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THE ANALYTICAL IMPLICATION OF ALTMAN'S Z SCORE ANALYSIS OF BSE LISTED SMALL CAP COMPANIES

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Abstract

Investors use various tools to arrive at investment decisions. Volatility in the financial resources of the firms may adversely affect the investors. As such investment decision must be taken rationally and prudently. One tool that helps investors to make prudent decisions is the Altman's Z score Model. It is an important tool that predicts the financial health of companies and categorizes them in three zones – 'safe', 'grey' and 'distress'. It is a multivariate formula, which is highly popular and is used by a variety of stake holders. A number of studies have established the discrimination power of the Model as well as its capacity to identify the financial heath or distress of companies. The present study assessed the solvency position of 220 companies listed in the BSE Small Cap Index using Z score. The results showed that only 79 companies were in the safe zone. 117 companies were in the grey zone and 24 in the distress zone. A sector-wise analysis of the Z score revealed some interesting results. The result of the study can be used by potential investors while making investment decisions.

Key Words: Financial distress, Bankruptcy, Altman's Z score

Introduction

Investment is the commitment of financial resources which have been saved with the expectation of some positive rate of return. Investing one's savings in financial securities to improve the financial stability using the financial analytical tools and the acceptance of quantitative techniques by the investment community has changed the investment scenario. Investment decisions require scientific knowledge, a systematic approach and professional expertise on the part of the investor. Such a decision would ensure an effective mix of safety, rate of return and liquidity. Investors make use of research tools provided by share broking firms and also do comprehensive analysis with available relevant information. For this they utilize first-hand knowledge about the operations and management of a subject business; information from the financial statements to complement the ratios and derive conclusions to determine the financial viability of investment avenues.

Financial analytical valuation process requires both internal and external comparison of financial and non financial data to measure financial and operational efficiency, as well as to determine the strengths and weaknesses of an organization. Kahl (2002) argues that investment decisions are affected by the degree of uncertainty on a firm's prospects. He mentioned that stakeholders, such as creditors may postpone their decision to learn more about the distressed firm's on better information. Thus uncertainty of financial performance makes investors to be more prudent in choosing a prospective company. Any prudent investor would require an array of tools to predict the volatility of a company's performance.

Review of Literature

One important tool that predicts the volatility and has gained popularity since 1985 is Edward Altman's Z – Score Model (Altman, 1968). It is a multivariate formula used for the measurement of the financial health. It has gained wide acceptance with a variety of stake holders like investors, financial analysts, consultants, bankers, auditors, management accountants, courts, and database systems. Further it is also used for evaluation of loans (Eidleman, 2003), as it offers an excellent measure for evaluating the financial health of a subject business. It explicitly measure(s) a firm's relative liquidity, longevity, operating profitability, leverage, solvency, and productivity—virtually all aspects of corporate performance, lead to clearer conclusions, avoid judgment bias, reliability.

The Altman's Z-Score model (1968) is a linear analysis with five measures that are objectively weighted and summed up to arrive at an overall score that then becomes the basis for classifying firms to measure their financial viability. The profile of variables in the model has been formed from the following:

1. observation of the statistical significance of various alternative functions, including determination of the relative contributions of each independent variable;
2. evaluation of inter-correlations among the relevant variables;
3. observation of the predictive accuracy of the various profiles; and
4. judgment of the analyst.

Altman (1968) is of the opinion that ratios measuring profitability, liquidity, and solvency are the most significant ratios. However, it is difficult to know which is more important as different studies indicate different ratios as indicators of potential problems. Altman's 1968 model took the following form:

$Z = 0.01\ 2X1 + 0.014\ X2 + 0.033\ X3 + 0.006\ X4 + 0.999\ X5$

Where:

X1 = working capital/total assets,
X2 = retained earnings/total assets,
X3 = earnings before interest and taxes/total assets,
X4 = book value equity/book value of total liabilities,
X5 = sales/total assets, and

The Z score is then calculated by multiplying each of several financial ratios by an appropriate coefficient and then summing the results. Significant ratios identified by Altman with regard to bankruptcy prediction were working capital over total assets, retained earnings over total assets, earnings before interest and taxes over total assets, market value of equity over book value of total liabilities. Employing a multiple discriminant analysis (MDA) statistical technique, Altman evaluated 22 different financial ratios using a database of 66 publicly traded manufacturing firms in USA (Altman, 1968). The research concluded that by combining five balance sheets and performance ratios, weighted by established coefficients that account for their relative importance, one could discriminate or identify financially distressed companies.

Altman's Revised Z-Score Model

Altman revised the existing model in 1983 by complete re-estimation, substituting the book values of equity for the market value. This was done by a complete re-estimation of the model, and not just inserting a proxy variable into an existing model. This resulted in a change in the coefficients and the classification criterion and related cut-off scores. The revised Z score model took the following form:

$Z' = 0.717T_1 + 0.847T_2 + 3.107T_3 + 0.420T_4 + 0.998T_5$

Where:

T_1 = (Current Assets-Current Liabilities) / Total Assets
T_2 = Retained Earnings / Total Assets
T_3 = Earnings before Interest and Taxes / Total Assets
T_4 = Book Value of Equity / Total Liabilities
T_5 = Sales/ Total Assets

Zones of Discrimination:

Altman (1983) presented three zones of discrimination for the model, as under:

$Z > 2.9$	-	Safe Zone
$1.23 < Z < 2.9$	-	Grey Zone
$Z < 1.23$	-	Distress Zone

Uses of Z-score

The Z score, according to Altman (2000) provides added value and credibility to the valuation process, as it helps in evaluating the reliability statistically, in addition to providing insight into relative performance and financial viability. It also has the potential of reformulating the problem correctly. Further, the utilization of a comprehensive list of financial ratios in assessing a firm's financial viability depends on the degree of correlation that exists between each requisite variable forming a significant ratio. It also has the advantage of potentially yielding a model with a relatively small number of selected measurements which convey a great deal of information (Altman, 2000).

The Z-score offers an excellent measure for evaluating the financial health of a firm—the lower the score the greater chance of failure. The score, which combines mutually exclusive ratios into a group, helps overcome the shortcomings of individual financial ratio analysis. The beauty of Z-score is that it provides a calculated measure based on past experience, rather than personal opinion. Studies carried out by Altman (2003) using financial ratios predicted 94% correctly for one year before bankruptcy occurred; and 72% two years before its actual occurrence. In a study Pongsatat, Ramage and Lawrence (2004) on the other hand found a bankruptcy predictive ability of 90.48% with respect to large asset firms for year one, and 100% accuracy rate for the succeeding two years. The accuracy rate for small asset bankrupt firms, for year one was 94.87%, 94.87% for year two and 94.87% for year three. Odipo and Sitati (2011) opinioned that the model is a powerful diagnostic tool that deals with financial health and forecasts the probability of a company entering bankruptcy within a period of the next two years. They found that eight out of the 10 firms analyzed using Z model failed, thus indicating a successful prediction rate of 80%. Taffler and Tishaw (1977) using the model established a 99% successful classification based on the data of 92 companies. Thus almost all studies that measured the effectiveness of the model have shown that it enjoys an overall reliability of 70 to 80%.

The importance of the Z score has been highlighted by a number of studies. A 2002 study conducted by Price water Coopers on 1,200 publicly owned manufacturing companies (data from 1998 to 2001) concluded that the Z-score remains a viable measure of financial distress. It has been used to predict viability in a number of sectors like telecommunications (Permatasari, 2006), wood industry (Muhammad, 2008), pharmaceuticals (Ambarsari, (2009), etc.

In all these situations, it was found that the respective industries were in distress financial situation, which was later proved correct. The studies thus proved that Altman model of Z-score would provide accurate prediction of financial distress.

Ever since its inception, the Z-score has been put to use for diverse purposes. It was used as a basic research tool in exploring such areas like merger and divestment activity (Shrieves and Stevens, 1979; Lasfer , 1996; Sudarsanam and Lai, 2001), asset pricing and market efficiency (e.g. Altman and Brenner, 1981; Katz , 1985; Dichev, 1998; Griffin and Lemmon, 2002; Ferguson and Shockley, 2003), capital structure determination (e.g. Wald, 1999; Graham, 2000; Allayannis , 2003; Molina, 2005), pricing of credit risk (Kao, 2000), distressed securities (Altman, 2002; Marchesini 2004), and bond ratings and portfolios (Altman, 1993; Caouette , 1998). Further, it is also used extensively as a tool in assessing the firm financial health in going-concern research (Citron and Taffler, 1992; Carcello , 1995; Mutchler ., 1997; Louwers, 1998; Citron and Taffler, 2001 and 2004; Taffler et al., 2004). A study by Permatasari (2006) on public listed companies, used Z-score established the vulnerability of companies and expected bankruptcy in the case of certain industries.

The empirical analysis by Gerantonis, Vergos, and Christopoulos (2008) examined all companies listed in the Athens Exchange during the period 2002-2008, and the discontinuations of operation for these companies in the period. They investigated the efficacy of Z-score models to predict bankruptcies for a period up to three years. The study confirmed the efficiency of Altman model in predicting failures. Their results could be put to use by a broad spectrum of stakeholders including company management for financing decisions, regulatory authorities, as well as investors and portfolio managers in stock selection**.**

Describing the reasons for corporate failures Altman and Hotchkiss (2006) listed them as deregulation, competition, and inadequacy in management performance. Poor decision making combined with unfavorable events are the reasons listed by Opler and Titman (1994) for financial distress. Shareholders view any distress to be harmful and costly to them. Distress in the financial front has all the possibility of leading to bankruptcy and resultant reorganization or liquidation (Altman, 1979). These aspects may lead to shift in investment preferences and investors would seek alternative opportunities.

Studies in India

A few studies have been done in India using Altman's Z-score, is worth considering. Selvam (2004) made a study to predict the financial health and viability of India Cements Ltd. They concluded that the cement company was on the verge of financial collapse. Krishna (2005) using Altman's Z score model measured the financial distress of IDBI and predicted that the company is not in the health zone, and is likely to be insolvent in the near future. Dheenadhyalan (2008) used the model to predict the financial health of SAIL. The Z score showed a rising trend throughout the study period, and it was concluded that the financial health of the SAIL was good.

A study by Ramaratnam and Jayaraman (2010) analyzed and predicted the financial health of five select companies in the Indian industry using Altman's Z – Score. The study revealed that all the five companies were financially sound during the study period. Another study by Bhatt (2012) investigated the ability of three versions of the model for distress prediction in the Indian markets. The study was conducted on four selected companies, belonging to various sectors. The results proved that the models have remarkable degrees of accuracy in distress prediction. Thus it can be seen that a few company specific studies have been done in India. A review of literature showed that only the studies of Ramaratnam and Jayaraman (2010) and Bhatt (2012) have analyzed more than one company. No attempts have been undertaken in India to study the financial health of either certain sectors or a large number of companies, as has been done in other parts of the world. The present study attempts to analyze the financial position of the 220 Small cap companies of the BSE.

Objectives of the Study

The main objective of the study is to identify the solvency of the 220 the companies listed in the BSE Small Cap Index using Altman-Z score. The companies would be listed according to the three zones of the score. Many studies, for instance Ben McClure (2004), had used the model to study the financial strength and concluded that 'to keep an eye on their investments, investors should consider checking their companies' Z-score on a regular basis. A deteriorating Z-score can signal trouble ahead and provide a simpler conclusion than the mass of ratios'. The results of the study would be useful to investors and potential investors, as it would help them to know about the financial strength or distress of the companies in the Small Cap. This would help them to take advised decision about investment in such securities.

Methodology

The present study intends to identify the solvency of the actively traded 220 of the 425 companies listed in the BSE Small Cap Index using Altman-Z score. The companies belong to 21 different sectors.

BSE introduced the new index series called 'BSE Mid-Cap' index and 'BSE Small-Cap' index in April 11, 2005 to track the performance of the companies with relatively small market capitalization that would exclusively represent the mid and small cap companies listed on the Stock Exchange. This necessitated construction of a separate indicator to capture the trend in the specific class of companies (with lower market capitalisation). The small cap companies have a market capitalization in the range Rs.150cr. to 500cr. The BSE Small-Cap Index has 425 companies representing 5 per cent of BSE's eligible universe. The highest average market capitalisation is Rs 417 crore and the lowest is Rs 53 crore.

The study analyzed the latest financial statements of the selected companies. The financial data like working capital, sales, total assets, retained earnings, earnings before interest and tax, market value of equity, book value of total liability were collected for analyzing the financial viability of the companies using the Altman's Z score model. The revised Altman's score (1983) was used for the present study.

Results and Discussion

This study was intended to identify the solvency of the 220 the companies listed in the BSE Small Cap Index, using Altman-Z score. The Z score of all the companies are presented in Annexure 1. The score would help to identify the financial viability of the companies studied. It can also be used as an extra reference to investors who intend to invest in those companies. The other results of the study are presented in the following sections.

Table 1
Distribution of Companies according to Zones

No	Zone	Range	Number	Per cent
1	**Safe**	Z > 2.9	79	36
2	**Grey**	1.23 < Z < 2. 9	117	53
3	**Distress**	Z < 1.23	24	11
Total			**220**	100

It can be seen from Table 1 that only 79 of the 220 companies of the small cap comes under Safe zone. While 117 companies are in the Grey zone, 24 fall in the distress zone. Thus it can be seen that the only about one third of the companies analyzed are found in the safe zone. The collective number of companies in Grey and Distress Zones are double that of those in the safe zone. The 220 companies are classified under 21 sectors by the BSE. An attempt was done to identify the position of the companies according to the sectors to which they belong. The sector-wise analysis of the companies is presented in Table 2.

Table 2
Sector-wise analysis of Z-score

No	Sector	Zone	No of companies
1	Housing	Safe	6
		Grey	4
		Distress	2
2	Capital goods	Safe	5
		Grey	6
		Distress	3
3	Finance	Safe	5
		Grey	5
		Distress	2
4	Metal, metal products and mining	Safe	5
		Grey	6
		Distress	1
5	Miscellaneous	Safe	4
		Grey	8
		Distress	2
6	Information technology	Safe	5
		Grey	12
		Distress	5
7	Health care	Safe	3
		Grey	7
		Distress	1
8	Textiles	Safe	3
		Grey	7
		Distress	3
9	Agriculture	Safe	3
		Grey	6
		Distress	1
10	Transport equipments	Safe	2
		Grey	8
		Distress	1
11	Chemicals and petrochemicals	Safe	4
		Grey	7
		Distress	1
12	FMCG	Safe	6
		Grey	9

		Distress	0
13	Media and publishing	Safe	4
		Grey	5
		Distress	0
14	Consumer durables	Safe	3
		Grey	5
		Distress	0
15	Diversified	Safe	4
		Grey	3
		Distress	0
16	Telecom	Safe	4
		Grey	5
		Distress	0
17	Transport services	Safe	3
		Grey	5
		Distress	1
18	Tourism	Safe	3
		Grey	3
		Distress	0
19	Oil and gas	Safe	2
		Grey	6
		Distress	0
20	Power	Safe	2
		Grey	7
		Distress	0
21	Others	Safe	3
		Grey	4
		Distress	1

It can be seen from the above table that, barring a few, most of the sectors are having more number grey and distress zone companies. This point towards the aspect that investors should be careful and exercise due diligence and prudence while investing in the small cap company shares. It is only in the housing, diversified and tourism sectors that there are more number of companies in the safe zone.

Conclusion

Various studies conducted in India using Altman's Z score (Selvam, 2004; Krishna, 2005; Dheenadhyalan, 2008; Ramaratnam and Jayaraman, 2010; Bhatt, 2012) have limited their analysis to one or a group of few companies. The present study has analyzed 220 companies of BSE Small Cap for financial solvency using Z score. The results showed that a large number of companies are either in the 'grey' or 'distress' zones. The capability of Z-score to assess the financial health (Carcello, 1995; Mutchler, 1997; Louwers, 1998; Citron and Taffler, 2004; Taffler et al., 2004), as well as vulnerability and expected bankruptcy (Permatasari, 2006) of companies has been proved beyond doubt. Taking this aspect into consideration, investors should consider making use of tools like Z-score while making investment decisions. The result of this study can be utilized as a ready reference by investors while investing in those Small Cap companies which have been analyzed here.

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Annexure-1

Sl No	Sector	Company	Z score	Zone
1	Chemicals	Aarti Industries Ltd.	3.09	1
2	Capital goods	ABG Infralogistics Ltd	1.41	2
3	IT	Accel Frontline Ltd.	3.48	1
4	IT	Accentia Technologies Ltd.	1.86	2
5	Capital goods	Action Construction Equipment Ltd.	3.73	1
6	Metals	Adhunik Metaliks Ltd.	1.71	2
7	Miscellaneous	Ador Welding Ltd.	1.87	2
8	Others	Advani Hotels & Resorts (India) Ltd.	3.12	1
9	Transport	Aegis Logistics Ltd.	2.78	2
10	Capital goods	Ahluwalia Contracts (India) Ltd.	6.05	1
11	Miscellaneous	Ahmednagar Forgings Ltd	2.26	2
12	Diversified	Alchemist Realty Ltd.	5.78	1
13	FMCG	Alembic Ltd.	1.67	2
14	Chemicals	Alkali Metals Ltd.	1.73	2
15	IT	Allied Digital Services Ltd.	2.15	2

16	Cement	Andhra Cement Ltd.	0.20	3
17	Others	Andrew Yule & Company Ltd.	2.60	2
18	FMCG	Ankur Drugs And Pharma Ltd.	0.94	3
19	Housing	Ansal Properties & Infrastructure Ltd.	1.82	2
20	FMCG	Anu's Laboratories Ltd.	2.40	2
21	Consumer durables	Apar Industries Ltd.	8.07	1
22	Capital goods	Aptech Ltd. (0.65)	2.04	2
23	Capital goods	B L Kashyap and Sons Ltd. (0.3)	3.06	1
24	Media	B.A.G. Films Ltd. (0.65)	1.38	2
25	Media	Bajaj Telefilms	1.76	2
26	Transport	Banco Products (I) Ltd. (0.3)	3.31	1
27	Textiles	Bang Overseas Ltd. (0.35)	2.39	2
28	Miscellaneous	Best & Crompton Engg.Ltd. (0.2)	0.19	3
29	Capital goods	C & C Constructions Ltd. (0.35)	2.16	2
30	IT	Cambridge Solutions Ltd. (0.5)	-0.02	3
31	Agriculture	CCL Products (India) Ltd. (0.55)	2.44	2
32	Petrochemicals	Chemplast Sanmar Ltd. (0.25)	2.37	2
33	Finance	Cholamandalam Dbs Finance Ltd. (0.3)	1.35	2
34	Media	Cinemax India Ltd. (0.35)	1.48	2
35	Capital goods	CMI FPE Ltd. (0.25)	6.78	1
36	Diversified	DCM Shriram Consolidated Ltd. (0.45)	2.25	2
37	Finance	Delta Corp Ltd. (0.25)	3.14	1
38	Finance	Dewan Hsg. Finance Corp. Ltd. (0.2)	1.13	3
39	Agriculture	Dhampur Sugar Mills Ltd. (0.45)	2.68	2
40	Agriculture	Dhanuka Agritech Ltd. (0.15)	5.24	1
41	Diversified	Disa India Ltd (0.3)	11.15	1
42	Oil and gas	Dolphin Offshore Ent. (I) Ltd. (0.35)	2.55	2
43	Miscellaneous	Dredging Corporation of India Ltd. (0.25)	1.98	2
44	IT	Eclerx Services Ltd. (0.4)	7.89	1
45	Others	EIH Associated Hotels Ltd. (0.25)	1.56	2
46	Chemicals	Elantas Beck India Ltd. (0.15)	6.17	1
47	FMCG	Elder Pharmacueticals Ltd. (0.4)	1.99	2
48	Chemicals	Elantas Beck India Ltd. (0.15)	6.17	1
49	Capital goods	Electrotherm (India) Ltd. (0.3)	1.58	2
50	Miscellaneous	Elpro International Ltd. (0.35)	0.65	3
51	Others	Empee Distelleries Ltd. (0.3)	2.44	2
52	Power	Energy Development Co. Ltd. (0.4)	1.45	2
53	Chemicals	English Indian Clays Ltd. (0.25)	2.78	2
54	Power	Entegra Ltd. (0.3)	0.34	3
55	Media	Entertainment Network (India) Ltd. (0.3)	3.64	1
56	Miscellaneous	Esab India Ltd. (0.45)	6.24	1
57	Others	Ess Dee Aluminium Ltd. (0.35)	2.53	2
58	Others	Essel Propack Ltd. (0.45)	1.72	2
59	FMCG	FDC Ltd. (0.35)	3.97	1
60	Transport	Federal-Mogul Goetze (India) Ltd. (0.3)	4.33	1
61	Metals	Ferro Alloys Corporation Ltd. (0.25)	4.17	1

62	IT	Firstsource Solutions Ltd. (0.2)	1.13	3
63	Chemicals	Foseco India Ltd. (0.15)	7.22	1
64	FMCG	Fresenius Kabi Oncology Ltd. (0.1)	2.46	2
65	FMCG	Fulford (India) Ltd. (0.5)	3.68	1
66	Capital goods	Ganesh Housing Corp. Ltd. (0.45)	1.74	2
67	Textiles	Garden Silk Mills Ltd. (0.45)	2.80	2
68	Miscellaneous	Gateway Distriparks Ltd. (0.55)	2.55	2
69	Others	Gati Ltd. (0.35)	2.27	2
70	Finance	Geojit Financial Services Ltd. (0.35)	2.96	2
71	IT	Geometric Ltd. (0.65)	3.58	1
72	Housing	GIC Housing Finance Ltd. (0.5)	1.27	2
73	Capital goods	Gitanjali Gems Ltd. (0.5)	2.76	2
74	IT	Glodyne Technoserve Ltd. (0.35)	4.54	1
75	Others	Glory Polyfilms Ltd. (0.65)	2.17	2
76	Metals and mining	Godavari Power & Ispat Ltd. (0.45)	1.98	2
77	Textiles	Gokaldas Exports Ltd. (0.15)	2.17	2
78	Agriculture	Gokul Refoils And Solvent Ltd. (0.3)	7.47	1
79	Consumer durables	Goodyear India Ltd. (0.3)	8.00	1
80	Miscellaneous	Graphite India Ltd. (0.5)	2.77	2
81	Others	Greaves Cotton Ltd. (0.5)	5.88	1
82	Miscellaneous	Grindwell Norton Ltd. (0.3)	5.49	1
83	Finance	Gruh Finance Ltd (0.4)	1.50	2
84	IT	GSS America Infotech Ltd. (0.45)	1.69	2
85	Power	Gujarat Industries Power Co. Ltd. (0.35)	1.37	2
86	Diversified	Halonix Ltd. (0.35)	2.80	2
87	Agriculture	Hatsun Agro Products Ltd. (0.3)	5.34	1
88	Power	HBL Power Systems Ltd. (0.3)	1.89	2
89	Miscellaneous	HEG Ltd. (0.5)	2.14	2
90	Chemicals	Henkel India Limited (0.35)	1.92	2
91	Capital goods	Hercules Hoists Ltd (0.35)	4.98	1
92	IT	Hexaware Technologies Ltd. (0.75)	4.60	1
93	FMCG	Hikal Ltd. (0.2)	1.60	2
94	Textiles	Himatsingka Seide Ltd. (0.5)	1.27	2
95	Metals and mining	Hinduja Foundries Ltd. (0.35)	1.22	3
96	IT	Hinduja Global Solutions Ltd. (0.35)	2.62	2
97	IT	Hinduja Ventures Ltd. (0.35)	2.00	2
98	Power	Honda Siel Power Products Ltd. (0.35)	4.68	1
99	Telecommunications	Honeywell Automation India Ltd. (0.2)	6.30	1
100	Miscellaneous	ICRA Ltd. (0.65)	4.25	1
101	IT	ICSA India Ltd. (0.8)	2.46	2
102	Finance	Il & Fs Investment Managers Ltd. (0.45)	7.23	1
103	Chemicals	India Glycols Ltd. (0.5)	1.67	2
104	Finance	Indiabulls Securities Ltd. (0.75)	1.57	2
105	Housing	Indian Hume Pipe Co. Ltd. (0.35)	3.47	1
106	Metals and mining	Indian Metals & Ferro Alloys Ltd. (0.3)	2.55	2
107	Textiles	Indo Rama Synthetics (India) Ltd. (0.4)	3.74	1

108	Power	Indo Tech Transformers Ltd. (0.5)	1.67	2
109	FMCG	Indoco Remedies Ltd. (0.45)	2.92	2
110	Others	Indraprastha Medical Corpn. Ltd. (0.5)	3.54	1
111	Others	INEOS ABS (India) Ltd. (0.2)	5.41	1
112	Others	Infomedia 18 Ltd. (0.35)	1.91	2
113	IT	Infotech Enterprises Ltd. (0.5)	3.30	1
114	Others	Ingersoll - Rand (India) Ltd. (0.3)	3.24	1
115	Media & Entertainment	Inox Leisure Ltd. (0.35)	1.64	2
116	FMCG	IOL Chemicals & Pharmaceuticals Ltd. (0.35)	1.59	2
117	IT	IOL Netcom Ltd. (0.9)	0.64	3
118	Steel	ISMT Ltd. (0.45)	1.98	2
119	Capital goods	ITI Ltd. (0.1)	0.08	3
120	Capital goods	J. Kumar Infraprojects Ltd. (0.4)	3.96	1
121	FMCG	J.B. Chemicals & Pharmaceuticals Ltd. (0.45)	2.87	2
122	Cement	J.K. Cement Ltd. (0.4)	1.76	2
123	Others	J.K. Tyre & Industries Ltd. (0.55)	3.33	1
124	Metal and mining	Jai Balaji Industries Ltd. (0.35)	1.62	2
125	Textiles	JBF Industries Ltd (0.4)	2.98	2
126	Others	JCT Electronics Ltd. (0.2)	0.41	3
127	Others	Jindal Worldwide Ltd. (0.15)	3.24	1
128	Cement	JK Lakshmi Cement Ltd. (0.55)	1.56	2
129	Paper	JK Paper Ltd. (0.4)	2.59	2
130	Capital goods	JMC Projects (India) Ltd. (0.45)	4.23	1
131	Consumer durables	Jyothy Laboratories Ltd. (0.35)	3.52	1
132	Power	Jyoti Structures Ltd. (0.75)	4.27	1
133	Textiles	K.P.R. Mill Ltd. (0.3)	2.04	2
134	Miscellaneous	Kajaria Ceramics Ltd. (0.5)	5.69	1
135	Capital goods	Kalindee Rail Nirman (Engineers) Ltd. (0.85)	2.95	2
	Miscellaneous	Kalyani Steels Ltd. (0.45)	3.81	1
137	Miscellaneous	Kalyani Steels Ltd. (0.45)	3.81	1
138	Finance	Kanani Industries Ltd. (0.15)	4.42	1
139	Miscellaneous	Karuturi Global Ltd. (0.55)	0.88	3
140	Miscellaneous	Kaveri Seed Company Ltd. (0.4)	4.60	1
141	Others	Kemrock Inds & Expo Ltd (0.4)	1.73	2
142	Diversified	Kesoram Industries Ltd. (0.75)	1.62	2
143	Diversified	Kewal Kiran Clothing Ltd. (0.3)	5.07	1
144	Diversified	Kirloskar Ferrous Industries Ltd. (0.45)	4.97	1
145	Others	Kirloskar Pneumatic Co. Ltd. (0.45)	5.71	1
146	Agriculture	KRBL Ltd. (0.35)	2.50	2
147	Others	KSB Pumps Ltd. (0.35)	3.95	1
148	Textiles	Lakshmi Machine Works Ltd. (0.6)	5.44	1
149	Metal and mining	Lloyds Metals & Engineers Ltd. (0.55)	5.74	1
150	Capital goods	Madhucon Projects Ltd. (0.45)	2.35	2
151	Finance	Magma Fincorp Ltd. (0.55)	1.35	2
152	Metals and mining	Mahindra Forgings Ltd. (0.25)	1.36	2
153	Capital goods	Mahindra Lifespace Developers Ltd. (0.5)	2.53	2

154	Metals and mining	Man Industries (India) Ltd. (0.55)	4.06	1
155	Metals and mining	Manaksia Ltd. (0.45)	2.92	2
156	Oil	Manali Petrochemicals Ltd (0.65)	4.82	1
157	Finance	Manappuram General Finance And Leasing Ltd. (0.45)	1.48	2
158	Cement	Mangalam Cement Ltd. (0.75)	2.99	2
159	Capital goods	Marathon Nextgen Realty & Textiles Ltd. (0.15)	2.40	2
160	Capital goods	Marg Ltd. (0.55)	1.99	2
161	FMCG	Marksans Pharma Ltd. (0.5)	-0.31	3
162	IT	Mastek Ltd. (0.6)	2.37	2
163	Agriculture	Mcleod Russel India Ltd. (0.55)	2.45	2
164	Agriculture	Meghmani Organics Ltd. (0.55)	2.35	2
165	Others	Mercator Lines Ltd. (0.65)	1.32	2
166	FMCG	Merck Ltd. (0.5)	4.40	1
167	IT	MIC Electronics Ltd. (0.7)	1.86	2
168	Others	Milkfood Ltd. (0.5)	3.23	1
169	Consumer goods	Mirc Electronics Ltd (0.45)	6.08	1
170	Finance	Nalwa Sons Investment Ltd. (0.45)	1.83	2
171	FMCG	Natco Pharma Ltd (0.4)	2.64	2
172	Chemicals	Navin Fluorine International Ltd. (0.65)	4.20	1
173	Diversified	Navneet Publications Ltd. (0.4)	4.90	1
174	FMCG	Nectar Lifesciences Limited. (0.4)	2.03	2
175	Textiles	Nirlon Ltd. (0.9)	0.68	3
176	Miscellaneous	Nitin Fire Protection Industries Ltd. (0.3)	4.97	1
177	Cement	OCL India Ltd. (0.35)	2.16	2
178	Diversified	Oil Country Tubular Ltd. (0.55)	2.37	2
179	Capital goods	Orbit Corporation Ltd. (0.4)	1.78	2
180	Steel	Orissa Sponge Iron & Steel Ltd. (0.4)	1.57	2
181	Finance	Oscar Investments Ltd. (0.25)	1.14	3
182	Textiles	Page Industries Ltd. (0.35)	10.15	1
183	FMCG	Panacea Biotec Ltd. (0.35)	2.05	2
184	IT	Panoramic Universal Ltd. (0.3)	1.19	3
185	Diverisified	Polyplex Corporation Ltd. (0.55)	3.32	1
186	Diversified	Prakash Industries Ltd. (0.35)	1.87	2
187	Housing	Pratibha Industries Ltd. (0.4)	3.09	1
188	Engineering	Premier Ltd. (0.65)	0.72	3
189	Media	Prime Focus Ltd. (0.35)	1.54	2
190	Cement	Prism Cement Ltd. (0.4)	2.57	2
191	Cement	Rain Commodities Ltd. (0.45)	1.92	2
192	Metals and mining	Ratnamani Metals & Tubes Ltd. (0.45)	3.05	1
193	Transport	Rico Auto Industries Ltd. (0.55)	2.34	2
194	Textiles	S.Kumars Nationwide Ltd. (0.55)	1.84	2
195	Cement	Sagar Cements Ltd. (0.35)	2.25	2
196	IT	Take Solutions Ltd. (0.4)	2.18	2
197	IT	Tanla Solutions Ltd. (0.65)	1.04	3
198	IT	Tele Data Informatics Ltd. (0.75)	1.05	3

199	Engineering	Titagarh Wagons Ltd. (0.15)	3.42	1
200	Power	Transformers And Rectifiers (India) (0.25)	3.35	1
201	Transport	Transport Corporation Of India Ltd. (0.35)	4.52	1
202	Miscellaneous	Tube Investments Of India Ltd. (0.5)	3.65	1
203	Miscellaneous	Uflex Ltd. (0.4)	2.64	2
204	Agriculture	Ugar Sugar Works Ltd. (0.55)	2.62	2
205	Computer	Usha Martin Ltd. (0.6)	2.41	2
206	Metals	Uttam Galva Steels Ltd. (0.65)	2.45	2
207	Textiles	Vardhman Textiles Ltd. (0.35)	2.15	2
208	Cement	Vesuvius India Ltd. (0.45)	5.06	1
209	Miscellaneous	V-Guard Industries Ltd. (0.35)	4.94	1
210	Chemicals	Vikas Wsp Ltd. (0.75)	2.20	2
211	Housing	Vipul Ltd. (0.3)	2.06	2
212	Metal and mining	Visa Steel Ltd. (0.3)	1.21	3
213	Engineering	Walchandnagar Industries Ltd. (0.45)	2.79	2
214	Paper	West Coast Paper Mills Ltd. (0.55)	1.42	2
215	Media	Wire & Wireliess (India) Ltd. (0.55)	1.54	2
216	IT	Zenith Infotech Ltd. (0.35)	2.39	2
217	FMCG	Zenotech Laboratories Ltd. (0.3)	0.90	3
218	IT	Zensar Technologies Ltd. (0.3)	4.75	1
219	Textiles	Zodiac Clothing Co. Ltd. (0.4)	3.84	1
220	Fertilizers	Zuari Industries Ltd. (0.4)	3.94	1