.413 + 0.0957 + 0.258 + 1.315	2.2473
2008-09	0.09 + 0.2562 + 0.033 + 0.1374 + 0.924	1.4406
2009-10	0.0864 + 0.2772 + 0.0429 + 0.1518 + 1.246	1.8043
2010-11	0.0624 + 0.252 + 0.033 + 0.135 + 1.377	1.8594
2011-12	0.0408 + 0.1904 + 0.0264 + 0.0972 + 0.897	1.2518
Average	0.1199 + 0.3507 + 0.0627 + 0.2248 + 1.626	2.3841

Table 7.11 reveals that the Z-score of HAFED declined from 1.1742 in 2000-01 to 0.9445 in 2001-02, indicating a weak financial position of the federation. During the next 2 years, the value of Z-score increased to 5.2108 in 2003-04 due to significant increase in working capital, retained earnings, equity and turnover. It indicated towards a very healthy financial position of the federation. However, a declining trend in Z-score values was observed during the period 2004-05 to 2008-09. This decline can be attributed mainly to wide fluctuations in turnover, and higher rate of increase in the total assets. The values of Z-score increased during the next two years to

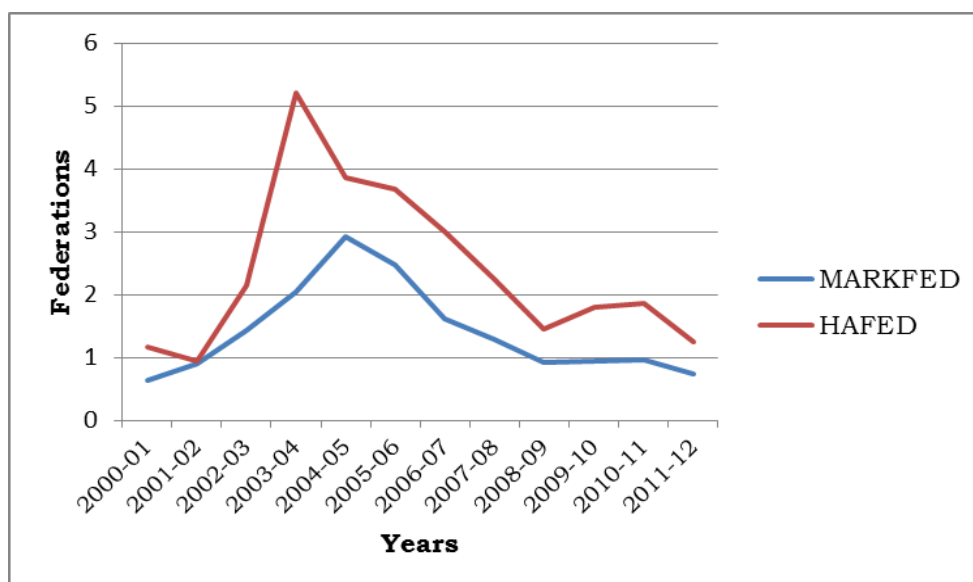
reach at 1.8594 in 2010-11, but it was still on the lower side of grey zone. Further, HAFED has the highest value of Z-score of 5.2108 in the year 2003-04 and the lowest of 0.9445 in the year 2001-02, with an average Z-score of 2.3841. The average value indicates that the federation was financially safe, but the continuous declining trend and lesser value of Z-score was a major cause of concern. The situation demands an immediate attention of the federation, otherwise, it will have to face the financial crisis in the years to come.

Table 7.12
Financial Consistency of MARKFED and HAFED

Indicators	Values of MARKFED	Values of HAFED
Average	1.403	2.3841
Std. Deviation	0.73	1.30
C.V. (%)	51.92	54.56

Figure 7.1

Consistency in Financial Health of MARKFED and HAFED



The financial consistency of both the federations under the study has been highlighted in Table 7.12 and figure 7.1. The coefficients of variation of the MARKFED and the HAFED were 51.92 per cent and 54.56 per cent respectively which indicate that the financial health of both the federations was subject to huge