FINANCIAL HEALTH OF SELECT INDIAN IT COMPANIES - A STUDY WITH REFERENCE TO Z-SCORE ANALYSIS

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Abstract

Industrial sickness is defined in India as "an industrial company (being a company registered for not less than five years) which has, at the end of any financial year, accumulated losses equal to, or exceeding, its entire net worth and has also suffered cash losses in such financial year and the financial year immediately preceding such financial year". Industrial sickness is an umbrella term applied to various things associated with industry that make people ill and cause them to miss work. Industrial health managers need training and experience identifying and remediating conditions that present major health threats to their respective workforces. Then they can train the rest of management and can teach the workers themselves about the best way to carry out their jobs with minimum threats to their health. In this particular study, we have tried to identify the financial health of select Indian IT Sector companies, with the help of a pertinent financial tool – Z-score analysis. Appropriate statistical tools have been used for the analysis.

Keywords: Industrial Sickness, Z-score, Multiple Regression, Financial Health.

Introduction

Industrial sickness is defined in India as "an industrial company (being a company registered for not less than five years) which has, at the end of any financial year, accumulated losses equal to, or exceeding, its entire net worth and has also suffered cash losses in such financial year and the financial year immediately preceding such financial year

Industrial Sickness in India

Industrial sickness specially in small-scale Industry has been always a demerit for the Indian economy, because more and more industries like – cotton, Jute, Sugar, Textiles small steel and engineering industries are being affected by this sickness problem.

As per an estimate 300 units in the medium and large scale sector were either closed or were on the stage of closing in the year 1976. About 10% of 4 lakhs unit were also reported to be ailing. And this position also remain same in the next decades. At the end of year 1986, the member of sick units in the portfolio of scheduled commercial banks stood at 1.47,740 involving an out standing bank credit of Rs. 4874 crores.

Where the total number of large Industries which are sick were 637 units at the end of year 1985 increased to 714 units in the end of next year 1986.Likewise on the other hand the number of sick small scale units were also increased 1.18 lacks at the end of 1985 to 1.46 lakhs at the end of 1986.The bank amount which was outstanding in case of large industries for the same period also increased from Rs.2,900 crores to Rs. 3287 crores at the end of year 1986. Dues of Small Scale sector also increased from Rs.1071 crores to Rs.1306 crores at the end of the year 1986.Of the 147, 740 sick industrial units which contains large medium as well as small scale involving the total bank loan (credit) of Rs. 4874 at the end of the year 1986.

Industrial sickness is one of the most complex problems of the Indian economy. In spite of the different measures taken by the Government the problem persists. The rise has remained unabated, even in the years after the passage of the Sick Industrial Companies Act (SICA) and the creation of the Board for Industrial and Financial Reconstruction (BIFR). The study reveals that sick units have not only lost their net worth, but they have also lost capital raised from sources other than ownership. The extent of accumulated losses of sick units in India, is about two times that of the net worth of the sick units. The study reveals the failure of the policies in controlling industrial sickness in India, and puts forward certain suggestions to revamp the policy framework so as to effectively tackle the problem.

Causes of Industrial Sickness in India

Before a policy is evolved and successfully implemented to deal with, the problem of industrial sickness in India, it is absolutely necessary to have a correct diagnosis of the problem.If we know what factors are responsible and causing industrial sicknesses, it will be possible to prevent industrial sickness in the first instance, and if unfortunately, sickness does affect some industrial units, a proper and correct diagnosis would help the policy-makers to successfully tackle the problem of industrial sickness.

From the above point of view, the following analysis dealing with the causes of industrial sickness in India would be found useful and helpful to evolve and implement successfully an appropriate policy to deal with the problem.Industrial units may become sick due to various reasons. According to V.N Nadkarni, "….some industrial units are born sick, some achieve sickness and-some have sickness thrust upon them".

Internal Causes of Sickness

Some industrial units have sickness inherent in them; they have the potential of sickness in them right from their inception. This would mean that such industrial units never have a chance of becoming viable and profitable. They generally develop sickness within two to three years or even earlier after they commence their activities.Any one or more of the following factors are responsible for such inherent sickness in industrial units or for born in sickness among industrial units.

Achieved Sickness

An industrial unit may start functioning and after some years may fall sick due to various internal causes that begin to affect the unit. Some of the important internal causes or factors that may result in industrial sickness are as follows: As Nadkarni has pointed out bad management with lack of professional expertise, internal squabbles, indifference and inefficiency may result in industrial sickness after a unit starts functioning.

External Factors Causing Industrial Sickness

It is quite possible that an industrial unit may fall sick far no fault of the entrepreneur and due to reasons entirely beyond his control the entrepreneur may be a practical and very careful man with adequate expertise and resources and the project may have been very carefully prepared, and yet the unit may fall sick far no fault of his. This is because various external factors influence the health of industrial unit. Following are some of the important external factors that may cause industrial sickness.

(a) In the case of India, energy crisis, coal shortages and steeply rising petroleum prices have caused sickness among many industrial units. Energy shortages have become endemic and often anywhere from 25 to 50 per cent of electricity requirements are not met, with extremely adverse effect on production and revenue of industrial establishments, forcing many of them to fall sick.

(b) In a number of cases the installed capacity of an industrial unit cannot be used to the maximum possible extent but only partly because of shortages of essential raw materials due to production setbacks in supply industries; or due to failure of monsoon, agricultural production and incomes have received a setback with adverse effect on demand from the agricultural sector for products like diesel pumps fertilizers, etc., and industrial units producing these goods continually for two or three years may find themselves in a condition of sickness, or import policies of some countries may change so that demand for certain goods produced for export purposes declines steeply. If this persists for some years, it would mean a great setback to the concerned industrial units making them sick as a consequence.

(c) Infrastructural problems (such as heavy demand for railway services) may cause immense problems for industrial units in getting necessary raw materials in time and in sending out manufactured goods to different markets in the country and also abroad according to schedule. This would upset the smooth working of the industrial unit.

(d) Non-availability of adequate credit due to depressed conditions in capital and money markets of credit squeeze policy of the government may upset the working of an industrial unit making it sick. The policy of credit squeeze followed by the Government of India for some time during 1970s was responsible for sickness of many industrial units, ultimately forcing some of them to close down.

(e) Unfavourable government policies such as in respect of taxation, export imports, controls, rate of interest, foreign competition etc. may produce unfavourable environment for working of some industrial units, some of which for failure to successfully cope with all these constraints may fall sick or may close down completely.

Review of Literature

Ohlson's O-Score model (1980) selected nine ratios or terms which he thought should be useful in predicting bankruptcy. Martin (1977) applied logistic regression model to a sample of 23 bankrupt banks during the period 1975-76. Other accounting-based models developed were by Taffler (1983, 1984) and Zmijewski (1984). Bhatia (1988) and Sahoo, et al. (1996) applied the multiple discriminant analysis technique on a sample of sick and non-sick companies using accounting ratios. Several other studies used financial statement analysis for predicting default. Opler and Titman (1994) and Asquith et al. (1994) identified default risk to be a function of firm specific idiosyncratic factors. Lennox (1999) concluded from their study that profitability, leverage, and cash flow; all three parameters have a bearing on the probability of bankruptcy on a sample of 90 bankrupt firms. Further studies were done by Shumway (2001), Altman (2002) and Wang (2004) and all these studies emphasized the significance of financial ratios for predicting corporate failure. Grunert et al. (2005) however, found empirical evidence in his study that the combined use of financial and non-financial factors can provide greater accuracy in default prediction as compared to a single factor. Jaydev (2006) emphasized on the role of financial risk factors in predicting default while Bandyopadhyay (2006) compared three zscore models. Bandyopadhyay (2007) developed a hybrid logistic model based on inputs obtained from Black Scholes Merton (BSM) equity-based option model described in his paper, Part 1 to predict corporate default. Agarwal and Taffler (2007) emphasized on the predictiveability of Taffler's z-score model in the assessment of distress risk spanning over a 25-yearperiod. Baninoe (2010) evaluated two types of bankruptcy models; a logistic model and anoption pricing method and concluded from his research that distressed stocks generated highreturns. Laitinen (2010) in his study assessed the importance of interaction effects inpredicting payment defaults using two different types of logistic regression models. Kumar andKumar (2012) conducted empirical analysis on three types of bankruptcy models for Texmoindustry: (i) the Altman z-score; (ii) Ohlson's model; and (iii) Zmijewski's models to predict the probability that a firm will go bankrupt in two years.

Recently, Gupta (2014) had developed an accounting based prediction model using discriminant analysis and logit regression and compared the predictive ability of these models.

For logistic regressions, an attempt was made to combine macro variables and dummy industry variables along with accounting ratios. The paper had analysed that the predictive ability of the proposed Z score model was higher when compared to both the Altman original Z-score model and the Altman model for emerging markets. The research findings establish the superiority of logit model over discriminant analysis and demonstrate the significance of accounting ratios in predicting default. It is observed from the literature review above that several models have been developed based on accounting information (MDA, logit, probit). However, MDA which is applied to develop a z-score does not directly compute probabilities. Moreover, the model to be developed and the ratios may vary across regions. Thus, this paper examines the MDA to develop a Z-score and to evaluate which is a better model in its predictive ability that can be used by lenders to forewarn against a corporate default.

Finding out the Research Gap

The review of the literature of the above literature reveals that the pressure to monitor financial health of a company arises today, for:

1. Determining the sustainability and growth of the company in the competitive world
2. Identifying the signs of financial distress and thereby avoid the bankruptcy
3. Entry of the new players in the market
4. The integrated financial market brings investors from foreign countries
5. Reluctance to invest due to political uncertainty and coalition politics.

The above study also reveals that the z-score model is the most accepted as a financial tool for the measurement of sickness. Related statistical tools have also been used for the purpose of analysis.

Objectives of the Study

1. To assess the overall financial performance of the company
2. To know the efficiency in financial operations
3. To predict the financial health and viability of the company

Hypotheses of the Study

Keeping the above objectives in mind, the following hypothesis were framed and tested during the study period.

1. Correlation between working capital and total assets of this company is not significant
2. Correlation between Retained earnings and total assets of this company is not significant.
3. Correlation between EBIT and total assets of this company is not significant.
4. Correlation between market value of equity and total liability of this company is not significant.
5. Correlation between sales and total assets of this company is not significant.
6. There is no significant difference between the five years average of Z score ratio to the standard.

Research Methodology

The study was concerned with 10 companies from different sectors, where we have tried to cover all the industrial sectors in India. This study was based on the secondary data which was obtained from the published sources i.e. Annual report for the period of 5 years (2009-10 to 2013-14). The collected data was analysed with the help of ratio analysis. The many accounting ratios used to predict the financial performance of the company, gives a warning only when it is too late to take corrective action.

Keeping the research gap and objectives of the study in mind, the Z" score analysis has been adopted to monitor the financial health of the company to predict as well as to avoid business failure and subsequent bankruptcy. In addition to that, the study used statistical tools like mean, standard deviation, correlation and t test.

What is z-score?

About 40 years ago, Edward I. Altman, a financial economist at New York University's Graduate School of Business, developed a model for predicting the likelihood that a company would go bankrupt. This model uses five financial ratios that combine in a specific way to produce a single number. This number, called the Z score, is a general measure of corporate financial health. The most famous failure prediction model is Altman's Z-Score Model. Based on M*ultiple Discriminate Analyses (MDA)*, the model predicts a company's financial health based on a discriminant function of the form.

Z-score is a statistical measurement of a score's relationship to the mean in a group of scores. A z-score of 0 means the score is the same as the mean. A z-score can also be positive or negative, including whether it is above or below the mean and by how many standard deviation.

How Altman's Z-score is calculated?
The Z-score Formula of ALTMAN (1968)
Here is the formula which is built out of the five weighted financial ratios:

Z-Score = 1.2X$_1$ + 1.4X$_2$ + 3.3X$_3$ + 0.6X$_4$ + 1.0X$_5$

Where:
X_1= Working Capital/Total Assets
X_2= Retained Earnings/Total Assets
X_3= Earnings Before Interest & Tax/Total Debts
X_4= Market Value of Equity/Total Liabilities
X_5= Sales/Total Assets

Strictly speaking, the lower the score, the higher the odds are that a company is headed for bankruptcy. A Z-score of lower than 1.8, in particular, indicates that the company is heading for bankruptcy. Companies with scores above 3 are unlikely to enter bankruptcy. Scores in between 1.8 and 3 lie in a gray area.

The above-furnished ingredients (variables), as mentioned in Chapter-4 of the present study, are the indicators of the financial health of the company. The results of the variables of this company are tabulated in the table 5.1.

Ingredients	Financial Ratios	2013-14	2014-15	2015-16	2016-17	2017-18	Mean	Correlation
X1	**Working Capital / Total Assets**	0.03	0.057	0.435	-0.304	0.373	0.2278	.83
X2	**Retained Earnings / Total Assets**	0.043	0.049	0.448	-0.607	-0.773	-.1876	.10
X3	**EBIT / Total Assets**	0.149	0.089	-0.099	0.058	-0.093	-.0148	.26
X4	**Market Value of Equity / Book Value of Total Liabilities**	0.122	0.046	0.144	-0.081	0.258	.0778	.26
X5	**Sales / Total Assets**	0.294	0.246	0.361	0.36	0.383	.3288	.45
Z Score		2.86	2.91	3.31	3.01	2.88		

Source : Secondary data retrieved from www.moneycontrol.com and calculated through MS-Excel.

Relationship	Calculated Value	Degrees of freedom	Table Value @ 5 % Confidence	Remarks
Correlation between Working Capital and Total Assets	0.033669	9	2.26	Not Significant
Correlation between Retained Earnings and Total Assets	0.026223	9	2.26	Not Significant
Correlation between EBIT and Total Assets	0.854629	9	2.26	Not Significant
Correlation between Market Value of Equity and Book Value of Total Liabilities	0.011495	9	2.26	Not Significant
Correlation between Sales and Total Assets	0.035776	9	2.26	Not Significant
5 years average of Z Score Value to the standard	0.05.572	5	2.132	Not Significant

Source : Secondary data retrieved from www.moneycontrol.com and calculated through MS-Excel and SPSS

Working Capital to Total Assets: It may be seen from the above table 5.1; the working capital of the sample companies was fluctuating during the study period (Current ratio of this company was decreasing every year and it was below to the conventional norm as well as the industry average. It indicates that there has been deterioration in the liquidity position of the company.), whereas total assets increased year by year which shows the sample companies had more concentration on the investments in fixed

assets. The efficiency of these companies in the matter of management of working capital helps the companies to maintain the good financial health. But the working capital management of these companies was not satisfactory, effective and sound. The correlation coefficient between working capital and total assets were positive which was tested through the hypothesis and the result was indicated in table 5.2.

Retained Earnings to Total Assets: Conventionally, retained earnings to total assets ratio near 1:1 (100%) indicates that growth has been financed through profits, not increased debt. The research study (Table 5.1) shows that the ratio was near to 10 per cent which reflects this company financing less capital expenditure through retains earnings rather than borrowings. The correlation coefficient between Retained earning and total assets was negative which was tested through the hypothesis and the result was presented in table 5.2.

Earnings before Interest and Taxes to Total Assets: The operational performance and earning power could be assessed through EBIT to Total assets which lead the business success or failure. The EBIT and total assets of this company was increased year by year during the study period and not the same level of proportion which leads ratio of this company ranges between 27 and 40 per cent (on an average 33). The EBIT and total assets moves on the same direction, it will adversely affect on the financial health of the company. The correlation coefficient between EBIT and total assets was positive which was tested through the hypothesis and the result was depicted in table 5.2.

Market Value of Equity to Total Liabilities: The table 5.1 shows that, the market value of equity and total liabilities increased every year but not in the same proportion. The correlation coefficient between Market Value of Equity and total Liabilities was negative which was tested through the hypothesis and the result was depicted in table 5.2.

Sales to Total Assets: It is observed from the table 5.1. shows the sales and total assets ratio was increasing every year. It shows the company having capacity to increase their sales over periods but not to the desired level. The correlation coefficient between sales and total assets was positive which was tested

through the hypothesis and the result was depicted in table 5.3.

Z score value: For determining the financial health of this company, this study used Z score model, which provides the financial soundness of a business and roadmap out ling the direction the business is heading. The table 5.1 shows the Z score values of this company. As per the Altman's guidelines, the company financial position is not at all healthy during the study period which was tested through hypothesis and concluded that the five years average of Z score ratio does not differ significantly to the standard.

Findings of the Study

As mentioned above, this study has made an attempt to evaluate the general financial health of the selected sample companies through 'Z-score analysis with the five weighted financial ratios. It is clear that the sample companies' financial health is not at all good during the study period.

1. Overall, it is clear that the sample companies' financial position is not at all healthy during the study period.
2. The efficiency of this company in the matter of management of working capital was not at all satisfactory which could help the company to maintain the good financial health.
3. This company financed through reinvesting their profits, instead of debts.
4. The EBIT and total assets moves on the same direction, it will adversely affect the financial health of the company
5. The market value of equity and total liabilities increased every year but not in the same proportion
6. The company having capacity to increase their sales over periods but not to the desired level.
7. The correlation coefficient of the financial ratios are almost negative.

Conclusion

An attempt has been made in the present study to have an insight into the examination of financial health of selected sample companies in the IT Sector in India. To evaluate the financial conditions and performance of a company, this study, uses Z score model, which captures the predictive viability of a company's financial health by using a combination of financial ratios that ultimately predicts a score, which can be used to determine the financial health of a company.

The study concludes that the sample companies overall financial health was very much satisfactory and they are Financially healthy companies.

Recommendations

Though the company"s overall financial health was good, in order to sustain the level and grow, the following suggestion was made:

1. The efficiency of this company in the matter of management of working capital should be strengthened, which helps the company to maintain the good financial health.
2. This company financed through their profits, instead of debt which will help the sustainable growth. So that the company has to identify the level of debt and utilise it properly.
3. The EBIT and total assets moves on the same direction, it will adversely affect the financial health of the company. So that the company,,s EBIT can convert into capital or reduce the fixed assets.
4. The company is capable of increasing their sales over periods but not to the desired level. They can build good market team and provide the necessary incentives, schemes and so on.

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