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An Empirical Analysis of Financial Health in Auto Ancillary Units and Realty Sector using Altman's Z Score Model

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Abstract - Financial strength is a serious issue for the business firms. For measuring the financial strength of a business firm, there are lots of methods were available. But Altman's Z-score model is one of the reliable and good methods. This model is predicting the possibilities of the bankruptcy of a business organization. The aim of the present study is analyzed the financial health of Auto Ancillary and Realty companies. For the purpose of this study, the required data collected from April 2014 to March 2018. From the study, it clearly understood that most of the sample companies are financially distressed. They better closed down their business. They are Exide industries and Amtek Auto's in Ancillary units and Brigade enterprises, Unitech, Prestige estate & Sunteck in Realty sector. And it also finds that Amara Raja Batteries, Omax Auto and PRICOL in Auto Ancillary units are financially healthy at present, but it will not improve their liquidity, asset productivity and solvency within 2 years it may go to bankruptcy. Phoenix Township performance sound in previous years and its performance comes down in succeeding 2 years. So it recommended to the management must take necessary steps for improving their efficiency. And also it recommends to the policymakers to make an optimum capital structure like Debt and Equity mix and proper dividend policy for maintaining sufficient earnings for future potential investment.

Keywords - *Altman Z-Score, Financial Health, Liquidity, Profitability, and Solvency.*

INTRODUCTION

In the recent economic development, financial management has assumed much greater significance. The systematic financial management begins with the proper procurement of the funds and ends with effective utilization of funds by generating a positive return on investment and

earnings per share thereby enhancing the market value of the share. The strong and systematic management leads to longer survival of the entity. This long survival of the entity depends upon the year on year raising graph of the profitability and strong solvency position of the company. If the profitability position, solvency position and financial structure of the firm are not taken proper care, gradually the unit grows weak leading towards sickness and ends incorporate failure ultimately. For measuring the financial strength of a business firm, there are lots of methods were available. But Altman's Z-score model is one of the reliable and good methods. This model envisages predicting the possibilities of the bankruptcy of the business organization.

FINANCIAL DISTRESS

Financial distress happens when an organization is not capable to pay its creditors and lenders. This situation is more likely when a business is highly leveraged, its earning capacity is low, its breakeven point is high, or its sales are sensitive to economic declines. Financial distress refers to a situation in which a company unable to meet its financial obligations to its creditors, typically due to high fixed costs, illiquid assets, or revenue sensitive to economic downturns. A company under financial distress can incur costs related to the situation, such as more expensive financing, opportunity costs of projects, and less productive employees. On account of these reasons, several business units lead to sickness from healthy stage, from sickness to incipient sickness, from incipient sickness to distress and

from distress to ultimate closure of the business unit.

If high money owing trouble is the cause of financial distress, the company can experience a debt reformation. If operational issues are the reason for the distress, the company can discuss a payment holiday with its creditors and improve operations to be able to service its debt.

REVIEW OF LITERATURE

The following are some of the reviews related to the present study. They are as follows. **Shariq Mohammed (2017)**. This study revealed that the sample company's were financially sound as they have recorded higher Z score value. The study suggested that their findings may be useful for the management to take a financial resolution, and other stakeholders who are related to this field. **Rakhi Raizada Shrivastav and Srinivasa R. Srinivasan (2016)** analyzed the financial health of Auto Ancillary Sector. The study found that all the sample companies were healthy and strong financial health position at present. But long survival of the entity depends upon continuous effort of managing profitability, liquidity and solvency position of the firm. It conveyed that too much of debts in financing assets, leads to negative impact on the firm. **Sangeetha Mittal, Lavina (2014)** this study examined how the females' representation on the board impact on financial distress. This study found out that the gender diversity on the board can minimize the financial distress. The study suggested that there should be a significant share of females on the board and administrative positions so that their decisions could considerably impact the firm's performance and be helpful to reduce the financial distress. **Vikas Tyagi (2014)** in his paper revealed that Indian logistic industry was a healthy because of industry's Z score value increases during the study period, **Mizan and Hossain's (2014)** established that the firm is financially sound at present, but in future the management requires special attention to improve the financial health of the organization. **Ramana Reddy and Hari Prasad Reddy (2013)**. Their results clearly indicated that the liquidity, working capital turnover efficiency and solvency position of the companies is not good. The Z-Score

analysis also showed the companies are suffering from the financial distress and tending towards bankruptcy. **Kumari's (2013)**, concluded that the overall financial health of the company was good, but its financing position of assets is reasonably poor. The Z score value indicated that it is in a strong position, and it has no chances of being bankrupt in the next two years. And it can be quoted as an investor friendly company. **Alkhatib and Al Bzour (2011)** they suggested that for corporate bankruptcy prediction model developed by Altman in 1968 is the most accepted and widely used tool (Mizan, Amin and Rahman 2011). **Gerantonis Vergos and Christopoulos (2009)** investigated Z-score models can predict bankruptcies well in advance for a period up to three years earlier. They concluded that the results can be used by company management for financing decisions, by regulatory authorities and by portfolio managers in stock selection. **Chowdhury and Barua (2009)**, they disagreed that the Altman's Z score model, may not be fully applicable for companies in Bangladesh, yet proves its strong validity and correctness in predicting the distressful status of the Z category companies. **Al-Rawi, Kiani, and Vedd (2008)**, observed that the firm has increased its debt and will be facing bankruptcy in the near future.

OBJECTIVES

- To determine the financial Health of Auto – Ancillary units and Realty Co's in India
- To apply the Altman Z-Score model to predict the financial health.

RESEARCH METHODOLOGY

Need for the Study

The aim of the present study is to predict the financial health of Auto- Ancillary units and Realty companies. At the present scenario, the growth of the auto industry and realty business is slow down because of major global economic and other factors like crude oil price, exchange rate fluctuations, Petrol& Diesel price hikes etc. So its need of the hour for analyzing the financial health of the above two sectors.

Sample and sources of data

The study is based on Secondary data collected from www.money control.com for the period of five years financial data from 2013 -14 to 2017-18. Totally ten companies five in each sector considered this research paper. They are Exide Industries, Amara Raja Batteries, Amtek Auto, Omax Auto & PRICOL in Auto ancillary units and Brigade Enterprises, Phoenix Township, Unitech, Prestige Estate projects & Sunteck in realty business. The chosen sample is based on the lowest turnover recorded in the month of September 2018.

Edward Altman's z- score model is used to understand the financial position of the companies

Altman's Z-score model

The Altman Z Score model, is one the significant model to predict the probability of bankruptcy in a company. It was created by Edward I. Altman. Many of the earlier studies used this model, because of the reliability and accuracy. This model mainly for predicting bankruptcy began around the time of the great depression, in response to a sharp rise in the incidence of default.

Z-Score Forecast

Score Above 2.9 Safe - Bankruptcy is not possible

Between 1.23 to 2.9 Difficult to predict –may or may not happens the bankrupt

Below 1.23 Failed - Bankruptcy is possible

$$Z=1.2X1+1.4X2+3.3X3+0.6X4+1.0X5$$

where $X1$ =Working capital/Total Assets

$X2$ =Retained earnings/Total Assets

$X3$ =EBIT/Total Assets

$X4$ =MVE /BVD (Market value of Equity / Book value of Debt)

$X5$ = Sales/Total Asset

The above ratios are the generally used to measure the financial performance of a company, like: liquidity ratio, activity ratio, solvency ratio, and profitability ratio. The liquidity ratio helps to measure the company's capability 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 competent manner. The profitability ratio measures the profit-bearing capacity of a company. In the above formula, $X1$ gives the liquidity position to the total capitalization, $X2$ measures the cumulative profitability overtime and leverages, $X3$ measures the operating performance and productivity of assets, $X4$ gives the long-term solvency position and $X5$ gives the sales generating a capacity of the assets.

Limitations of the study

The study has the following limitations. They are

- This study is based only on secondary data. So the limitations of the secondary data applicable to this study also.
- And also the study considered only two sectors each in 5 companies only.
- The study period restricted to 5 years.
- It used Altman Z-Score model. The limitations of the model applicable to this study also.

RESULTS AND ANALYSIS OF THE STUDY

Table-1 shows the results of Exide Industries financial ratios from 2014 to 2018. It clearly explains that all the ratios in a positive value. The ratio of W.Cap/T.Assets is highest in 2014 and it was decreased in the year 2018. So the company must improve its liquidity position for operational efficiency. $X2$ ratio is highest in 2017 (0.072) and lowest in 2018 (0.062). This ratio clearly indicates that the company used very low retained earnings for assets investment. It means borrows funds from external sources. The Ratio of EBIT/T.Assets is very low during the study period. It understood that the company not using its assets efficiently to improve productivity and profitability. The ratio of MVE/BVD points out that the company gradually reduced their use of equity and more on debt in its capital structure. $X5$ ratio indicates that the firm is overall performance is not good. They would not to fully employ its assets to make the sales revenue. So the management is advised to use their assets efficiently and reduce their borrowings for improving its profitability.

Table 1 : Results of Exide industries.

Financial Ratios	2018	2017	2016	2015	2014
X1 (W.Cap/ T.Assets)	.1945	.2276	.2256	.2107	.2328
X2 (R.Earnings / T.Assets)	.0628	.0723	.0699	.0664	.0674
X3 (EBIT/ T.Assets)	.0020	.0024	.0018	.0030	.0024
X4 (MVE/ BVD)	.0467	.0527	.0580	.0712	.0773
X5 (Sales/ T.Assets)	1.2419	1.1247	1.1155	1.2724	1.2033

Source: Computed using Ms-Excel.

Table-2 The results of Amara Raja Batteries financial condition from 2014 to 2018 are presented in. It clearly explicates that the company's working capital highest in 2018 and it was lowest in the year 2016. It understood that the investment in current assets is increased. The second ratio indicates that the company used very low retained earnings for assets invested in the year 2018 than the previous years. It means they used debts from external sources. The Ratio of EBIT/T.Assets is understood that the company not using its assets efficiently to improve productivity and profitability. The ratio of MVE/BVD points out that the company gradually reduced their use of equity and more on debt in its capital structure. X5 ratio indicates that the firm is overall performance is not good. They would not to fully employ its assets to make the sales revenue.

Table 2 : Results of Amara Raja Batteries

Financial Ratios	2018	2017	2016	2015	2014
X1 (W.Cap/ T.Assets)	.5163	.2787	.2678	.3110	.3108
X2 (R.Earnings/ T.Assets)	.0875	.1335	.1433	.1462	.1460
X3 (EBIT/ T.Assets)	.0034	.0047	.0060	.0078	.0045
X4 (MVE/BVD)	.0164	.0213	.0271	.0320	.0270
X5 (Sales/ T.Assets)	1.4535	1.4833	1.5878	1.7635	1.6063

Source: Computed using Ms-Excel.

Table-3 shows the results of Amtek Auto's financial ratios. It noticed that last 4 successive years recorded negative W.Cap/ T.Assets ratio. It understood that the company unable to meet its financial obligations. The X2 ratio is negative for the last 3 years continuously. It explains that the company's lack of earnings to lack invests in future growth. The Ratio of EBIT/T.Assets is understood that the company not using its assets efficiently to improve productivity. The ratio of MVE/BVD points out that the company gradually reduced their use of equity and more on debt in its capital structure. X5 ratio indicates that the firm is overall performance is not good. They would not to fully employ its assets to make the sales revenue. So the management is advised to use their assets efficiently and reduce their borrowings for improving its profitability.

Table 3: Results of Amtek Auto

Financial Ratios	2018	2017	2016	2015	2014
X1 (W.Cap/ T.Assets)	-.6498	-.1450	-.0856	-.0377	-.0456
X2 (R.Earnings/ T.Assets)	-.1043	-.0416	-.0071	.02255	.03609
X3 (EBIT/ T.Assets)	.0006	.0018	.0006	.0006	.0006
X4 (MVE/BVD)	.0020	.0080	.0098	.0149	.0263
X5 (Sales/ T.Assets)	.1252	.2273	.2291	.1548	.1810

Source: Computed using Ms-Excel.

Table-4 exhibits the results of Omax Autos from 2014 to 2018. It clearly explicates that the company's working capital recorded negative in previous years and positive in 2018. The R.Earnings/T.Assets ratio was negative in 2016, indicates that the company didn't use retained earnings for assets investment. It means they used debts from external sources. It also finds that the company not using its assets efficiently to improve productivity and profitability. The ratio of MVE/BVD points out that the company gradually reduced their use of equity and more on debt. X5 ratio indicates that the firm is overall performance is not good. They would not to fully employ its assets to make the sales revenue.

Table 4: Results of Omax Autos

Financial Ratios	2018	2017	2016	2015	2014
X1 (W.Cap/T.Assets)	.0129	-.0212	.0037	-.0403	-.0903
X2 (R.Earnings/T.Assets)	.0128	.0129	-.0082	.0108	.0147
X3 (EBIT/T.Assets)	.0116	.0117	.0132	.0122	.0057
X4 (MVE/BVD)	.0665	.0685	.0952	.0876	.0777
X5 (Sales/T.Assets)	1.9757	1.7588	1.9576	1.8777	1.7404

Source: Computed using Ms-Excel

The results of PRICOL Auto presented in **Table 5**. The working capital ratio registered negative in 2014 and gradually increased last 4 successive years. Their R.Earnings/T.Assets ratio was negative in 2014 & 2015 and positive in remaining years. The assets of the company not effectively used. In the year 2016, the company used the highest equity than the remaining years. Their asset usage capacity improved in 2018.

Table 5: Results of PRICOL

Financial Ratios	2018	2017	2016	2015	2014
X1 (W.Cap/T.Assets)	.0752	.7256	.0583	.5046	-.0923
X2 (R.Earnings/T.Assets)	.0915	.0376	.1071	-.1268	-.1294
X3 (EBIT/T.Assets)	.0127	.0049	0	0	0
X4 (MVE/BVD)	.0222	.0277	.3825	.2009	.2179
X5 (Sales/T.Assets)	2.5613	.9789	1.4568	0	0

Source: Computed using Ms-Excel

Table 6 demonstrated the results of Brigade Enterprises of realty sector. It explains that the W.Cap/T.Assets ratio negative in most of the year and highest positive in 2014. Their result indicates that there was poor earnings management asset management. There revenue generating capacity also reduced.

Table 6: Results of Brigade Enterprises

Financial Ratios	2018	2017	2016	2015	2014
X1 (W.Cap/T.Assets)	.0399	-.0312	-.0723	-.1193	.0847
X2 (R.Earnings/T.Assets)	.0255	.0347	.0283	.0133	.0228
X3 (EBIT/T.Assets)	.0017	.0015	.0013	.0019	.0016
X4 (MVE/BVD)	.0678	.0546	.0592	.0682	.1112
X5 (Sales/T.Assets)	.2198	.3505	.2712	.2683	.2517

Source: Computed using Ms-Excel

The results of Phoenix Township are presented in **Table 7**. From the table, it understood that the W.Cap/T.Assets ratio was highest in the year 2016 and negative for the last 2 years. Their inefficiency of asset management leads to affect its profitability. Their equity investment is gradually reduced from 3.81 (2016) to 2.34 in 2018. Their revenue making ability through assets are gradually improved.

Table 7: Results of Phoenix Township

Financial Ratios	2018	2017	2016	2015	2014
X1 (W.Cap/T.Assets)	-.0585	-.0366	.0976	.3838	.0631
X2 (R.Earnings/T.Assets)	.0158	.0138	.0129	.0128	.0073
X3 (EBIT/T.Assets)	.2683	.2395	.2316	.3979	0
X4 (MVE/BVD)	2.3417	2.5841	3.8197	3.5846	3.5303
X5 (Sales/T.Assets)	.4467	.3850	.3838	.3714	.3263

Source: Computed using Ms-Excel

Table 8 revealed the results of UNITECH. It makes clear that the working capital ratio is decreased from 0.416 (2014) to 0.36 in 2018. So the company must improve the same. Their R.Earnings/T.Assets ratio was negative in all years except in 2014. Their assets profit-making ability is very poor and negative in the year 2016. Sales revenue generating a capacity of assets must be efficiently managed.

Table 8: Results of UNITECH

Financial Ratios	2018	2017	2016	2015	2014
X1 (W.Cap/ T.Assets)	.3691	.3470	.3796	.4019	.4161
X2 (R.Earnings / T.Assets)	-.0119	-.0096	-.0134	-.0008	.0041
X3 (EBIT/ T.Assets)	.0059	.0032	-.0503	.0011	.0008
X4 (MVE/ BVD)	.0565	.0529	.0555	.0602	.0658
X5 (Sales/ T.Assets)	.0775	.0449	.0525	.0493	.0891

Source: Computed using Ms-Excel

The results of Prestige Estate Projects demonstrated in **Table 9**. It indicates that W.Cap/T.Assets ratio negative in the year 2018. So they faced liquidity problems. Their earnings management was poor. The company's equity investment gradually reduced from 0.098 to 0.046. Their revenue generating ability through assets must be improved.

Table 9: Results of Prestige Estate Projects

Financial Ratios	2018	2017	2016	2015	2014
X1 (W.Cap/ T.Assets)	-.0660	.0271	.0650	.0999	.0450
X2 (R.Earnings / T.Assets)	.0135	.0187	.0590	.0368	.0522
X3 (EBIT/ T.Assets)	.0019	.0022	.0020	.0017	.0022
X4 (MVE/ BVD)	.0467	.0534	.0787	.0860	.0980
X5 (Sales/ T.Assets)	.2161	.1762	.2318	.2657	.2842

Source: Computed using Ms-Excel

Table 10 demonstrates the results of Sunteck Projects. It's clear that the company's liquidity condition is improved slowly. They poorly manage the earnings and reserves for their potential investment. They didn't fully employ its assets to make the sales revenue. So it's advised to the management to effectively utilize their assets including current assets and reduce their debt funds.

Table 10: Results of Sunteck

Financial Ratios	2018	2017	2016	2015	2014
X1 (W.Cap/ T.Assets)	.5562	.3806	.1607	.1779	.2978
X2 (R.Earnings / T.Assets)	.0530	.1102	.1396	.1619	.1202
X3 (EBIT/ T.Assets)	.0225	.0396	.0142	.01416	.0324
X4 (MVE/ BVD)	.0457	.0538	.0416	.0611	.1261
X5 (Sales/ T.Assets)	.0889	.1759	.029	.0299	.0636

Source: Computed using Ms-Excel

The results of the Altman Z Score value are presented in **Table 11**. It makes clear that the Z-Score value of Auto Ancillary units Exide industries is less than 1.81. And Amtek Auto's value less than 1. So its probability of failure is high. Amara Raja, Omax Auto, and PRICOL are gradually increased their score from 2014 to 2018. But its value lies between 1.69 - 2.83. It understood that their probability of failure is indeterminate. It may or may not go to bankruptcy. Likewise in reality business, Z score value of Brigade enterprises, Unitech, Prestige estate and Sunteck is less than 1. So its probability of failure is also high. Only Phoenix Township Company's Z score value the highest value of 3.95 in the year 2015 and the lowest value of 2.53 in the year 2014. It concludes that its probability of failure is low.

Table 11: Results of Altman score value

Company	2018	2017	2016	2015	2014
Exide Industries	1.5976	1.5387	1.5249	1.6707	1.6313
Amara Raja Batteries	2.2167	2.0329	2.1457	2.3864	2.2146
Amtek Auto	-.7962	.0059	.1245	0.1521	0.3039
Omax Auto	2.0873	1.8311	2.0512	1.9373	1.7183
Pricol	2.8352	1.9352	1.9062	.5486	-0.1612
Brigade Enterprises	0.3495	.3995	0.264	0.1911	0.4573
Phoenix Township	2.6889	2.7013	3.5751	3.9575	2.5304
Unitech	0.5571	0.4583	0.3567	0.5701	0.6363
Prestige Estate projects	0.1903	0.2741	0.4461	0.4944	0.4773
Sun Teck	0.9322	0.9500	0.4894	0.5536	0.7716

Source : Computed using Ms-Excel

The classification **Table 11(a)** clearly understood that most of the sample company's are financially distressed. They better closed down their business. Amara Raja Batteries Omax Auto and PRICOL in Auto Ancillary units financially healthy at present,

but it would not improve in 2 years it may go to bankruptcy. So difficult to predict the bankruptcy. Phoenix Township performance safe & sound in the year 2015 & 2016 and its performance comes down in succeeding 2 years.

Table 11(a)- Results of Classification According to Altman's Z-score model

Table 11(a)- Results of Classification According to Altman's Z-score model					
Company	2018	2017	2016	2015	2014
Exide Industries	Failed	Failed	Failed	Failed	Failed
Amara Raja Batteries	Difficulty	Difficulty	Difficulty	Difficulty	Difficulty
Amtek Auto	Failed	Failed	Failed	Failed	Failed
Omax Auto	Difficulty	Difficulty	Difficulty	Difficulty	Failed
PRICOL	Safe	Difficulty	Difficulty	Failed	Failed
Brigade Enterprises	Failed	Failed	Failed	Failed	Failed
Phoenix Township	Difficulty	Difficulty	Safe	Safe	Difficulty
Unitech	Failed	Failed	Failed	Failed	Failed
Prestige Estate projects	Failed	Failed	Failed	Failed	Failed
Sun Teck	Failed	Failed	Failed	Failed	Failed

Source: Computed using above Tables

CONCLUSION

The aim of the present study is analyzed the financial health of Auto Ancillary and Realty companies. For the objective of this study the required data collected from April 2014 to March 2018. From the study, it clearly understood that most of the sample companies are financially distressed. They better closed down their business. They are Exide industries and Amtek Auto's in Ancillary units and Brigade enterprises, Unitech, Prestige estate & Sunteck in Realty sector. And it also finds that Amara Raja Batteries, Omax Auto and PRICOL in Auto Ancillary units are financially healthy at present, but it will not improve their liquidity, asset productivity and solvency within 2 years it may go to bankruptcy. Phoenix Township performance sound in previous years and its performance comes down in succeeding 2 years. So it recommended to the management must take necessary steps for improving their efficiency. And also it recommends to the policymakers to make the optimum capital structure like Debt and Equity mix and proper dividend policy for maintaining sufficient earnings for future potential investment. It recommended to the government may arrange financial subsidies, tax reliefs for promoting their business activity.

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