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CONCLUSIONS

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Z SCORE EVALUATION OF PHARMACEUTICAL COMPANIES

PRITISH BEHERA
GUEST FACULTY
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KORAPUT

ABSTRACT
A company face financial distress when its operational cash flows become insufficient to meet day to day obligations of the business. Early identification of financial distress can reduce the risk of financial bankruptcy. The present study is under taken to evaluate financial health of 04 selected Gujarat based pharmaceutical companies i.e. Cadila Healthcare, Torrent Pharmaceuticals, Claris Lifesciences and Dishman Pharmaceuticals. Altman's Z/Z[1] score model has been applied over a period of 10 years i.e. 2005 to 2014. The study reveals that, Cadila Healthcare, Torrent Pharmaceuticals have a very healthy financial position. Claris Lifesciences and Dishman Pharmaceuticals have healthy but declining financial position during the period under study. Claris Lifesciences should emphasize more on higher sales and retained profits to avoid financial distress condition whereas Dishman Pharma should give more emphasis on sales revenue and working capital as well as market value to avoid further decrease in Z scores of the company in future.

KEYWORDS
Altman's Z /Z[1] score model, bankruptcy, financial distress.

INTRODUCTION
Financial distress occurs when a company fails to honour its promises to its creditors or honours its promises with difficulty[2]. A company face financial distress when its operational cash flows become insufficient to meet its day to day obligations. During financial distress, it becomes inevitable to take several corrective actions to improve its operational cash flows and efficiency to avoid bankruptcy in near future. Early identification of financial distress can reduce the risk of financial bankruptcy and remedial steps are to be taken to avoid financial distress condition.

LITERATURE REVIEW
Sulphey and Nisha (2013) analysed financial distress of 220 companies listed in BSE Small cap index applying Z-score model. It was found only 79 companies were in safe zone, 11 companies in the grey zone and 24 in the distress zone. Kumari (2013) had analysed MMTC using Z- score model from 2007-08 to 2011-12. She found that profit earning and short-term investing capacity of MMTC is quiet good. z-score value indicated a strong financial position of MMTC. Pradhan (2011) had studied Axis bank, HDFC bank and ICICI bank through Z-score model. The study revealed that, ICICI bank has highest Z-score value followed by HDFC bank and Axis bank has lowest Z-score value. Hayes, Hodge and Hughes (2010) had analysed the construction of Z- score model by applying it to a sample of 17 firms from retail industry. The study revealed that, the model correctly predicts bankruptcy to a level of 94%.

OBJECTIVES OF THE STUDY
1. To analyze financial distress position of four selected Gujarat based pharmaceutical companies by applying Altman's Z/Z[1] Score model.
2. To give suggestions on the basis of findings of analysis.

RESEARCH METHODOLOGY
For this study, 04 Gujarat state based pharmaceutical companies i.e. Cadila Healthcare, Torrent Pharmaceuticals, Claris Lifesciences and Dishman Pharmaceuticals have been taken for analysis for a period of 10 years from 2005 to 2014. The present study has applied Alman's Z-score model on Cadila Healthcare, Torrent Pharmaceuticals, Dishman Pharmaceuticals and Alman's Z[1]-score model on Claris Lifesciences. The study is mainly based on secondary data collected from CMIE prowess database, website of Bombay Stock Exchange. The data have been duly edited, tabulated and analysed using MS excel spreadsheet. The data have been presented in tables and figures.

ALTMAN'S Z SCORE MODEL
In 1968, Edward. I. Altman had developed Z score model for prediction of bankruptcy in manufacturing units. It was found to be one of the most successful multivariate models to predict future bankruptcy of a company.

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

Where

X_1= Net working capital /total assets.
X_2= Retained earnings / total assets.
X_3 = EBIT/total assets.
X_4= Market value of equity/book value of total liabilities.
X_5= Sales/total assets
Z= Overall Z score.

For a company whose market value of equity is absent, Altman had given a revised model (Z^1) which can predict the bankruptcy of the company.

$Z^1 = 0.717\,X_1 + 0.847\,X_2 + 3.107\,X_3 + 0.420\,X_4 + 0.998\,X_5$

Here, all the variables indicate the same ratio with respect to original Z score model except X_4 which denotes net worth / book value of total debt.

The Z score of a company is interpreted as follows:

Model	Z Score	Financial position	Remark
$Z=1.2\,X_1+1.4\,X_2+3.3\,X_3+0.6\,X_4+1.0\,X_5$	Below 1.8	Bankruptcy Zone	Likely to face bankruptcy within two years
	Between 1.8 and 2.99	Grey Zone	Financial viability is treated as healthy
	Above 2.99	Very healthy	Financial viability is very stable and treated as too healthy
$Z^1=0.717X_1+0.847X_2+3.107X_3+0.420\,X_4+0.998\,X_5$	Below 1.23	Bankruptcy Zone	Likely to face bankruptcy within two years
	Between 1.23 and 2.90	Grey zone	Financial viability is treated as healthy.
	Above 2.90	Very healthy zone	Financially very stable and treated as very healthy.

DATA ANALYSIS AND FINDINGS

X1 (WORKING CAPITAL /TOTAL ASSETS)

According to Altman, this ratio is being used frequently in analysis of financial performance of a company. According to him, working capital means difference between current assets and current liabilities. This ratio is a measure of the net liquid assets of the firm relative to the total capitalization[1]. Normally, a firm's shrinkage in the operational efficiency is directly reflected in the level of liquid assets relative to its total assets.

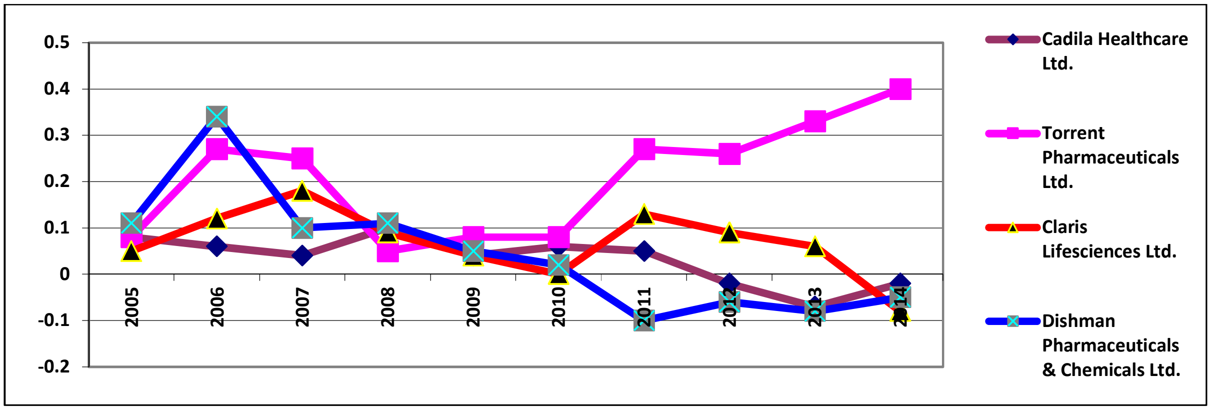
From Table no 1 and Figure no 1, it was observed that, working capital/total asset ratio of Cadila Healthcare varied between -0.07 (2013) to 0.1 (2008). From 2005 to 2011, the ratio was positive but during last three years of study, the ratio was found to be negative. Torrent Pharmaceuticals is having positive working capital/total assets ratio during the period under study. For Torrent Pharmaceuticals the ratio varied between 0.08 (2005, 2009, 2010) to 0.4 (2014). The working capital/total asset ratio of Claris LifeSciences was observed to vary between -0.08(2014) to 0.18 (2007) during study period. This ratio was found to be positive for all years under study except 2014. For Dishman Pharmaceuticals the ratio was found to be positive for first six years and found to be negative during last four years. The ratio was found to vary between -0.1 (2011) to 0.34 (2006).

TABLE 1: X1 (WC/TA)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Cadila Healthcare Ltd.	0.08	0.06	0.04	0.1	0.04	0.06	0.05	-0.02	-0.07	-0.02
Torrent Pharmaceuticals Ltd.	0.08	0.27	0.25	0.05	0.08	0.08	0.27	0.26	0.33	0.4
Claris Lifesciences Ltd.	0.05	0.12	0.18	0.09	0.04	0	0.13	0.09	0.06	-0.08
Dishman Pharmaceuticals & Chemicals Ltd.	0.11	0.34	0.1	0.11	0.05	0.02	-0.1	-0.06	-0.08	-0.05

Source: computed

FIGURE 1



X2 (RETAINED EARNINGS/TOTAL ASSETS)

Altman noted that, a relatively newer company will have less retained earnings in comparison to an older company. Retained earnings/ total assets reflect the cumulative profitability of a company relative to its total assets. This ratio implicitly considers that, a company has a higher chance of failure during his initial years because they have not got time to build up cumulative profits.

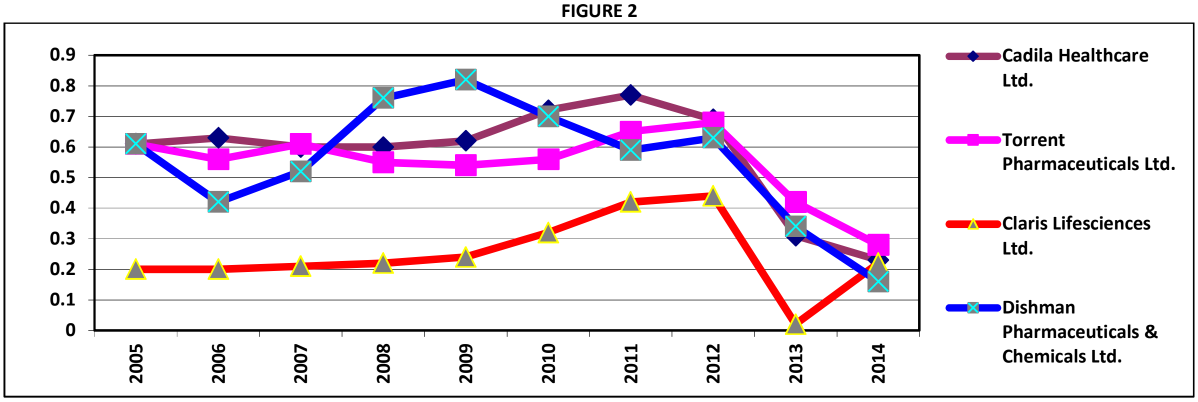
From table no 2 and figure no 2, it was observed that, all four companies have positive retained earnings/ total assets ratio during the period under study. Retained earnings/ total assets ratio of Cadila Healthcare varied between 0.77(2011) to 0.23 (2014). Cadila Healthcare has reported a decreasing retained earnings/ total assets ratio due to decline in its retained earnings from 2012 to 2014. Torrent Pharmaceuticals showed a variation in retained earnings/ total assets ratio between 0.68 (2012) to 0.28(2014) during study period. Its retained earnings/ total assets ratio was found to be declining during last two years under study due to decline in retained earnings. Claris Lifesciences has shown an increasing trend in retained earnings/ total assets ratio during first eight years under study from 0.02 (2005) to 0.44 (2012). The company reported a sharp decline from 0.44 (2012) to 0.02 (2013). However, the ratio increased to 0.22 in 2014. Retained earnings/ total assets ratio of Dishman Pharmaceuticals and Chemicals varied between 0.82(2009) to 0.16(2014) during study period. There has been a decline in retained earnings/ total assets ratio from 2012 till 2014 for Dishman Pharmaceuticals & Chemicals.

TABLE 2: X2 = RE/TA

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Cadila Healthcare Ltd.	0.61	0.63	0.6	0.6	0.62	0.72	0.77	0.69	0.31	0.23
Torrent Pharmaceuticals Ltd.	0.61	0.56	0.61	0.55	0.54	0.56	0.65	0.68	0.42	0.28
Claris Lifesciences Ltd.	0.2	0.2	0.21	0.22	0.24	0.32	0.42	0.44	0.02	0.22
Dishman Pharmaceuticals & Chemicals Ltd.	0.61	0.42	0.52	0.76	0.82	0.7	0.59	0.63	0.34	0.16

Source: Computed

FIGURE 2



X3 (EBIT / TOTAL ASSETS)

According to Altman, EBIT / total assets ratio measures the true profitability of any company independent of any tax or leverage factors. According to him, earning power of assets of a company is the ultimate source of its existence. A company face bankruptcy when its liabilities exceeds its assets because of negative earnings from its assets.

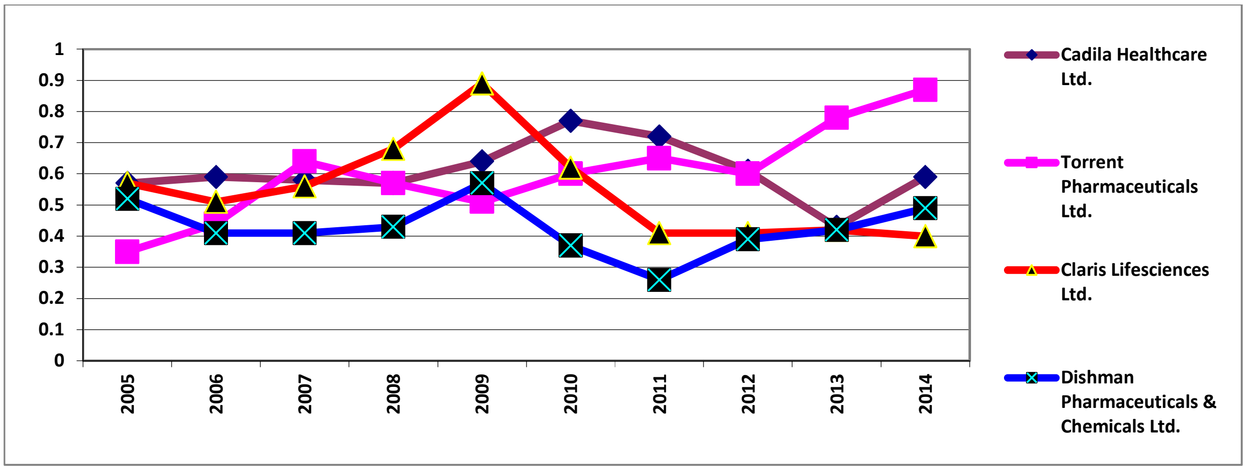
From table no 3 and figure no 3, it can be observed that, all the four pharmaceutical companies have positive EBIT / total assets ratio during the period under study. The EBIT / total assets ratio of Cadila Healthcare is found to vary between 0.43 (2013) to 0.77(2010). This implies a healthy profitability of Cadila Healthcare during the period under study. The EBIT / total assets ratio of Torrent Pharmaceuticals was found to vary between 0.35(2005) to 0.87 (2014). From 2012 onwards, the company has reported an increase in EBIT / total assets ratio till 2014. The EBIT / total assets ratio of Claris Lifesciences was observed to vary between 0.4 (2014) to 0.89 (2009). The EBIT / total assets ratio of Claris Lifesciences found to vary marginally around 0.4 from 2011 onwards. The EBIT / total assets ratio of Dishman Pharma found to vary between 0.26 (2011) to 0.57 (2009). Dishman Pharma has been showing an increasing trend in EBIT / total assets ratio from 2011 onwards.

TABLE 3: X3= EBIT/TA

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Cadila Healthcare Ltd.	0.57	0.59	0.58	0.57	0.64	0.77	0.72	0.61	0.43	0.59
Torrent Pharmaceuticals Ltd.	0.35	0.44	0.64	0.57	0.51	0.6	0.65	0.6	0.78	0.87
Claris Lifesciences Ltd.	0.57	0.51	0.56	0.68	0.89	0.62	0.41	0.41	0.42	0.4
Dishman Pharmaceuticals & Chemicals Ltd.	0.52	0.41	0.41	0.43	0.57	0.37	0.26	0.39	0.42	0.49

Source: Computed

FIGURE 3



X4 (MARKET VALUE OF EQUITY / BOOK VALUE OF DEBT)

According to Altman, equity in this ratio is measured by combined market value of common and preferred stocks and the value of liabilities include both long-term as well as short-term liabilities. This ratio measures how much company's value of assets can decline (measured by market value of equity plus debt) before the liabilities exceed the assets and the company becomes insolvent.

Table no 4 and figure no 4 reveals that, market value of equity / book value of debt ratio of Cadila Healthcare varied within 1.89 (2008) and 10.2(2011). And the ratio of Torrent Pharma varied between 0.9(2009) to 3.37 (2010) during the period under study. The market value of equity / book value of debt ratio of Claris Lifesciences varied between 0.23(2007) to 0.64(2014) and for Dishman Pharma the ratio varied between 0.31(2012) to 4.54(2008) during the period under study. The major reason for variation in observed ratio of the pharmaceutical companies can be attributed to fluctuation in the market value of equity.

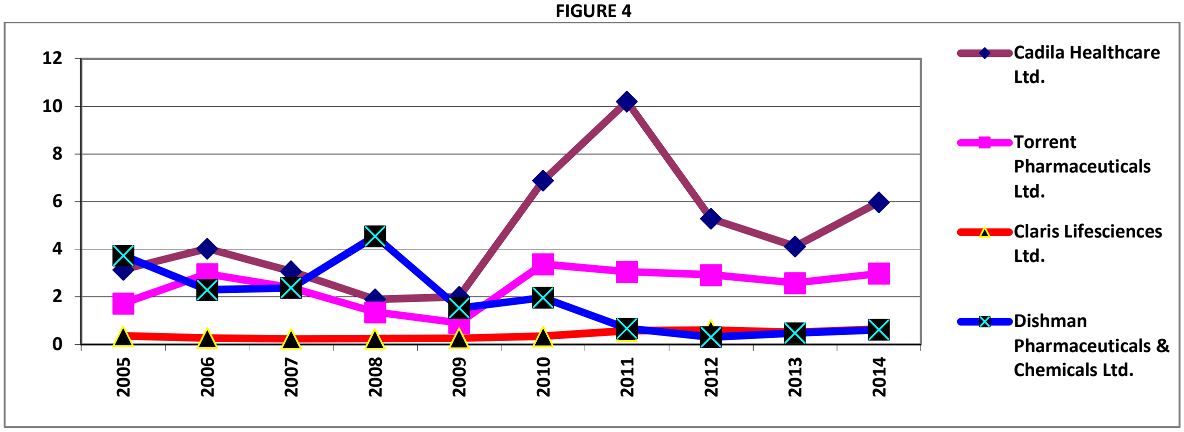
TABLE 4: X4 (MV of Equity/Total Debt)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Cadila Healthcare Ltd.	3.14	4.02	3.07	1.89	2	6.88	10.2	5.28	4.11	5.97
Torrent Pharmaceuticals Ltd.	1.72	2.96	2.38	1.35	0.9	3.37	3.05	2.92	2.58	2.98
Claris Lifesciences Ltd**.	0.35	0.27	0.23	0.24	0.26	0.34	0.57	0.61	0.51	0.64
Dishman Pharmaceuticals & Chemicals Ltd.	3.73	2.29	2.37	4.54	1.52	1.96	0.67	0.31	0.48	0.61

**for Claris Lifescience Ltd. X4 is calculated as Net worth/Total Debt

Source: Computed

FIGURE 4



X5 (SALES / TOTAL ASSETS)

According to Altman, sales/total assets ratio measures the ability of the company to generate sales from its total assets. This ratio also measures the performance of the managers of the company to generate sales in the competitive environment of the business.

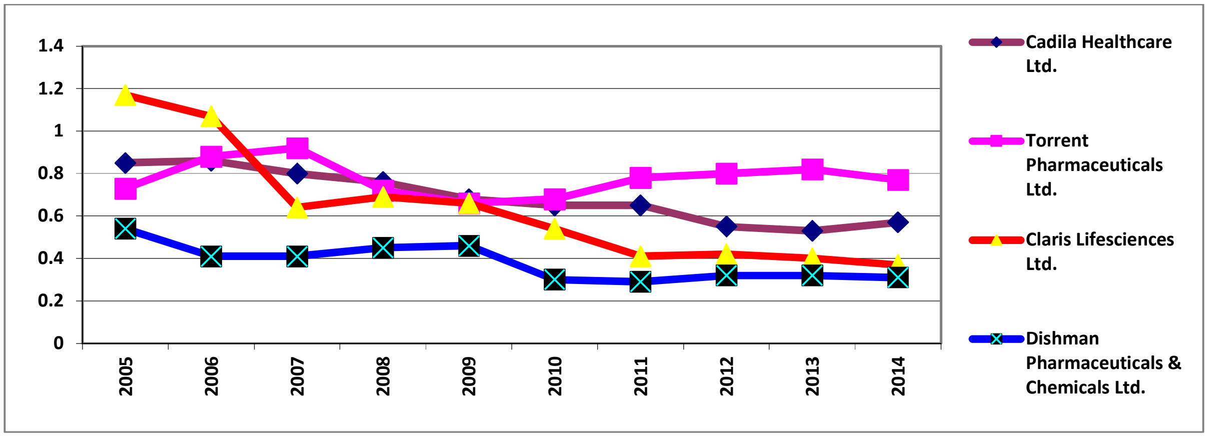
Table no 5 and figure no 5, reveals a declining trend in sales/total assets ratios of Cadila Healthcare, Claris Lifesciences, Dishman Pharmaceuticals during the period under study. The sales/total assets ratio of Cadila Healthcare varied between 0.86 (2006) and 0.53 (2013). The declining trend of sales/total assets ratio of Cadila Healthcare was due to decline in the sales during the period under study. For Torrent Pharmaceuticals, highest sales/total assets ratio was observed at 0.92 (2007) and lowest at 0.66(2009). Torrent Pharmaceuticals had acquired more proportionate assets in comparison to increase in sales which resulted decline in sales/total assets ratio during 2008 and 2009. The sales/total assets ratio of Claris Lifesciences varied between 1.17(2005) and 0.37 (2014). Because of higher proportionate increase in assets in comparison to sales of the company a declining trend observed in sales/total assets ratio of Claris Lifsciences during the period under study. The sales/total assets ratio of Dishman Pharma showed a declining trend during the period under study with a high of 0.54(2005) and a low of 0.29 (2011). Lower proportionate increase in sales in comparison to increase in total assets was found to be the main reason for declining sales/total assets ratio of Dishman Pharma during the period under study.

TABLE 5

X5=Sales/TA	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Cadila Healthcare Ltd.	0.85	0.86	0.8	0.76	0.68	0.65	0.65	0.55	0.53	0.57
Torrent Pharmaceuticals Ltd.	0.73	0.88	0.92	0.72	0.66	0.68	0.78	0.8	0.82	0.77
Claris Lifesciences Ltd.	1.17	1.07	0.64	0.69	0.66	0.54	0.41	0.42	0.4	0.37
Dishman Pharmaceuticals & Chemicals Ltd.	0.54	0.41	0.41	0.45	0.46	0.3	0.29	0.32	0.32	0.31

Source: Computed

FIGURE 5



ANALYSIS OF Z –SCORE

Z scores of the selected 04 pharmaceutical companies are presented in the table no 6 for the period 2004 to 2014. The graphical presentation of z scores is also made in figure no 6.

Z score of Cadila Healthcare was found to be very healthy and always stayed higher than 2.99 during the period under study. The Z scores varied within 12.39 (2011) and 3.92 (2008) and the wide variation was due to wide fluctuation in the market value of the company during the study period. The Z score values suggest very good financial performance and higher creditworthiness of Cadila Healthcare during the study period. The company has also very high retained profits/total assets ratio showing its healthy operational performance and future prospects.

The Z score values of Torrent Pharmaceuticals as revealed in the table suggest that, the financial position of the company stayed healthy during the study period. The Z score values of the company always stayed above 2.99 during the study period except 2009. This was due to heavy increase in the total assets of the company with lower market value during 2009. However, during rest years, the company's Z scores were found to be in very healthy zone. In the last five years the study, Z scores of Torrent Pharma was found to be around 5 indicating healthy recovery and sound financial performance of the company.

The Z^1 score values of Claris Lifesciences stayed within the grey zone range of bankruptcy i.e. 1.23-2.99 during the period under study. The Z^1 scores of Claris Lifesciences varied within a high of 2.34(2005) and a low of 1.41(2013). Figure no 6 suggest that, the Z^1 scores of Claris Lifesciences are in a declining trend. The declining trend was due to inability to generate sales from its assets as well as lower retained earnings during the period under study. It was also found that, the company's net worth in comparison to its book debts stayed at lower levels during the study period. Z^1 score value in the grey zone is considered to be healthy but the financial bankruptcy becomes difficult to predict in this range. It can be concluded that, the financial position of Claris Lifescience was declining within the grey zone and the company should emphasize more on higher sales and cumulative profits to improve its financial position.

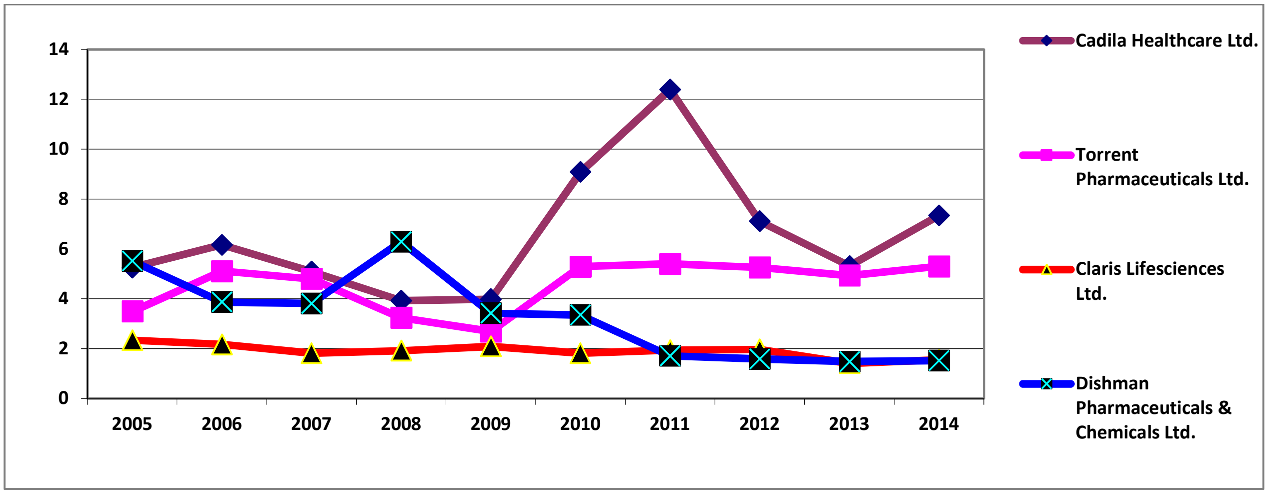
The figure no 6 suggests that the Z scores of Dishman Pharma were above 2.99 during first six years of study. The Z scores stayed in the grey zone in the last four years of study. The Z scores were in declining trend and entered to grey zone from very healthy zone. The Z scores of the company varied within a range of 6.29(2008) and 1.48 (2013) during the period under study. It was observed that the working capitals were declining and there was heavy increase in the total assets of the company during the period under study. The company has also maintained negative working capital during last four years under study. The company found to have overcapitalization and could not generate higher sales in comparison to its total assets deployment. The fluctuation in the market value was also substantial to impact its Z score value. Z score values in the grey zone are considered to be healthy but their financial bankruptcy conditions become unpredictable. The Z score values in the table suggest that, Dishman Pharma's financial position was healthy and was in grey zone in last four years but in declining trend. In future, more emphasis to be given for increase in its sales and working capital position as well as market value to avoid further decrease in Z scores of the company.

TABLE 6

Z scores	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Cadila Healthcare Ltd.	5.25	6.16	5.09	3.92	3.98	9.08	12.39	7.11	5.31	7.34
Torrent Pharmaceuticals Ltd.	3.49	5.11	4.80	3.24	2.69	5.29	5.40	5.26	4.93	5.30
Claris Lifesciences Ltd.	2.34	2.17	1.82	1.92	2.09	1.82	1.94	1.97	1.41	1.55
Dishman Pharmaceuticals & Chemicals Ltd.	5.51	3.87	3.81	6.29	3.42	3.35	1.71	1.59	1.48	1.52

Source: Computed

FIGURE 6



FINDINGS AND SUGGESTIONS

Z score of Cadila Healthcare was found to be above 2.99 during the study period. The study revealed a very healthy financial performance and creditworthiness of Cadila Healthcare during the period under study. The company has maintained very high retained profits/total assets ratio showing its healthy operational performance and future prospects. The Z score values of Torrent Pharmaceuticals revealed a healthy financial position of the company during the study period. During last five years, Z scores of Torrent Pharma were found to be around 5 indicating a very sound financial performance of the company. The Z^1 score values of Claris Lifesciences stayed within the grey zone ranging i.e. 1.23-2.99 and found to be in a declining trend during study period. It is suggested that, Claris Lifesciences should emphasize on sales and retained profits to avoid financial distress condition in future. The Z scores of Dishman Pharma were found to be above 2.99 during first six years and in the grey zone during last four years of study. The company has also maintained negative working capital during last four years under study. Dishman Pharma's Z scores during last four years were in grey zone and in declining trend. It is suggested that Dishman Pharma should give more emphasis on sales revenue and working capital as well as market value to avoid further decrease in Z scores of the company.

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