Predictors of Financial Distress: An Early Warning Signal to Achieve Sound Business

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Abstract:

With the going concern assumption, an entity is considered capable of maintaining the business for a long period and will not liquidate soon. However, in practice the companies often cannot maintain sound business due to financial difficulties that led to bankruptcy. So, it is very important to identify the indicators of financial health of the company. If a company is making continuous profits and having sufficient liquidity then there will be no problem. But if a liquidity crunch arises in the company, it can face financial distress. So, we need to identify the factors responsible for the financial distress of the company.

This study examines what financial distress is and what are the factors responsible for financial distress of the companies which hinders the sustainability of the business. The main objective of this paper is to identify the early warning signals of financial distress so that corrective actions can be taken timely to have a sustainable business that will not liquidate in near future. The study identifies the various internal as well as external factors which are responsible for the financial distress.

Keywords: *Financial Distress, Bankruptcy, Internal Factors, External Factors, Determinants*

1. Introduction

The concept of financial distress is not new rather age old and its literature has been growing rapidly, both nationally and internationally, with time. Due to financial distress number of business failures and bankruptcies has increased. So it has become important to study the financial health and the soundness of business. Financial distress has become a threat for the economic development of any country. Increasing financial distress leads to wastage of financial resources, time, energy, efforts and it also results in unemployment in the country. Hence it is very important to find the reasons of financial distress and to capture the distress signals early in the financial statements of the company so that corrective measures can be taken on time to avoid liquidation of the company. Which are of main importance not only for the stakeholders of the company but also for the country as a whole. Identifying the reasons and predicting financial distress through capturing distress signals provides a lot of benefits to the stakeholders of the company. Generally financial distress prediction is to predict whether or not a company will fall into financial distress based on current financial statement data through mathematical, statistical models. It plays a very important role for managerial decision- making for firms, investment decision- making for investors, credit decision- making for creditors, customer credit rating for banks.

Financial distress can cause long term injury to a firm's financial health. It may negatively affect the investments activities, capital flows and regular operations of the firm which leads to closure of business. So, there is an urgent need to identify signals which indicate financial distress in companies. If these indicators are reviewed and interpreted properly then distress can be found out and bankruptcy can be avoided, thereby protecting wealth of stakeholders as well the company's sustainability. In India also we

need to predict corporate financial distress due to the unexpected failures of trustable corporate. Cases like Satyam computers, Reliance communications, Kingfisher, jet airways etc. are some of the examples of the failures in Indian scenario, which makes the study of financial distress all the more important because if we are able to find out the predictors of financial distress, we can take corrective actions timely to achieve a sustainable business and avoid future bankruptcy.

2. Research Objectives
1.To study financial distress from Indian perspective and from the perspective of various authors
2.To identify the factors responsible for financial distress of companies
2.1To classify the factors into internal and external to the company.
2.2To identify financial and non- financial factors

3. Research Methodology
While working on this paper a thorough review of published research papers and articles in Scopus, web of science and other databases was done. The authors who have initiated the work on financial distress were included in literature review. And most cited papers are reviewed in the research to identify the determinants/predictors of financial distress.

3. Financial Distress
The general meaning of the term distress is physical or mental pain or suffering. In other words, the meaning of distress is a state of danger. In that sense, the term financial distress means a state of being on financial danger. The dangerous situation of finance is nothing but the lack of finance, which can hamper the regular operation of a company. In the corporate field the term financial distress termed as corporate financial distress.

Financial distress in companies indicates a situation where the firm is not able to meet its obligations due to poor financial performance manifested through reduction in revenues, low profitability, under-utilization of assets and poor working capital management. This leads to default in payment to lenders, creditors, employees and government. Financially distressed companies can turnaround itself through remedial measures taken at appropriate times. This is possible if the distress signals are identified in advance by the company's management.

Financial distress is the stage of decline in the financial position of the company that occurs before bankruptcy or liquidation. Bankruptcy is not the phenomenon of overnight. An organization goes through the various stages of sickness before becoming bankrupt or insolvent. Financial distress is one of the stages of becoming bankrupt. It is the situation when firm is not able to meet its debt and faces financial difficulty. When financial distress is not been mitigated, the organization becomes bankrupt. Though the terms financial distress and bankruptcy, in common parlance, are understood as the same since both these terms indicate difficult financial situations of the company, but in the real sense the term financial distress is just a liquidity or cash crisis in the company but bankruptcy means declaration by the court that the company is not able to meet its liabilities.

There is no clear-cut definition for the term financial distress. Different authors defined financial distress in different dimensions. But all definitions describe financial distress as tight cash situation in the company which may result in insolvency and winding up of the company. Few of the definitions are discussed below:

Financial distress is based on the insufficiency of operating **cash flows** to meet financial expenses and a decline in market value. It is situation where operating cash flow of a company cannot supersede the negative net assets of a firm. Distressed firms are usually faced with two possible major problems either they are experiencing cash shortage on the asset side or overdue obligation on the liabilities sides of the statement of financial position (Pindado et al.2008, Geng et al. 2015, Wesa and Otinga 2018).However,

Ross et al., (2010) defined financial distress as Inability to pay one's debt and lack of means for paying one's debts. This is the situation where assets of the company are insufficient to discharge the liabilities. According to Chandra (2008) Financial distress is a situation where total **liabilities** of the firm exceeds the total assets of the company means company is having negative net worth. He also identified flow based financial distress, where operating cash flows are insufficient to meet business obligations. But some authors considered that a company is deemed to be in financial distress if its earnings before interest, taxes, depreciation, and amortization (**EBITDA**) are less than its financial expenses in any two successive years. They used negative stock return, restructuring, and low credit score classifications for identifying financial distress (Koh et al. 2015,Oz and Yelkenci 2017).

In India the regulatory bodies use the term industrial sickness for financially distressed companies. The definitions given by these regulatory bodies are as following:

(a) According to **Sick Industrial Companies (Special Provisions) Repeal Act, 2003**, "Sick Industrial Company means an industrial company which has at the end of any financial year accumulated losses exceeding 50 per cent of maximum net worth during the last four years or has failed to repay installment of its debts or it is a creditor in 3 consecutive quarters. Any of the above two conditions is sufficient to consider a company as sick."

(b) As per section **2(46AA) of Companies (Amendment) Act, 2013** "Sick Industrial Company means 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.

(c) According to the **Reserve Bank of India** Sick unit is one "Which has incurred a cash loss for one year and is likely to continue incurring losses for the current year as well as in the following year and the unit has an imbalance in its financial structure, such as, current ratio is less than 1:1 and there is worsening trend in debt-equity ratio."

(d) **Section 253(1) of the Companies Act, 2013** defines sick unit as:

When on demand by the secured creditors of a company representing 50% or more of its outstanding amount of debt, the company has failed to pay the debt within 30 days of the notice of demand, the creditors may file an application for a determination that the company be declared as a sick company.

From the above it can be said that financial distress means the inability of a company or failure of a company to pay its financial obligations as and when they become due. Financial distress means a situation where operating cash flows are not sufficient to meet its due obligations and meet its expenses. Company is having assets less than its liabilities and is incurring continuous losses from year to year. As long as the firm is making profit, nobody is really concerned about it. A company with higher profits, higher EPS, Higher share price said to be a successful company but if that company is not able to generate cash from its operating activities and mainly depends upon new borrowings to pay off the old borrowings is called as a failed entity. The continuous existence of financial distress will lead the company in to bankruptcy.

4. Review of Literature

Extensive study has been done at national and international level by researchers in the area of financial distress to identify the predictors of financial distress and to forecast future financial distress based on variety of factors. This paper contains a number of studies related to different aspects of financial distress.

Sr.	Name of the Author(s)	Year	Findings
1	J. Ramser &L. Foster	1931	They were the pioneer in the development of quantitative analyses of financial measures for bankruptcy prediction. They studied eleven various financial ratios for 173 sick companies. The less profitable business and the business that consistently failed have lower values compared to the firms having better success rate.

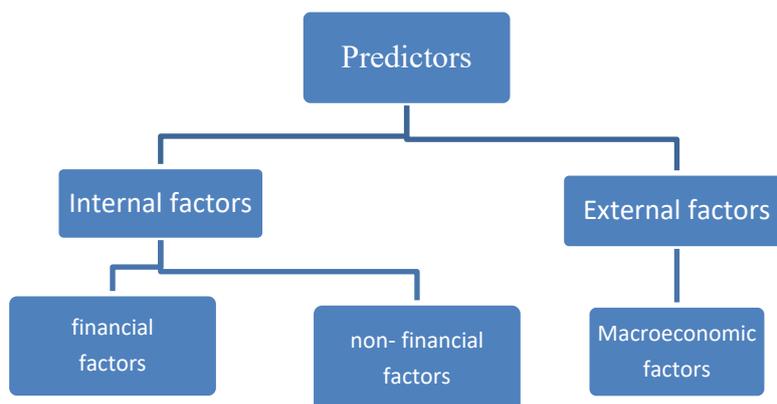| 2	Fitzpatrick	1932	The study compared the ratios of successful industrial enterprises with those of failing businesses to see how they differed. Thirteen accounting ratios were examined as a predictor of insolvency for a matched pair of twenty companies over the period 1920–1929. According to the study, the ratios of both the groups were different at least three years prior to failure. All ratios were considered to be the predictor of failure, but net profit to net worth, net worth to debt, and net worth to fixed assets were the best ones.
3	William H. Beaver	1966	This study investigated the predictive ability of financial ratios. Failed firms were identified by their inability to repay obligations and default in payment of preference dividend.79 failed publicly traded firms in US during the period from 1954 to 1964 were selected for the study. The financial data for 5 years before the failure was reviewed. Beaver used univariate analysis to distinguish between failed and non failed companies; only one ratio could be examined at a time. Financial ratios were found useful in predicting failure at least 5 years before the event.
4	Altman E.I.	1968	In order to predict bankruptcy of the sample of 33 publicly traded manufacturing bankrupt companies between 1946 and 1965, the study used multiple discriminate analyses and compared them with 33 non-sick companies' selected using random sampling. Out of the twenty-two ratios initially considered, he chose five crucial ratios. The results of the MDA study developed Z score model, which accurately predicted the financial health of bankrupt companies 94% of the time and the financial health of non-bankrupt companies 97% of the time. Because of the accuracy of the prediction, Prof. Altman's Z score model has become of essential importance for prediction of financial distress.
5	Altman et.al	1978	This study constructed a new model ZETA (an improvement over the previous Z score model) Credit Risk Model using manufacturing and retail firms in US as sample. 53 bankrupt and 58 non bankrupt firms were selected for the study. Cumulative Profitability, Stability of Earnings and Capitalization were observed to be most important factors. ZETA model showed over 90% accuracy in bankruptcy prediction one year before failure and over 70% five years before failure.
6	Ohlson	1980	This study used the logistic model to determine the probability of business failure. He analyzed financial ratios of 105 bankrupt and 2058 non bankrupt companies in US. The period of study was 1970 – 76. He developed Olson's 'o' score model and it analyzed nine independent predictor variables, including asset size. For the logit model, three sets of estimates were calculated using the predictors for bankruptcy within a year, two years, and within a year or two.
7	Zmijewski	1984	He used probit analysis to develop his model from a sample of 40 bankrupt and 800 non bankrupt firms in US. He selected three financial ratios in his final model. First Net Income/ Total Assets

			second Total Debt/ Total Assets and third Current Assets/Current Liabilities,
8	Gruszczynski	2004	He examined financial status of 200 unlisted companies in Poland and identified 17 financial ratios representing profitability, liquidity; asset management and debt ratios were the main determinants of financial distress.
9	Sheikhi et al	2012	This study used financial ratios like liquidity ratios, profitability ratios, activity ratios, leverage ratios to observe financial distress in selected companies. It was found that poor management of a company is also responsible for financial distress of the companies.
10	Bhunia and Sarkar	2011	They analysed 64 companies in pharmaceutical sector for determining financial distress using 16 financial ratios. 32 failed and 32 non failed companies were selected for study. It was observed that financial ratios have a predictive ability to identify a failed company and a non-failed company. Liquidity and profitability are most important in identifying a failed company and a successful company.
11	Reddy and Reddy	2010	This study investigated the sugar sector in India for financial distress. Three major sugar mills were selected for the study. Financial ratios indicating solvency, working capital investment efficiency, liquidity were analyzed. Altman 'z' score model was applied to predict bankruptcy. The selected companies were observed for the period 2004-2010. It was observed that financial ratios reflect the financial health of the companies.
12	Turetsky and McEwen	2001	This study highlighted negative cash flows from operations as the initial distress signal. Companies with volatile decrease in cash flows from operations were selected for study. 2671 firms in US were studied during the period 1988 onwards. It was observed that after successive decrease in cash flow, accounting variables gives signals at various state of distress.
13	Murugan et al	2001	He studied 522 distressed firms in US from 1989 to 1996 and found negative cash flows from operations, reduction or non-payment of dividend, debt default, troubled debt restructuring was used as potential signals of distress.
14	Murty and Misra	2004	The authors studied 35 companies reported sickness during the period 1977-87 ranging across 13 sectors formed the sample. These companies were matched with healthy companies. 9 cash flow ratios were studied of which 5 ratios were found to be significant to identify financial distress in Indian companies viz cash flow / total assets, cash flow / total liabilities, cash flow / current assets, cash flow / current liabilities, cash flow / capital employed. It was observed that cash flow ratios are good indicators of corporate health.
15	Jones and Hensher	2004	From the mix of cash flow and financial ratios used, they observed cash flow to assets, working capital to total assets, net operating cash flows to assets have strong predictive powers.
16	Mine et al	2006	They identified predictors of financial distress in emerging market over a period of economic turbulence. He highlighted EBITDA/total assets, operating profit margin and the proportion

			of trade credit to total claims were the main factors for identifying financial distress.
17	Hou and Chuang	2007	They observed that three indicators viz financial ratios covering profitability, liquidity, leverage and activity, earnings management index, corporate governance ratios covering size of Board of Directors, their shareholdings, pledge ratios of directors and number of independent directors were useful in identifying financial distress. Companies with higher earnings management index and pledge ratio of directors have greater chances of becoming financially distressed.
18	Coyne et al	2008	They observed that Operating cash flow changes, operating cash flows /Net revenues and Cash flow / Total Liabilities emerged as distinct indicators of financial distress. It shows the sensitivity of health care systems to cash management.
19	Julien le Maux and Morin	2011	They observed Chronic inability to generate cash flows from operating activities, heavy investments in working capital, use of long-term debt to offset shortfall in operations, decreasing cash flows over years are the symptoms of financial distress of a company. Cash flow statements were found to be very informative and can disclose signals of financial distress as compared to Income statement and Balance Sheet.
20	Abid and Zouari	2002	They studied 70 healthy firms and 17 distressed firms for the period 1993-96 and found Indebtedness, capital structure; sales growth and liquidity were the important contributors for financial distress.
21	Mine et al	2006	This study identified predictors of financial distress in emerging market over a period of economic turbulence. He highlighted EBITDA/total assets, operating profit margin and the proportion of trade credit to total claims were the main factors for identifying financial distress.
22	Wang and Li (2007)	2007	They found Growth ratio per equity share, net return on assets, EPS, interest coverage, net profit margin to be most significant variables in identifying distress. Ownership concentration was also observed to be an important factor.
23	Ojha and Vrat	2016	They identified Goods governance, simplifying business regulations, curbing red tapism, effectiveness in natural resource management were the important factors identified to improve manufacturing companies contribution to GDP.
24	Dave	2012	He selected 64 listed companies from Indian pharmaceutical sector as samples. Using multiple regression analysis, it was observed that Total Assets to sales and creditors velocity has great influence on profitability of an organization.
25	Whitaker	1999	He examined the role of economic distress and poor management as reasons for a firm entering financial distress. 267 companies in US for the period 1980- 92 were selected for study. It was observed that poor management represents more significant reason for a financially distressed firm.
26	Hui and Jing-Jing	2008	They identified corporate governance proxies like Ownership structure, Board composition; overhead costs were also the predictors of financial distress. Company's financial health can be improved with good corporate governance.

27	Xie et al	2011	The study highlighted that along with financial ratios, internal governance, external market variables as well as macroeconomic variables were used as indicators of financial distress. GP ratio, Cash flow from operations, total asset turnover and growth rate of income are critical variables indicating financial distress.
28	Tirapat and Aekkachai	1999	They observed along with financial variables, macroeconomic variables like monthly growth of Production Index, monthly inflation, monthly changes in interest rates, and monthly change in money supply are important indicators of financial distress of a company. Inflation emerged as the most critical factor.
29	Agarwal	2001	He highlighted the impact of interest rates and exchange rates on the financial distress of companies of four Asian economies like South Korea, Malaysia, Thailand and Indonesia. Real interest rates and real exchange rates affect investment ratios in an economy. Interest rate liberalization in a controlled manner minimizes the potential for financial distress. This study clearly shows a strong relationship between macro- economic factors and financial distress.
30	Smith and Liou	2007	The authors reviewed the relationship between corporate failure and macroeconomic factors for UK manufacturing sector to identify the most significant variable depicting distress. 340 companies with negative 'z' score as per Toffler's model were studied. GDP, Industrial Production Index, Interest rates, Inflation, Retail Price index, FTSE All share index were used as important variables to identify financial distress.
31	Nandy	2008	He studied Macro- economic factors and their influence on capital structure decisions for BSE 30 companies in India. The impact of inflation rates, stock market performance, interest rates and GDP on a firms Debt/Equity were observed. Inflation, GDP, Stock market returns have a negative impact on Debt Equity ratio of a firm whereas rate of interest has a positive relation with the capital structure of the firm.

5. Findings and results

From the above studies it can be said that there are various factors which can be considered as early warning signals to identify financial distress of companies so that preventive and remedial actions can be taken to achieve sustainability and to avoid the liquidation of company in near future. Broadly these reasons can be classified into internal factors and external factors. The internal factor is further divided into financial factors and the non- financial factors while the external factors are the macroeconomic factors.

1)Internal Factors-Internal reasons are the factors that arise within the industry and are controllable in nature. These can be financial as well as non- financial.

a)**Financial factors**-The financial factors include

financial ratios and cash flow ratios such as liquidity, solvency, profitability ratios, efficiency or turnover ratios. Financial factors also include firm size in terms of total assets of the company which reflects how big or small a firm is, share price, and revenue growth are also the financial predictors of financial distress. Other notable financial factors that determine financial distress in firms include; high operating expenses, excessive non-current assets, embezzlement by employee/ management, irregular disposal of non-current assets, and over expansion.

b)Non- financial factors- The non-financial factors could also be responsible for financial distress among firms. These include poor management, red tapism, poor leadership skills, inventory difficulties, corporate governance proxies like ownership structure, board composition, audit committee, strikes.

2)External factors- external factors also known as macroeconomic factors also affect the operations and performance of firms. The external causes are those which are generated from outer forces and cannot be controlled by the management. These include inflation rate in the country, exchange rate, interest rate, political unrest in the country, frequest changes in the government policies, production index, retail price index (Agarwal, 2001, Tirapat and Aekkachai, 1999).

6. Conclusion

Financial distress in companies indicates a situation where the firm is not able to meet its obligations due to poor financial performance manifested through low cash flows, reduction in revenues, low profitability, under- utilization of assets and poor working capital management. This leads to default in payment to lenders, creditors, employees and government. A distressed company's long term survival prospects are diminished. Financially distressed companies can turnaround through remedial measures taken at appropriate times. This is possible if the distress signals are identified in advance by the company's management. A distressed company not only leads to erosion of investors' wealth but also depresses the investment climate in an economy. There is an urgent need to identify signals which indicate financial distress in companies. This can serve as an early warning signal to the company's management as well as investors to protect wealth. So it can be said that there are internal as well external factors to the company which are responsible for the financial distress of a company if they are identified properly the liquidation of a company can be avoided by taking remedial and preventive measures in advance.

Internal factors are further divided into financial and non-financial factors. External factors are also called macro-economic factors. Financial factors are the company specific factors which is the result of all the business decisions taken by the company. These factors, largely quantitative, present themselves in the form of profitability, liquidity, solvency, efficiency in operations of the business Non-financial factors are qualitative in nature. Quality of management, corporate governance, business climate, government policies etc. are the non-financial factors that affect the financial performance of business. Macro-economic factors like Inflation, Exchange rates, and interest rates also affect the business. As far as considered this study only identified the factors responsible for financial distress. But further research can be done to predict the financial distress of companies with the help of various financial and non financial factors. So that a company can be protected against liquidation.

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