

EVALUATION OF FINANCIAL HEALTH OF MMTC OF INDIA: A Z SCORE MODEL

Nilanjana Kumari

Faculty of Commerce, Banaras Hindu University, Varanasi, U.P., India-221005

Abstract: Financial position of any company can be easily evaluated through its profitability, liquidity, solvency and activity ratios. Ratio analysis is one of the most easiest and competent tool to evaluate the financial soundness of a company. In this paper the financial health of MMTC has been evaluated by using ratio analysis and the chances of bankruptcy in the near future is evaluated with the help of Z score developed by Prof. Edward I. Altman (1968). From the study of five years (2007-08 to 2011-12), it is deduced from the analysis that profit earning capacity and short term investing capacity of MMTC is quite good, but its financing position of assets is comparatively poor. However the Z score value indicates that it is in a strong position, and it has no chances of being bankrupt in the next two years.

Keywords: Ratio analysis, Z score, bankruptcy, financial performance.

1.0 Introduction

Financial analysis is an analytical way of viewing the financial position of a company. It provides a clear guide to evaluate and understand the company's position. Some of the ways to analyse a company's financial position are: ratio analysis, comparative statement analysis, cash flow analysis, decision theory, etc. financial statement analysis is the best tool to evaluate the working and performance of a company throughout the year. It is the easiest available tool for any investor or stakeholder to diagnose the financial strength of a company. Whether it is to interpret the short or long term solvency, financial analysis is best suited.

Objective of Study

- Evaluate the financial soundness of MMTC.
- Forecast the financial health of MMTC.

2.0 Literature Review

Altman (1968), in his work developed the concept of Z score. In his work he analysed the financial position with the help of ratio analysis, which was further analysed with the help of multiple discriminant analysis, through which a discriminant coefficient was determined. The model was formulated to determine the bankruptcy of any company. In his work he determined that if the score is less than 1.8, the company becomes bankrupt but if the value is more than 2.99, the company is sound and if the value was amongst these two, then the companies were in a safe zone. The model crafted by him was 94% accurate.¹ Ingoo (1997), in his work analysed the bankruptcy through three major techniques: multivariate discriminant analysis, case based forecasting and neural network. The paper studied the bankruptcy chances of Korean firms. It was concluded from this article that neural network was best suited to forecast the health of the company and case based forecasting was the most inappropriate technique to measure the bankruptcy.² Reddy (in his work examined the financial performance of two selected pharmacy companies and forecasted the viability with the help of Z score model as examined by Beaver who studied 79 successful and 79 unsuccessful companies with the use of ratio analysis, to evaluate the soundness which was further applied to the Z score model.⁶ Johan (2006), used Z score to measure the financial performance of small business firms in Kenya, and to determine the distress level through cyclical concept.³ Krishna (2005) predicted the financial distress and insolvency of IDBI through Z score.⁴ Khannadhasan (2007), concluded that the financial health of Wendt India limited was good by applying the Z score model.⁵ Ben Mc Clure (2004) through his work has advised investors to check the Z score of companies from time to time to avoid bankruptcy situation.⁷

3.0 Research Methodology

The data used for study is secondary in nature and collected from the annual reports of MMTC. The period of study was 5 years, 2007-08 to 2011-12. The data had been analysed through Altman's Z score model, for which a few ratios have been calculated through ratio analysis. The paper has been divided into 8 parts: Introduction, methodology, review, company profile, Z Score, analysis and findings, suggestions and conclusion. The study is completely based on secondary data and is confined to a period of only 5 years. The METALS AND MINERALS TRADING CORPORATION OF INDIA was established in 1963. It is the largest company of India and one of the major trading companies of Asia. It is a Government of India enterprise with the Government owning 99.3312% stake in its paid up share capital. MMTC is schedule 'A'/Mini Navratna Category -1 Central Public Enterprise. It is the first Public Sector Enterprise to be accorded the status of "FIVE STAR EXPORT HOUSE" by Govt of India for long standing contribution to exports. It is one of the largest non-oil importers in India and among the highest foreign exchange earners for India. MMTC's vast international trade network included a wholly owned international subsidiary **MMTC TRANSNATIONAL PTE LIMITED (MTPL) Singapore** and a representative office in South Africa, which spans almost in all countries of Asia, Europe, Africa, Oceania and Americas, giving MMTC global market coverage. It has promoted various joint ventures following the public-private partnership route to take advantage of new opportunities emerging in the free market environment. MMTC is major global player in the minerals trade. It is one of the leading importers of fertilizers in India and an authorised agency of the Govt. for import of gold, silver, platinum, palladium, rough diamonds & coloured stones.

3.1 Z Score Model

Z score model was first developed by Edward Altman, professor of Finance, Stern School of Business, Newyork University, to evaluate the financial health of a company, on the basis of various ratios. The value calculated determines the likelihood of a company to be bankrupt. The value calculated is termed as Z score. Five ratios net working capital to total assets, retained earnings to total assets, earnings before interest and tax to total assets, market value of equity to market value of debt and sales to total assets are calculated from the financial statements and then are fitted to the formula propounded by Altman. It is a linear equation where the ratios are multiplied by certain coefficients or factors (devised by Altman), which are then added together to determine the Z score. The formula given by Altman is:

$$Z = 1.2 X_1 + 1.4 X_2 + 3.3 X_3 + 0.6 X_4 + 1.0 X_5$$

Where:

Z = Score

X_1 = Working Capital / Total Assets

X_2 = Retained Earnings / Total Assets

X_3 = Earning Before Interest and Tax / Total Assets

X_4 = Book Value of Equity / Book Value of Debt

X_5 = Sales / Total Assets

The ratios are the widely used tool to measure the financial performance of a company. There are four major ratios which define the complete financial position of a company, viz.: liquidity ratio, activity ratio, solvency ratio and profitability ratio. The liquidity ratio helps to measure the company's ability to measure the company's ability to meet the short term obligations. The solvency ratio measures the debt service capacity in the long run. The activity ratio determines the company's ability to utilize the assets in an efficient manner. The profitability ratio measures the profit bearing capacity of a company. In the above formula, X_1 gives the liquidity position to the total capitalization, X_2 measures the cumulative profitability overtime and leverages, X_3 measures the operating performance and productivity of assets, X_4 gives the long-term solvency position and X_5 gives the sales generating capacity of the assets.

“As per Altman’s model if the Z-Score is < 1.8 , then the company is considered to be in bankruptcy zone, and has high probability of failure. If the Z-Score lies in 1.8 to 3.0, then the company is considered to be in grey zone i.e. safety zone, where the company should be under careful watch. If Z-Score is > 3.0 , then the company is said to be in good financial health, and will be solvent in the future.”

4.0 Analysis and Results

4.1 Analysis

Table 1: Value of Z score indicators

Z SCORE ANALYSIS – VALUES OF INDICATORS							
YEAR	Net Working capital	Total Assets	Retained Earnings	EBIT	Net Sales	Book Value of Equity	Book Value of Debt
2007-08	38042	90451	1479	760	264234	10277	49231
2008-09	50291	106098	934	1917	368207	11176	49803
2009-10	60339	118394	1638	3331	451242	12871	53671
2010-11	70352	127098	925	1917	688545	13797	83651
2011-12	42453	127427	416	760	659291	14213	44881

Source: Annual report of MMTC, 2007-08 to 2011-12.⁸

Table 2: Calculated value of ratios

CALCULATION OF RATIOS						
	Financial Ratios	2007-08	2008-09	2009-10	2010-11	2011-12
X ₁	NWC to Total Assets	0.42	0.47	0.50	0.55	0.33
X ₂	R.E to Total Assets	0.016	0.008	0.013	0.007	0.003
X ₃	EBIT Total Assets	0.35	0.20	0.028	0.015	0.005
X ₄	BVE to BVD	0.20	0.22	0.23	0.16	0.31
X ₅	Net Sales to Total Assets	2.92	3.47	3.81	5.41	5.17

Table 3: Value of coefficients and Z score

Z-Score of MMTC						
YEAR	1.2X ₁	1.4X ₂	3.3X ₃	0.6X ₄	1.0X ₅	Z SCORE
2007-08	0.504	0.022	1.15	0.120	2.92	4.71
2008-09	0.564	0.011	0.066	0.132	3.47	4.24
2009-10	0.60	0.018	0.092	0.138	3.81	4.66
2010-11	0.66	0.09	0.049	0.096	5.41	6.30
2011-12	0.396	0.004	0.016	0.186	5.17	5.77

4.2 Findings

NET WORKING CAPITAL TO TOTAL ASSETS

The ratio of net working capital to total assets depicts the liquidity position of the company. The ratio (X₁) ranges from 0.33 to 0.55 (from table 3). It was highest in the year 2010-11 and lowest 2011-12. High level of fluctuation indicates that MMTC has a good level of investment in current assets. It does not block the funds in the form of current assets.

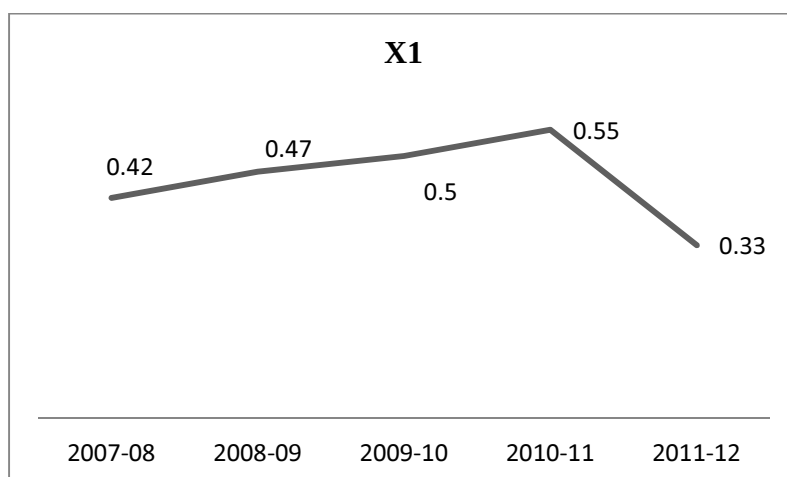
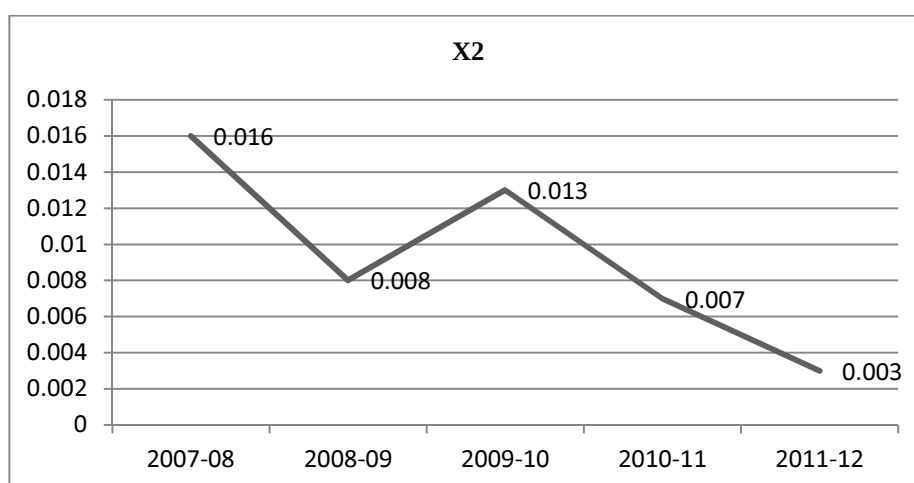


Fig 1: Graphical presentation of net working capital to total assets

RETAINED EARNINGS TO TOTAL ASSETS

The ratio of retained earnings to total assets indicates that the proportion of fixed assets is financed by the retained earnings i.e. reserves. Retained earnings are the free reserves and cheaper source of finance than debt. A low ratio in the analysis indicates that the growth is not a real growth, because the company is financed through increasing debt, rather than of reinvesting profits. The ratio (X_2) ranges from 0.003 to 0.016 (from table 3) which indicates that 3 - 16% of fixed assets are financed through the retained earnings indicating a weak position of MMTC because they are relying more on the external sources of finance rather than internal sources.

Fig 2: Graphical presentation of retained earnings to total assets



EARNING BEFORE INTEREST AND TAX TO TOTAL ASSETS

EBIT to Total Assets ratio is a common variant of the return on assets. This ratio indicates the operating performance and productivity capacity of the assets. The ratio (X_3) ranges from 0.005 to 0.35 (from table 3) showing a low operating efficiency of MMTC and also indicates that the company is unable to operate the fixed assets properly.

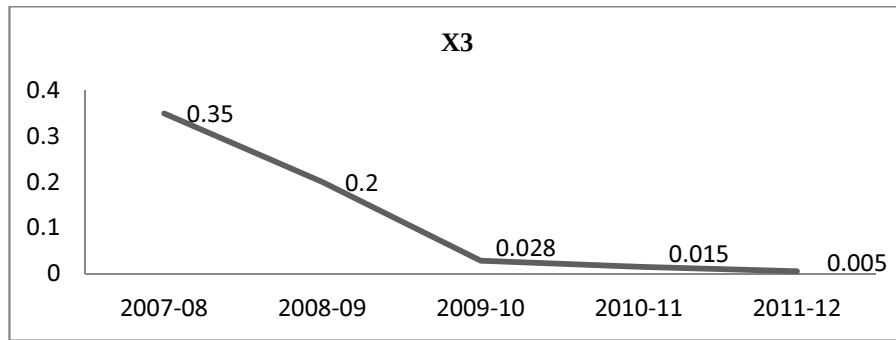


Fig 3: Graphical presentation of EBIT to total assets

BOOK VALUE OF EQUITY TO BOOK VALUE OF DEBT

Book value of equity to debt is a common indicator of bankruptcy. It is a measure which indicates how much the company's assets can decline in value, before the liabilities exceed the assets and the company becomes insolvent. The ratio (X_4) of MMTC ranges from 0.16 to 0.31 (from table 3). From the analysis, it can be concluded that MMTC is relying more on debt rather than equity and slowly it is increasing the component of equity equal to debt.

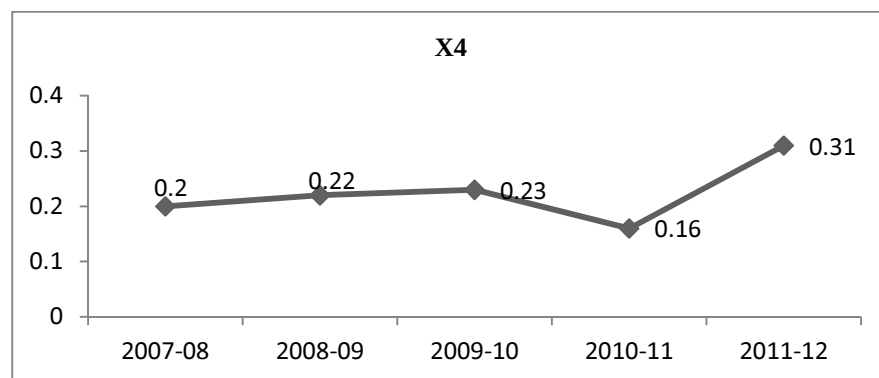


Fig 4: Graphical presentation of book value of equity to book value of debt

NET SALES TO TOTAL ASSETS

The sales are very important in measuring the overall performance of the company since all the activities are directly or indirectly depends on the sales revenue. The ratio (X_5) ranges between 2.92 to 5.41 (from table 3) which indicate that the company is utilising its assets in an efficient manner to generate sales.

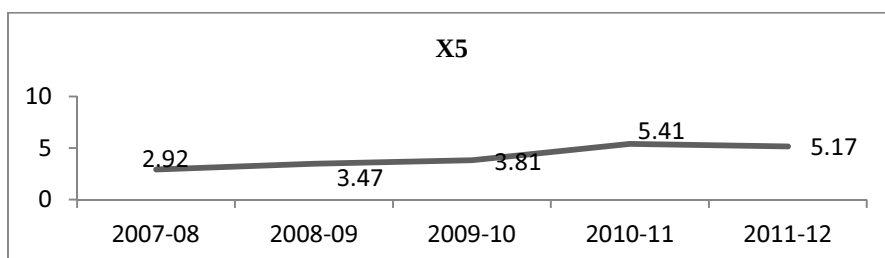


Fig 5: Graphical presentation of book value of net sales to total assets

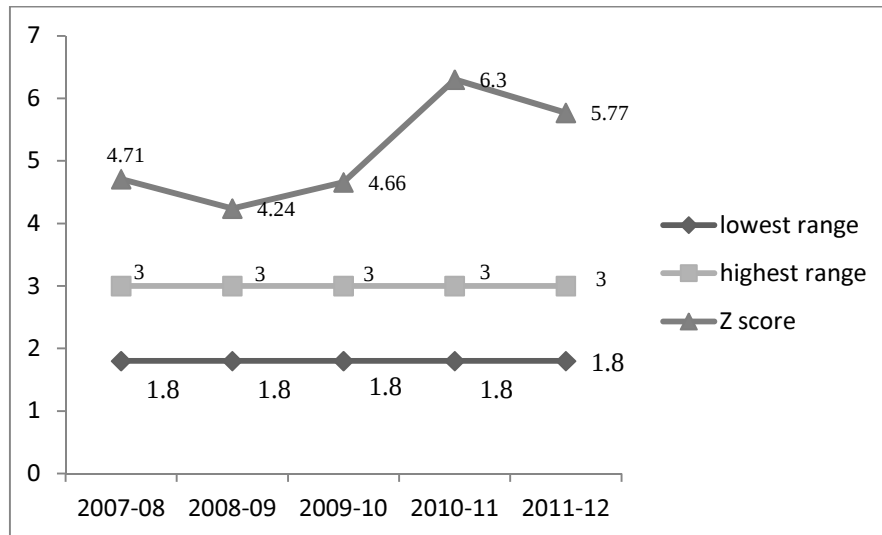


Fig 6: Graphical presentation of Z score of MMTC

The figure 6 represents the Z score of MMTC (from table 3) is compared to the lowest range (1.8) and highest range (3) of Altman's Z score model. It can be seen that MMTC has a viable financial position, and in the coming future it is not intended to bankruptcy, rather it is going to have a sound financial performance.

Suggestions

- The ratio of working capital ratio shows that the current investment position of the company is good, and it does not block the funds. However if the company does not take care, and if the ratio dips more than 0.33, then it will be a point of concern, as its current position of investment will be questioned.
- A good company always finances its assets from its retained earnings, but from the analysis of MMTC it can be seen that its finances are more dependent on debt than on retained earnings. If it maintains the same habit then its, debt value will increase which will automatically affect its financial performance. It should finance its assets more from retained profits than from debt.
- A low ratio of EBIT indicates that the productivity capacity of assets is decreasing and if the situation remains the same, it will surely create an alarming situation for MMTC, as it's the operating capacity of assets will reach to nil.
- From 2007 to 2012 the equity to debt ratio has increased, but if the company does not take care of it, then it will again create a situation where it has to depend on debt. If it maintains the same trend of increased equity participation, it will be easy for MMTC to decrease its borrowings.
- Increasing trend of sales is indicating a better performance of the company, and the trend should be maintained by the company in the future to avoid any situation of bankruptcy.

5.0 Conclusion

The Z-Score of MMTC based on Altman's model of Z score is ranging from 4.24 to 6.30 during the period of study. It one of the best way to compare a company's Z-Score over a period of time to get a better idea as to how the company is performing. The lower the Z-Score, the more likely a company will be bankrupt. A Z-Score lower than 1.8 indicates that bankruptcy is likely, while scores greater than 3.0 indicates that bankruptcy is unlikely to occur in the next two years. Companies that have a Z-Score ranging from 1.8 - 3.0 are in the gray zone (Safety zone).

From the above analysis, it can be concluded that Z-Score of MMTC over a period of five years from 2007-08 to 2011-12 ranges from 4.24 - 6.30, which is much higher than 3.00. So, it can be predicted that bankruptcy is unlikely to occur for MMTC in the next two years. Finally, it can be concluded that the overall financial health of MMTC is good, and it can be quoted as an investor friendly company as will be having a sound financial performance in the future.

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Notes:

WORKING CAPITAL = CURRENT ASSETS – CURRENT LIABILITIES

RETAINED EARNINGS = PROFIT BEFORE INTEREST AND TAX

TOTAL ASSETS = CURRENT ASSETS + FIXED ASSETS

BOOK VALUE OF EQUITY = NET WORTH

BOOK VALUE OF DEBT = BORROWINGS OF THE COMPANY

Earnings before interest and tax is earning earned before paying interest and tax.

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*E-mail-nilanjanakumari.jobs@gmail.com