CHAPTER 4

RESULTS AND DISCUSSION

The systematic examination and evaluation of data, by breaking it into various component parts to uncover and understand their cause-effect interrelationships forms analysis of data. The process of analysis and interpretation makes the data into meaningful, through analytical and logical reasoning. It helps to attain some conclusions. The significance and implications of the findings in turn paves way for further research into it.

The collected secondary data was analysed to attain the objectives of the research study, “Impact of capital structure on dividend decisions with specific reference to select Construction associated Industries in India”. The companies selected for the research study includes,

A) Basic Industries – Steel Industry and Cement Industry

B) Ancillary Industries – Paint Industry, Granite Industry and Ceramic tiles Industry

The statistical analysis of the data and the results are presented under the following sections,

4.1 Factors influencing the capital structure and dividend decisions

4.2 Impact of capital structure on the firm value

4.3 Impact of dividend decisions on the firm value

4.4 Inter industry and intra industry differences of capital structure and dividend decisions

4.5 Impact of capital structure on dividend decisions

4.1 Factors influencing the capital structure and dividend decisions

The capital structure of a firm denotes the proportion of various sources of funds invested into the business. It generally consists of debt capital, equity capital and reserves. The source for raising funds and its proportion differs for each industry or firm. The debt capital can be categorized as long term debt, short term debt and total debt. The debt capital is commonly preferred, as it has its own advantages like fixed rate of interest, no rights of debenture holders in ownership or management etc. Hence, debt capital is compared with various factors that influence the capital structure to find the highly significant factors. The profits earned by a firm in any particular year shall be distributed to the investors and reinvested into the firm proportionately or completely in either avenue. Dividend decisions of any firm influences its capital structure and so the dividend payout is compared with various factors that influence the dividend decisions to find the highly significant factors.

The following variables are considered to analyse the factors influencing the capital structure.

(i) Dependent variables - Long term debt Ratio (LTDR), Short term debt Ratio (STDR) and Total debt Ratio (TDR)

(ii) Independent Variables - Return on Asset (ROA), Return on Equity (ROE), Growth (GR), Risk (RK), Asset Tangibility (AT), Firm size (FS), Earning volatility (EV), Non-debt tax shields (NDTS) and Liquidity ratio (LR)

The following variables are considered to analyse the factors influencing the dividend decisions.

(i) Dependent variable - Dividend Payout Ratio (DPR)

(ii) Independent Variables - Return on Asset (ROA), Return on Equity (ROE), Earnings per share (EPS), Risk (RK), Liquidity ratio (LR), Growth (GR), Leverage (LVG), Firm Size (FS), Cash holdings (CH) and Solvency Ratio (S)

Where, β_0 = constant, β_1- β_{10} = coefficient, ei = error term

4.1.1 DESCRIPTIVE STATISTICS

The descriptive statistics for the average of dependent and independent variables for five industries consisting of 30 companies for a period of 10 years from 2007-08 to 2016-17 were computed. The results are presented in tables, that includes the number of observation, mean, standard deviation and coefficient of variance for the selected variables belonging to the industries individually.

A. STEEL INDUSTRY

The descriptive statistical analysis for seven companies belonging to steel industry in India are computed for ten years from 2007-08 to 2016-17. The results are shown in the following Table 3.

Table 3

Descriptive Statistics of Steel Industry

Variables	Mean	S.D	Variance
Long term debt Ratio	0.099	0.116	0.013
Short term debt Ratio	0.106	0.095	0.009
Total debt Ratio	0.319	0.279	0.078
Return on Asset	0.088	0.074	0.005
Return on Equity	0.122	0.079	0.006
Growth	2.879	43.60	1900
Risk	15.66	23.66	559.7
Asset Tangibility	0.426	0.243	0.059
Non-debt tax shields	0.040	0.019	0.000
Liquidity ratio	2.410	1.946	3.785
Dividend payout ratio	0.028	0.093	0.009
Leverage	0.319	0.279	0.078
Cash holdings	0.181	0.134	0.018
Solvency ratio	0.201	0.182	0.033
Dividend yield ratio	0.033	0.030	0.001

Variables	Mean	S.D	Variance
EPS	27.23	27.18	738.6
Firm size	2.954	1.318	1.737
Earning volatility ratio	0.121	0.110	0.012
Long term debt to equity	0.263	0.342	0.117
Firm value	7.782	5.501	30.26

Source: Computed Data

It is revealed from Table 3, that the Long term debt ratio has a mean of 0.099 with a standard deviation of 0.116. It shows that the long term debt was highly fluctuating. The return on asset has a mean of 0.088, variance 0.005 and the return on equity has a mean of 0.122. It indicates consistency in earnings. Growth implied a mean of 2.879 with standard deviation 43.6. It indicates higher deviation in market capitalization and net asset value. The dividend payout ratio 0.028 and dividend yield ratio 0.03 showed less deviation implying consistency in distribution of dividends. Risk showed a mean of 15.66 and variance 559.7. It indicates higher fluctuation in market price per share and a low dividend payout. Earnings per share has a mean 27.23 and standard deviation 27.18 depicts consistency in earnings.

The solvency ratio has a mean of 0.201 and a variance of 0.033. As the solvency ratio is more than 20%, the companies can be considered to be financially healthy. Earnings volatility mean is 0.121 with a standard deviation of 0.110 indicates less variation and a consistency in earnings during the study period. Long term debt to equity showed a variance of 0.117 signifying fluctuation and higher degree of business risk to meet the company's principal and interest obligations. Firm value had mean 7.782 with standard deviation 5.501 infers consistency and an enriched company value of steel companies. The remaining variables indicated consistency during the study period.

B. CEMENT INDUSTRY

A summary of descriptive statistical analysis of variables for twelve companies belonging to cement industry in India for ten years from 2007-08 to 2016-17 are presented in the following Table 4.

Table 4

Descriptive statistics of Cement Industry

Variables	Mean	S.D	Variance
Long term debt Ratio	0.063	0.076	0.006
Short term debt Ratio	0.108	0.083	0.007
Total debt Ratio	0.325	0.212	0.045
Return on Asset	0.100	0.076	0.006
Return on Equity	0.151	0.106	0.011
Growth	0.516	4.981	24.81
Risk	16.35	47.04	2213
Asset Tangibility	0.558	0.224	0.050
Non-debt tax shields	0.056	0.035	0.001
Liquidity ratio	2.300	1.551	2.406
Dividend payout ratio	0.003	0.007	0.00
Leverage	0.325	0.212	0.045
Cash holdings	0.208	0.120	0.014
Solvency ratio	0.166	0.098	0.010
Dividend yield ratio	0.031	0.025	0.001
EPS	35.99	54.61	2982
Firm size	3.284	0.534	0.285
Earning volatility ratio	0.140	0.112	0.013
Long term debt to equity	0.125	0.182	0.033
Firm value	6.598	5.116	26.17

Source: Computed Data

It can be observed from Table 4, that the long term debt ratio showed a mean of 0.063 and standard deviation 0.076 implies higher deviation in long

term debt capital. Total debt ratio has a mean of 0.325 with a standard deviation of 0.212. It implies consistency in total debt value. Return on asset 0.006 and return on equity 0.011 variance signifies consistency in earnings. The growth ratio has a mean of 0.516 and a variance of 24.81. Risk showed a mean 16.35 and standard deviation 47.04 indicating higher fluctuation in market price per share and a low dividend payout. Liquidity ratio shows a mean of 2.3 and Cash holdings indicates a standard deviation of 0.120.

Earnings per share has a mean of 35.99 and standard deviation 54.61, indicating higher fluctuation in earnings. It also implies better earning capacity of the companies, to distribute better profits to its shareholders. The firm size showed a mean of 3.284 with a standard deviation of 0.534. It denotes consistency and good amount of sales during the study period. The long term debt to equity shows a mean of 0.125 and variance 0.033 indicating fluctuation and a higher degree of business risk to meet the company's principal and interest obligations. Firm value has a mean of 6.598 with a variance of 26.17 implies consistency and a better company value of cement companies. All other variables portrayed consistency during the study period.

C. PAINT INDUSTRY

The results of descriptive statistical analysis for four companies belonging to paint industry in India for ten years from 2007-08 to 2016-17 are exposed in the following Table 5.

Table 5

Descriptive statistics of Paint Industry

Variables	Mean	S.D	Variance
Long term debt Ratio	0.435	0.278	0.085
Short term debt Ratio	0.337	0.190	0.029
Total debt Ratio	1.39	0.442	0.474
Return on Asset	3.66	0.335	0.172
Return on Equity	5.648	4.027	7.45
Growth	23.59	6.79	4.444
Risk	12.78	7.907	15.40

Variables	Mean	S.D	Variance
Asset Tangibility	18.5	6.15	23.17
Non-debt tax shields	16.01	6.217	22.62
Liquidity ratio	16.53	5.44	15.26
Dividend payout ratio	13.21	4.052	9.48
Leverage	12.28	5.912	8.195
Cash holdings	8.763	9.944	20.16
Solvency ratio	11.06	9.23	13.34
Dividend yield ratio	167.5	124.2	25563
EPS	29.11	19.88	561.1
Firm size	3.344	0.204	0.042
Earning volatility ratio	0.002	0.001	0.003
Long term debt to equity	0.131	0.103	0.076
Firm value	2.751	1.838	3.379

Source: Computed Data

It is inferred from Table 5, that the Long term debt ratio has a mean of 0.435 with a standard deviation of 0.278 and total debt had variance 0.474. It shows consistency of debt capital. The Return on Asset has a mean of 3.66 with a standard deviation of 0.335. It specifies consistency and better ability of the companies to earn profits efficiently using its assets. Dividend payout ratio mean, 13.21 showed consistency and higher issue of dividend by the paint companies throughout the study period. Cash holdings had mean 8.763 with a standard deviation 9.944. It inferred higher fluctuation in holding of most liquid cash that are used for routine expenditures. The companies should avoid holding of excess cash.

Earning volatility had a mean 0.002 with variance 0.003 indicating consistency in earnings of the companies. Firm value has a mean of 2.751 with a standard deviation of 1.838 denotes consistency and a good company value of paint companies in India. The variables such as growth, asset tangibility, EPS, firm size, leverage, non-debt tax shields, liquidity, solvency and long term debt to equity showed consistency during the study period.

D. GRANITE INDUSTRY

The descriptive statistical analysis for four companies belonging to granite industry in India are computed for ten years from 2007-08 to 2017-18. The results are presented in the following Table 6.

Table 6

Descriptive statistics of Granite Industry

	Mean	S.D	Variance
Long term debt Ratio	0.020	0.044	0.002
Short term debt Ratio	0.101	0.088	0.008
Total debt Ratio	0.220	0.199	0.040
Return on Asset	0.089	0.08	0.006
Return on Equity	0.114	0.085	0.007
Growth	1.754	1.829	3.343
Risk	15.73	18.54	343.7
Asset Tangibility	0.331	0.144	0.021
Non-debt tax shields	0.081	0.263	0.069
Liquidity ratio	5.423	3.0	9.005
Dividend payout ratio	0.004	0.007	0.00
Leverage	0.220	0.199	0.040
Cash holdings	0.261	0.207	0.043
Solvency ratio	0.185	0.169	0.028
Dividend yield ratio	0.017	0.013	0.00
EPS	7.632	4.536	20.57
Firm size	1.842	0.304	0.092
Earning volatility ratio	0.122	0.081	0.007
Long term debt to equity	0.036	0.082	0.007
Firm value	2.931	3.963	15.70

Source: Computed Data

It is revealed from the Table 6, that the Long term debt ratio has a mean of 0.020 with a standard deviation of 0.044. It infers fluctuation in long term debt capital. Return on asset showed a mean 0.089 with standard

deviation 0.08 and return on equity showed a variance of 0.007 implying better consistency in earnings. Growth ratio is having a mean of 1.754 with standard deviation 1.829 infers deviation in market price per share and a low dividend payout. Risk had a mean 15.73 and standard deviation 18.54 indicating higher fluctuation in market price per share and a low dividend payout. Non-debt tax shields has a mean of 0.081 with a variance of 0.069. It shows a fluctuation in depreciation because of varying units of production.

Liquidity ratio has a mean of 5.423 denoting a consistent liquidity position of the companies, to meet their regular financial obligations. Dividend yield ratio has a mean of 0.017 with a standard deviation of 0.013, signifies a consistent dividend distribution. The long term debt to equity shows standard deviation 0.082 specifying deviation and a higher degree of business risk to meet the company's principal and interest obligations. Firm value has a mean of 2.931 with a variance of 15.7 indicates deviation in market price of shares of granite companies. The remaining variables such as liquidity, leverage, cash holdings, EPS and firm size denoted consistency during the study period.

E. CERAMIC TILES INDUSTRY

The results of descriptive statistical analysis of variables for three companies belonging to ceramic tiles industry in India for ten years period from 2007-08 to 2016-17 are portrayed in the following Table 7.

Table 7

Descriptive statistics of Ceramic tiles Industry

	Mean	S.D	Variance
Long term debt Ratio	0.066	0.058	0.003
Short term debt Ratio	0.108	0.067	0.004
Total debt Ratio	0.466	0.191	0.037
Return on Asset	0.080	0.066	0.004
Return on Equity	0.145	0.091	0.008
Growth	0.043	2.749	7.559
Risk	9.802	10.66	113.7

Variables	Mean	S.D	Variance
Asset Tangibility	0.624	0.190	0.036
Non-debt tax shields	0.083	0.070	0.005
Liquidity ratio	1.801	0.581	0.338
Dividend payout ratio	0.109	0.096	0.009
Leverage	0.466	0.191	0.037
Cash holdings	0.134	0.085	0.007
Solvency ratio	0.381	0.116	0.013
Dividend yield ratio	0.059	0.179	0.032
EPS	7.710	5.412	29.29
Firm size	2.924	0.309	0.096
Earning volatility ratio	0.115	0.092	0.009
Long term debt to equity	0.154	0.143	0.020
Firm value	1.462	0.239	0.057

Source: Computed Data

It is found out from Table 7 that, total debt ratio mean is 0.466 with standard deviation 0.191 signifies consistency in debt funds. Return on asset showed a standard deviation 0.066 and return on equity had variance 0.008 denotes consistency in earnings. Growth ratio is having a mean of 0.043 with a variance of 7.56. It shows fluctuation in market price per share and a low dividend payout of the companies. Risk had a mean 9.802 with standard deviation 10.66 indicating higher deviation in market price per share and a low dividend payout. Dividend payout ratio has a mean of 0.109 implies consistency in dividend distribution.

Dividend yield showed a variance 0.032 denotes deviation in market price per share. Firm size has a mean of 2.924 with a variance of 0.096 depicted consistency in sales. Earnings volatility mean is 0.115 with a standard deviation of 0.092 indicates less variation in earnings during the period of study. Firm value has a mean of 1.462 with a standard deviation of 0.239 implies consistency and a better company value of ceramic tiles

companies in India. The remaining variables such as liquidity, leverage, solvency, EPS, firm size indicated consistency during the study period.

4.1.2 MULTIPLE REGRESSION ANALYSIS

To reveal the relationship between the dependent and the independent variables of capital structure and dividend decisions and to find the influencing factors multiple regression analysis is computed.

A. STEEL INDUSTRY

The factors influencing the capital structure and dividend decisions of the selected steel companies are analysed using multiple regression analysis. Table 8 and 9 exhibits the results of multiple regression analysis of Steel companies for the period 2007-08 to 2016-17. The model framed to assess the factors influencing the capital structure and dividend decisions of steel industry is specified as,

$$LTDR + STDR + TDR = \beta_0 + \beta_1 ROA + \beta_2 ROE + \beta_3 GR + \beta_4 RK + \beta_5 AT + \beta_6 FS + \beta_7 EV + \beta_8 NDTS + \beta_9 LR + ei \quad \text{(i)}$$

$$DPR = \beta_0 + \beta_1 ROA + \beta_2 ROE + \beta_3 EPS + \beta_4 RK + \beta_5 GR + \beta_6 LVG + \beta_7 FS + \beta_8 CH + \beta_9 LR + \beta_{10} S + ei \quad \text{(ii)}$$

Table 8

Multiple Regression Analysis for Capital Structure Factors - Steel Industry

Variables	Beta Coefficients	T (LTDR)	Sig.	Beta Coefficients	T (STDR)	Sig.	Beta Coefficients	T(TDR)	Sig.
(Constant)	0.090	1.984	0.052	0.076	1.290	0.202	0.090	1.049	0.298
ROA	-1.112	-2.227	**0.030**	0.084	0.129	0.898	-4.663	-4.923	**0.00**
ROE	0.598	2.093	**0.041**	0.301	0.809	**0.002**	3.468	6.394	**0.00**
GR	0.00	-0.535	0.595	0.205	0.096	0.924	-0.001	-1.484	0.143
RK	0.00	0.362	0.719	0.001	0.895	0.375	0.00	0.344	0.732

Variables	Beta Coefficients	T (LTDR)	Sig.	Beta Coefficients	T (STDR)	Sig.	Beta Coefficients	T (TDR)	Sig.
AT	-0.120	-1.812	0.075	-0.002	-0.019	0.985	-0.070	-0.556	0.580
FS	0.046	5.254	**0.00**	-0.004	-0.344	0.732	0.022	1.307	0.196
EV	0.073	0.306	0.760	-0.129	-0.418	0.678	-0.303	-0.675	0.502
NDTS	-0.868	-1.048	0.299	-0.078	-0.073	0.942	1.954	1.244	0.219
LR	-0.011	-2.113	**0.039**	0.003	0.488	0.627	0.056	5.644	**0.00**

Source: Computed Data

In Table 8, the results depicts return on asset having -111.2 per cent impact on long term debt and -466.3 per cent on total debt. Return on equity showing positive association with Long term debt at 59.8 per cent and Short term debt 30 per cent, implying negative association. Firm size shows 4.6 per cent association with long term debt ratio. Liquidity ratio reveals -1.1 per cent association with long term debt ratio and 5.6 per cent with Total debt during the period of study. The analysis reveals that most of the significant independent variables holds good association with Long term debt.

As the steel companies with the increase of return on equity, they had increased debt capital and reserves during the study period. The multiple regression analysis indicates long term debt ratio having R square value of 62 per cent, short term debt ratio with R square value 17 per cent and total debt ratio R square value 76.4 per cent and the relations are explained with the capital structure influencing factors. The steel industry reveals return on asset, return on equity, firm size and liquidity ratio as the capital structure influencing factors and hence the following equations are derived.

LTDR = 0.090 - 1.112 ROA + 0.598 ROE + 0.046 FS - 0.011 LR

STDR = 0.090 + 0.301 ROE

TDR = 0.090 - 4.663 ROA + 3.468 ROE + 0.056 LR

Table 9

Multiple Regression Analysis for Dividend Decision Factors – Steel Industry

Variables	Beta Coefficients	T(DPR)	Sig.
(Constant)	0.039	1.929	0.059
ROA	-0.243	-1.192	0.238
ROE	0.328	1.995	0.051
EPS	0.00	0.272	0.787
RK	0.003	15.65	**0.00**
GR	0.00	1.357	0.180
LVG	-0.010	-0.305	0.761
FS	-0.019	-2.780	**0.007**
CH	0.010	0.246	0.806
LR	-0.010	-2.857	**0.006**
S	-0.027	-0.806	0.423

Source: Computed Data

From Table 9, risk shows mild positive association, firm size implies 1.9 per cent negative association and Liquidity ratio showing 1 per cent association with the Dividend payout of steel companies in India during study period. It indicates that during increase in sales and liquidity, the steel companies reduced dividend payout and retained the funds. The multiple regression analysis shows R square value of 88.6 per cent relation explained with Dividend payout ratio and dividend decision factors. Risk, firm size and liquidity ratio are derived as the dividend decision influencing factors of steel industry and hence the following equation is derived.

DPR = 0.039 + 0.003 RK - 0.019 FS – 0.010 LR

B. CEMENT INDUSTRY

The factors influencing the capital structure and dividend decisions of the selected cement companies are analysed using multiple regression analysis. The following Table 10 and 11 exhibits the multiple regression results of Cement companies for the period 2007-08 to 2016-17. The model framed to assess the factors influencing the capital structure and dividend decisions of cement industry is specified as,

$$LTDR + STDR + TDR = \beta_0 + \beta_1 ROA + \beta_2 ROE + \beta_3 GR + \beta_4 RK + \beta_5 AT + \beta_6 FS + \beta_7 EV + \beta_8 NDTS + \beta_9 LR + ei \quad \text{(i)}$$

$$DPR = \beta_0 + \beta_1 ROA + \beta_2 ROE + \beta_3 EPS + \beta_4 RK + \beta_5 GR + \beta_6 LVG + \beta_7 FS + \beta_8 CH + \beta_9 LR + \beta_{10} S + ei \quad \text{(ii)}$$

Table 10

Multiple Regression Analysis for Capital Structure Factors - Cement Industry

Variables	Beta Coefficients	T(LTDR)	Sig.	Beta Coefficients	T(STDR)	Sig.	Beta Coefficients	T(TDR)	Sig.
(Constant)	0.044	0.752	0.454	0.364	6.194	0.00	0.598	6.421	0.00
ROA	-1.215	-3.516	**0.001**	0.309	0.883	0.379	-4.816	-8.668	**0.00**
ROE	0.736	6.172	**0.00**	0.048	0.394	0.695	2.827	14.74	**0.00**
GR	-0.001	-0.413	0.680	-0.001	-0.798	0.426	-0.003	-1.302	0.196
RK	0.00	1.068	0.288	0.00	0.230	0.818	0.00	2.209	**0.029**
AT	-0.003	-0.113	0.910	-0.032	-1.113	0.268	0.087	1.875	0.063
FS	0.002	0.165	0.869	-0.087	-6.008	**0.00**	-0.059	-2.566	**0.012**
EV	0.247	1.217	0.226	0.030	0.147	0.883	0.182	0.559	0.577
NDTS	-0.402	-1.992	**0.049**	0.435	2.125	**0.036**	-0.609	-1.876	0.063
LR	0.004	0.796	0.428	-0.008	-1.613	0.110	-0.032	-4.108	**0.00**

Source: Computed Data

In Table 10, the analysis implies Return on Asset having -121.5 per cent association with Long term debt and -481.6 per cent Total debt. Return on equity shows 73.6 per cent association with Long term debt. Firm size holds -8.7 per cent association with Short term debt and -5.9 percent with total debt. This reveals that as sales and profit increases, they tend to pay off the debts. Non-debt tax shields has negative impact of 40 per cent on Long term debt.

The analysis indicates that with the increased return on equity, the cement companies instead of issuing increased dividend, prone to issue new debentures and retain funds as reserves. The multiple regression analysis indicates long term debt ratio having R Square value of 27.9 per cent, short term debt ratio showing R Square value at 37.4 per cent and total debt ratio with R Square value of 75.8 per cent relations are explained with the capital structure influencing factors. On observing cement industry, the factors that determines capital structure are return on asset, return on equity, risk, firm size, non-debt tax shields and liquidity ratio and hence the following equations are derived.

LTDR = 0.044 - 1.215 ROA + 0.736 ROE - 0.402 NDTS

STDR = 0.044 - 0.087 FS + 0.435 NDTS

TDR = 0.044 - 4.816 ROA + 2.827 ROE + 0.00 RK - 0.059 FS - 0.032 LR

Table 11

Multiple Regression Analysis for Dividend Decision Factors – Cement Industry

Variables	Beta Coeffi cients	T(DPR)	Sig.
(Constant)	0.006	0.988	0.325
ROA	-0.022	-0.948	0.345
ROE	0.015	0.972	0.333
EPS	0.00	-2.154	**0.033**
RK	0.00	9.517	**0.00**
GR	0.00	-0.322	0.748

Variables	Beta Coeffi cients	T(DPR)	Sig.
LVG	-0.005	-1.019	0.310
FS	-0.001	-0.546	0.586
CH	0.003	0.556	0.579
LR	-0.001	-1.540	0.126
S	0.006	0.976	0.331

Source: Computed Data

From Table 11, the dividend payout factors, earnings per share and risk have very lesser impact on the dividend decisions of cement companies during the study period. The analysis results reveals that cement companies declare nominal dividends at the time of increase in returns and holdings of cash and cash equivalents. They also tend to retain a portion of profits as reserves. The multiple regression analysis shows R Square value of 51.4 per cent relation explained between Dividend payout ratio and dividend decision factors. Earnings per share and risk are the factors that influences mildly the dividend decisions of cement industry and hence the equation is derived as,

DPR = 0.006 + EPS + RK

C. PAINT INDUSTRY

The factors influencing the capital structure and dividend decisions of the selected Paint companies are analysed using multiple regression analysis. The following Table 12 and 13 exhibits the multiple regression results of Paint companies for the period 2007-08 to 2016-17. The model framed to assess the factors influencing the capital structure and dividend decisions of paint industry is specified as,

$$LTDR + STDR + TDR = \beta_0 + \beta_1 ROA + \beta_2 ROE + \beta_3 GR + \beta_4 RK + \beta_5 AT + \beta_6 FS + \beta_7 EV + \beta_8 NDTS + \beta_9 LR + ei \quad \text{(i)}$$

$$DPR = \beta_0 + \beta_1 ROA + \beta_2 ROE + \beta_3 EPS + \beta_4 RK + \beta_5 GR + \beta_6 LVG + \beta_7 FS + \beta_8 CH + \beta_9 LR + \beta_{10} S + ei \quad \text{(ii)}$$

Table 12

Multiple Regression Analysis for Capital Structure Factors - Paint Industry

Variables	Beta Coefficients	T(LTDR)	Sig.	Beta Coefficients	T(STDR)	Sig.	Beta Coefficients	T(TDR)	Sig.
(Constant)	3.270	2.039	0.044	6.241	5.069	0.000	2.559	2.327	0.022
ROA	-0.079	-0.021	0.083	-0.476	-1.285	0.004	0.188	2.584	**0.011**
ROE	-0.114	-0.875	**0.004**	0.377	-0.429	0.669	0.079	1.018	0.311
GR	-0.154	-0.984	0.328	-0.517	0.903	0.369	0.014	-0.680	0.498
RK	0.133	-0.077	0.938	0.289	0.844	0.401	0.096	-1.421	0.158
AT	0.065	1.730	**0.017**	0.195	-0.126	0.900	-0.010	-1.615	0.110
FS	-0.099	-0.437	0.663	-0.252	1.651	**0.002**	-0.014	0.541	0.590
EV	-0.076	-0.054	0.957	-0.014	0.228	0.820	0.158	-0.397	0.692
NDTS	0.133	0.349	**0.008**	-0.209	-1.488	0.140	-0.246	1.986	**0.050**
LR	0.074	0.800	0.426	-0.038	-0.080	**0.036**	-0.319	0.403	0.688

Source: Computed Data

In Table 12, return on asset shows 18.8 per cent influence on total debt and Return on equity 11.4 per cent association with long term debt. Asset tangibility holds 6.5 per cent and Non debt tax shields 13.3 per cent positive association with long term debt. It reveals that the assets are purchased using debt capital. Firm size shows -25 per cent and Liquidity ratio at -3.8 per cent association with short term debt. Non-debt tax shields shows 13.3 per cent positive impact on long term debt and 24.6 per cent negative association with total debt. The paint companies increased their equity capital to a certain limit and the reserves are increased every year. The debentures are redeemed throughout the study period.

The analysis also reveals that the assets are purchased with the shareholders' funds and depreciable values are funded with long term debt. The multiple regression analysis indicates long term debt ratio having R Square value of 12.2 per cent, short term debt ratio R Square value of 8.3 per

cent and total debt ratio R Square value at 12.9 per cent relations are explained with the capital structure influencing factors. In case of paint industry, return on asset, return on equity, asset tangibility, firm size, non-debt tax shields and liquidity ratio are revealed as capital structure influencing factors and hence the following equations are derived.

LTDR = 3.270 - 0.114 ROE + 0.0065 AT + 0.133 NDTS
STDR = 3.270 - 0.252 FS - 0.038 LR
TDR = 3.270 + 0.188 ROA - 0.246 NDTS

Table 13

Multiple Regression Analysis for Dividend Decision Factors – Paint Industry

Variables	Beta Coefficients	T(DPR)	Sig.
(Constant)	2.558	5.686	0.000
ROA	0.045	0.691	0.991
ROE	0.014	0.154	0.878
EPS	-0.047	-0.800	**0.026**
RK	-0.076	-0.167	0.868
GR	0.120	-1.010	0.315
LVG	-0.066	-1.384	0.169
FS	-0.082	1.267	**0.008**
CH	0.025	0.612	0.542
LR	0.067	-0.421	0.675
S	0.064	0.981	0.329

Source: Computed Data

From Table 13, earnings per share implies -4.7 per cent association and Firm size holds -0.8 percent association with the dividend payout of the paint companies in India. The analysis reveals that the dividends are issued at times of better liquidity position, to avoid idle cash holdings. The multiple regression analysis shows R Square value of 15.2 per cent relation explained with dividend payout and the dividend decision influencing factors. Earnings

per share and firm size are arrived as dividend decision influencing factors of paint industry and hence the following equation is derived.

DPR = 2.558 - 0.047 EPS - 0.082 FS

D. GRANITE INDUSTRY

The factors influencing the capital structure and dividend decisions of the selected Granite companies are analysed using multiple regression analysis. The following Table 14 and 15 exhibits the multiple regression results of Granite companies for the period 2007-08 to 2016-17. The model framed to assess the factors influencing the capital structure and dividend decisions of granite industry is specified as,

$$LTDR + STDR + TDR = \beta_0 + \beta_1 ROA + \beta_2 ROE + \beta_3 GR + \beta_4 RK + \beta_5 AT + \beta_6 FS + \beta_7 EV + \beta_8 NDTS + \beta_9 LR + ei \quad \text{(i)}$$

$$DPR = \beta_0 + \beta_1 ROA + \beta_2 ROE + \beta_3 EPS + \beta_4 RK + \beta_5 GR + \beta_6 LVG + \beta_7 FS + \beta_8 CH + \beta_9 LR + \beta_{10} S + ei \quad \text{(ii)}$$

Table 14

Multiple Regression Analysis for Capital Structure Factors - Granite Industry

Variables	Beta Coefficients	T (LTDR)	Sig.	Beta Coefficients	T (STDR)	Sig.	Beta Coefficients	T (TDR)	Sig.
(Constant)	-0.082	-0.908	0.371	0.498	2.643	0.013	-0.099	-0.469	0.643
ROA	-0.818	-1.900	0.067	0.649	0.720	0.477	-4.344	-4.305	**0.00**
ROE	0.784	2.335	**0.026**	-0.510	-0.726	0.474	3.986	5.064	**0.00**
GR	0.005	0.664	0.512	0.001	0.054	0.957	-0.013	-0.774	0.445

Variables	Beta Coefficients	T (LTDR)	Sig.	Beta Coefficients	T (STDR)	Sig.	Beta Coefficients	T (TDR)	Sig.
RK	0.00	0.719	0.478	-0.001	-0.853	0.400	-0.001	-0.757	0.455
AT	-0.025	-0.383	0.705	0.084	0.617	0.542	0.338	2.219	**0.034**
FS	0.047	1.293	0.206	-0.208	-2.720	**0.011**	0.092	1.075	0.291
EV	0.106	0.863	0.395	-0.566	-2.191	**0.036**	-0.277	-0.959	0.345
NDTS	-0.018	-0.682	0.500	0.066	1.176	0.249	0.142	2.279	**0.030**
LR	-0.003	-1.130	0.267	0.006	0.945	0.352	0.005	0.671	0.507

Source: Computed Data

In Table 14, return on asset shows -4.344 per cent impact on total debt, return on equity possess 78.4 per cent strong association with Long term debt. Asset tangibility shows 33.8 per cent association with Total debt and Firm size reveals -20.8 per cent association with short term debt. Earnings volatility shows -56.6 per cent association with short term debt and Non-debt tax shields shows 14.2 per cent positive association with total debt.

The analysis results denotes that the granite companies had issued new debentures with the increased returns on equity. Since the sales and profit raises, they maintained equity capital and increased the reserves during the study period. The multiple regression analysis indicates long term debt ratio having R Square value of 50.2 per cent, short term debt ratio with R Square value 45.4 per cent and total debt ratio having R Square value 86.7 per cent relations are explained with the capital structure influencing factors. It is revealed that return on asset, return on equity, asset tangibility, firm size, earning volatility and non-debt tax shields are the capital structure influencing factors of granite industry and hence the following equations are derived.

LTDR = - 0.082 + 0.784 ROE

STDR = - 0.082 - 0.208 FS - 0.566 EV

TDR = - 0.082 - 4.344 ROA +3.986 ROE + 0.338 AT + 0.142 NDTS

Table 15

Multiple Regression Analysis for Dividend Decision Factors – Granite Industry

Variables	Beta Coeffi cients	T(DPR)	Sig.
(Constant)	0.041	2.763	0.010
ROA	-0.028	-0.409	0.686
ROE	-0.030	-0.492	0.627
EPS	0.00	0.042	0.967
RK	0.00	0.736	0.467
GR	-0.003	-2.669	**0.012**
LVG	0.012	1.171	0.251
FS	-0.016	-2.282	**0.030**
CH	-0.003	-0.409	0.685
LR	-0.001	-1.170	0.251
S	0.021	2.746	**0.010**

Source: Computed Data

From Table 15, firm size shows - 1.6 per cent and solvency ratio shows 2.1 per cent impact on dividend payout, whereas the other independent variables does not significantly influence the dividend payout. The analysis reveals that with the increase in sales, the granite companies increased the reserves rather than issuance of dividends. They had increased the dividend payout, only at times of good solvency position. The multiple regression analysis indicates R Square value of 62.9 per cent of relation are explained with the dividend payout and dividend decision factors. Growth, firm size and solvency ratios are arrived as the dividend decision influencing factors of granite industry and hence the following equation is derived.

DPR = 0.041 – 0.003 GR – 0.016 FS + 0.021 S

E. CERAMIC TILES INDUSTRY

The factors influencing the capital structure and dividend decisions of the selected Ceramic Tile companies are analysed using multiple regression analysis. The following Table 16 and 17 exhibits the multiple regression results of Ceramic Tiles companies for the period 2007-08 to 2016-17. The model framed to assess the factors influencing the capital structure and dividend decisions of ceramic tiles industry is specified as,

$$LTDR + STDR + TDR = \beta_0 + \beta_1 ROA + \beta_2 ROE + \beta_3 GR + \beta_4 RK + \beta_5 AT + \beta_6 FS + \beta_7 EV + \beta_8 NDTS + \beta_9 LR + ei \quad \text{——— (i)}$$

$$DPR = \beta_0 + \beta_1 ROA + \beta_2 ROE + \beta_3 EPS + \beta_4 RK + \beta_5 GR + \beta_6 LVG + \beta_7 FS + \beta_8 CH + \beta_9 LR + \beta_{10} S + ei \quad \text{———— (ii)}$$

Table 16

Multiple Regression Analysis for Capital Structure Factors - Ceramic Tiles Industry

Variables	Beta Coefficients	T (LTDR)	Sig.	Beta Coefficients	T (STDR)	Sig.	Beta Coefficients	T (TDR)	Sig.
(Constant)	0.417	2.304	0.032	-0.056	-0.312	0.758	0.824	5.769	0.00
ROA	-0.841	-0.672	0.509	-1.083	-0.874	0.393	-6.315	-6.395	**0.00**
ROE	-0.035	-0.132	0.897	1.013	3.883	**0.001**	1.647	7.922	**0.00**
GR	0.001	0.589	0.562	0.00	0.172	0.865	0.00	-0.152	0.881
RK	-0.010	-0.127	0.900	-0.189	-2.316	**0.031**	0.166	2.556	**0.019**
AT	-0.117	-2.236	**0.037**	0.048	0.918	0.370	-0.172	-4.162	**0.00**
FS	0.644	0.801	0.433	0.045	0.056	0.956	2.083	3.282	**0.004**
EV	0.029	0.140	0.890	0.186	0.907	0.375	-0.535	-3.282	**0.004**
NDTS	-0.003	-0.316	**0.050**	0.013	1.436	0.166	-0.035	-4.819	**0.00**
LR	-0.008	-0.371	0.715	0.033	1.460	0.160	0.061	3.423	**0.003**

Source: Computed Data

As portrayed in Table 16, return on asset shows - 631 per cent association with total debt. It implies that with the increased returns, the debts are redeemed and reserves are accumulated. Risk indicates -18.9 per cent impact on short term debt and 16.6 per cent association with total debt. Asset tangibility shows -11.7 per cent influence on long term debt and -17.2 per cent association with total debt. It denotes that the assets are purchased using share holders' funds. Earnings volatility has -53.5 per cent impact on total debt.

Liquidity ratio possess 6 per cent influence on total debt. The ceramic tiles companies during raise of sales and earnings, paid off short term debts. While the market price of shares fall, they issued new debentures in order to pay a good return to the investors. The multiple regression analysis indicates long term debt ratio having R Square value of 44.3 per cent, short term debt ratio R Square value of 58.6 per cent and total debt ratio showing R Square of 96.8 per cent relations are explained with the capital structure influencing factors. While analysing ceramic tiles industry, the factors such as return on asset, return on equity, Risk, asset tangibility, firm size, earning volatility, non-debt tax shields and liquidity ratio significantly influences the capital structure and hence the following equations are derived.

LTDR = 0.417 - 0.117 AT - 0.003 NDTS

STDR = 0.417 +1.013 ROE - 0.189 RK

TDR = 0.417 - 6.315 ROA + 1.647 ROE + 0.166 RK - 0.172 AT + 2.083 FS - 0.535 EV - 0.035 NDTS +0.061 LR

Table 17

Multiple Regression Analysis for Dividend Decision Factors – Ceramic Tiles Industry

Variables	Beta Coefficients	T(DPR)	Sig.
(Constant)	0.259	0.976	0.341
ROA	-0.156	-0.082	0.936
ROE	-0.365	-0.744	0.466

Variables	Beta Coefficients	T(DPR)	Sig.
EPS	0.00	-0.115	0.910
RK	0.034	0.462	**0.039**
GR	0.590	0.503	0.621
LVG	-0.005	-0.413	0.684
FS	-0.016	-0.319	0.753
CH	-0.466	-2.087	**0.050**
LR	-0.160	-0.713	0.484
S	-0.013	-2.853	**0.010**

Source: Computed Data

From Table 17, Risk shows 3.4 percent, Cash holdings shows -46.6 per cent and Solvency ratio implies -1.3 per cent influence on dividend payout ratio. The analysis reveals that most of the significant independent variables holds negative association with dividend payout during the period of study. The analysis reveals that through the raise of market price and earnings, the ceramic tiles companies made dividend payments. As the cash holdings and short term liabilities raise, the companies had reduced dividend payouts and concentrated in retaining profits as reserves. The multiple regression analysis indicates R Square value of 63.8 per cent of relation are explained with dividend payout and dividend decision factors. Risk, cash holdings and solvency are implied as the dividend decision influencing factors of ceramic tiles industry and hence the following equation is derived.

DPR = 0.259 +0.034 RK – 0.466 CH – 0.013 S

4.2 Impact of capital structure on the firm value

The capitalisation ratio significantly impacts on several financial aspects of a firm such as required rate of return, cost of capital, earnings per share, wealth of the firm, firm value, dividend policies etc. An optimal capital structure strategy leads to minimize the overall cost of capital and maximize the firm value. The impact of capital structure on the firm value of selected construction associated industries are computed to reveal the relationship between capital structure variables and firm value using Pearson Correlation analysis.

The following variables are considered to analyse the relationship between capital structure variables and firm value.

(i) Dependent variable - Firm value

(ii) Independent Variables - Long term debt to asset (LTDA), Long term debt to equity (LTDE)

HYPOTHESIS

H0: There is no significant impact of capital structure on the firm value of select construction associated companies

A. STEEL INDUSTRY

The impact of capital structure on the firm value of the selected Steel Companies are analyzed using Correlation analysis and are presented in the following Table 18.

Table 18

Correlation analysis of Steel Companies for 2007-08 to 2016-17

			Long term debt to asset	Long term debt to equity
Hisar	**Firm value**	Pearson Correlation	-0.896**	-0.797**
		Sig. (2-tailed)	0.00	0.006
JSW	**Firm value**	Pearson Correlation	0.787**	0.695*
		Sig. (2-tailed)	0.007	0.026

			Long term debt to asset	Long term debt to equity
Kirloskar	**Firm value**	Pearson Correlation	0.815**	0.770**
		Sig. (2-tailed)	0.004	0.009
Rishabh	**Firm value**	Pearson Correlation	-0.244	-0.213
		Sig. (2-tailed)	0.316	0.555
Sardha	**Firm value**	Pearson Correlation	0.710*	0.600
		Sig. (2-tailed)	0.021	0.067
Tata sponge	**Firm value**	Pearson Correlation	-0.041	0.160
		Sig. (2-tailed)	0.911	0.658
Tata	**Firm value**	Pearson Correlation	-0.710*	-0.735*
		Sig. (2-tailed)	0.021	0.015

*Correlation is significant at 0.05 level (2-tailed)

** Correlation is significant at 0.01 level (2-tailed)

Source: Computed Data

It is observed from Table 18 that, LTDA (r = 0.896) and LTDE (r = -0.797) have been negatively correlated with firm value, showing significance at 1 per cent level, in Hisar steel. In JSW steel, LTDA (r = 0.787) having significance at 1 per cent level and LTDE (r = 0.695) showing significance at 5 per cent level, are correlated with the firm value. LTDA (r = 0.896) and LTDE (r = 0.797) are correlated with firm value, showing significance at 1 per cent level in Kirloskar. It indicates that an increase in debt capital, leads to an increase in firm value of Kirloskar and JSW. In case of Sardha steels, LTDA shows correlation with firm value (r = 0.710) with significance at 5 per cent level. In Tata steel, LTDA (r = 0.710) and LTDE (r = 0.735) are found to be negatively correlated with firm value, showing significance at 5 per cent level. This implies that an increase in debt capital would reduce its firm value of Tata steel.

The Correlation analysis results reveals that there exists a higher impact of capital structure on the firm value with Hisar, JSW, Kirloskar, Sarda and Tata steel companies (showing significance at either 5 per cent or 1 per

cent). Hence, the null hypothesis is rejected. Among Rishabh and Tata sponge steel companies, there does not exist any impact of capital structure on the firm value during study period.

B. CEMENT INDUSTRY

The impact of capital structure on the firm value of the selected Cement Companies are examined using Correlation analysis and are shown in the following Table 19.

Table 19

Correlation analysis of Cement Companies for 2007-08 to 2016-17

			Long term debt to asset	Long term debt to equity
ACC	**Firm value**	Pearson Correlation	-0.611	-0.647*
		Sig. (2-tailed)	0.061	0.043
Ambuja	**Firm value**	Pearson Correlation	-0.615	-0.608
		Sig. (2-tailed)	0.059	0.062
Birla	**Firm value**	Pearson Correlation	-0.690*	-0.579
		Sig. (2-tailed)	0.027	0.080
Deccan	**Firm value**	Pearson Correlation	-0.212	0.380
		Sig. (2-tailed)	0.557	0.279
JK	**Firm value**	Pearson Correlation	-0.577	-0.338
		Sig. (2-tailed)	0.081	0.340
J.K Lakshmi	**Firm value**	Pearson Correlation	0.201	0.302
		Sig. (2-tailed)	0.577	0.397
Kakatiya	**Firm value**	Pearson Correlation	0.887**	0.862**
		Sig. (2-tailed)	0.001	0.001
KCP	**Firm value**	Pearson Correlation	0.381	0.657*
		Sig. (2-tailed)	0.277	0.039

			Long term debt to asset	Long term debt to equity
Mangalam	**Firm value**	Pearson Correlation	-0.431	-0.344
		Sig. (2-tailed)	0.213	0.331
OCL India	**Firm value**	Pearson Correlation	-0.604	-0.592
		Sig. (2-tailed)	0.064	0.071
Ramco	**Firm value**	Pearson Correlation	-0.638*	-0.772**
		Sig. (2-tailed)	0.047	0.009
Shree	**Firm value**	Pearson Correlation	-0.417	-0.701*
		Sig. (2-tailed)	0.230	0.024

*Correlation is significant at 0.05 level (2-tailed)

** Correlation is significant at 0.01 level (2-tailed)

Source: Computed Data

It is revealed from Table 19 that, LTDE (r = -0.647) is found to be correlated with firm value, significant at 5 per cent level in ACC cements. LTDA (r = -0.690) has been correlated with firm value in Birla, significant at 5 per cent level. LTDA (r = 0.887) and LTDE (r = 0.862) are correlated with firm value in Kakatiya cements, showing significance at 1 per cent level respectively. It specifies that an increase in debt capital, leads to an increase in firm value of Kakatiya. In KCP, LTDE (r = -0.647) and in Shree cements LTDE (r = -0.701) have been correlated with firm value, significant at 5 per cent level respectively. LTDA (r = 0.638), significant at 5 per cent level and LTDE (r = 0.772) significant at 1 per cent level are found to be negatively correlated with firm value in Ramco. It denotes that an increase in debt, would reduce the firm value of Ramco cements.

The analysis results indicates that there exists higher impact of capital structure on the firm value in ACC, Birla, Kakatiya, KCP, Ramco and Shree cements (showing significance at either 5 per cent or 1 per cent). Hence, the null hypothesis is rejected. In case of Ambuja, JK, Deccan, JK Lakshmi, OCL, and Mangalam cements there does not exist any impact of capital structure on the firm value during the period of study.

C. PAINT INDUSTRY

The impact of capital structure on the firm value of the selected Paint Companies are computed using Correlation analysis and are presented in the following Table 20.

Table 20

Correlation analysis of Paint Companies for 2007-08 to 2016-17

			Long term debt to asset	Long term debt to equity
Akzo Nobel	**Firm value**	Pearson Correlation	0.479	0.467
		Sig. (2-tailed)	0.124	0.174
Asian	**Firm value**	Pearson Correlation	-0.759*	-0.672*
		Sig. (2-tailed)	0.011	0.033
Berger	**Firm value**	Pearson Correlation	-0.242	-0.361
		Sig. (2-tailed)	0.501	0.306
Kansai Nerolac	**Firm value**	Pearson Correlation	-0.950**	-0.877**
		Sig. (2-tailed)	0.00	0.001

*Correlation is significant at 0.05 level (2-tailed)

** Correlation is significant at 0.01 level (2-tailed)

Source: Computed Data

It is inferred from Table 20 that, in Asian paints, LTDA (r = 0.759) and LTDE (r = 0.672) are found to be negatively correlated with firm value, showing significance at 5 level. In Kansai Nerolac paints, LTDA (r = 0.950) and LTDE (r = 0.877) have been negatively correlated with the firm value, having significance at 1 per cent level. It signifies that an increase in debt, would reduce the firm value of Asian and Kansai Nerolac paints.

The Correlation analysis results infers that among Asian and Kansai Nerolac paints, there exist impact of capital structure on firm value (showing significance at either 5 per cent or 1 per cent) during the period of study. Hence, the null hypothesis is rejected. Among Akzo Nobel and Berger paint companies, there does not exist any impact of capital structure on the firm value during study period.

D. GRANITE INDUSTRY

The impact of capital structure on the firm value of the selected Granite Companies are calculated using Correlation analysis and are displayed in the following Table 21.

Table 21

Correlation analysis of Granite Companies for 2007-08 to 2016-17

			Long term debt to asset	Long term debt to equity
Aro	**Firm value**	Pearson Correlation	0.185	0.193
		Sig. (2-tailed)	0.550	0.593
Divyashakti	**Firm value**	Pearson Correlation	0.134	0.886**
		Sig. (2-tailed)	0.022	0.001
Inani	**Firm value**	Pearson Correlation	0.506	0.433
		Sig. (2-tailed)	0.135	0.211
Madhav	**Firm value**	Pearson Correlation	-0.522	-0.489
		Sig. (2-tailed)	0.022	0.052

*Correlation is significant at 0.05 level (2-tailed)

** Correlation is significant at 0.01 level (2-tailed)

Source: Computed Data

It can be observed from Table 21 that, LTDE (r = 0.886) has been positively correlated with firm value, significant at 1 per cent level in Divyashakti granites. It states that an increase in debt capital, leads to an increase in firm value of Divyashakti granites. Hence, the null hypothesis is rejected. Among other granite companies in India namely Aro, Inani and Madhav granites there does not exist any impact of capital structure on firm value during the period of study.

E. CERAMIC TILES INDUSTRY

The impact of capital structure on the firm value of the selected Ceramic Tiles Companies are calculated using Correlation analysis and are presented in the following Table 22.

Table 22

Correlation analysis of Ceramic Tiles Companies for 2007-08 to 2016-17

			Long term debt to asset	Long term debt to equity
Kajaria	**Firm value**	Pearson Correlation	-0.458	-0.500
		Sig. (2-tailed)	0.183	0.041
Orient bell	**Firm value**	Pearson Correlation	-0.220	-0.447
		Sig. (2-tailed)	0.042	0.196
Somany	**Firm value**	Pearson Correlation	-0.478	-0.494
		Sig. (2-tailed)	0.162	0.046

*Correlation is significant at 0.05 level (2-tailed)
** Correlation is significant at 0.01 level (2-tailed)
Source: Computed Data

It is revealed from Table 22 that among the ceramic tiles companies in India namely, Kajaria, Orient bell and Somany ceramics there does not exist any impact of capital structure on firm value during the period of study. Hence, the null hypothesis is accepted.

4.3 Impact of dividend decisions on the firm value

The dividend policy of a firm generally relates to the strategy adopted regarding payment of earnings or retention of earnings for reinvestment. The dividend policy thus results in outflow of cash and lower future growth, thereby affects both the shareholders wealth and the long-term growth of the firm. Hence an optimum dividend policy, should balance both the current dividend payments and the future growth resulting in maximization of the firm's value. The impact of dividend decisions on the value of selected construction

associated industries are analysed to reveal the relationship between dividend decision variables and the firm value using Pearson Correlation analysis.

The following variables are considered to analyse the relationship between dividend decision variables and firm value.

(i) Dependent variable - Firm value

(ii)Independent Variables – Dividend payout ratio (DPR), Dividend yield ratio (DYR)

HYPOTHESIS

H0: There is no significant impact of dividend decisions on the firm value of select construction associated companies

A. STEEL INDUSTRY

The impact of dividend decisions on the firm value of the selected Steel Companies are analyzed using Correlation analysis and are presented in the following Table 23.

Table 23

Correlation analysis of Steel Companies for 2007-08 to 2016-17

			Dividend payout ratio	**Dividend yield ratio**
Hisar	**Firm value**	Pearson Correlation	-0.798**	-0.072
		Sig. (2-tailed)	0.006	0.844
JSW	**Firm value**	Pearson Correlation	0.695*	0.787**
		Sig. (2-tailed)	0.026	0.007
Kirloskar	**Firm value**	Pearson Correlation	0.590	-0.372
		Sig. (2-tailed)	0.073	0.289
Rishabh	**Firm value**	Pearson Correlation	-0.439	-0.294
		Sig. (2-tailed)	0.204	0.410

			Dividend payout ratio	Dividend yield ratio
Sardha	**Firm value**	Pearson Correlation	-0.853**	-0.490
		Sig. (2-tailed)	0.002	0.151
Tata sponge	**Firm value**	Pearson Correlation	-0.908**	0.160
		Sig. (2-tailed)	0.00	0.658
Tata	**Firm value**	Pearson Correlation	-0.887**	-0.865**
		Sig. (2-tailed)	0.001	0.001

*Correlation is significant at 0.05 level (2-tailed)

** Correlation is significant at 0.01 level (2-tailed)

Source: Computed Data

It is observed from Table 23 that, dividend payout has been negatively correlated with firm value in Hisar steel (r = 0.798), Sardha steel (r = 0.853) and Tata sponge (r = 0.908) showing significance at 1 per cent level respectively. The dividend payout ratio (r = 0.887) and dividend yield ratio (r = 0.865) are found to be negatively correlated with firm value, significant at 1 per cent level in Tata steel. It implies that an increase in dividend payout would negatively impacts on firm value of the companies and vice versa. In JSW, dividend payout (r = 0.695) and dividend yield ratio (r = 0.787) are positively correlated with firm value, showing significance at 5 per cent and 1 per cent level respectively. It is inferred that an increase in dividend payout and dividend yield simultaneously increases the firm value of JSW steels.

The Correlation analysis results indicates that, there exist significant impact of dividend decisions on the firm value in Hisar, JSW, Sardha, Tata and Tata sponge (showing significance at either 5 per cent or 1 per cent). Hence, the null hypothesis is rejected. Among Kirloskar and Rishabh steel companies, there does not exist any impact of dividend decisions on the firm value during the period of study.

B. CEMENT INDUSTRY

The impact of dividend decisions on the firm value of the selected Cement Companies are examined using Correlation analysis and are shown in the following Table 24.

Table 24

Correlation analysis of Cement Companies for 2007-08 to 2016-17

			Dividend payout ratio	Dividend yield ratio
ACC	**Firm value**	Pearson Correlation	-0.662*	0.239
		Sig. (2-tailed)	0.037	0.506
Ambuja	**Firm value**	Pearson Correlation	-0.650*	-0.457
		Sig. (2-tailed)	0.042	0.184
Birla	**Firm value**	Pearson Correlation	-0.969**	0.418
		Sig. (2-tailed)	0.00	0.230
Deccan	**Firm value**	Pearson Correlation	-0.232	0.337
		Sig. (2-tailed)	0.520	0.341
JK	**Firm value**	Pearson Correlation	-0.750*	0.250
		Sig. (2-tailed)	0.012	0.486
J.K Lakshmi	**Firm value**	Pearson Correlation	0.415	0.488
		Sig. (2-tailed)	0.233	0.153
Kakatiya	**Firm value**	Pearson Correlation	-0.897**	-0.559
		Sig. (2-tailed)	0.001	0.093
KCP	**Firm value**	Pearson Correlation	0.127	0.612
		Sig. (2-tailed)	0.726	0.060
Mangalam	**Firm value**	Pearson Correlation	-0.634*	-0.253
		Sig. (2-tailed)	0.049	0.480
OCL India	**Firm value**	Pearson Correlation	0.430	-0.248
		Sig. (2-tailed)	0.215	0.490

			Dividend payout ratio	Dividend yield ratio
Ramco	**Firm value**	Pearson Correlation	-0.853**	-0.937**
		Sig. (2-tailed)	0.002	0.00
Shree	**Firm value**	Pearson Correlation	0.132	-0.607
		Sig. (2-tailed)	0.717	0.063

*Correlation is significant at 0.05 level (2-tailed)
** Correlation is significant at 0.01 level (2-tailed)
Source: Computed Data

It is portrayed in Table 24 that, in ACC (r = 0.662), Ambuja (r = 0.650), JK cements (r = 0.750) and Mangalam cements (r = 0.634), dividend payout ratio has been negatively correlated with firm value, significant at 5 per cent level. In case of Birla (r = 0.999) and Kakatiya cements (r = 0.897), there is negative correlation between dividend payout ratio and firm value, significant at 1 per cent level respectively. It denotes that an increase in dividend payout would result in reduction of firm value in those companies. Dividend payout ratio (r = 0.853) and dividend yield ratio (r = 0.937) negatively correlates with firm value in Ramco cements, significance at 1 per cent level.

The Correlation analysis results infers that, there exist higher negative impact of dividend decisions on the firm value among majority of Cement companies in India namely ACC, Ambuja, Birla, JK, Kakatiya, Mangalam and Ramco cement companies (showing significance at either 5 per cent or 1 per cent). Hence, the null hypothesis is rejected. Whereas, there does not exist any impact of dividend decisions on the firm value with Deccan, JK Lakshmi, KCP, OCL India and Shree cement companies during the period of study.

C. PAINT INDUSTRY

The impact of dividend decisions on the firm value of the selected Paint Companies are computed using Correlation analysis and are exhibited in the following Table 25.

Table 25

Correlation analysis of Paint Companies for 2007-08 to 2016-17

			Dividend payout ratio	Dividend yield ratio
Akzo Nobel	**Firm value**	Pearson Correlation	0.183	-0.189
		Sig. (2-tailed)	0.612	0.601
Asian	**Firm value**	Pearson Correlation	0.352	0.589
		Sig. (2-tailed)	0.319	0.073
Berger	**Firm value**	Pearson Correlation	0.804**	0.791**
		Sig. (2-tailed)	0.005	0.006
Kansai Nerolac	**Firm value**	Pearson Correlation	0.656*	0.285
		Sig. (2-tailed)	0.040	0.425

*Correlation is significant at 0.05 level (2-tailed)

** Correlation is significant at 0.01 level (2-tailed)

Source: Computed Data

It is revealed from Table 25 that, dividend payout ratio (r = 0.804) and dividend yield ratio (r = 0.791) strongly correlates with the firm value in Berger paints, showing significance at 1 per cent level. Dividend payout (r = 0.656) is found to be correlated with firm value in Kansai Nerolac paints, significant at 5 per cent. It implies that an increase in dividend payout and dividend yield ratio increases the firm value of these paint companies. Hence, the companies can increase their dividend payout ratio, so as to increase the firm value.

The Correlation analysis results indicates that, there exist substantial impact of dividend payout ratio and dividend yield ratio on firm value of the Paint companies namely Berger paints and Kansai Nerolac paints (showing significance at either 5 per cent or 1 per cent) during the period of study. Hence, the null hypothesis is rejected. In Akzo Nobel and Asian paints, there is no correlation among dividend decisions and firm value.

D. GRANITE INDUSTRY

The impact of dividend decisions on the firm value of the selected Granite Companies are calculated using Correlation analysis and are shown in the following Table 26.

Table 26

Correlation analysis of Granite Companies for 2007-08 to 2016-17

			Dividend payout ratio	**Dividend yield ratio**
Aro	**Firm value**	Pearson Correlation	-0.555	-0.393
		Sig. (2-tailed)	0.096	0.261
Divyashakti	**Firm value**	Pearson Correlation	-0.950**	-0.747*
		Sig. (2-tailed)	0.00	0.013
Inani	**Firm value**	Pearson Correlation	-0.328	0.152
		Sig. (2-tailed)	0.355	0.075
Madhav	**Firm value**	Pearson Correlation	-0.179	-0.334
		Sig. (2-tailed)	0.620	0.046

*Correlation is significant at 0.05 level (2-tailed)

** Correlation is significant at 0.01 level (2-tailed)

Source: Computed Data

It is inferred from Table 26 that, the dividend payout ratio (r = 0.950), significant at 1 per cent level and dividend yield ratio (r = 0.747), significant at 5 per cent level are negatively correlated with firm value in Divyashakti granites. It denotes that an increase in dividend payout would result in a reduction of its firm value.

The Correlation analysis results specifies that, there exist a significant correlation between dividend decisions and the firm value in Divyashakti granites. Hence, the null hypothesis is rejected. Among Aro, Inani and Madhav granite companies there is no impact during the study period.

E. CERAMIC TILES INDUSTRY

The impact of dividend decisions on the firm value of the selected Ceramic Tiles Companies are calculated using Correlation analysis and are presented in following Table 27.

Table 27

Correlation analysis of Ceramic Tiles Companies for 2007-08 to 2016-17

			Dividend payout ratio	Dividend yield ratio
Kajaria	**Firm value**	Pearson Correlation	0.763*	0.552
		Sig. (2-tailed)	0.010	0.098
Orient bell	**Firm value**	Pearson Correlation	-0.664*	-0.222
		Sig. (2-tailed)	0.036	0.539
Somany	**Firm value**	Pearson Correlation	0.361	-0.723*
		Sig. (2-tailed)	0.305	0.018

*Correlation is significant at 0.05 level (2-tailed)
** Correlation is significant at 0.01 level (2-tailed)
Source: Computed Data

It is revealed from the Table 27 that, in Kajaria ceramics (r = 0.763) and in Orient bell (r = -0.664), the dividend payout ratio has been correlated with firm value, showing significance at 5 per cent level respectively. The dividend yield ratio (r = -0.723) is found to be correlated with firm value, showing significance at 5 per cent level in Somany ceramics.

The Correlation analysis results denotes that, there exist significant impact of dividend decisions on the firm value (showing significance at 5 per cent level) among all of the selected Ceramic Tiles Companies in India during the period of study. Hence, the null hypothesis is rejected.

4.4. Inter and intra industry trends of capital structure and dividend decisions

The Compound Annual Growth Rate (CAGR) measures the proportional growth rate of financial activities over multiple time periods. The trend analysis aims at determining the financial position of a concern for a future period. Various financial aspects such as profitability, efficiency, cash flow, capital structure, dividend payouts etc., of a business are analysed, during a particular period of time and the movements are measured in percentages. Based on the comparison of results, projections of future values are made in trend analysis. The Compound Annual Growth Rate and trend analysis are computed to determine the inter industry and intra industry trends of capital structure and dividend decisions of selected Construction associated industries in India.

The following variables are considered to determine the trends of capital structure and dividend decisions.

(i) Capital Structure Variables:

Long term debt ratio (LTDR), Short term debt ratio (STDR), Total debt ratio (TDR), Return on Asset (ROA), Return on Equity (ROE).

(ii) Dividend Decision Variables:

Dividend payout ratio (DPR), Dividend yield ratio (DYR).

A. STEEL INDUSTRY

The inter industry and intra industry trends of capital structure and dividend decisions of selected steel companies are computed using Compound Annual Growth Rate (CAGR) and trend analysis for the period 2007-08 to 2016-17 and projections are made for five years from 2017-18 to 2021-22.

The following Table 28 exhibits the results of Compound Annual Growth Rate of Steel industry.

Table 28

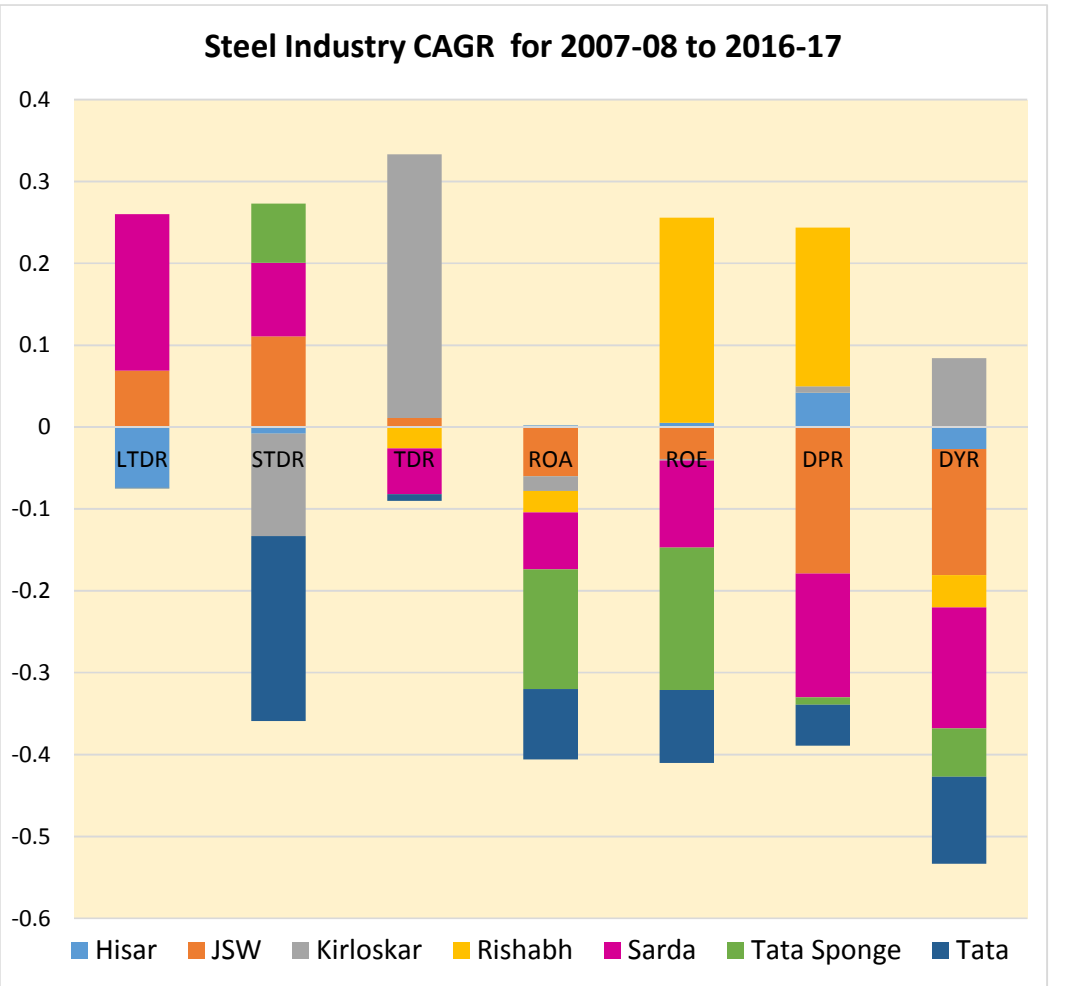
Steel Industry CAGR for 2007-08 to 2016-17

Companies	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
Hisar	-0.074	-0.008	0.001	0.002	0.005	0.042	-0.027
JSW	0.069	0.111	0.010	-0.060	-0.039	-0.179	-0.154
Kirloskar	0	-0.125	0.322	-0.018	-0.002	0.008	0.084
Rishabh	0	0	-0.026	-0.026	0.251	0.194	-0.039
Sarda	0.191	0.090	-0.056	-0.070	-0.106	-0.151	-0.148
Tata Sponge	0	0.072	0.00	-0.146	-0.174	-0.009	-0.059
Tata	-0.001	-0.226	-0.008	-0.086	-0.089	-0.050	-0.106

Source: Computed Data

Exhibit 7

Steel Industry CAGR



From Table 28, it is found that in steel industry, the compound annual growth rate of long term debt ratio is 19.1 per cent in Sarda steel followed by JSW at 6.9 per cent and all other companies showed a negative growth. It indicates the practice of redemption of debenture by the steel companies and a low financial risk association attracted its potential investors. The return on asset shows a mild positive growth in Hisar steel and the remaining companies indicates a negative growth.

The return on equity implied a moderate growth of 25 per cent in Rishabh steel and a mild growth in Hisar steel at 0.5 percent. This specifies the need for the steel companies to increase their efficiency to pay a good return its potential investors.

The dividend payout ratio showed 19.4 per cent growth in Rishabh and Hisar 4.2 per cent. It indicates that the other steel companies retain the earnings as reserves. The dividend yield implied 8.4 per cent growth in Kirloskar steel and a negative growth in the remaining steel companies implies low market value of shares during the study period.

1. Hisar Metal Industries Limited

The following Table 29 shows the results of Trend analysis and five year Projections of Hisar Metal Industries Limited.

Table 29

Trend analysis and Projections of Capital structure and Dividend decision variables of Hisar Metal Industries for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0.258	0.071	0.783	0.006	0.027	0.092	0.035
2009-10	0.240	0.075	0.784	0.041	0.194	0.006	0.030
2010-11	0.185	0.126	0.772	0.009	0.044	0.034	0.029
2011-12	0.159	0.120	0.819	0.002	0.015	0.130	0.030
2012-13	0.145	0.039	0.812	0.00	0.00	0.011	0.031
2013-14	0.127	0.054	0.791	0.019	0.100	0.013	0.029
2014-15	0.094	0.057	0.827	0.016	0.100	0.012	0.027

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2015-16	0.115	0.043	0.799	0.005	0.030	0.047	0.027
2016-17	0.116	0.059	0.809	0.005	0.029	0.025	0.027
2017-18	**0.069**	**0.092**	**0.820**	**0.014**	**0.067**	**0.053**	**0.035**
2018-19	**0.045**	**0.107**	**0.820**	**0.019**	**0.089**	**0.072**	**0.035**
2019-20	**0.037**	**0.127**	**0.822**	**0.028**	**0.132**	**0.048**	**0.032**
2020-21	**0.048**	**0.156**	**0.824**	**0.006**	**0.025**	**0.087**	**0.033**
2021-22	**0.054**	**0.125**	**0.807**	**0.002**	**0.011**	**0.130**	**0.035**

Source: Computed Data

Table 29 shows that the total debt ratio of Hisar is fluctuating throughout the study period and there is possibility of the debt proportion to be maintained at 80.7 per cent during the next five years i.e, 2017-18 to 2021-22. The investors can expect an increase in dividend payout up to 13 per cent by 2021-2022.

The return on asset and return on equity is expected to be around 1 per cent. They have to concentrate on increasing the income level and reduce expenditure to pay a good return to the investors. The market value of shares are projected to sustain in the coming years.

2. JSW Steel Limited

The following Table 30 displays the results of Trend analysis and five year Projections of JSW Steel Limited.

Table 30

Trend analysis and Projections of Capital structure and Dividend decision variables of JSW Steel for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0.158	0.091	0.581	0.049	0.118	0.00	0.003
2009-10	0.120	0.099	0.538	0.095	0.207	0.00	0.025
2010-11	0.143	0.060	0.398	0.066	0.113	0.00	0.021
2011-12	0.162	0.128	0.457	0.056	0.105	0.00	0.011
2012-13	0.150	0.159	0.466	0.052	0.099	0.00	0.014

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2013-14	0.160	0.115	0.518	0.040	0.087	0.00	0.014
2014-15	0.199	0.121	0.514	0.042	0.088	0.00	0.013
2015-16	0.259	0.069	0.571	0.043	0.107	0.001	0.011
2016-17	0.243	0.144	0.538	0.062	0.149	0.001	0.027
2017-18	**0.246**	**0.073**	**0.510**	**0.089**	**0.175**	**0.00**	**0.025**
2018-19	**0.266**	**0.087**	**0.522**	**0.074**	**0.146**	**0.00**	**0.012**
2019-20	**0.303**	**0.090**	**0.493**	**0.089**	**0.160**	**0.00**	**0.020**
2020-21	**0.327**	**0.090**	**0.479**	**0.065**	**0.084**	**0.00**	**0.012**
2021-22	**0.364**	**0.163**	**0.636**	**0.049**	**0.054**	**-0.001**	**0.001**

Source: Computed Data

From Table 30, it is observed that the long term debt ratio of JSW steel is increasing during the study period and there is possibility of the debt proportion to be maintained at 36 per cent during the next five years i.e, 2017-18 to 2021-22. The investors can expect a reduction in return on equity up to 5 per cent by 2021-22. The company should improve its financial position in order to provide a better return to its potential investors.

The dividend payout and dividend yield will be nil in the forthcoming years implies the policy of the company to increase the reserves.

3. Kirloskar Ferrous Industries Limited

The following Table 31 exhibits the results of Trend analysis and five year Projections of Kirloskar Ferrous Industries Limited.

Table 31

Trend analysis and Projections of Capital structure and Dividend decision variables of Kirloskar Ferrous Industries for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0	0.126	0.059	0.026	0.027	0.051	0.023
2009-10	0	0.108	0.018	0.148	0.151	0.012	0.042
2010-11	0	0.067	0.00	0.134	0.134	0.012	0.038
2011-12	0	0.108	0.126	0.084	0.096	0.015	0.036

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2012-13	0.020	0.068	0.294	0.067	0.096	0.016	0.042
2013-14	0.081	0.075	0.305	0.063	0.092	0.015	0.040
2014-15	0.025	0.061	0.223	0.085	0.110	0.011	0.037
2015-16	0.030	0.070	0.178	0.095	0.116	0.009	0.035
2016-17	0.051	0.071	0.157	0.132	0.154	0.006	0.041
2017-18	**0.056**	**0.173**	**0.255**	**0.109**	**0.106**	**0.023**	**0.019**
2018-19	**0.066**	**0.123**	**0.361**	**0.079**	**0.075**	**0.036**	**0.032**
2019-20	**0.076**	**0.109**	**0.380**	**0.126**	**0.122**	**0.017**	**0.041**
2020-21	**0.085**	**0.092**	**0.269**	**0.088**	**0.087**	**0.020**	**0.038**
2021-22	**0.084**	**0.117**	**0.399**	**0.015**	**0.033**	**0.026**	**0.038**

Source: Computed Data

Table 31 portrays that the total debt ratio of Kirloskar Ferrous is fluctuating throughout the study period and there is possibility of the total debt ratio to be maintained at 40 per cent during next five years i.e, 2017-18 to 2021-22. The return on asset will be around 1.5 percent specifies the need to increase profitability in order to make better payments to the equity holders.

The dividend payout is anticipated to maintain at 2.6 per cent by 2021-22. It indicates lesser payout of the company and its strategy of retaining higher profits.

4. Rishabh Digha Steel and Allied Products Limited

The following Table 32 displays the results of Trend analysis and five year Projections of Rishabh Digha Steel and Allied Products Limited.

Table 32

Trend analysis and Projections of Capital structure and Dividend decision variables of Rishabh Digha Steel for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0	0.140	0	0.186	0.186	0.021	0.061
2009-10	0	0.209	0	0.084	0.084	0.140	0.132
2010-11	0	0.144	0	0.263	0.263	0.039	0.153

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2011-12	0	0.121	0	0.187	0.187	0.026	0.082
2012-13	0	0.066	0	0.051	0.051	0.068	0.056
2013-14	0	0.107	0	0.008	0.008	-0.001	0.059
2014-15	0	0.192	0	0.007	0.007	0.721	0.064
2015-16	0	0.155	0	0.029	0.029	0.150	0.067
2016-17	0	0.212	0	0.215	0.215	0.196	0.098
2017-18	**0**	**0.130**	**0**	**0.230**	**0.229**	**-0.032**	**0.125**
2018-19	**0**	**0.130**	**0**	**0.192**	**0.192**	**-0.057**	**0.112**
2019-20	**0**	**0.127**	**0**	**0.173**	**0.173**	**-0.064**	**0.146**
2020-21	**0**	**0.045**	**0**	**0.238**	**0.238**	**-0.173**	**0.132**
2021-22	**0**	**-0.031**	**0**	**0.072**	**0.072**	**-0.200**	**0.048**

Source: Computed Data

Table 32 reveals that in Rishabh Digha Steel and Allied Products there is no debt capital. The return on equity is projected to reach at 7 per cent during 2021-22.

The investors can expect a reduction in dividend yield up to 4.8 per cent during the next five years period. The company should improve its technology to increase the return on asset and return on equity.

5. Sardha Energy & Minerals Limited

The following Table 33 exhibits the results of Trend analysis and five year Projections of Sardha Energy & Minerals Limited.

Table 33

Trend analysis and Projections of Capital structure and Dividend decision variables of Sardha Energy & Minerals for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0.008	0.189	0.505	0.124	0.252	0.001	0.020
2009-10	0.012	0.087	0.444	0.060	0.109	0.001	0.018
2010-11	0.017	0.075	0.473	0.031	0.061	0.001	0.015
2011-12	0.060	0.119	0.464	0.072	0.137	0.00	0.00

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2012-13	0.022	0.115	0.410	0.077	0.134	0.00	0.012
2013-14	0.038	0.125	0.378	0.046	0.077	0.001	0.011
2014-15	0.026	0.090	0.327	0.088	0.136	0.001	0.010
2015-16	0.021	0.169	0.267	0.024	0.034	0.001	0.007
2016-17	0.029	0.200	0.262	0.086	0.109	0.00	0.006
2017-18	**0.038**	**0.094**	**0.502**	**0.119**	**0.239**	**0.001**	**0.023**
2018-19	**0.037**	**0.098**	**0.495**	**0.086**	**0.190**	**0.001**	**0.020**
2019-20	**0.033**	**0.032**	**0.576**	**0.049**	**0.117**	**0.001**	**0.017**
2020-21	**0.022**	**0.015**	**0.568**	**0.042**	**0.114**	**0.001**	**0.013**
2021-22	**-0.004**	**0.022**	**0.539**	**0.076**	**0.187**	**0.00**	**0.004**

Source: Computed Data

Table 33, infers that the long term debt ratio of Sardha Energy & Minerals is fluctuating throughout the study period and there is possibility of the debt proportion to be nil during the next five years i.e, 2017-18 to 2021-22.

The dividend payout and dividend yield ratios are anticipated to very low during 2021-22 and the return on asset will reach 7.6 per cent. Hence the company should improve its efficiency and reduce expenditure in order to pay a good return to the investors in nearby future.

6. Tata Sponge Iron Limited

The following Table 34 shows the results of Trend analysis and five year Projections of Tata Sponge Iron Limited.

Table 34

Trend analysis and Projections of Capital structure and Dividend decision variables of Tata Sponge Iron for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0.00	0.068	-0.002	0.342	0.341	0.00	0.035
2009-10	0.00	0.038	0.00	0.198	0.198	0.001	0.029
2010-11	0.00	0.019	0.00	0.197	0.198	0.00	0.024
2011-12	0.00	0.027	0.00	0.131	0.131	0.00	0.021

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2012-13	0.00	0.039	0.00	0.131	0.132	0.00	0.019
2013-14	0.00	0.031	0.00	0.138	0.139	0.00	0.021
2014-15	0.00	0.041	0.00	0.113	0.114	0.00	0.019
2015-16	0.00	0.014	0.00	0.037	0.037	0.001	0.019
2016-17	0.00	0.269	0.00	0.068	0.068	0.001	0.019
2017-18	**0.00**	**0.043**	**0.002**	**0.321**	**0.361**	**0.00**	**0.021**
2018-19	**0.00**	**-0.015**	**0.00**	**0.328**	**0.329**	**0.00**	**0.034**
2019-20	**0.00**	**-0.065**	**0.00**	**0.266**	**0.267**	**0.00**	**0.029**
2020-21	**0.00**	**-0.117**	**0.00**	**0.267**	**0.269**	**0.001**	**0.025**
2021-22	**0.00**	**-0.174**	**0.00**	**0.239**	**0.241**	**0.00**	**0.023**

Source: Computed Data

From Table 34, it is shown that the total debt ratio of Tata sponge is reducing during the study period and is projected to be no debt capital during the next five years i.e, 2017-18 to 2021-22. The return on equity is projected to reduce by 24 per cent during 2021-22 indicates better capacity of the company to earn profits.

The dividend payout is forecasted to nil indicates the retaining policy of the company for investment plans. The equity capital is also expected to be maintained in the forthcoming years.

7. Tata Steel Limited

The following Table 35 reveals the results of Trend analysis and five year Projections of Tata Steel Limited.

Table 35

Trend analysis and Projections of Capital structure and Dividend decision variables of Tata Steel for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0.400	0.081	0.468	0.086	0.163	0.001	0.047
2009-10	0.359	0.086	0.394	0.069	0.118	0.00	0.019
2010-11	0.328	0.082	0.353	0.079	0.133	0.00	0.024

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2011-12	0.290	0.022	0.312	0.073	0.115	0.00	0.022
2012-13	0.207	0.032	0.311	0.060	0.095	0.00	0.014
2013-14	0.272	0.015	0.293	0.067	0.104	0.00	0.016
2014-15	0.254	0.019	0.276	0.046	0.070	0.00	0.011
2015-16	0.255	0.013	0.277	0.031	0.046	0.00	0.011
2016-17	0.315	0.073	0.368	0.043	0.069	0.001	0.019
2017-18	**0.242**	**0.351**	**0.335**	**0.100**	**0.175**	**0.001**	**0.045**
2018-19	**0.218**	**0.090**	**0.260**	**0.099**	**0.177**	**0.001**	**0.037**
2019-20	**0.231**	**0.080**	**0.269**	**0.098**	**0.166**	**0.00**	**0.025**
2020-21	**0.261**	**0.053**	**0.273**	**0.110**	**0.181**	**0.00**	**0.027**
2021-22	**0.322**	**-0.013**	**0.267**	**0.110**	**0.174**	**0.00**	**0.022**

Source: Computed Data

Table 35 specifies that the total debt ratio of Tata steel is raising during the study period and there is possibility of long term debt to be maintained at 32 per cent during the next five years i.e, 2017-18 to 2021-22. The return on asset is expected to be 11 per cent by 2021-22, denotes the necessity to improve financial ability of the company for better earnings in future.

There will not be any dividend payout in coming years indicate the plan of the company on retention of earnings.

B. CEMENT INDUSTRY

The inter industry and intra industry trends of capital structure and dividend decisions of selected cement companies are computed using Compound Annual Growth Rate (CAGR) and trend analysis for the period 2007-08 to 2016-17 and projections are made for five years from 2017-18 to 2021-22.

The following Table 36 portrays the results of Compound Annual Growth Rate of Cement industry.

Table 36

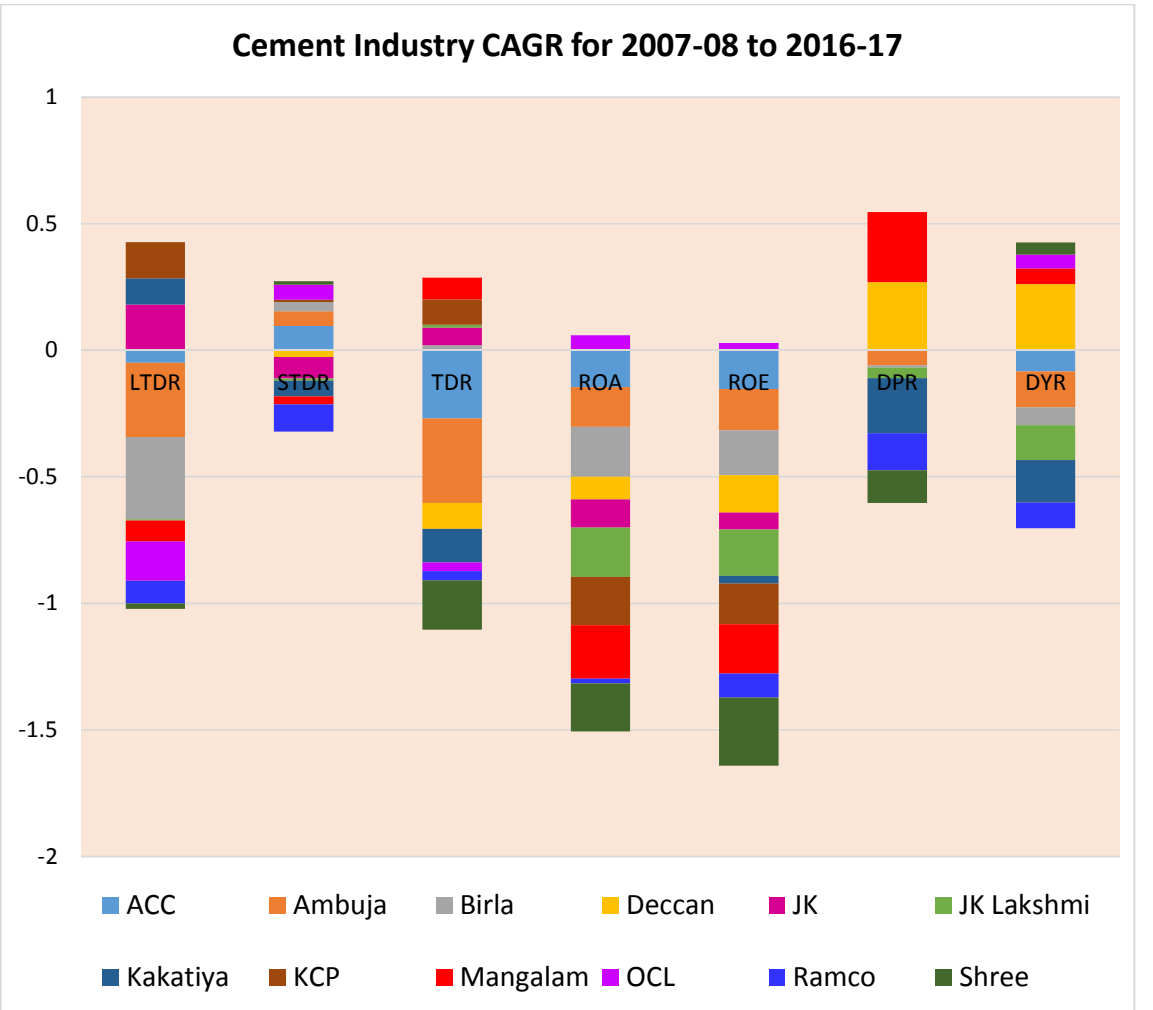
Cement Industry CAGR for 2007-08 to 2016-17

Companies	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
ACC	-0.049	0.095	-0.269	-0.146	-0.153	0.004	-0.084
Ambuja	-0.294	0.059	-0.334	-0.157	-0.164	-0.060	-0.141
Birla	-0.324	0.037	0.020	-0.197	-0.177	-0.009	-0.072
Deccan	0.001	-0.027	-0.102	-0.089	-0.147	0.265	0.262
JK	0.179	-0.084	0.070	-0.111	-0.067	0	0
JK Lakshmi	-0.006	-0.010	0.010	-0.196	-0.184	-0.041	-0.137
Kakatiya	0.104	-0.061	-0.133	0.001	-0.030	-0.217	-0.168
KCP	0.143	0.008	0.101	-0.189	-0.160	0	0
Mangalam	-0.082	-0.032	0.086	-0.212	-0.195	0.277	0.062
OCL	-0.156	0.059	-0.035	0.058	0.029	0.00	0.054
Ramco	-0.089	-0.107	-0.037	-0.019	-0.095	-0.148	-0.101
Shree	-0.021	0.014	-0.193	-0.190	-0.270	-0.128	0.048

Source: Computed Data

Exhibit 8

Cement Industry CAGR



From Table 36, it is observed that in cement industry, the compound annual growth rate of long term debt ratio is higher in 17.9 per cent in JK steel followed by KCP at 14.3 per cent. The short term growth is 9.5 per cent in ACC, followed by 5.9 per cent in Ambuja and OCL cements. The return on asset shows a mild positive growth in OCL at 5.8 per cent and 0.1 per cent in Kakatiya. This specifies the need for the steel companies to increase their efficiency to pay a good return its potential investors.

The dividend payout ratio revealed 27.7 per cent growth in Mangalam cements and Deccan 26.5 per cent. Majority of the cement companies showed negative compound annual growth or no growth in dividend payout, this depicts the strategy of retaining profits for future investment plans. The dividend yield implied 26.2 per cent growth in Deccan, 6.2 per cent in Mangalam and 5.4 per cent in OCL cements revealed better growth in market price of the companies during the study period.

1. ACC Limited

The following Table 37 exhibits the results of Trend analysis and five year Projections of ACC Limited.

Table 37

Trend analysis and Projections of Capital structure and Dividend decision variables of ACC Limited for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0.006	0.123	0.088	0.216	0.237	0.001	0.075
2009-10	0.003	0.079	0.085	0.242	0.265	0.001	0.071
2010-11	0.002	0.096	0.074	0.161	0.175	0.002	0.088
2011-12	0.001	0.041	0.062	0.157	0.179	0.001	0.072
2012-13	0.001	0.043	0.020	0.152	0.165	0.001	0.076
2013-14	0.00	0.047	0.004	0.132	0.134	0.001	0.071
2014-15	0.00	0.047	0.00	0.136	0.138	0.001	0.077
2015-16	0.004	0.047	0.004	0.080	0.081	0.001	0.037
2016-17	0.006	0.223	0.004	0.068	0.069	0.001	0.041

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2017-18	**0.001**	**0.076**	**0.037**	**0.283**	**0.311**	**0.001**	**0.095**
2018-19	**0.002**	**0.063**	**0.035**	**0.268**	**0.298**	**0.001**	**0.095**
2019-20	**0.004**	**0.019**	**0.035**	**0.276**	**0.308**	**0.001**	**0.103**
2020-21	**0.006**	**-0.019**	**0.028**	**0.242**	**0.273**	**0.002**	**0.120**
2021-22	**0.009**	**-0.120**	**0.023**	**0.264**	**0.302**	**0.001**	**0.121**

Source: Computed Data

Table 37, identifies that the total debt ratio of ACC is fluctuating throughout the study period and there is possibility of the debt proportion to be maintained during the next five years i.e, 2017-18 to 2021-22. The return on equity is projected to reach 30 per cent by 2021-22, denotes efficiency of the company to earn better profits.

The dividend payout has been reduced showing the strategy of the company to retain earnings for investment purposes. The dividend yield seems to reach 12.1 per cent implies the possibility of raise in market price of shares.

2. Ambuja Cements Limited

The following Table 38 displays the results of Trend analysis and five year Projections of Ambuja Cements Limited.

Table 38

Trend analysis and Projections of Capital structure and Dividend decision variables of Ambuja Cements for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0.031	0.054	0.048	0.195	0.204	0.007	0.058
2009-10	0.010	0.039	0.024	0.181	0.186	0.007	0.056
2010-11	0.009	0.061	0.009	0.162	0.163	0.007	0.054
2011-12	0.006	0.031	0.006	0.147	0.148	0.008	0.060
2012-13	0.005	0.031	0.005	0.159	0.161	0.008	0.062
2013-14	0.004	0.036	0.004	0.124	0.126	0.007	0.058
2014-15	0.002	0.034	0.003	0.140	0.141	0.009	0.076

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2015-16	0.002	0.038	0.003	0.068	0.068	0.009	0.041
2016-17	-0.00	0.073	0.002	0.050	0.050	0.006	0.029
2017-18	**-0.011**	**0.043**	**0.010**	**0.244**	**0.256**	**0.008**	**0.087**
2018-19	**-0.009**	**0.043**	**0.003**	**0.237**	**0.245**	**0.007**	**0.068**
2019-20	**-0.004**	**0.033**	**0.009**	**0.243**	**0.248**	**0.008**	**0.071**
2020-21	**-0.005**	**0.032**	**0.005**	**0.252**	**0.255**	**0.008**	**0.080**
2021-22	**-0.005**	**-0.007**	**0.007**	**0.277**	**0.279**	**0.009**	**0.099**

Source: Computed Data

From Table 38, it is inferred that the long term debt of Ambuja cements is reducing during the study period and there is possibility of debt proportion to be none by the next five years 2017-18 to 2021-22. The return on asset is projected to reach 27.7 per cent, showing the financial efficacy of the company to earn good profits.

The investors can expect an increased dividend yield up to 10 per cent implying the raise of market value of shares in the forthcoming years.

3. Birla Corporation Limited

The following Table 39 exhibits the results of Trend analysis and five year Projections of Birla Corporation Limited.

Table 39

Trend analysis and Projections of Capital structure and Dividend decision variables of Birla Corporation for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0.036	0.095	0.175	0.191	0.232	0.001	0.027
2009-10	0.076	0.078	0.282	0.211	0.295	0.00	0.026
2010-11	0.043	0.058	0.292	0.095	0.148	0.001	0.022
2011-12	0.055	0.046	0.309	0.060	0.098	0.001	0.020
2012-13	0.024	0.051	0.306	0.061	0.099	0.001	0.022
2013-14	0.011	0.050	0.327	0.025	0.042	0.001	0.018

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2014-15	0.012	0.062	0.299	0.030	0.049	0.001	0.017
2015-16	0.011	0.063	0.290	0.026	0.043	0.001	0.017
2016-17	0.001	0.174	0.253	0.042	0.067	0.001	0.016
2017-18	**-0.003**	**0.077**	**0.338**	**0.261**	**0.341**	**0.001**	**0.030**
2018-19	**-0.014**	**0.048**	**0.332**	**0.217**	**0.290**	**0.00**	**0.029**
2019-20	**-0.035**	**0.016**	**0.331**	**0.199**	**0.289**	**0.00**	**0.029**
2020-21	**-0.034**	**-0.026**	**0.332**	**0.115**	**0.183**	**0.001**	**0.027**
2021-22	**-0.047**	**-0.072**	**0.335**	**0.083**	**0.136**	**0.001**	**0.027**

Source: Computed Data

From Table 39, it is revealed that the long term debt ratio of Birla Corporation is fluctuating throughout the study period and there is possibility of the debt proportion to be nil by 2017-18 to 2021-22. It denotes the debentures will be redeemed and the investors are safe about their investment. The return on equity is estimated to be 13.6 per cent by 2021-22, signifies better capacity of the company to distribute profits to its shareholders.

The lesser dividend payout implies the policy of the company to retain profits in the nearby future.

4. Deccan Cements Limited

The following Table 40 shows the results of Trend analysis and five year Projections of Deccan Cements Limited.

Table 40

Trend analysis and Projections of Capital structure and Dividend decision variables of Deccan Cements for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0.049	0.200	0.650	0.067	0.197	0.00	0.012
2009-10	0.054	0.059	0.652	0.008	0.023	0.002	0.012
2010-11	0.057	0.046	0.621	0.004	0.011	0.002	0.005
2011-12	0.051	0.080	0.523	0.098	0.217	0.00	0.010

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2012-13	0.037	0.046	0.491	0.014	0.030	0.001	0.006
2013-14	0.050	0.052	0.461	0.010	0.021	0.001	0.004
2014-15	0.032	0.055	0.403	0.042	0.080	0.00	0.007
2015-16	0.045	0.019	0.197	0.114	0.158	0.00	0.012
2016-17	0.062	0.138	0.202	0.067	0.080	0.002	0.122
2017-18	**0.045**	**0.143**	**0.424**	**0.071**	**0.200**	**0.001**	**-0.011**
2018-19	**0.046**	**0.117**	**0.425**	**0.017**	**0.105**	**0.001**	**-0.023**
2019-20	**0.045**	**0.036**	**0.525**	**-0.017**	**0.024**	**0.002**	**-0.040**
2020-21	**0.047**	**0.022**	**0.492**	**-0.013**	**0.051**	**0.001**	**-0.066**
2021-22	**0.059**	**0.020**	**0.432**	**0.018**	**0.151**	**-0.001**	**-0.099**

Source: Computed Data

From Table 40, it is found out that the total debt ratio of Deccan cements is fluctuating throughout the study period and there is possibility of long debt proportion to reach 5.9 per cent during the next five years i.e, 2017-18 to 2021-22. The return on equity is projected to attain 15 per cent by 2021-22, showing improved productivity of the company to earn good profits to the shareholders in the future.

The dividend yield ratio also shows nil value indicates a reduction in market value of shares. The company should declare a nominal dividend to raise market price of its shares.

5. JK Cement Limited

The following Table 41 displays the results of Trend analysis and five year Projections of JK Cement Limited.

Table 41

Trend analysis and Projections of Capital structure and Dividend decision variables of JK Cement for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0.072	0.331	0.319	0.079	0.116	0.001	0.027
2009-10	0.055	0.093	0.439	0.093	0.167	0.001	0.038

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2010-11	0.093	0.082	0.469	0.022	0.045	0.001	0.012
2011-12	0.067	0.072	0.425	0.064	0.119	0.001	0.027
2012-13	0.019	0.039	0.410	0.076	0.137	0.001	0.031
2013-14	0.011	0.058	0.550	0.022	0.054	0.001	0.013
2014-15	0.011	0.066	0.589	0.035	0.094	0.001	0.017
2015-16	0.011	0.073	0.580	0.022	0.058	0.001	0.016
2016-17	0.359	0.102	0.596	0.059	0.135	0.003	0.129
2017-18	**0.130**	**0.221**	**0.564**	**0.121**	**0.179**	**0.00**	**-0.002**
2018-19	**0.157**	**0.207**	**0.558**	**0.085**	**0.127**	**0.001**	**0.001**
2019-20	**0.197**	**0.074**	**0.438**	**0.080**	**0.127**	**0.00**	**-0.011**
2020-21	**0.251**	**0.049**	**0.379**	**0.048**	**0.067**	**-0.00**	**-0.044**
2021-22	**0.387**	**0.014**	**0.358**	**0.085**	**0.127**	**-0.001**	**-0.062**

Source: Computed Data

Table 41 indicates that long term debt ratio of JK cements is fluctuating during the study period and there is possibility of the debt to reach 38.7 per cent by 2021-22. The return on equity is anticipated to be at 12.7 per cent in 2021-22 specifying the requirement of company, to pay better return to its investors in the forthcoming years.

The dividend payout shows nil value by the next five years indicates the plan of the company for increasing reserves.

6. J.K Lakshmi Cements Limited

The following Table 42 exhibits the results of Trend analysis and five year Projections of J.K Lakshmi Cements.

Table 42

Trend analysis and Projections of Capital structure and Dividend decision variables of J.K Lakshmi Cements for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0.083	0.140	0.453	0.113	0.207	0.002	0.031
2009-10	0.073	0.174	0.470	0.121	0.230	0.002	0.031

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2010-11	0.055	0.026	0.476	0.022	0.043	0.003	0.015
2011-12	0.044	0.039	0.464	0.043	0.083	0.003	0.022
2012-13	0.035	0.029	0.502	0.061	0.129	0.002	0.024
2013-14	0.025	0.059	0.542	0.028	0.065	0.002	0.018
2014-15	0.018	0.078	0.569	0.037	0.092	0.002	0.018
2015-16	0.054	0.070	0.555	-0.010	-0.025	0.005	0.002
2016-17	0.078	0.109	0.567	0.025	0.060	0.001	0.006
2017-18	**0.035**	**0.118**	**0.526**	**0.149**	**0.294**	**0.002**	**0.033**
2018-19	**0.035**	**0.113**	**0.527**	**0.123**	**0.229**	**0.002**	**0.037**
2019-20	**0.044**	**0.082**	**0.518**	**0.111**	**0.209**	**0.002**	**0.037**
2020-21	**0.063**	**-0.030**	**0.454**	**0.061**	**0.117**	**0.003**	**0.033**
2021-22	**0.091**	**-0.041**	**0.461**	**0.095**	**0.188**	**0.002**	**0.046**

Source: Computed Data

Table 42, shows that total debt ratio of J.K Lakshmi cements is fluctuating at the study period and there is possibility of total debt portion to reach 46 per cent by 2021-22. The return on equity is projected to reach 18.8 per cent during the next five years, signifying the better efficiency of the company to issue a good return to its investors.

The dividend yield ratio will reach 4.6 per cent signifies the possibility of raise in market price of shares by the next five years.

7. Kakatiya Cements Limited

The following Table 43 reveals the results of Trend analysis and five year Projections of Kakatiya Cements Limited.

Table 43

Trend analysis and Projections of Capital structure and Dividend decision variables of Kakatiya Cements for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0.040	0.259	0.177	0.139	0.169	0.001	0.017
2009-10	0.040	0.296	0.086	0.076	0.083	0.001	0.016
2010-11	0.022	0.085	0.024	0.027	0.028	0.003	0.015
2011-12	0.002	0.104	0.002	0.131	0.135	0.00	0.014
2012-13	0.00	0.084	0.00	0.094	0.096	0.001	0.013
2013-14	0.066	0.139	0.066	0.046	0.050	0.001	0.012
2014-15	0.121	0.115	0.158	0.064	0.077	0.001	0.011
2015-16	0.093	0.065	0.114	0.095	0.109	0.00	0.010
2016-17	0.134	0.080	0.098	0.105	0.124	0.00	0.003
2017-18	**0.112**	**0.228**	**0.063**	**0.100**	**0.131**	**0.002**	**0.020**
2018-19	**0.138**	**0.271**	**0.038**	**0.096**	**0.107**	**0.002**	**0.021**
2019-20	**0.172**	**0.243**	**0.057**	**0.058**	**0.053**	**0.003**	**0.021**
2020-21	**0.224**	**0.115**	**0.058**	**0.047**	**0.035**	**0.004**	**0.023**
2021-22	**0.284**	**0.142**	**0.076**	**0.112**	**0.096**	**0.001**	**0.023**

Source: Computed Data

From Table 43, it is observed that the long term debt ratio of Kakatiya cements is fluctuating at the study period and there is possibility of the debt proportion to reach 28 per cent by 2021-22. The return on asset is projected to be at 11.2 per cent by the next five years i.e, 2017-18 to 2021-22, indicating the necessity of the company to improve its productivity to pay a better return to the shareholders.

The dividend payout ratio is forecasted to very less, portrays the strategy of the company to retain profits.

8. KCP Limited

The following Table 44 shows the results of Trend analysis and five year Projections of KCP Limited.

Table 44

Trend analysis and Projections of Capital structure and Dividend decision variables of KCP Limited for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0.080	0.288	0.217	0.211	0.270	0.010	0.054
2009-10	0.184	0.194	0.399	0.116	0.194	0.010	0.045
2010-11	0.163	0.077	0.498	0.058	0.124	0.015	0.041
2011-12	0.127	0.092	0.462	0.084	0.168	0.013	0.056
2012-13	0.119	0.093	0.473	0.042	0.088	0.017	0.036
2013-14	0.121	0.115	0.527	0.001	0.003	0.060	0.003
2014-15	0.122	0.092	0.522	0.020	0.047	0.026	0.027
2015-16	0.131	0.072	0.473	0.052	0.111	0.010	0.033
2016-17	0.327	0.269	0.539	0.040	0.072	0.027	0.061
2017-18	**0.215**	**0.214**	**0.577**	**0.220**	**0.305**	**0.004**	**0.030**
2018-19	**0.228**	**0.185**	**0.558**	**0.175**	**0.259**	**0.008**	**0.048**
2019-20	**0.227**	**0.088**	**0.487**	**0.115**	**0.209**	**0.009**	**0.042**
2020-21	**0.285**	**-0.016**	**0.470**	**0.079**	**0.168**	**0.014**	**0.036**
2021-22	**0.381**	**-0.048**	**0.467**	**0.077**	**0.162**	**0.023**	**0.027**

Source: Computed Data

From Table 44, it is found out that the long term debt ratio of KCP cements is fluctuating throughout the study period and there is possibility of the long term debt proportion to reach 38 per cent during the next five years i.e, 2017-18 to 2021-22. The return on equity is anticipated to raise by 16 per cent by 2021-22, implies the need to improve financial efficacy of the company.

The dividend yield is expected to reach 2.7 percent, specifies the company to increase its dividend payout so as to raise its share price.

9. Mangalam Cements Limited

The following Table 45 exhibits the results of Trend analysis and five year Projections of Mangalam Cements Limited.

Table 45

Trend analysis and Projections of Capital structure and Dividend decision variables of Mangalam Cements for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0.028	0.399	0.048	0.300	0.315	0.002	0.053
2009-10	0.025	0.396	0.025	0.294	0.302	0.001	0.041
2010-11	0.031	0.381	0.031	0.083	0.093	0.003	0.041
2011-12	0.00	0.222	0.00	0.117	0.130	0.002	0.037
2012-13	0.00	0.082	0.269	0.097	0.156	0.001	0.032
2013-14	0.00	0.104	0.380	0.030	0.057	0.001	0.016
2014-15	0.00	0.120	0.383	0.020	0.038	0.002	0.010
2015-16	0.00	0.121	0.414	-0.022	-0.043	0.00	0.003
2016-17	0.062	0.199	0.514	0.046	0.073	0.001	0.004
2017-18	**-0.008**	**0.396**	**0.497**	**0.367**	**0.428**	**0.002**	**0.043**
2018-19	**0.016**	**0.456**	**0.495**	**0.330**	**0.348**	**0.002**	**0.066**
2019-20	**0.023**	**0.438**	**0.500**	**0.290**	**0.311**	**0.003**	**0.066**
2020-21	**0.037**	**0.358**	**0.502**	**0.174**	**0.207**	**0.004**	**0.071**
2021-22	**0.077**	**0.143**	**0.491**	**0.206**	**0.264**	**0.003**	**0.074**

Source: Computed Data

Table 45 observes that the total debt ratio of Mangalam cements is fluctuating during the study period and there is possibility of debt proportion to be around 49 per cent in the next five years i.e, 2017-18 to 2021-22. The return on equity is projected to reach 26.4 per cent, indicating the better productivity of the company to earn better profits.

The dividend yield seems to reach 7.4 per cent, shows a raise in the market value of shares in the forthcoming years.

10. OCL India Limited

The following Table 46 portrays the results of Trend analysis and five year Projections of OCL India Limited.

Table 46

Trend analysis and Projections of Capital structure and Dividend decision variables of OCL India for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0.024	0.059	0.516	0.083	0.173	0.001	0.021
2009-10	0.019	0.044	0.504	0.099	0.201	0.001	0.028
2010-11	0.019	0.043	0.481	0.064	0.127	0.001	0.025
2011-12	0.009	0.073	0.437	0.019	0.034	0.002	0.012
2012-13	0.004	0.069	0.422	0.084	0.150	0.001	0.022
2013-14	0.007	0.058	0.369	0.046	0.082	0.001	0.020
2014-15	0.00	0.036	0.491	0.041	0.091	0.001	0.019
2015-16	0.00	0.051	0.435	0.074	0.143	0.00	0.016
2016-17	0.001	0.139	0.341	0.172	0.254	0.001	0.041
2017-18	**-0.003**	**0.051**	**0.540**	**0.070**	**0.156**	**0.001**	**0.022**
2018-19	**-0.009**	**0.034**	**0.542**	**0.050**	**0.129**	**0.001**	**0.019**
2019-20	**-0.011**	**0.020**	**0.531**	**0.030**	**0.094**	**0.002**	**0.019**
2020-21	**-0.013**	**0.016**	**0.516**	**-0.026**	**-0.007**	**0.002**	**0.010**
2021-22	**-0.009**	**0.018**	**0.504**	**-0.084**	**-0.107**	**0.003**	**-0.005**

Source: Computed Data

From Table 46, it is known that the long term debt ratio of OCL India has been reducing throughout the study period and there is possibility of the debt proportion to be none during the next five years i.e, 2017-18 to 2021-22. The return on asset and return on equity are anticipated to be in negative.

The dividend payout and dividend yield are also projected to be very less. Hence, the company should improve its productivity and financial efficiency to earn a better return from asset. It should pay a better return to its investors so as to increase its market share price in the nearby future.

11. The Ramco Cements Limited

The following Table 47 exhibits the results of Trend analysis and five year Projections of Ramco Cements Limited.

Table 47

Trend analysis and Projections of Capital structure and Dividend decision variables of Ramco Cements for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0.184	0.121	0.655	0.096	0.285	0.003	0.037
2009-10	0.164	0.128	0.616	0.085	0.224	0.002	0.030
2010-11	0.300	0.065	0.572	0.043	0.118	0.002	0.017
2011-12	0.254	0.056	0.524	0.075	0.186	0.002	0.029
2012-13	0.259	0.053	0.487	0.074	0.169	0.002	0.030
2013-14	0.214	0.037	0.495	0.020	0.048	0.002	0.009
2014-15	0.115	0.026	0.466	0.042	0.091	0.001	0.013
2015-16	0.124	0.033	0.373	0.093	0.176	0.001	0.023
2016-17	0.161	0.063	0.448	0.132	0.172	0.001	0.019
2017-18	**0.122**	**0.150**	**0.416**	**0.100**	**0.324**	**0.003**	**0.042**
2018-19	**0.136**	**0.128**	**0.389**	**0.063**	**0.246**	**0.003**	**0.036**
2019-20	**0.095**	**0.115**	**0.398**	**0.038**	**0.189**	**0.003**	**0.031**
2020-21	**-0.001**	**0.068**	**0.377**	**0.001**	**0.124**	**0.003**	**0.026**
2021-22	**-0.020**	**0.053**	**0.413**	**-0.005**	**0.144**	**0.003**	**0.035**

Source: Computed Data

Table 47, portrays that the total debt ratio of Ramco cements is fluctuating throughout the study period and there is possibility of the debt proportion to be redeemed by the next five years i.e, 2017-18 to 2021-22. The return on equity is projected to reach 14 per cent during 2021-22.

The dividend payout seems to be very less in forthcoming years and therefore the company should increase its income level to pay a better return to its potential investors.

12. Shree Cement Limited

The following Table 48 shows the results of Trend analysis and five year Projections of Shree Cement Limited.

Table 48

Trend analysis and Projections of Capital structure and Dividend decision variables of Shree Cement for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0.101	0.273	0.546	0.217	0.484	0.00	0.028
2009-10	0.080	0.181	0.529	0.169	0.363	0.00	0.024
2010-11	0.014	0.106	0.438	0.049	0.104	0.00	0.024
2011-12	0.099	0.058	0.405	0.116	0.225	0.00	0.025
2012-13	0.069	0.061	0.226	0.162	0.235	0.00	0.018
2013-14	0.066	0.051	0.180	0.121	0.170	0.001	0.016
2014-15	-0.001	0.051	0.128	0.060	0.080	0.00	0.016
2015-16	0.006	0.061	0.107	0.056	0.072	0.00	0.013
2016-17	0.067	0.228	0.095	0.021	0.024	0.00	0.063
2017-18	**0.023**	**0.197**	**0.169**	**0.196**	**0.478**	**0.00**	**0.027**
2018-19	**0.014**	**0.187**	**0.181**	**0.220**	**0.482**	**0.00**	**0.018**
2019-20	**0.017**	**0.097**	**0.223**	**0.190**	**0.399**	**0.00**	**0.011**
2020-21	**0.021**	**-0.001**	**0.269**	**0.162**	**0.309**	**0.00**	**0.003**
2021-22	**-0.038**	**-0.096**	**0.249**	**0.274**	**0.476**	**0.00**	**-0.012**

Source: Computed Data

Table 48 reveals that the total debt ratio of Shree cements is fluctuating throughout the study period and there is possibility of reduction in the total debt ratio to reach 25 per cent during the next five years i.e, 2017-18 to 2021-22. The return on equity is anticipated to reach 47 per cent during 2021-22, implying better financial ability of the company to earn profits in the next five years.

The dividend payout seems to be nil, depicts the plan of the company to retain the profits in the nearby future.

C. PAINT INDUSTRY

The inter industry and intra industry trends of capital structure and dividend decisions of selected paint companies are computed using Compound Annual Growth Rate (CAGR) and trend analysis for the period 2007-08 to 2016-17 and projections are made for five years from 2017-18 to 2021-22.

The following Table 49 exhibits the results of Compound Annual Growth Rate of Paint industry.

Table 49

Paint Industry CAGR for 2007-08 to 2016-17

Companies	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
Akzo Nobel	0	0.060	0	0.134	0.145	-0.158	-0.045
Asian	0.110	-0.155	0.063	-0.015	-0.021	-0.031	-0.003
Berger	0.140	-0.107	0.010	0.008	-0.015	0.030	0.010
Kansai Nerolac	0.027	-0.046	0.024	0.033	0.014	-0.031	-0.223

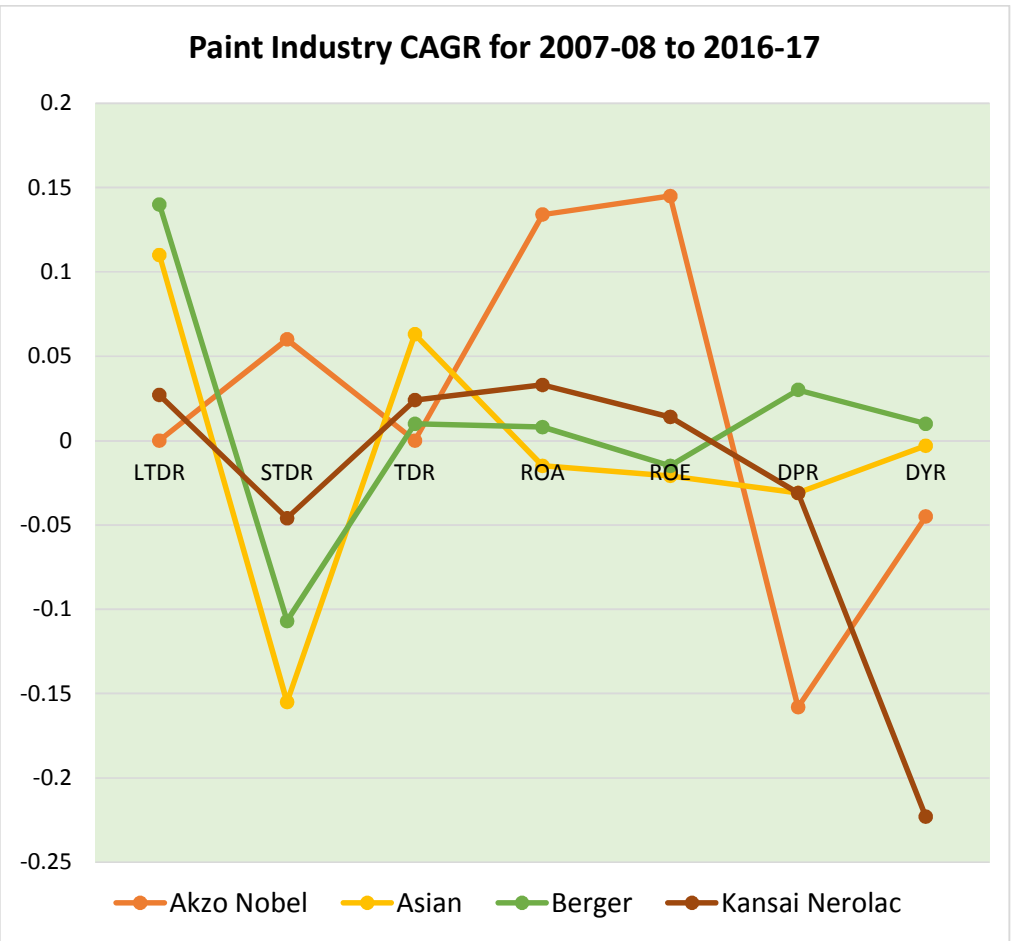
Source: Computed Data

From Table 49, it is revealed that in paint industry, the compound annual growth rate of long term debt ratio is 14 per cent in Berger, followed by Asian paints at 11 per cent, Kansai Nerolac at 2.7 per cent and no growth in Akzo Nobel. The return on asset shows 13.4 per cent growth in Akzo Nobel, followed by Kansai Nerolac at 3.3 per cent. This specifies the paint companies to increase their efficiency, to earn a good return from the fixed assets. The return on equity inferred a moderate growth of 14.5 per cent in Akzo Nobel steel and a mild growth in Kansai Nerolac paints at 1.4 per cent.

The dividend payout ratio showed 3 per cent growth in Berger and a negative growth in the remaining paint companies. The dividend yield implied 1 percent growth in Berger and a negative growth in the remaining paint companies during the study period. This indicates the strategy of paint companies to retain profits for investment purposes and also specifies the need to increase the dividend payout, thereby can increase the market value.

Exhibit 9

Paint Industry CAGR



1. Akzo Nobel India Limited

The following Table 50 displays the results of Trend analysis and five year Projections of Akzo Nobel India Limited.

Table 50

Trend analysis and Projections of Capital structure and Dividend decision variables of Akzo Nobel India for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0	0.107	0	0.303	7.722	0.767	0.238
2009-10	0	0.096	0	0.158	4.251	1.354	0.217
2010-11	0	0.132	0	0.160	4.756	1.369	0.222
2011-12	0	0.138	0	0.139	5.436	1.736	0.245
2012-13	0	0.221	0	0.197	4.630	1.689	0.336
2013-14	0	0.202	0	0.175	3.169	2.313	0.410
2014-15	0	0.187	0	0.201	3.957	0.478	0.097
2015-16	0	0.288	0	0.276	4.288	1.611	0.448
2016-17	0.003	0.149	0.003	0.242	5.246	0.399	0.097
2017-18	**0.001**	**0.076**	**0.00**	**0.141**	**4.464**	**1.700**	**0.213**
2018-19	**0.001**	**0.077**	**0.001**	**0.184**	**6.242**	**1.507**	**0.253**
2019-20	**0.002**	**0.078**	**0.001**	**0.092**	**4.638**	**2.047**	**0.266**
2020-21	**0.002**	**0.108**	**0.001**	**0.069**	**4.926**	**2.480**	**0.318**
2021-22	**0.003**	**0.145**	**0.002**	**0.039**	**4.77**	**3.266**	**0.427**

Source: Computed Data

Table 50 portrays that in Akzo Nobel India there does not exist any long term debt and the equity shareholders are projected to be safe during the next five years i.e, 2017-18 to 2021-22 also.

The dividend payout is forecasted to be 327 per cent and the dividend yield is projected to reach 42.7 per cent in 2021-22. It denotes that the company retains lesser profit for its investment plans and the investors can expect higher dividends with increased market price for their shares by the next five years.

2. Asian Paints Limited

The following Table 51 shows the results of Trend analysis and five year Projections of Asian Paints Limited.

Table 51

Trend analysis and Projections of Capital structure and Dividend decision variables of Asian Paints for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0.042	0.205	0.063	0.307	0.328	0.498	0.152
2009-10	0.026	0.133	0.042	0.432	0.451	0.349	0.165
2010-11	0.020	0.082	0.034	0.360	0.387	0.420	0.154
2011-12	0.055	0.071	0.061	0.340	0.372	0.424	0.153
2012-13	0.011	0.085	0.017	0.323	0.337	0.448	0.144
2013-14	0.010	0.111	0.013	0.302	0.312	0.463	0.140
2014-15	0.007	0.103	0.009	0.299	0.308	0.477	0.137
2015-16	0.005	0.105	0.007	0.314	0.322	0.491	0.144
2016-17	0.145	0.044	0.160	-0.003	-0.003	-0.005	-0.001
2017-18	**0.050**	**0.189**	**0.054**	**0.444**	**0.480**	**0.523**	**0.199**
2018-19	**0.064**	**0.171**	**0.077**	**0.477**	**0.510**	**0.544**	**0.206**
2019-20	**0.083**	**0.123**	**0.170**	**0.565**	**0.603**	**0.538**	**0.229**
2020-21	**0.105**	**0.093**	**0.233**	**0.573**	**0.620**	**0.669**	**0.249**
2021-22	**0.131**	**0.104**	**0.238**	**0.640**	**0.691**	**0.816**	**0.287**

Source: Computed Data

From Table 51, it is observed that in Asian paints the Long term debt ratio has been fluctuating throughout the study period and is expected to reach 13 per cent by 2021-22. It indicates that the company will issue new debentures and largely depends on equity capital denoting safety of investment to the shareholders. The return on asset is projected to reach 64 per cent and return on equity to 69 per cent by 2021-22 implies greater efficiency of the company to provide a good return to its investors.

The dividend payout is expected to reach 81.6 percent indicates higher payout policy of the company.

3. Berger Paints Limited

The following Table 52 exhibits the results of Trend analysis and five year Projections of Berger Paints Limited.

Table 52

Trend analysis and Projections of Capital structure and Dividend decision variables of Berger Paints for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0.00	0.117	0.153	0.167	0.198	0.222	0.046
2009-10	0.00	0.073	0.036	0.183	0.190	0.332	0.060
2010-11	0.034	0.047	0.127	0.172	0.199	0.315	0.062
2011-12	0.095	0.050	0.164	0.171	0.208	0.283	0.057
2012-13	0.119	0.050	0.231	0.159	0.210	0.310	0.063
2013-14	0.001	0.060	0.206	0.160	0.204	0.341	0.067
2014-15	0.048	0.041	0.180	0.164	0.201	0.346	0.066
2015-16	0.003	0.036	0.040	0.216	0.226	0.342	0.075
2016-17	0.145	0.045	0.280	-0.002	-0.002	-0.003	-0.001
2017-18	**0.086**	**0.113**	**0.140**	**0.212**	**0.262**	**0.289**	**0.060**
2018-19	**0.102**	**0.099**	**0.180**	**0.217**	**0.253**	**0.354**	**0.068**
2019-20	**0.103**	**0.072**	**0.240**	**0.239**	**0.277**	**0.440**	**0.082**
2020-21	**0.083**	**0.058**	**-0.067**	**0.257**	**0.324**	**0.480**	**0.093**
2021-22	**0.057**	**0.066**	**-0.058**	**0.294**	**0.392**	**0.557**	**0.109**

Source: Computed Data

Table 52 shows that the long term debt ratio of Berger paints is fluctuating during the study period and there is possibility of reduction in debt to 5.7 per cent during 2021-22. The investors can expect an increase in the return on their investment up to 39 per cent during 2021-22.

The dividend payout is projected to reach 55.7 per cent denoting the company's policy of distributing a fair return to the potential investors in the next five years i.e, 2017-18 to 2021-22.

4. Kansai Nerolac Paints Limited

The following Table 53 shows the results of Trend analysis and five year Projections of Kansai Nerolac Paints Limited.

Table 53

Trend analysis and Projections of Capital structure and Dividend decision variables of Kansai Nerolac Paints for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0.103	0.055	0.124	0.127	0.145	0.344	0.049
2009-10	0.086	0.046	0.123	0.183	0.209	0.251	0.052
2010-11	0.075	0.028	0.078	0.177	0.201	0.271	0.058
2011-12	0.059	0.026	0.062	0.175	0.194	0.285	0.055
2012-13	0.048	0.032	0.049	0.147	0.159	0.207	0.046
2013-14	0.037	0.030	0.037	0.134	0.142	0.300	0.041
2014-15	0.024	0.024	0.025	0.160	0.167	0.292	0.047
2015-16	0.017	0.047	0.017	0.199	0.204	0.189	0.071
2016-17	0.145	0.045	0.176	-0.002	-0.002	-0.002	-0.001
2017-18	**0.046**	**0.053**	**-0.011**	**0.187**	**0.218**	**0.359**	**0.062**
2018-19	**0.050**	**0.042**	**-0.022**	**0.200**	**0.232**	**0.392**	**0.065**
2019-20	**0.062**	**0.029**	**-0.023**	**0.244**	**0.282**	**0.387**	**0.072**
2020-21	**0.084**	**0.012**	**-0.007**	**0.262**	**0.300**	**0.454**	**0.082**
2021-22	**0.125**	**0.006**	**-0.023**	**0.287**	**0.322**	**0.535**	**0.086**

Source: Computed Data

Table 53 reveals that the long term debt ratio of Kansai Nerolac paints is raising during the study period and is projected to be 12.5 per cent by 2017-18 to 2021-22. This denotes that the company largely depends on equity denoting safety of investment to the shareholders. The return on equity is projected to 32.2 per cent.

The dividend payout at 53.5 per cent by 2021-22. It indicates that the company possess good financial effectiveness to provide a better return to its shareholders.

D. GRANITE INDUSTRY

The inter industry and intra industry trends of capital structure and dividend decisions of selected granite companies are computed using Compound Annual Growth Rate (CAGR) and trend analysis for the period 2007-08 to 2016-17 and projections are made for five years from 2017-18 to 2021-22. The following Table 54 shows the results of Compound Annual Growth Rate of Granite industry.

Table 54

Granite Industry CAGR for 2007-08 to 2016-17

Companies	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
Aro	0.195	-0.005	-0.007	-0.105	-0.079	-0.099	-0.047
Divyashakti	0	-0.183	0	0.127	0.127	-0.257	-0.165
Inani	0.164	-0.053	0.157	-0.082	-0.055	0.142	0.054
Madhav	0	0.010	-0.207	-0.010	-0.049	-0.013	-0.030

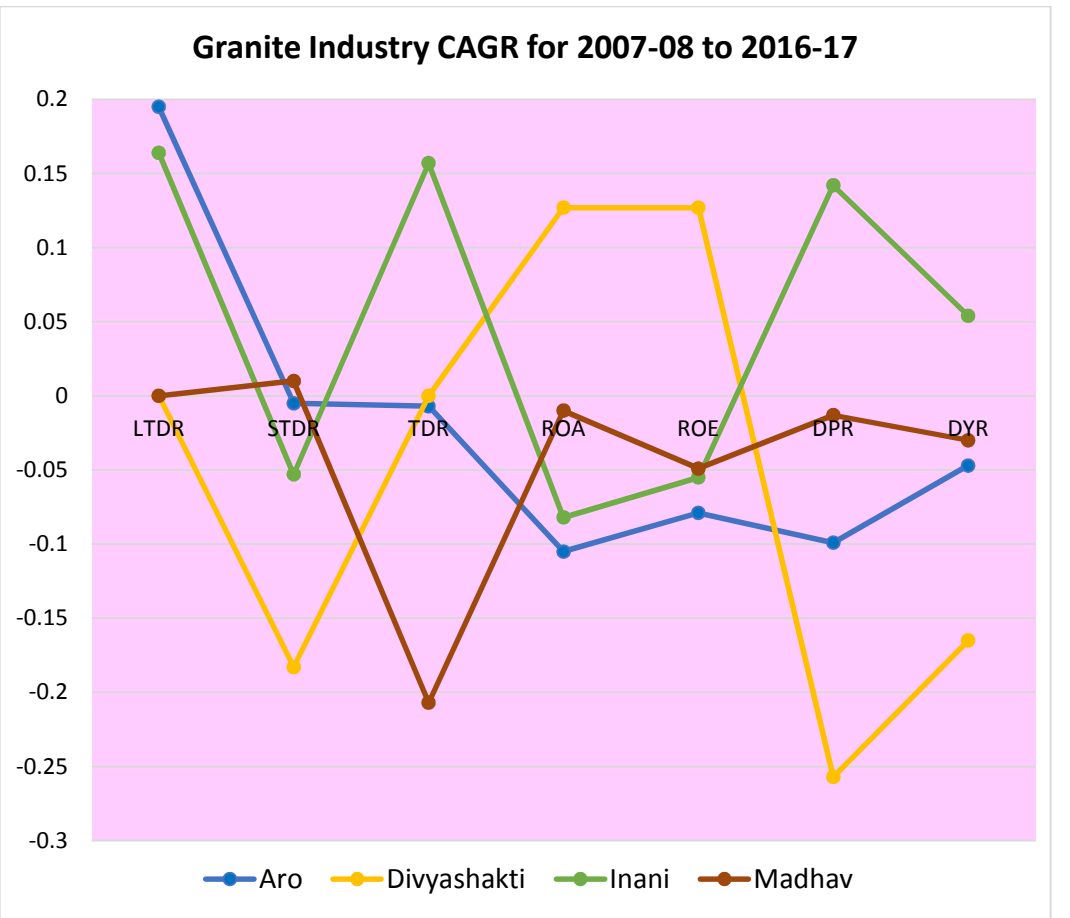
Source: Computed Data

Table 54 reveals that in granite industry, the compound annual growth rate of total debt ratio in Aro granites is 19.5 per cent, followed by Inani 16.4 per cent and no growth in remaining companies. The return on asset and the return on equity implies 12.7 percent growth individually in Divyashakti granites and negative growth in other granite companies. This denotes that the granite companies should improve their capacity to earn a good return using the assets and also should pay a better return to the equity shareholders.

The dividend payout indicates 14.2 per cent and dividend yield shows 5.4 per cent growth in Inani granites and the remaining granite companies during the study period.

Exhibit 10

Granite Industry CAGR



1. Aro Granite Industries Limited

The following Table 55 exhibits the results of Trend analysis and five year Projections of Aro Granite Industries Limited.

Table 55

Trend analysis and Projections of Capital structure and Dividend decision variables of Aro Granite Industries for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0.00	0.043	0.391	0.079	0.131	0.002	0.012
2009-10	0.00	0.063	0.324	0.073	0.108	0.002	0.011
2010-11	0.00	0.026	0.347	0.058	0.090	0.002	0.010
2011-12	0.00	0.043	0.364	0.045	0.077	0.002	0.009
2012-13	0.00	0.056	0.432	0.051	0.091	0.001	0.008
2013-14	0.165	0.050	0.429	0.062	0.110	0.001	0.011
2014-15	-0.002	0.038	0.428	0.061	0.108	0.001	0.010
2015-16	0.00	0.039	0.414	0.021	0.036	0.003	0.010
2016-17	0.00	0.055	0.421	0.00	0.00	0.001	0.009
2017-18	**0.028**	**0.051**	**0.371**	**0.084**	**0.138**	**0.002**	**0.012**
2018-19	**0.035**	**0.046**	**0.389**	**0.096**	**0.152**	**0.002**	**0.011**
2019-20	**0.033**	**0.048**	**0.389**	**0.096**	**0.150**	**0.001**	**0.010**
2020-21	**0.024**	**0.030**	**0.308**	**0.096**	**0.158**	**0.001**	**0.009**
2021-22	**-0.008**	**0.048**	**0.367**	**0.109**	**0.191**	**0.001**	**0.009**

Source: Computed Data

Table 55 shows that in Aro Granite, the Long term debt ratio was less throughout the study period and is expected to be none by the next five years i.e, 2017-18 to 2021-22. It indicates that the company largely depends on equity denoting safety of investment to the shareholders. The return on equity is expected to reach 19 per cent by 2021-22 signifying the efficiency of the company to provide a better return to its potential investors.

The dividend payout seems to be nil implying the policy of the company to retain profits for future investment plans.

2. Divyashakti Granites Limited

The following Table 56 reveals the results of Trend analysis and five year Projections of Divyashakti Granites Limited.

Table 56

Trend analysis and Projections of Capital structure and Dividend decision variables of Divyashakti Granites for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0	0.092	0	0.335	0.335	0.004	0.044
2009-10	0	0.142	0	0.126	0.126	0.009	0.040
2010-11	0	0.238	0.008	0.153	0.154	0.006	0.036
2011-12	0	0.046	0.004	0.150	0.151	0.005	0.032
2012-13	0	0.027	0.00	0.115	0.115	0.002	0.025
2013-14	0	0.009	0.00	0.140	0.140	0.002	0.022
2014-15	0	0.013	0.00	0.119	0.119	0.002	0.016
2015-16	0	0.007	0.00	0.117	0.117	0.002	0.018
2016-17	0	0.027	0.00	0.424	0.424	0.00	0.00
2017-18	**0**	**0.186**	**0.00**	**0.154**	**0.155**	**0.013**	**0.060**
2018-19	**0**	**0.184**	**0.00**	**0.163**	**0.164**	**0.008**	**0.056**
2019-20	**0**	**0.226**	**0.00**	**0.028**	**0.029**	**0.010**	**0.057**
2020-21	**0**	**0.236**	**0.00**	**-0.012**	**-0.011**	**0.008**	**0.058**
2021-22	**0**	**0.057**	**-0.001**	**-0.111**	**-0.110**	**0.007**	**0.059**

Source: Computed Data

Table 56 portrays that in Divyashakti Granites there does not exist any debt and the equity shareholders are projected to be safe on their investment during the next five years i.e, 2017-18 to 2021-22 also. The return on asset and return on equity seems to be nil, specifies the company to increase its productivity and financial efficiency so as to make better payments to the shareholders.

The dividend yield ratio is expected to reach 5.9 per cent by 2021-22. It signifies the possibility of increase in market price of shares in the forthcoming years.

3. Inani Marbles and Industries Limited

The following Table 57 exhibits the results of Trend analysis and five year Projections of Inani Marbles and Industries Limited.

Table 57

Trend analysis and Projections of Capital structure and Dividend decision variables of Inani Marbles for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0	0.336	0.102	0.091	0.101	0.009	0.029
2009-10	0	0.149	0.428	0.072	0.126	0.005	0.026
2010-11	0.009	0.113	0.546	0.090	0.200	0.002	0.021
2011-12	0.137	0.081	0.530	0.106	0.228	0.001	0.017
2012-13	0.135	0.078	0.471	0.072	0.138	0.002	0.015
2013-14	0.111	0.076	0.409	0.147	0.250	0.001	0.011
2014-15	0.086	0.070	0.407	0.094	0.159	0.001	0.010
2015-16	0.068	0.058	0.353	0.086	0.133	0.001	0.008
2016-17	0.016	0.130	0.347	0.026	0.038	0.038	0.038
2017-18	**0.103**	**0.239**	**0.562**	**0.087**	**0.138**	**-0.003**	**0.015**
2018-19	**0.104**	**0.243**	**0.550**	**0.104**	**0.183**	**-0.003**	**0.024**
2019-20	**0.090**	**0.132**	**0.431**	**0.111**	**0.242**	**-0.010**	**0.019**
2020-21	**0.040**	**0.090**	**0.408**	**0.142**	**0.329**	**-0.020**	**0.010**
2021-22	**-0.085**	**0.046**	**0.477**	**0.178**	**0.388**	**-0.031**	**-0.002**

Source: Computed Data

From Table 57, it is observed that in Inani marbles, the Long term debt ratio has reduced throughout the study period and is expected to be none during the next five years i.e, 2017-18 to 2021-22. It indicates that the company redeemed the debentures and is largely depended on equity capital denoting safety of investment to the shareholders. The return on equity is expected to reach 38.8 per cent by 2021-22 implying efficient productivity to earn profits to the investors.

The dividend yield shows lesser market price of shares. The company should increase the dividend payouts in order to raise its market price.

4. Madhav Marbles and Granites Limited

The following Table 58 exhibits the results of Trend analysis and five year Projections of Madhav Marbles and Granites Limited.

Table 58

Trend analysis and Projections of Capital structure and Dividend decision variables of Madhav Marbles and Granites Limited for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0.004	0.276	0.266	0.011	0.016	0.006	0.010
2009-10	0.004	0.294	0.179	0.029	0.035	0.003	0.009
2010-11	0.011	0.038	0.054	0.010	0.011	0.009	0.009
2011-12	0.009	0.027	0.021	0.022	0.024	0.002	0.009
2012-13	0.00	0.049	0.00	0.030	0.031	0.003	0.009
2013-14	0.00	0.080	0.00	0.056	0.057	0.002	0.013
2014-15	0.00	0.070	0.081	0.063	0.070	0.001	0.012
2015-16	0.00	0.124	0.039	0.060	0.063	0.001	0.007
2016-17	0.00	0.264	0.039	0.040	0.041	0.001	0.007
2017-18	**0.00**	**0.210**	**-0.010**	**0.016**	**0.027**	**0.005**	**0.010**
2018-19	**-0.003**	**0.183**	**-0.005**	**0.001**	**0.005**	**0.007**	**0.010**
2019-20	**-0.006**	**0.092**	**0.009**	**0.001**	**0.005**	**0.007**	**0.010**
2020-21	**-0.010**	**-0.128**	**0.030**	**-0.010**	**-0.011**	**0.010**	**0.011**
2021-22	**-0.009**	**-0.198**	**0.022**	**0.005**	**0.004**	**0.003**	**0.012**

Source: Computed Data

From Table 58, it is shown that in Madhav Marbles the Long term debt ratio has been reducing throughout the study period and is expected be no debt capital during the next five years i.e, 2017-18 to 2021-22. It indicates that the company largely depends on equity denoting safety of investment to the shareholders. It is projected that there will be very lesser return on asset, return on equity and dividend payout till 2021-22. It indicates that the company should improve its productivity and income level, so as to provide a better return to its investors.

E. CERAMIC TILES INDUSTRY

The inter industry and intra industry trends of capital structure and dividend decisions of selected Ceramic Tiles Companies are computed using Compound Annual Growth Rate (CAGR) and trend analysis for the period 2007-08 to 2016-17 and projections are made for five years from 2017-18 to 2021-22.

The following Table 59 displays the results of Compound Annual Growth Rate of Ceramic Tiles industry.

Table 59

Ceramic Tiles industry CAGR for 2007-08 to 2016-17

Companies	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
Kajaria	0.146	0.088	-0.273	0.015	-0.105	0.225	0.678
Orient bell	-0.006	-0.089	-0.018	0.021	-0.059	0.001	-0.075
Somany	-1.00	-0.173	-0.102	0.216	0.094	-0.221	0.072

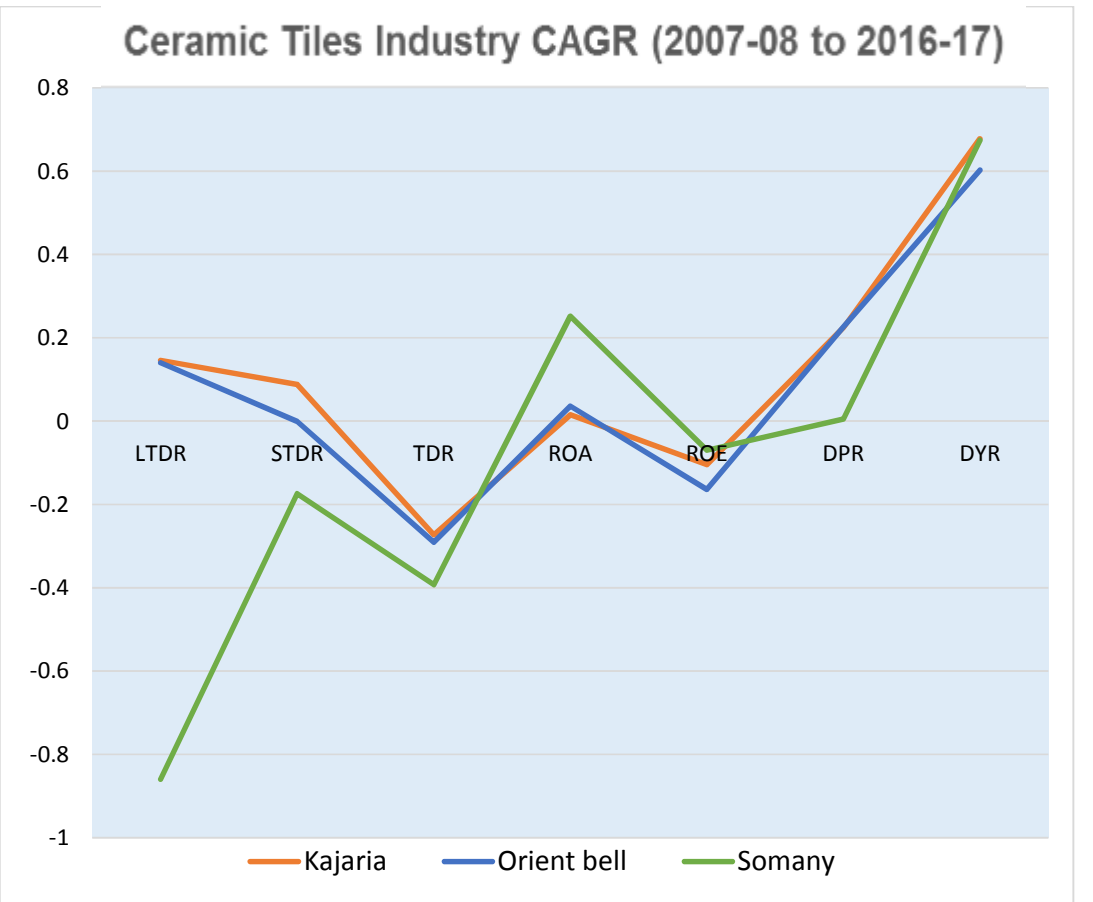
Source: Computed Data

From Table 59, it is found that in ceramic tiles industry the compound annual growth rate of total debt ratio is negative in all the companies during the study period. It implies that the ceramic tiles companies are largely depended on equity capital. The return on asset shows 1.5 per cent growth in Kajaria, 2.1 per cent in Orient bell and 21.6 per cent in Somany ceramics. This depicts the efficiency of the ceramic tiles companies to earn a better return from the fixed assets.

The dividend payout ratio and dividend yield ratio seems to be higher in Kajaria ceramics i.e, 22.5 per cent and 67.8 per cent correspondingly, indicates growth in dividend payouts and increase in market price of shares. Orient bell and Somany ceramic companies should increase dividends so as to raise their share price.

Exhibit 11

Ceramic Tiles Industry CAGR



1. Kajaria Ceramics Limited

The following Table 60 exhibits the results of Trend analysis and five year Projections of Kajaria Ceramics Limited.

Table 60

Trend analysis and Projections of Capital structure and Dividend decision variables of Kajaria Ceramics for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0.066	0.169	0.661	0.018	0.055	0.329	0.009
2009-10	0.008	0.165	0.575	0.080	0.191	0.415	0.039
2010-11	0.018	0.075	0.468	0.143	0.276	0.512	0.066
2011-12	0.126	0.071	0.451	0.153	0.287	0.527	0.065
2012-13	0.112	0.042	0.367	0.177	0.288	0.608	0.061
2013-14	-0.001	0.062	0.141	0.189	0.224	0.835	0.053
2014-15	0.031	0.110	0.099	0.211	0.238	0.879	0.043
2015-16	0.00	0.053	0.047	0.245	0.260	0.934	0.043
2016-17	0.00	0.199	0.038	0.031	0.032	0.968	1.000
2017-18	**0.003**	**0.112**	**0.295**	**0.047**	**0.163**	**0.183**	**-0.166**
2018-19	**0.001**	**0.122**	**0.241**	**0.067**	**0.209**	**0.153**	**-0.239**
2019-20	**-0.005**	**0.079**	**0.297**	**0.126**	**0.335**	**0.148**	**-0.335**
2020-21	**-0.056**	**-0.012**	**0.381**	**0.193**	**0.441**	**0.139**	**-0.494**
2021-22	**-0.156**	**-0.064**	**0.329**	**0.250**	**0.514**	**0.100**	**-0.776**

Source: Computed Data

Table 60 revealed that the long term debt ratio of Kajaria Ceramics is reducing during the study period and there is possibility of the debt proportion to be nil by the next five years i.e, 2017-18 to 2021-22. Return on equity is forecasted to be 51.4 percent shows efficient productivity to pay a better return to the shareholders.

It is projected that the investors can expect a complete decline in dividend payout, up to 10 per cent by 2021-22. It signifies that the company retains higher profits as reserves and pays low return to its investors.

2. Orient bell Limited

The following Table 61 shows the results of Trend analysis and five year Projections of Orient bell Limited.

Table 61

Trend analysis and Projections of Capital structure and Dividend decision variables of Orient bell for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0.105	0.094	0.573	0.051	0.121	0.257	0.030
2009-10	0.081	0.106	0.503	0.092	0.187	0.187	0.034
2010-11	0.173	0.129	0.597	0.032	0.080	0.222	0.030
2011-12	0.111	0.048	0.518	0.034	0.073	0.118	0.015
2012-13	0.107	0.037	0.521	0.026	0.055	0.213	0.018
2013-14	0.105	0.038	0.497	0.006	0.011	0.352	0.006
2014-15	0.109	0.050	0.470	0.014	0.028	0.096	0.006
2015-16	0.121	0.031	0.408	0.020	0.035	0.110	0.005
2016-17	0.144	0.045	0.559	0.00	0.00	-0.001	0.00
2017-18	**0.121**	**0.121**	**0.445**	**0.058**	**0.135**	**0.279**	**0.032**
2018-19	**0.133**	**0.125**	**0.456**	**0.079**	**0.178**	**0.303**	**0.043**
2019-20	**0.133**	**0.133**	**0.459**	**0.089**	**0.193**	**0.304**	**0.046**
2020-21	**0.109**	**0.124**	**0.447**	**0.054**	**0.129**	**0.361**	**0.043**
2021-22	**0.162**	**0.048**	**0.352**	**0.056**	**0.123**	**0.400**	**0.033**

Source: Computed Data

Table 61, depicts that the total debt ratio of Orient bell is fluctuating throughout the study period and there is possibility of the long term debt proportion to reach 16.2 per cent by 2021-22. The return on equity is projected to reach up to 12 per cent by 2021-22. It implies that the company should increase its efficiency and income level in order to pay a better return to its shareholders.

The dividend payout ratio is forecasted at 40 per cent in the next five year period implying the policy of the company to pay higher dividends.

3. Somany Ceramics Limited

The following Table 62 displays the results of Trend analysis and five year Projections of Somany Ceramics Limited.

Table 62

Trend analysis and Projections of Capital structure and Dividend decision variables of Somany Ceramics for 2017-18 to 2021-22

	LTDR	STDR	TDR	ROA	ROE	DPR	DYR
2008-09	0.045	0.155	0.675	0.047	0.149	0.006	0.016
2009-10	0.145	0.248	0.658	0.085	0.253	0.004	0.025
2010-11	0.066	0.163	0.623	0.074	0.230	0.003	0.023
2011-12	0.002	0.198	0.536	0.081	0.199	0.003	0.022
2012-13	0.00	0.232	0.486	0.095	0.208	0.003	0.027
2013-14	0.002	0.229	0.381	0.071	0.125	0.004	0.026
2014-15	0.00	0.085	0.375	0.097	0.169	0.003	0.030
2015-16	0.00	0.078	0.295	0.099	0.149	0.002	0.023
2016-17	0.00	0.015	0.270	0.123	0.169	0.00	0.00
2017-18	**-0.021**	**0.209**	**0.376**	**0.035**	**0.170**	**0.009**	**0.021**
2018-19	**-0.046**	**0.277**	**0.289**	**0.048**	**0.228**	**0.007**	**0.027**
2019-20	**-0.078**	**0.345**	**0.263**	**0.059**	**0.281**	**0.006**	**0.034**
2020-21	**-0.041**	**0.355**	**0.282**	**0.046**	**0.262**	**0.006**	**0.038**
2021-22	**-0.002**	**0.469**	**0.266**	**0.041**	**0.234**	**0.007**	**0.047**

Source: Computed Data

Table 62 portrays that in Somany Ceramics the Long term debt ratio has been reducing during the study period and is projected to be no debt capital by the next five years i.e, 2017-18 to 2021-22. It indicates that the company largely depends on equity denoting safety on investment for the shareholders.

It is also projected that the return on asset will reach 4.1 per cent by 2021-22 and a very low dividend payout. It indicates that the company should improve its financial efficacy in order to provide a better return to its investors.

4.5 Impact of capital structure on dividend decisions

The procurement of equity capital may reduce the dividend per cent to individual investors and the company is obliged to pay regular dividends. Whereas, the acquiring of leverage would discharge the company from paying annual dividends but it would reduce its credit standing. On the other hand, consuming of reserves might reduce the capital gains for shareholders.

The debt capital is commonly preferred to equity as it is considered to be beneficial, to both investors and the firm. The alteration of source of capital and its impact on dividend decisions are inseparable. The impact of capital structure on the dividend payout of selected construction associated industries are computed to analyse the relationship amongst them. To evaluate the impact, multiple regression model is framed on industry basis.

The following variables are measured to reveal the relationship between capital structure and dividend payout.

(i) Dependent Variable – Dividend Payout Ratio (DPR)

(ii) Independent Variables – Return on Asset (ROA), Return on Equity (ROE), Risk (RK), Asset Tangibility (AT), Firm Size (FS), Earning Volatility (EV), Non-Debt Tax Shields (NDTS), Liquidity Ratio (LR)

Where, β_0 = constant, β_1- β_8 = coefficient, ei = error term

HYPOTHESIS

H0: There is no significant impact of capital structure on dividend decisions of the select construction associated companies

A. STEEL INDUSTRY

The return on asset, return on equity, firm size and liquidity ratio are derived as factors influencing capital structure of steel companies. They are analysed with dividend payout ratio to examine the impact of capital structure on dividend payout policy. The model framed to assess the impact of capital structure on dividend payout policy of steel industry is specified as,

$$DPR = \beta_0 + \beta_1 ROA + \beta_2 ROE + \beta_3 FS + \beta_4 LR + ei \quad \text{——————} \quad (i)$$

1. Hisar Metal Industries Limited

The following Table 63 exhibits the multiple regression results of the impact of capital structure on dividend payout policy of Hisar Metal Industries for the period 2007-08 to 2016-17.

Table 63

Multiple Regression Analysis - Hisar Metal Industries

Variables	Beta Coefficients	t	Sig.
(Constant)	0.431	0.754	0.485
ROA	-4.907	-0.279	0.092
ROE	0.659	0.191	**0.056**
FS	-0.160	-0.655	0.542
LR	-0.002	-0.208	0.844

Dependent Variable: Dividend Payout ratio

Source: Computed Data

Table 63 implies return on equity having 66 per cent positive association with dividend payout. With the increase of return on equity, the company increases the dividend payout. The multiple regression analysis indicates dividend payout ratio having R Square value of 24.5 per cent relation explained with the independent variable. The result reveals that in Hisar metal industries, return on equity significantly impacts the dividend payouts during the study period. Hence, the null hypothesis is rejected and the following equation is derived.

DPR = 0.431 + 0.659 ROE

2. JSW Steel Limited

The following Table 64 exhibits the multiple regression results of the impact of capital structure on dividend payout policy of JSW steel for the period 2007-08 to 2016-17.

Table 64

Multiple Regression Analysis - JSW steel

Variables	Beta Coefficients	t	Sig.
(Constant)	-0.008	-0.659	0.539
ROA	0.035	0.524	0.623
ROE	-0.017	-0.538	**0.014**
FS	0.003	0.799	0.061
LR	-0.004	-0.933	0.394

Dependent Variable: Dividend Payout ratio

Source: Computed Data

Table 64 specifies return on equity having 1.7 per cent negative influence on the dependent variable. As the return on equity raises, the company reduces the dividend payout. The multiple regression analysis specifies dividend payout ratio showing R Square value of 20.5 per cent relation explained with the capital structure. The regression result denotes that in JSW steel, return on equity mildly influence the dividend payouts during the period of study. Hence, the null hypothesis is rejected and the following equation is derived.

DPR = - 0.008 - 0.017 ROE

3. Kirloskar Ferrous Industries Limited

The following Table 65 exhibits the multiple regression results of Kirloskar ferrous industries for the period 2007-08 to 2016-17.

Table 65

Multiple Regression Analysis - Kirloskar ferrous industries

Variables	Beta Coefficients	t	Sig.
(Constant)	0.241	3.676	0.014
ROA	-0.147	-0.689	0.521
ROE	-0.124	-0.546	0.608
FS	-0.056	-2.660	**0.045**
LR	-0.020	-2.052	0.095

Dependent Variable: Dividend Payout ratio

Source: Computed Data

As shown in Table 65, the analysis signifies firm size showing 5.6 per cent negative influence on dividend payout. It denotes that in Kirloskar ferrous industries, firm size mildly impacts the dividend payouts. The multiple regression analysis result indicates dividend payout ratio having R Square value of 66.6 per cent relation explained with the independent variable. Hence, the null hypothesis is rejected and the following equation is derived.

DPR = 0.241 – 0.056 FS

4. Rishabh Digha Steel and Allied Products Limited

The following Table 66 exhibits multiple regression results of the impact of capital structure on dividend payout policy of Rishabh Digha Steel for the period 2007-08 to 2016-17.

Table 66

Multiple Regression Analysis - Rishabh Digha Steel

Variables	Beta Coefficients	t	Sig.
(Constant)	0.374	1.148	0.295
ROE	-0.199	-0.091	0.931
FS	-0.322	-0.398	0.704
LR	-0.064	-0.207	0.843

Dependent Variable: Dividend Payout ratio

Source: Computed Data

It is known from Table 66, the analysis results denotes that in Rishabh Digha Steel and Allied Products, there does not exist any impact of capital structure on dividend payout policy during the study period. The multiple regression analysis indicates dividend payout ratio showing R Square value of 28.5 per cent relation explained with the capital structure. Hence, the null hypothesis is accepted.

5. Sardha Energy and Minerals Limited

The following Table 67 exhibits the multiple regression results Sardha Energy and Minerals for the period 2007-08 to 2016-17.

Table 67

Multiple Regression Analysis - Sardha Energy and Minerals

Variables	Beta Coefficients	t	Sig.
(Constant)	0.007	2.224	0.077
ROA	0.008	0.428	0.087
ROE	-0.006	-0.581	0.060
FS	-0.002	-1.923	**0.012**
LR	0.00	1.001	0.363

Dependent Variable: Dividend Payout ratio

Source: Computed Data

From Table 67, firm size holds a mild negative association with the dividend payout in Sardha Energy and Minerals. It implies that as the sales increase the company reduces the dividend payouts. The multiple regression analysis indicates dividend payout ratio showing R Square value of 50.6 per cent relation explained with the independent variable. Hence, the null hypothesis is rejected and the following equation is derived.

DPR = 0.007 – 0.002 FS

6. Tata Sponge Iron Limited

The following Table 68 exhibits the multiple regression results of the impact of capital structure on dividend payout policy of Tata Sponge Iron for the period 2007-08 to 2016-17.

Table 68

Multiple Regression Analysis - Tata Sponge Iron

Variables	Beta Coefficients	t	Sig.
(Constant)	0.008	2.611	0.048
ROA	0.002	0.612	0.567
ROE	-0.003	-0.881	0.419
FS	-0.002	-2.408	**0.041**
LR	0.00	-1.004	0.361

Dependent Variable: Dividend Payout ratio

Source: Computed Data

It is revealed from Table 68, the firm size holds mild negative association with the dependent variable. The multiple regression analysis indicates dividend payout ratio having R Square value of 61.2 per cent relation are explained with the independent variable. Hence, the null hypothesis is rejected and the following equation is derived.

DPR = 0.008 – 0.002 FS

7. Tata Steel Limited

The following Table 69 exhibits the multiple regression results of Tata steel for the period 2007-08 to 2016-17.

Table 69

Multiple Regression Analysis - Tata Steel

Variables	Beta Coefficients	t	Sig.
(Constant)	-0.008	-2.185	0.081
ROA	-0.041	-3.374	**0.020**
ROE	0.026	3.715	**0.014**
FS	0.002	2.279	0.072
LR	0.00	3.990	**0.010**

Dependent Variable: Dividend Payout ratio

Source: Computed Data

As shown in Table 69, return on asset holds 4.1 per cent negative association with dividend payout ratio. Return on equity shows 2.6 per cent and liquidity ratio implies a very mild positive impact on the dependent variable. As the profit available for equity shareholders and liquidity ratio increase, the company raises the dividend payout ratio accordingly.

The multiple regression analysis indicates dividend payout ratio showing R Square value of 84 per cent elation are explained with the independent variables. The regression results reveals that in Tata steel, return on asset, return on equity and liquidity ratio significantly influence the dividend payouts during the period of study. Hence, the null hypothesis is rejected and the following equation is derived.

DPR = - 0.008 – 0.041 ROA + 0.026 ROE + LR

B. CEMENT INDUSTRY

The factors such as return on asset, return on equity, risk, firm size, non-debt tax shields and liquidity ratio are revealed as capital structure influencing factors of cement companies. They are analysed with dividend payout ratio to examine the impact of capital structure on dividend payout policy. The model framed to assess the impact of capital structure on dividend payout policy of cement industry is specified as,

$$DPR = \beta_0 + \beta_1 ROA + \beta_2 ROE + \beta_3 RK + \beta_4 FS + \beta_5 NDTS + \beta_6 LR + ei \quad \text{—— (i)}$$

1. ACC Limited

The following Table 70 exhibits the multiple regression results of the impact of capital structure on dividend payout policy of ACC cement for the period 2007-08 to 2016-17.

Table 70

Multiple Regression Analysis – ACC Cement

Variables	Beta Coefficients	t	Sig.
(Constant)	0.010	1.245	0.302
ROA	0.013	0.699	**0.035**
ROE	-0.017	-0.926	0.423
RK	0.00	-1.144	0.336
FS	-0.002	-1.132	0.340
NDTS	0.019	1.111	**0.048**
LR	0.00	-0.099	0.927

Dependent Variable: Dividend Payout ratio

Source: Computed Data

It is observed from Table 70, indicates return on asset having 1.3 per cent and non-debt tax shields showing 1.9 per cent influence on the dependent variable. As the return on asset increase, the dividend payouts are increased during the study period.

The multiple regression analysis indicating dividend payout ratio having R Square value of 58.3 per cent relation are explained with the independent variables. The analysis infers that in ACC cements, the factors namely return on asset and non-debt tax shields holds mild impact on the dividend payout. Hence, the null hypothesis is rejected and the following equation is derived.

DPR = 0.010 + 0.013 ROA + 0.019 NDTS

2. Ambuja Cements Limited

The following Table 71 exhibits the multiple regression results of Ambuja cements for the period 2007-08 to 2016-17.

Table 71

Multiple Regression Analysis – Ambuja Cement

Variables	Beta Coefficients	t	Sig.
(Constant)	-0.072	-1.994	0.140
ROA	-0.614	-3.102	0.053
ROE	0.580	3.414	**0.042**
RK	0.00	-0.829	0.468
FS	0.021	2.781	0.069
NDTS	0.101	2.110	0.125
LR	-0.002	-0.719	0.524

Dependent Variable: Dividend Payout ratio

Source: Computed Data

As shown in Table 71, return on equity implies 58 per cent strong positive association with dependent variable. It indicates that the dividends are distributed with the increase in return on equity.

The multiple regression analysis indicates dividend payout ratio having R Square value of 85.4 per cent relation are explained with the capital structure. The results shows that in Ambuja cements, return on asset significantly impacts the dividend payout during the period of study. Hence, the null hypothesis is rejected and the following equation is derived.

DPR = -0.072 + 0.580 ROE

3. Birla Corporation Limited

The following Table 72 exhibits the multiple regression results of the impact of capital structure on dividend payout policy of Birla Corporation for the period 2007-08 to 2016-17.

Table 72

Multiple Regression Analysis – Birla Corporation

Variables	Beta Coefficients	t	Sig.
(Constant)	0.008	8.756	0.003
ROA	0.001	0.701	0.534
ROE	-0.001	-1.038	0.375
RK	0.00	10.592	**0.002**
FS	-0.002	-8.279	**0.004**
NDTS	0.018	4.230	**0.024**
LR	0.00	-1.014	0.385

Dependent Variable: Dividend Payout ratio

Source: Computed Data

It is known from Table 72, risk and non-debt tax shields holds mild positive association with dividend payout and firm sales holds a mild negative impact on the dividend payout. This indicates the practice of reduction in dividend payouts at the times of increase in sales so as to retain profits.

The multiple regression analysis indicates dividend payout ratio, the dependent variable showing R Square value of 59.1 per cent relation are explained with the independent variables. In Birla Corporation, capital structure factors namely risk, firm size and non-debt tax shields moderately influence the dividend payouts. Hence, the null hypothesis is rejected and the following equation is derived.

DPR = 0.008 + 0.00 RK – 0.002 FS + 0.018 NDTS

4. Deccan Cements Limited

The following Table 73 portrays multiple regression results of the impact of capital structure on dividend payout policy of Deccan Cements for the period 2007-08 to 2016-17.

Table 73

Multiple Regression Analysis – Deccan Cements

Variables	Beta Coefficients	t	Sig.
(Constant)	0.019	4.816	0.017
ROA	0.012	1.615	0.205
ROE	-0.010	-2.552	0.084
RK	0.00	-1.393	0.258
FS	-0.008	-4.256	**0.024**
NDTS	0.087	3.374	**0.043**
LR	0.00	-0.319	0.770

Dependent Variable: Dividend Payout ratio

Source: Computed Data

From the Table 73, firm size implies mild negative association and non-debt tax shields showing 8.7 per cent influence on dividend payout. The multiple regression analysis indicates dividend payout ratio showing R Square value of 96.3 per cent relation are explained with the independent variables.

The regression results reveals that in Deccan cements, the factors such as firm size and non-debt tax shields considerably impacts the dividend payout during the study period. Hence, the null hypothesis is rejected and the equation is derived as, DPR = 0.019 – 0.008 FS + 0.087 NDTS

5. JK Cement Limited

The following Table 74 exhibits the multiple regression results of the impact of capital structure on dividend payout policy of JK cement Limited for the period 2007-08 to 2016-17.

Table 74

Multiple Regression Analysis – JK Cement

Variables	Beta Coefficients	t	Sig.
(Constant)	0.034	2.012	0.138
ROA	0.021	0.513	**0.033**
ROE	-0.043	-1.432	0.248
RK	0.00	-3.373	**0.043**
FS	-0.006	-1.478	0.236
NDTS	-0.026	-0.848	0.459
LR	-0.003	-2.556	0.084

Dependent Variable: Dividend Payout ratio

Source: Computed Data

As observed from Table 74, the return on asset showing 2.1 per cent positive association with dividend payout. Risk is having mild positive influence on dividend payout. The multiple regression analysis indicates dividend payout ratio showing R Square value of 89.2 per cent relation are explained with the capital structure.

The results infers that in JK cement, return on asset and risk positively impacts the dependent variable. Hence, the null hypothesis is rejected and the following equation is derived.

DPR = 0.034 + 0.021 ROA + 0.00 RK

6. J.K Lakshmi Cements Limited

The following Table 75 exhibits the multiple regression results J.K Lakshmi cements for the period 2007-08 to 2016-17.

Table 75

Multiple Regression Analysis – JK Lakshmi Cements

Variables	Beta Coefficients	t	Sig.
(Constant)	0.037	6.381	0.008
ROA	-0.026	-1.730	0.182
ROE	0.005	0.714	0.527
RK	0.00	6.550	**0.007**
FS	-0.010	-6.072	**0.009**
NDTS	-0.023	-2.899	0.063
LR	-0.001	-1.493	0.232

Dependent Variable: Dividend Payout ratio

Source: Computed Data

Table 75 reveals risk having mild positive association and firm size showing 1 per cent negative association with dividend payout. It indicates that as sales increases the company reduces the dividend payments.

The multiple regression analysis indicates dividend payout ratio having R Square value of 85.3 per cent relation are explained with the independent variables. The regression results reveals that in J.K Lakshmi cements, risk and firm size factors influences the dividend payout. Hence, the null hypothesis is rejected and the following equation is derived.

DPR = 0.037 + RK - 0.010 FS

7. Kakatiya Cements Limited

The following Table 76 exhibits the multiple regression results of Kakatiya cements for the period 2007-08 to 2016-17.

Table 76

Multiple Regression Analysis – Kakatiya Cements

Variables	Beta Coefficients	t	Sig.
(Constant)	0.002	2.386	0.097
ROA	-0.005	-2.631	0.078
ROE	0.007	5.779	**0.010**
RK	0.00	19.56	**0.00**
FS	-0.001	-3.165	0.051
NDTS	0.008	3.691	**0.034**
LR	0.00	-2.308	0.104

Dependent Variable: Dividend Payout ratio

Source: Computed Data

As shown in Table 76, the capital structure factors such as return on equity, risk and non-debt tax shields shows mild positive influence on the dependent variable of Kakatiya cements.

The multiple regression analysis indicates dividend payout ratio showing R Square value of 49.9 per cent relation are explained with the independent variables. Hence, the null hypothesis is rejected and the following equation is derived.

DPR = 0.002 + 0.007 ROE + 0.00 RK + 0.008 NDTS

8. KCP Limited

The following Table 77 exhibits the multiple regression results of the impact of capital structure on dividend payout policy of KCP for the period 2007-08 to 2016-17.

Table 77

Multiple Regression Analysis – KCP cement

Variables	Beta Coefficients	t	Sig.
(Constant)	0.054	0.795	0.485
ROA	0.179	1.274	0.292
ROE	-0.225	-1.857	0.160
RK	0.00	3.342	**0.044**
FS	-0.010	-0.484	0.661
NDTS	0.121	0.520	0.639
LR	0.00	0.036	0.974

Dependent Variable: Dividend Payout ratio

Source: Computed Data

It is observed from Table 77 that, risk indicates mild positive association with dividend payout. The multiple regression analysis indicates dividend payout ratio showing R Square value of 43 per cent relation are explained with the independent variable.

In KCP Limited, the risk factor positively influence the dividend payouts. Hence, the null hypothesis is rejected and the following equation is derived.

DPR = 0.054 + 0.00 RK

9. Mangalam Cements Limited

The following Table 78 exhibits the multiple regression results of the impact of capital structure on dividend payout policy of Mangalam cements for the period 2007-08 to 2016-17.

Table 78

Multiple Regression Analysis – Mangalam Cements

Variables	Beta Coefficients	t	Sig.
(Constant)	-0.001	-0.098	0.928
ROA	-0.003	-0.564	0.612
ROE	-0.001	-0.186	0.865
RK	0.00	4.094	**0.026**
FS	-0.001	-0.372	0.735
NDTS	0.065	3.043	0.056
LR	0.001	4.382	**0.022**

Dependent Variable: Dividend Payout ratio

Source: Computed Data

From Table 78, risk and firm size signifies mild positive impact on dividend payout. It indicates that as sales and liquidity increases the company reduces the dividend payments.

The multiple regression analysis indicates dividend payout ratio showing R Square value of 61.1 per cent relation are explained with the capital structure. The regression results reveals that in Mangalam cements, risk and liquidity factors significantly impacts the dependent variable. Hence, the null hypothesis is rejected and the following equation is derived.

DPR = -0.001 + 0.00 RK +0.001 LR

10. OCL India Limited

The following Table 79 exhibits the multiple regression results of OCL India for the period 2007-08 to 2016-17.

Table 79

Multiple Regression Analysis – OCL India

Variables	Beta Coefficients	t	Sig.
(Constant)	0.004	0.936	0.418
ROA	0.011	0.829	**0.008**
ROE	-0.004	-0.492	0.656
RK	0.00	2.743	**0.051**
FS	-0.001	-1.045	0.373
NDTS	0.003	0.302	0.782
LR	0.00	0.433	**0.004**

Dependent Variable: Dividend Payout ratio

Source: Computed Data

As shown in Table 79, return on asset, risk and liquidity ratios infers mild positive association with dividend payout. It denotes that with the increased return, improved sales and better liquidity position, the company raises its dividend payouts during the period of study.

The multiple regression analysis indicates dividend payout ratio showing R Square value of 67.9 per cent relation are explained with the capital structure. The analysis implies that in OCL India cements, the capital structure factors such as return on asset, risk and liquidity ratio significantly impacts the dependent variable. Hence, the null hypothesis is rejected and the following equation is derived.

DPR = 0.004 + 0.011 ROA + 0.00 RK + 0.00 LR

11. The Ramco Cements Limited

The following Table 80 exhibits the multiple regression results of Ramco cements for the period 2007-08 to 2016-17.

Table 80

Multiple Regression Analysis – Ramco Cements

Variables	Beta Coefficients	t	Sig.
(Constant)	0.002	0.368	0.737
ROA	-0.021	-3.927	**0.029**
ROE	0.013	4.865	**0.017**
RK	0.00	2.358	0.100
FS	-0.001	-0.456	0.679
NDTS	0.024	2.045	0.133
LR	0.00	-0.919	0.426

Dependent Variable: Dividend Payout ratio

Source: Computed Data

It is shown in Table 80 that the return on asset shows -2.1 per cent negation association and return on equity implies 1.3 per cent positive association with dividend payout. The multiple regression analysis indicates dividend payout ratio showing R Square value of 54.1 per cent relation are explained with the independent variables. The regression results reveals that in Ramco cements, return on asset and return on equity moderately impacts the dividend payout. Hence, the null hypothesis is rejected and the following equation is derived.

DPR = 0.002 – 0.021 ROA + 0.013 ROE

12. Shree Cement Limited

The following Table 81 exhibits the multiple regression results of the impact of capital structure on dividend payout policy of Shree cement for the period 2007-08 to 2016-17.

Table 81

Multiple Regression Analysis – Shree Cement

Variables	Beta Coefficients	t	Sig.
(Constant)	0.002	0.811	0.477
ROA	-0.004	-2.653	**0.037**
ROE	0.001	1.197	**0.017**
RK	0.00	-0.756	0.504
FS	0.00	-0.939	0.417
NDTS	0.001	0.908	0.431
LR	0.00	1.665	0.194

Dependent Variable: Dividend Payout ratio

Source: Computed Data

It is known from Table 81, that return on asset possesses mild negative association and return on equity holds a mild positive association with the dividend payout. This indicates the practice of reduction in dividend payouts at the times of increase in return on asset.

The multiple regression analysis indicates dividend payout ratio showing R Square value of 93.3 per cent relation are explained with the independent variables. In Shree Cement, the capital structure factors namely return on asset and return on equity influences the dependent variable. Hence, the null hypothesis is rejected and the following equation is derived.

DPR = 0.002 – 0.004 ROA + 0.001 ROE

C. PAINT INDUSTRY

The factors such as return on asset, return on equity, asset tangibility, firm size, non-debt tax shields and liquidity ratio are derived as capital structure influencing factors of paint industry. They are evaluated with dividend payout ratio to determine the impact of capital structure on dividend payout policy. The model framed to assess the impact of capital structure on dividend payout policy of paint industry is specified as,

$$DPR = \beta_0 + \beta_1 ROA + \beta_2 ROE + \beta_3 AT + \beta_4 FS + \beta_5 NDTS + \beta_6 LR + ei \quad \text{(i)}$$

1. Akzo Nobel India Limited

The following Table 82 exhibits the multiple regression results of Akzo Nobel India for the period 2007-08 to 2016-17.

Table 82

Multiple Regression Analysis – Akzo Nobel India

Variables	Beta Coefficients	t	Sig.
(Constant)	-2.766	-0.271	0.804
ROA	-1.520	-0.095	0.931
ROE	-0.139	-0.217	0.842
AT	-2.827	-0.534	0.630
FS	1.017	0.212	**0.045**
NDTS	25.058	0.557	0.617
LR	0.679	0.284	**0.035**

Dependent Variable: Dividend Payout ratio

Source: Computed Data

Table 82 portrays firm size having 101.7 per cent positive association and liquidity ratio showing 68 per cent higher positive impact on the dependent variable. The multiple regression analysis indicates dividend payout ratio showing R Square value of 56.2 per cent relations are explained with the independent variables.

The analysis reveals that capital structure factors such as firm size and liquidity ratio significantly impacts on dividend payouts of Akzo Nobel India. Hence, the null hypothesis is rejected and the equation is derived as,

DPR = -2.766 + 1.017 FS + 0.679

2. Asian Paints Limited

The following Table 83 exhibits the multiple regression results of Asian Paints for the period 2007-08 to 2016-17.

Table 83

Multiple Regression Analysis – Asian Paints

Variables	Beta Coefficients	t	Sig.
(Constant)	0.847	2.331	0.102
ROA	-1.205	-0.495	0.654
ROE	0.506	0.223	**0.038**
AT	0.432	2.616	0.079
FS	0.008	0.119	0.913
NDTS	-5.447	-5.492	**0.012**
LR	-0.113	-0.936	0.418

Dependent Variable: Dividend Payout ratio

Source: Computed Data

It is observed from Table 83, that return on equity is having 50.6 per cent strong positive influence and non-debt tax shields showing -544.7 per cent influence on the dependent variable. It denotes that the dividends are distributed with the increased return on equity.

The multiple regression analysis indicates dividend payout ratio showing R Square value of 98.9 per cent relation are explained with the independent variables. The analysis implies that in Asian Paints, return on equity and non-debt tax shields significantly impacts the dividend payout during the period of study. Hence, the null hypothesis is rejected and the equation is derived as, DPR = 0.847 + 0.506 – 5.447 NDTS

3. Berger Paints Limited

The following Table 84 exhibits the multiple regression results of Berger Paints for the period 2007-08 to 2016-17.

Table 84

Multiple Regression Analysis - Berger Paints

Variables	Beta Coefficients	t	Sig.
(Constant)	1.019	4.507	0.020
ROA	-1.607	-3.450	**0.041**
ROE	-0.269	-0.915	0.428
AT	-0.618	-6.476	**0.007**
FS	0.189	7.056	**0.006**
NDTS	-4.068	-7.431	**0.005**
LR	-0.316	-7.226	**0.005**

Dependent Variable: Dividend Payout ratio

Source: Computed Data

From Table 84 it is known that, return on asset having -160.7 per cent association and asset tangibility showing -61.8 per cent influence on dividend payout. Firm size holds 18.9 per cent positive association, non-debt tax shields -4.07 association and liquidity ratio shows 31.6 negative association with dividend payout. During times of raise in return on asset and fixed assets, the company reduces the dividend payouts. At times of increase in sales, they reduce the payouts.

The multiple regression analysis indicates dividend payout ratio showing R Square value of 99.7 per cent relation are explained with the independent variables. The analysis reveals that in Berger Paints, return on asset, asset tangibility, firm size, non-debt tax shields and liquidity ratio strongly impacts the dependent variable. Hence, the null hypothesis is rejected and the equation is derived as, DPR = 1.019 -1.607 ROA – 0.618 AT + 0.189 FS – 4.068 NDTS – 0.316 LR

4. Kansai Nerolac Paints Limited

The following Table 85 exhibits the multiple regression results of the impact of capital structure on dividend payout policy of Kansai Nerolac Paints for the period 2007-08 to 2016-17.

Table 85

Multiple Regression Analysis – Kansai Nerolac Paints

Variables	Beta Coefficients	t	Sig.
(Constant)	0.508	0.413	0.707
ROA	-7.243	-1.175	**0.025**
ROE	4.920	0.964	**0.006**
AT	-0.160	-0.448	0.684
FS	0.104	0.264	0.809
NDTS	-3.720	-2.336	**0.002**
LR	-0.034	-0.254	0.816

Dependent Variable: Dividend Payout ratio

Source: Computed Data

It is known from table 85, return on asset having -724.3 per cent and return on equity showing 492 per cent impact on dividend payout. Non-debt tax shields implies -372 per cent influence on the dividend payout.

The multiple regression analysis indicates dividend payout ratio showing R Square value of 91.2 per cent relation are explained with the capital structure. In Kansai Nerolac Paints, the capital structure factors namely return on asset, return on equity and non-debt tax shields significantly influence the dependent variable. Hence, the null hypothesis is rejected and the following equation is derived.

DPR = 0.508 – 7.243 ROA + 4.920 ROE – 3.720 NDTS

D. GRANITE INDUSTRY

Return on asset, return on equity, asset tangibility, firm size, earning volatility and non-debt tax shields are derived as capital structure influencing factors of granite industry. They are analysed with dividend payout ratio to determine the impact of capital structure on dividend payout policy. The model framed to assess the impact of capital structure on dividend payout policy of granite industry is specified as,

$$DP = \beta_0 + \beta_1 ROA + \beta_2 ROE + \beta_3 AT + \beta_4 FS + \beta_5 EV + \beta_6 NDTS + ei \quad \text{(i)}$$

1. Aro Granite Industries Limited

The following Table 86 exhibits the multiple regression results of Aro Granites for the period 2007-08 to 2016-17.

Table 86

Multiple Regression Analysis – Aro Granites

Variables	Beta Coefficients	t	Sig.
(Constant)	0.014	0.936	0.419
ROA	-0.039	-0.879	**0.044**
ROE	0.006	0.237	0.028
AT	-0.001	-0.091	0.933
FS	-0.005	-0.854	0.456
EV	-0.001	-0.052	0.962
NDTS	0.00	-0.274	0.802

Dependent Variable: Dividend Payout ratio

Source: Computed Data

As shown in Table 86, the analysis infers return on asset having 3.9 per cent negative association with the dependent variable. It shows that during times of increase in profitability, the company tend to decrease the payout.

The multiple regression analysis indicates dividend payout ratio having R Square value of 82.7 per cent relations are explained with the independent variable. The analysis reveals that return on asset significantly impacts on the dividend payout of Aro Granites. Hence, the null hypothesis is rejected and the following equation is derived.

DPR = 0.014 – 0.039 ROA

2. Divyashakti Granites Limited

The following Table 87 exhibits the multiple regression results of the impact of capital structure on dividend payout policy of Divyashakti Granites for the period 2007-08 to 2016-17.

Table 87

Multiple Regression Analysis – Divyashakti Granites

Variables	Beta Coefficients	t	Sig.
(Constant)	-0.002	-0.132	0.902
ROA	-0.010	-2.158	0.097
AT	0.051	2.827	**0.048**
FS	0.004	0.613	0.573
EV	-0.021	-3.054	**0.038**
NDTS	-0.136	-0.724	0.509

Dependent Variable: Dividend Payout ratio

Source: Computed Data

Table 87 reveals asset tangibility showing 5.1 per cent association and earning volatility having -2.1 per cent mild association with the dependent variable.

The multiple regression analysis indicates dividend payout ratio showing R Square value of 92.1 per cent relation are explained with the capital structure. In Divyashakti Granites, the capital structure factors namely asset tangibility and earning volatility moderately influences the dividend payout. Hence, the null hypothesis is rejected and the following equation is derived.

DPR = -0.002 + 0.051 AT - 0.021 EV

3. Inani Marbles and Industries Limited

The following Table 88 exhibits the multiple regression results of Inani Marbles for the period 2007-08 to 2016-17.

Table 88

Multiple Regression Analysis – Inani Marbles

Variables	Beta Coefficients	t	Sig.
(Constant)	0.133	5.293	0.013
ROA	-1.122	-5.117	**0.014**
ROE	0.276	3.270	**0.047**
AT	0.037	1.283	0.289
FS	-0.057	-4.123	**0.026**
EV	0.441	4.620	**0.019**
NDTS	-0.815	-3.845	**0.031**

Dependent Variable: Dividend Payout ratio

Source: Computed Data

Table 88 denotes, return on asset showing -112.2 per cent influence and return on equity having 27.6 per cent impact on dividend payout. Firm size holds 5.7 per cent negative association, earning volatility shows 44.1 per cent strong positive association and non-debt tax shields having -81.5 per cent strong association with dividend payout. It reveals that with the reduction in return on asset and reduction of sales, the company raises its dividend payouts.

The multiple regression analysis indicates dividend payout ratio showing R Square value of 97 per cent relation are explained with the independent variables. The analysis implies that in Inani Marbles, the capital structure factors such as return on asset, return on equity, firm size, earning volatility and non-debt tax shields significantly impacts the dependent variable. Hence, the null hypothesis is rejected and the following equation is derived.

DPR = 0.133 – 1.122 ROA + 0.276 ROE – 0.057 FS + 0.441 EV – 0.815 NDTS

4. Madhav Marbles and Granites Limited

The following Table 89 exhibits the multiple regression results of Madhav Marbles and Granites for the period (2007-08) to (2016-17).

Table 89

Multiple Regression Analysis – Madhav Marbles and Granites

Variables	Beta Coefficients	t	Sig.
(Constant)	-0.071	-1.759	0.177
ROA	0.291	1.335	0.274
ROE	-0.286	-1.809	**0.008**
AT	0.013	0.270	**0.005**
FS	0.041	1.663	0.195
EV	-0.126	-1.923	0.150
NDTS	0.069	0.671	0.550

Dependent Variable: Dividend Payout ratio

Source: Computed Data

It is known from table 89, return on equity having -28.6 per cent negative impact and asset tangibility showing 1.3 per cent mild positive impact on the dependent variable. It shows that during times of increase in profitability, the company tend to decrease the payout and increase the reserves.

The multiple regression analysis indicates dividend payout ratio showing R Square value of 89.7 per cent relation are explained with the independent variables. The analysis reveals that capital structure factors, return on asset and asset tangibility moderately impacts the dividend payout of Madhav Marbles and Granites. Hence, the null hypothesis is rejected and the following equation is derived.

DPR = -0.071 – 0.286 ROE + 0.013 AT

E. CERAMIC TILES INDUSTRY

Return on asset, return on equity, risk, asset tangibility, firm size, earning volatility, non-debt tax shields and liquidity ratio are revealed as capital structure influencing factors of ceramic tiles industry. They are evaluated with dividend payout ratio to determine the impact of capital structure on dividend payout policy. The model framed to assess the impact of capital structure on dividend payout policy of ceramic tiles industry is specified as,

$$DPR = \beta_0 + \beta_1 ROA + \beta_2 ROE + \beta_3 RK + \beta_4 AT + \beta_5 FS + \beta_6 EV + \beta_7 NDTS + \beta_8 LR + ei \text{ ———————— (i)}$$

1. Kajaria Ceramics Limited

Table 90 exhibits the multiple regression results of Kajaria Ceramics for the period 2007-08 to 2016-17.

Table 90

Multiple Regression Analysis – Kajaria Ceramics

Variables	Beta Coefficients	t	Sig.
(Constant)	0.103	13.21	0.048
ROA	-0.105	-4.062	0.154
ROE	0.025	5.901	0.107
RK	0.001	13.04	**0.049**
AT	-0.024	-13.28	**0.048**
FS	-0.018	-7.359	0.086
EV	0.014	0.860	0.548
NDTS	0.094	16.18	**0.039**
LR	-0.011	-20.58	**0.031**

Dependent Variable: Dividend Payout ratio

Source: Computed Data

As shown in Table 90, risk shows mild positive association and asset tangibility holds 2.4 per cent negative association with dividend payout. It denotes that the company on increasing the fixed assets, tend to reduce dividend payouts. The non-debt tax shields have 9.4 per cent influence and liquidity ratio possess -1.1 per cent influence on dividend payout.

The multiple regression analysis indicates dividend payout ratio showing R Square value of 97.6 per cent relation are explained with the independent variables. The analysis reveals that in Kajaria Ceramics, risk, asset tangibility, non-debt tax shields and liquidity ratio influences the dividend payout during study period. Hence, the null hypothesis is rejected and the following equation is derived.

DPR = 0.103 + 0.001 RK – 0.024 AT + 0.094 NDTS – 0.011 LR

2. Orient bell Limited

The following Table 91 exhibits the multiple regression results of Orient bell for the period 2007-08 to 2016-17.

Table 91

Multiple Regression Analysis – Orient bell

Variables	Beta Coefficients	t	Sig.
(Constant)	3.016	6.337	0.100
ROA	-27.47	-10.00	0.063
ROE	8.872	7.949	**0.050**
RK	0.002	4.980	0.126
AT	0.487	5.448	0.116
FS	-0.663	-5.792	0.109
EV	6.043	7.609	**0.013**
NDTS	-1.420	-3.552	0.175
LR	-0.736	-8.885	0.071

Dependent Variable: Dividend Payout ratio

Source: Computed Data

Table 91 portrays return on equity having 887 per cent impact and earning volatility showing 6.04 impact on the dependent variable. It implies that during times of increase in profitability, the company seems to increase dividend payout.

The multiple regression analysis indicates dividend payout ratio showing R Square value of 94.3 relation are explained with the independent variables. The analysis reveals that capital structure factors namely return on equity and earning volatility significantly impacts the dividend payout of Orient bell. Hence, the null hypothesis is rejected and the following equation is derived.

DPR = 3.016 + 8.872 ROE + 6.043 EV

3. Somany Ceramics Limited

The following Table 92 exhibits the multiple regression results of the impact of capital structure on dividend payout policy of Somany Ceramics for the period 2007-08 to 2016-17.

Table 92

Multiple Regression Analysis - Somany Ceramics

Variables	Beta Coefficients	t	Sig.
(Constant)	0.004	16.54	0.038
ROA	-0.106	-109.3	**0.006**
ROE	-0.012	-43.49	**0.015**
RK	0.00	92.35	**0.007**
AT	-0.001	-18.63	**0.034**
FS	-0.004	-71.03	**0.009**
EV	0.094	127.5	**0.005**
NDTS	0.074	131.38	**0.005**
LR	0.003	95.46	**0.007**

Dependent Variable: Dividend Payout ratio

Source: Computed Data

It is observed from Table 92 that, return on asset having -10.6 per cent association and return on equity having -1.2 per cent association with dependent variable. This signifies that with the increase of profitability, the company deduces the dividend payout. Risk and liquidity ratio shows mild positive impact, asset tangibility and firm size shows mild negative impact with dividend payout. Earning volatility reveals 9.4 percent and non-debt tax shields have 7.4 percent positive association with dependent variable.

The multiple regression analysis implies dividend payout ratio showing R Square value of 99.8 per cent relation are explained with the independent variables. The company issues dividend with the liquid assets. The regression results infers that in Somany Ceramics, return on equity significantly impacts the during the study period. Hence, the null hypothesis is rejected and the following equation is derived.

DPR = 0.004 – 0.106 ROA – 0.012 ROE + 0.00 RK – 0.001 AT – 0.004 FS + 0.094 EV + 0.074 NDTS + 0.003 LR