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Analysis of Operating Performance of Indian Cement Industry

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Abstract:
The primary purpose of the present study is to obtain a true insight into the operating performance of the selected cement companies in India. However the specific objective of the study is to analyze the trends of production, capacity utilization, sales and market share of selected companies of Indian cement industry. It is observed that all the selected companies revealed fluctuating trend of production, capacity utilization and market share during the study period. The projection of production of cement in India showed that all the selected companies have growing good market potential in our country. Chettinad Cement Corporation Limited, Shree Cement Limited, Dalmia Cement Limited and Birla Corporation Limited also showed better performance with regard to their capacity utilization. The sales of all the selected companies marked a rising trend throughout the study period. The projection of sales of cement in India revealed that Grasim Industries Limited and Associated Cement Companies Limited have a fast emerging, growing market in the years to come in India. The analysis of company wise dispersion in market shares of Indian cement industry revealed that the mean rates of market share vary greatly in the case of all the companies.

Key words: *Operating performance, production trend, capacity trend, sales trend and Market trend*

1. Introduction

The cement industry is experiencing a boom on account of the overall growth of the Indian economy primarily because of increased industrial activity, flourishing real estate business, growing construction activity, and expanding investment in the infrastructure sector. The performance of the industry, under different policy regimes, truly establishes that decontrol of the industry and liberalization of the economy has led to remarkable improvement in the indicators such as installed capacity, capacity utilization, per capita consumption and exports. The industry experienced a complete shift in the technology of production, from wet process to dry process. There is regional imbalance in cement production in India due to the limitations posed by raw material and fuel sources and most of the plants are located in close proximity to the raw material sources. In the context of judging operating performance an attempt is made to know the production trend, capacity utilization, sales and market share of selected cement companies during the study period.

2. Statement of the Problem

The cement industry is the key industry of Indian Economy because this industry is directly concerned with all types of construction and infrastructure of the country. Cement is one of the basic elements for setting up a strong and healthy infrastructure which plays a crucial role in the economic development of any country. Having more than a hundred and fifty year history, it has been used extensively in the construction of anything, from a small building to a mammoth multipurpose project. As such, cement consumption may be considered as one of the yardsticks in the scaling of an economy. It is a core sector industry and the rise in the price of cement is bound to have inflationary effects on other industries within the economy. The Indian cement industry plays a key role in the national economy, generating substantial revenue for state and central governments. It is the third highest contributor in terms of excise duty of over Rs.3,500 crores a year. Sales taxes yield around Rs.3,200 crores to the state governments. Royalties, octroi and other cesses add another Rs.1500 crores. The industry employs a work-force of over of 1.51 lakh persons and supports a further complement of 12 lakh people engaged indirectly. This results in the cement industry being the drainer of economic growth and India

is keen to use it as a level of accelerated growth in the country. Therefore, the present study is undertaken to make the operating efficiency of the selected companies in the Indian cement industry.

Production is considered as the backbone of the manufacturing sector. Production function is considered as an effective tool to satisfy the customers' demand and to operate in an economical and efficient manner. The study of the production performance is important to know the operating level of the business and financial efficiency of the business enterprise. Survival of the business in the present competitive world depends on the quality production and technological development in the business. Therefore, the present study attempts to study the production trend of the Indian cement industry after liberalization. Further the analysis of capacity utilization can significantly provide the production performance of the industry as a whole. Therefore, an attempt has also been made to study the capacity utilization of the selected companies of the Indian cement industry. Sales are an important component for the development of a business. Sales can be enhanced only by following a good sales policy. Due to the pricing policy of the government, the companies have to face some fluctuations in sales. These fluctuations may lead to increase or decrease of the financial risk of the companies. In order to study the sales trends of the cement industry in India, the present study has been carried out.

3. Objectives of the Study

The primary purpose of the present study is to obtain a true insight into the operating performance of the selected cement companies in India. However the specific objective of the study is to analyze the trends of production, capacity utilization, sales and market share of selected companies of Indian cement industry.

4. Hypotheses

The following hypothesis are framed and tested for the study.

- There is no significant difference between actual production and trend values of production among different years in the selected Indian cement companies.
- There is no significant difference between actual capacity utilization and trend values of capacity utilization among different years in the selected Indian cement companies.
- There is no significant difference between actual sales and trend values of sales among different years in the selected Indian cement companies.

5. Selection of sample

Keeping in view the scope of the study, it is decided to include all the companies under cement industry working before or from the year 1995-96 to 2009-10. But, owing to several constraints such as non-availability of financial statements or non-working of a company in a particular year, merged companies, it was compelled to restrict the number of sample companies to eight. The Capitaline and CMIE database publish key financial data of Indian corporate sector systematically. Hence, Capitaline and CMIE databases proved to be complimentary to finalize the sample for the study. The exhaustive list of cement industry in India from Capitaline was cross checked with CMIE database to sort out companies to fit in as the sample for the study. The comprehensive list of companies prepared from the database was modified by sorting out the firms using the following criteria; Which were not in operation for a year during the period of study; Which were in operation but non-availability of data for the whole study period; Which were merged with another company during the period of study; Which were not listed in Bombay Stock Exchange; and which had above 20,00,000 MT installed capacity.

There were 42 large cement companies and 94 mini cement companies operated in India. The list of large cement companies selected included in the present study along with year of incorporation and their market share is presented in Table 1. It is evident from Table 1 that sample companies represent 39.13 percentage of market share in the Indian cement industry.

6. Regression Model

In order to estimate trend of production, capacity utilization, sales and market share by the selected cement companies during the study period a linear regression model is fitted. The linear model fitted is as follows:

$\mathbf{P} = \alpha + \boldsymbol{\beta}\mathbf{t} + \mathbf{e}$

Where ,

- P - Rate of production,
- T - The time
- α, β - Parameters to be estimated (intercept and co-efficient)
- e - Error term.

6.1. Analysis of Production trend

Production may be considered as the backbone of the manufacturing business enterprises. The production data of a company may give an idea as to how the company has performed in the year under review as compared to the past or how the company has performed as compared to other companies of the same industry. The production performance of an enterprise can be measured in a number of ways. Production performance of the industry as a whole can be compared with different years; also the comparison can be done in between the competitive industries. For appraising the production performance of individual companies, production in different years can be compared and inter-company comparison between companies under study may be more meaningful for this purpose. The

analysis of capacity utilization can also significantly prove the production performance of a company or of the industries as a whole. Table 2 shows the annual production of selected cement companies in India from the year 1995-96 to 2009-10. The variations of production have also been computed taking the production data of 1995-96 as the base 100. Further, dispersion in production of selected Indian cement companies over the study period is achieved through estimation of mean, co-efficient of variation and compound annual growth rate. The estimates are also presented in Table 2.

The production of Associated Cement Corporation Limited (ACCL) for the period of study has been shown in Table 2. It indicates a fluctuating trend throughout the study period. The production was 84.66 lakh MT in the year 1995-96 which increased considerably and reached 213.69 lakh MT in the year 2009-10 showing an increase of 152 per cent in the indices. The mean value of production was 132.02 lakh MT which is the highest as compared to other selected companies. The co-efficient of variation (0.35) indicates that the production erratically fluctuated during the study period. The compound annual growth rate of production was positive which worked out to 6.84 per cent during the study period. The results of estimates of trend co-efficients for production are presented in Table 6. It is clear from the table that the differences between the actual production and trend values of production of ACCL was significant as the calculated value of chi-square 33.36 was higher than the table value of chi-square at 5 per cent level of significance and the null-hypothesis was rejected while the alternative hypothesis was accepted. It is clear from the Table 9 that the production of ACCL in the year 2014-15 is estimated to be 251.76 lakh MT.

The production of Birla Corporation Limited (BCL) registered a fluctuating trend throughout the study period. In the year 1995-96, the production was 33.24 lakh MT which increased to 52.88 lakh MT in 2009-10 which showed an increase of 59 per cent in the indices. The mean value of production was 42.89 lakh MT. The co-efficient of variation (0.18) depicts that the production fluctuated during the study period. The compound annual growth rate of production of BCL was positive which worked out to 3.37 per cent showing the lowest rate during the study period. It is clear from Table 6 that the differences between the actual production and trend values of production of BCL was not significant as the calculated value of chi-square (1.99) was less than the table value of chi-square at 5 per cent level of significance and the null-hypothesis was accepted. The projection obtained for production of BCL showed an increasing trend. The production of BCL in the year 2014-15 is estimated to be 63.27 lakh MT.

The production of Chettinad Cement Corporation Limited (CCCL) depicts a fluctuating trend throughout the study period. The production increased from 8.46 lakh MT in the year 1995-96 to 31.49 lakh MT in the year 2009-10 registering a growth of 272 per cent in the indices. The mean value of production of CCCL was 15.78 lakh MT. The co-efficient of variation (0.54) indicates that the production erratically fluctuated during the study period. The compound annual growth rate of production of CCCL was positive which was 9.85 per cent during the study period. It is evident from Table 6 that the differences between the actual production and trend values of production of CCCL was not significant as the calculated value of chi-square (21.20) was less than the table value of chi-square at 5 per cent level of significance and the null hypothesis was accepted. It can be observed from Table 9 that the projection of production of CCCL in the year 2014-15 is estimated to be 37.53 lakh MT.

It is evident from Table 2 that the production of Dalmia Cement Limited (DCL) fluctuated during the study period. The production increased from 8.22 lakh MT in the year 1995-96 to 33.84 lakh MT in the year 2009-10 showing an increase of 312 per cent in the indices. The mean value of production was 14.81 lakh MT which was the lowest as compared to other selected companies. The co-efficients of variation (0.58) indicates that the production was erratically fluctuated during the study period. The compound annual growth rate of production of DCL was positive which worked out to 10.63 per cent during the study period. It is clear from Table 6 that the differences between the actual production and trend values of production of DCL was significant as the calculated value of chi-square (26.42) was more than the table value of chi-square at 5 per cent level of significance and the null-hypothesis was rejected while the alternative hypothesis was accepted. Table 9 presents the projection of production of DCL. It is clear from the table that the production of DCL in the year 2014-15 is estimated to be 35.11 lakh MT.The production of Grasim Industries Limited (GIL) for the period of study is shown in Table 2. It registered a fluctuating trend during the study period. The production was 25.48 lakh MT in the year 1995-96 which increased to 163.18 lakh MT in the year 2009-10 showing an increase of 540 per cent in the indices. The mean value of production was 92.92 lakh MT. The co-efficient of variation (0.51) indicates that the production erratically fluctuated during the study period. The compound annual growth rate of production was positive which worked out to 14.18 per cent during the study period. It is clear from Table 6 that the differences between the actual production and trend values of production was significant as the calculated value of chi-square (35.21) was more than the table value of chi-square at 5 per cent level of significance and the null-hypothesis was rejected while the alternative hypothesis was accepted. From Table 9 it can be seen that the projection of production of GIL in the year 2014-15 is estimated to be 222.66 lakh MT.

It is inferred from Table 2 that the production of India Cements Limited (ICL) was fluctuating during the study period. The production increased from 23.71 lakh MT in the year 1995-96 to 91.11 lakh MT in the year 2009-10 showing an increase of 284 per cent in the indices. The mean value of production was 54.66 lakh MT. The co-efficient of variation (0.40) indicates that the production erratically fluctuated during the study period. The compound annual growth rate of production was positive which worked out to 10.09 per cent during the study period. It is clear from Table 6 that the differences between the actual production and trend values of production was not significant as the calculated value of chi-square (20.10) was less than the table value of chi-square at 5 per cent level of significance and the null-hypothesis was accepted. Table 9 reveals that the projection of production of ICL in the year 2014-15 is estimated to be 111.21 lakh MT.

Table 2 shows a fluctuating trend of production of Madras Cements Limited (MCL). Production increased from 15.12 lakh MT in the year 1995-96 to 65.26 lakh MT in the year 2009-10 showing an increase of 332 per cent in the indices. The average production was 34.24 lakh MT. The co-efficient of variation (0.47) depicts that production erratically fluctuating during the study period. The

compound annual growth rate was positive which worked out to 11.01 per cent during the study period. It is clear from Table 6 that the differences between the actual production and trend values of production was not significant as the calculated value of chi-square (14.56) was less than the table value of chi-square at 5 per cent level of significance and the null-hypothesis was accepted. The projection of MCL production in the year 2014-15 is estimated to be 76.96 lakh MT.

The production of Shree Cement Limited (SCL) is shown in Table 2. It reveals that the production was fluctuating during the study period. The production increased from 9.27 lakh MT in the year 1995-96 to 77.65 lakh MT in the year 2009-10 showing an increase of 738 per cent in the indices. The mean value of production was 29.31 lakh MT. The co-efficient of variation (0.65) indicates that the production erratically fluctuating during the study period. The compound annual growth rate of SCL was positive which worked out to 16.39 per cent showing the highest rate during the study period. It is clear from the Table 6 that the differences between the actual production and trend values of production was significant as the calculated value of chi-square (52.70) was more than the table value of chi-square at 5 per cent level of significance and the null-hypothesis was rejected while the alternative hypothesis was accepted. The projection of production of SCL in the year 2014-15 is estimated to be 76.07 lakh MT.

From the above analysis the linear model of time trend of production has proved to be a 'good fit' in the case of all the selected cement companies. This is revealed from the value of R^2, the co-efficient of determination. F value of all the selected companies was significant.

6.2. Capacity Utilization of Cement Industry

In a developing economy, the need for optimum utilization of industrial capacity can hardly be over-emphasized. Production below the capacity in industrial plants is the source of significant loss in the growth of Gross National Product of a country. The production performance of a business enterprise can be appraised on the basis of capacity utilization. Full utilization of the installed capacity is the dominant desideratum in judging the operational efficiency of the business enterprise. Through better utilization of installed capacity, the economy should improve the capital output and capital labour ratios and should, consequently, result in more employment, more income and more competitiveness in export market without additional capital investment. Capacity utilization means that proportion of the total capacity which has been gainfully utilized for the production of required goods and services. Capacity utilization ratio refers to the relationship between production and installed capacity. Production means total output of a company during a particular year, while installed capacity is that capacity for which the concern has made arrangements to produce. The relationship has been calculated by dividing the figure of production by the figure of installed capacity in terms of percentages. The overall performance of a manufacturing business enterprise, to a great extent, depends upon its production performance. The production performance ultimately depends on the utilization of production capacity. This is why maximum capacity utilization is needed in an industry. It makes the production economical by reducing the cost of production and improving productivity. The capacity utilization also helps indirectly in exploring the foreign market and finally contributing to the Gross National Product.

The capacity utilization ratio of selected cement companies during the study period are presented in Table 3. The capacity utilization ratio of Associated Cement Companies Limited (ACCL) marked a fluctuating trend throughout the study period. The capacity utilization ratio was 94.24 per cent in the year 1995-96 which decreased to 81.66 per cent in the year 2009-10 showing a decrease of 13 per cent in the indices. This is due to considerable variations in demand supply balances across regions. The mean value of capacity utilization ratio was 85.38 per cent. The co-efficient of variation (0.09) indicates that the capacity utilization ratio was consistent during the study period. The compound annual growth rate of capacity utilization ratio of ACCL was negative which worked out to -1.02 per cent during the study period. The results of estimates of trend co-efficient for capacity utilization ratio are presented in Table 7. It is clear from the table that the differences between the actual and trend values of capacity utilization ratio of ACCL was not significant as the calculated value of chi-square (9.51) was less than the table value of chi-square at 5 per cent level of significance and the null hypothesis was accepted. The projection obtained for capacity utilization ratio of ACCL showed a decreasing trend. The capacity utilization ratio of ACCL in the year 2014-15 is estimated to be 81.65 per cent.

It is evident from Table 3 that the capacity utilization ratio of Birla Corporation Limited (BCL) fluctuated during the study period. The capacity utilization ratio decreased from 94.35 per cent in the year 1995-96 to 1.49 per cent in the year 2009-10 showing a decrease of 3 per cent. The mean value of capacity utilization ratio was 95.18 per cent. The co-efficient of variation (0.06) indicates that the capacity utilization ratio was consistent during the study period. The compound annual growth rate of capacity utilization ratio of BCL was negative which worked out to -0.22 per cent during the study period. It is clear from Table 7 that the differences between actual and trend values of capacity utilization ratio of BCL was not significant as the calculated value of chi-square (5.51) was less than the table value of chi-square at 5 per cent level of significance and the null hypothesis was accepted while the alternative hypothesis was rejected. It is clear from the Table 9 that the capacity utilization ratio of BCL in the year 2014-15 is estimated to be 91.84 per cent.

The capacity utilization ratio of Chettinad Cement Corporation Limited (CCCL) for the period of study has been shown in Table 3. It registered a fluctuating trend during the study period. The capacity utilization ratio was 140.92 per cent in 1995-96 which decreased to 78.72 per cent in 2009-10 showing a decrease of 44 per cent in the indices. The mean value of capacity utilization ratio was 126.54 per cent which was the highest as compared to other selected companies. The co-efficient of variation (0.19) indicates that the capacity utilization ratio fluctuated during the study period. The compound annual growth rate of capacity utilization ratio was negative which worked out to -4.07 per cent during the study period. The results of estimates of trend co-efficients for capacity utilization ratio are presented in Table 7. It is clear from the table that the differences between the actual and trend values of capacity utilization ratio of CCCL was significant as the calculated value of chi-square 63.17 was higher than the table value of chi-square at 5 per cent level of

significance and the null hypothesis was rejected while the alternative hypothesis was accepted. It is clear from the Table 9 that the capacity utilization ratio of CCCL in the year 2014-15 is estimated to be 101.78 per cent.

The capacity utilization ratio of Dalmia Cement Limited (DCL) registered a fluctuating trend throughout the study period. In the year 1995-96, the capacity utilization ratio was 139.14 per cent which decreased to 52.07 per cent in 2009-10 showing a decrease of 63 per cent in the indices. The mean value of capacity utilization ratio was 97.16 per cent. The co-efficient of variation (0.29) depicts that the capacity utilization ratio highly fluctuated during the study period. The compound annual growth rate of capacity utilization ratio was negative which worked out to -6.78 per cent during the study period. It is understood from Table 7 that the differences between the actual and trend values of capacity utilization ratio of DCL was significant as the calculated value of chi-square (61.26) was more than the table value of chi-square at 5 per cent level of significance and the null hypothesis was rejected. The projection obtained for capacity utilization ratio of DCL showed a decreasing trend. The capacity utilization ratio of DCL in the year 2014-15 is estimated to be 43.13 per cent.

The picture of capacity utilization ratio of Grasim Industries Limited (GIL) shows a fluctuating trend throughout the study period. The capacity utilization ratio increased from 56.62 per cent in the year 1995-96 to 83.04 per cent in the year 2009-10 registering a growth of 47 per cent in the indices. The mean value of capacity utilization ratio of GIL was 85.67 per cent. The co-efficient of variation (0.17) indicates that the capacity utilization ratio fluctuated during the study period. The compound annual growth rate of capacity utilization ratio of GIL was positive which was 2.77 per cent during the study period. It is evident from Table 7 that the differences between the actual and trend values of capacity utilization ratio of GIL was not significant as the calculated value of chi-square (18.21) was less than the table value of chi-square at 5 per cent level of significance and the null hypothesis was accepted. It can be observed from Table 8 that the projection of capacity utilization ratio of GIL in the year 2014-15 is estimated to be 113.08 per cent.

It is evident from Table 3 that the capacity utilization ratio of India Cements Limited (ICL) fluctuated during the study period. The capacity utilization ratio decreased from 91.19 per cent in 1995-96 to 70.36 per cent in 2009-10 showing a decrease of 23 per cent during the study period. It is clear from Table 7 that the differences between the actual and trend values of capacity utilization ratio of ICL was significant as the calculated value of chi-square (32.88) was more than the table value of chi-square at 5 per cent level of significance and the null hypothesis was rejected while the alternative hypothesis was accepted. It is clear from the Table 9 that the capacity utilization ratio of ICL in the year 2014-15 is estimated to be 76.12 per cent.

The capacity utilization ratio of Madras Cements Limited (MCL) for the period of study has been shown in Table 3. It registered a fluctuating trend during the study period. The capacity utilization ratio was 81.74 per cent in the year 1995-96 which decreased to 65.33 per cent in the year 2009-10 showing a decrease of 20 per cent in the indices. The mean value of capacity utilization ratio was 75.91 per cent which shows the lowest as compared to other selected companies. The co-efficient of variation (0.23) indicates that the capacity utilization ratio highly fluctuated during the study period. The compound annual growth rate of capacity utilization ratio was negative which worked out to -1.59 per cent during the study period. It is clear from Table 7 that the differences between the actual and trend values of capacity utilization ratio was significant as the calculated value of chi-square (50.58) was more than the table value of chi-square at 5 per cent level of significance and the null hypothesis was rejected while the alternative hypothesis was accepted. From Table 9 it can be seen that the projection of capacity utilization ratio of MCL in the year 2014-15 is estimated to be 56.15 per cent.

It is inferred from Table 3 that the capacity utilization ratio of Shree Cement Limited (SCL) was fluctuating during the study period. The capacity utilization ratio was decreased from 122 per cent in 1995-96 to 113.78 per cent in 2009-10 showing a decrease of 7 per cent in the indices. The mean value of capacity utilization ratio was 111.89 per cent. The co-efficient of variation (0.14) indicates that the capacity utilization ratio fluctuated during the study period. The compound annual growth rate of capacity utilization ratio was negative which worked out to -0.50 per cent during the study period. It is clear from Table 7 that the differences between the actual and trend values of capacity utilization ratio was significant as the calculated value of chi-square (29.96) was more than the table value of chi-square at 5 per cent level of significance and the null hypothesis was rejected while the alternative hypothesis was accepted.Further, the linear model of time trend of capacity utilization ratio has proved to be a good fit in the case of Dalmia Cement Limited (DCL) and Grasim Industries Limited (GIL) as per the value of R^2 which indicates that time explains capacity utilization ratio variation in different degrees over time. Further, the negative values of β in the case of all the selected companies except GIL implies that capacity utilization of the selected cement companies decreased over the study period.

6.3. Analysis of Sales Trend

'Sales' is the value of the output offered to the customers. It is the life blood of a business enterprise without which the business cannot survive. Further, 'sales' is the indicator of the operational efficiency of the management in how efficiently the management has used the assets of the business. The higher the volume of sales, the more efficient the management. Sales are also related to profitability of an enterprise. If other things remain constant, the higher the amount of sales, the more profitable the business is and vice versa. The trend of sales indicates the direction in which forecast for the future can be made. The trend analysis of sales helps to understand the growth of a business enterprise. For proper trend analyses, the trend should be studied at least over a period of five or more years. The annual sales of cement by selected cement companies are presented in Table 4. To study the trend of sales in cement industry under study, the year 1995-96 has been chosen as the base year and the figure of sales in the base year has been taken equal to 100. Index numbers have been calculated for the remaining year based on the amount of sales for the base year. Further, the company wise estimation of mean, co-efficient of variation and compound annual growth rate are also presented in Table 4.

The sales of Associated Cement Companies Limited (ACCL) for the period of study has been depicted in Table 4. It indicates a fluctuating trend throughout the study period. The sales was Rs.1776.14 crores in the year 1995-96 which increased considerably and reached Rs.7189.56 crores in the year 2009-10 showing an increase of 305 per cent in the indices. The mean value of sales was Rs.3395.90 crores. The co-efficient of variation (0.50) indicates that the sales of ACCL erratically fluctuated during the study period. The compound annual growth rate of sales was positive which worked out to 10.50 per cent during the study period. The results of estimates of trend co-efficients for sales are presented in Table 10. It is clear from the table that the differences between the actual sales and trend values sales of ACCL was significant as the calculated value of chi-square 3070.49 was much higher than the table value of chi-square at 5 per cent level of significance and the null hypothesis was rejected while the alternative hypothesis was accepted. It is clear from the Table 9 that the sales of ACCL in the year 2014-15 is estimated to be Rs.7536.90 crores.

The sales of Birla Corporation Limited (BCL) registered a fluctuating trend throughout the study period. In the year 1995-96, the sales was Rs.749.92 crores which increased to 1790.19 crores in 2009-10 showing an increase of 139 per cent in the indices. The mean value sales was Rs.1077.42 crores. The co-efficient of variation (0.31) depicts that the sales erratically fluctuated during the study period. The compound annual growth rate of sales of BCL was positive which worked out to 6.41 per cent showing the lowest rate during the study period. It is clear from Table 8 that the differences between the actual sales and trend values of sales of BCL was significant as the calculated value of chi-square (412.70) was more than the table value of chi-square at 5 per cent level of significance and the null hypothesis was rejected while the alternative hypothesis was accepted. The projection obtained for sales of BCL showed an increasing trend. The sales of BCL in the year 2014-15 is estimated to be Rs.1868.80 crores.

The picture of sales of Chettinad Cement Corporation Limited (CCCL) shows a fluctuating trend throughout the study period. The sales was increased from Rs.151.07 crores in the year 1995-96 to Rs.1137.67 crores in the year 2009-10 registering a growth of 653 per cent in the indices. The mean value of sales of CCCL was Rs.389.73 crores. The co-efficient of variation (0.76) indicates that the sales erratically fluctuated during the study period. The compound annual growth rate of sales of CCCL was positive which was as 15.51 per cent during the study period. It is evident from Table 10 that the differences between the actual sales and trend values of sales of CCCL was significant as the calculated value of chi-square (1233.85) was more than the table value of chi-square at 5 per cent level of significance and the null hypothesis was rejected while the alternative hypothesis was accepted. It can be observed from the Table 9 that the projection of sales of CCCL in the year 2014-15 is estimated to be Rs.1076.40 crores.

It is evident from the Table 4 that the sales of Dalmia Cement Limited (DCL) shows an increasing trend during the study period. The sales increased from Rs.176.78 crores in the year 1995-96 to Rs.1758.68 crores in the year 2009-10 showing an increase of 895 per cent in the indices. The mean value of sales was Rs.548.49 crores. The co-efficients of variation (0.84) indicates that the sales erratically fluctuated during the study period. The compound annual growth rate of sales of DCL was positive which worked out to 17.83 per cent during the study period. It is clear from Table 8 that the differences between the actual sales and trend values of sales of DCL was significant as the calculated value of chi-square (1366.43) was more than the table value of chi-square at 5 per cent level of significance and the null hypothesis was rejected while the alternative hypothesis was accepted. The projection of sales of DCL in the year 2014-15 is estimated to be Rs.1580.80 crores.

The sales of Grasim Industries Limited (GIL) for the period of study has been shown in Table 4. It registered an increasing trend during the study period. The sales increased from Rs.2060.60 crores in the year 1995-96 to Rs.10864 crores in the year 2009-10 showing an increase of 427 per cent in the indices. The mean value of sales was Rs.5380.59 crores which was the highest as compared to other selected companies. The co-efficients of variation (0.48) indicates that the sales erratically fluctuated during the study period. The compound annual growth rate of sales of GIL was positive which worked out to12.61 per cent during the study period. It is clear from Table 8 that the differences between the actual sales and trend values of sales of GIL was significant as the calculated value of chi-square (2180.04) was more than the table value of chi-square at 5 per cent level of significance and the null hypothesis was rejected while the alternative hypothesis was accepted. It is clear from the Table 9 that the sales of GIL in the year 2014-15 is estimated to be Rs. 12089.60 crores.

It is inferred from Table 4 that the sales of India Cements Limited (ICL) shows an increasing trend during the study period. The sales increased from Rs. 544.23 crores in the year 1995-96 to Rs. 3358.34 crores in the year 2009-10 showing an increase of 517 per cent in the indices. The mean value of sales was Rs. 1373.48 crores. The co-efficient of variation (0.60) indicates that the sales erratically fluctuated during the study period. The compound annual growth rate of sales was positive which worked out to 13.88 per cent during the study period. It is clear from Table 8 that the differences between the actual sales and trend values of sales was significant as the calculated value of chi-square (2101.69) was more than the table value of chi-square at 5 per cent level of significance and the null hypothesis was rejected while the alternative hypothesis was accepted. It is clear from Table 9 that the projection of sales of ICL in the year 2014-15 is estimated to be Rs. 3247.70 crores.

Table 4 shows a fluctuating trend of sales of Madras Cements Limited (MCL). The sales increased from Rs. 296.75 crores in the year 1995-96 to Rs.2530.90 crores in the year 2009-10 showing an increase of 753 per cent in the indices. The mean value of sales was Rs. 875.46 crores. The co-efficient of variation (0.72) indicates that the sales erratically fluctuated during the study period. The compound annual growth rate of sales was positive which worked out to 16.54 per cent during the study period. It is clear from the Table 8 that the differences between the actual sales and trend values of sales was significant as the calculated value of chi-square (5884.73) was more than the table value of chi-square at 5 per cent level of significance and the null hypothesis was rejected while the alternative hypothesis was accepted. Table 9 presents the projection of sales of MCL. It is clear from the table that the sales of MCL in the year 2014-15 is estimated to be Rs. 2344.60 crores.

The sales of Shree Cement Limited (SCL) is shown in Table 4. It reveals that the sales increased during the study period. The sales increased from Rs. 152.08 crores in the year 1995-96 to Rs.2716.46 crores in the year 2009-10 showing an increase of 1686 per cent in the indices. The mean value of sales was Rs. 727.47 crores. The co-efficient of variation (1.00) indicates that the sales erratically fluctuated during the study period. The compound annual growth rate of sales was positive which worked out to 22.86 per cent during the study period. It is clear from Table 8 that the differences between the actual sales and trend values of sales was significant as the calculated value of chi-square (1200.20) was more than the table value of chi-square at 5 per cent level of significance and the null hypothesis was rejected while the alternative hypothesis was accepted. Table 9 depicts the projection of sales of SCL. It is clear from the table that the sales of SCL in the year 2014-15 is estimated to be Rs. 2356.10 crores.

Further, the linear model of time trend of sales ratio has proved to be a good fit in the case of all the selected companies as per the value of R^2 indicating that time explain sales ratio variation in different degrees over time. Further, the positive values of β in the case of all the selected companies imply that sales of the selected cement companies increased over the study period.

6.4. Market Share of Cement Industry

Market share is the percentage of an industry or market's total sales that is earned by a particular company over a specified time period. Market share is calculated by taking the company's sales over the period and dividing it by the total sales of the industry over the same period. This metric is used to give a general idea of the size of a company to its market and its competitors. Investors look at market share increases and decreases carefully because they can be a sign of the relative competitiveness of the company's products or services. As the total market for a product or service grows, a company that is maintaining its market share is growing revenues at the same rate as the total market. A company that is growing its market share will be growing its revenues faster than its competitors. Market share increases can allow a company to achieve greater scale in its operations and improve profitability. Companies are always looking to expand their share of the market, in addition to trying to grow the size of the total market by appealing to larger demographics, lowering prices, or through advertising. Investors can obtain market share data from various independent sources (such as trade groups and regulatory bodies), and often from the company itself, although some industries are harder to measure with accuracy than others. It is observed from Table 5 that on an average Associated Cement Companies Limited had the highest market share ratio (11.16 per cent) followed by Grasim Industries Limited (8.54 per cent), India Cement Limited (5.25 per cent), Birla Corporation limited (3.83 per cent), Madras Cement Limited (2.69 per cent), Shree Cement Limited (2.13 per cent), Dalmia Cement Limited (1.39 per cent), and Chettinadu Cement Corporation Limited (1.38 per cent). Birla Corporation Limited with co-efficient of variation 0.03 experienced the lowest variation in market share ratio over the study period while Shree Cement Limited suffered from the largest variation (CV = 0.34) during the study period. However, the compound annual growth rate of market share ratio of Associated Cement Companies Limited and Birla Corporation Limited was negative while in the remaining six industries it was positive over the study period. To conclude, the mean rates of market share vary greatly in the case of all the selected companies of Indian cement Industry.

7. Conclusion

It is observed that all the selected companies revealed fluctuating trend of production during the study period. The time series analysis of production and application of chi-square test revealed that the production of the selected companies of the Indian cement industry slightly increased. The projection of production of cement in India showed that all the selected companies have growing good market potential in our country. It is observed that all the selected companies revealed a fluctuating trend of capacity utilization ratio during the study period. Chettinad Cement Corporation Limited registered the highest mean value and Madras Cements Limited registered the lowest mean value of capacity utilization ratio during the study period. Chettinad Cement Corporation Limited, Shree Cement Limited, Dalmia Cement Limited and Birla Corporation Limited also showed better performance with regard to their capacity utilization. The sales of all the selected companies marked a rising trend throughout the study period. The time series analysis of sales and application of chi-square test revealed that sales in the selected companies increased as per expectation. The projection of sales of cement in India revealed that Grasim Industries Limited and Associated Cement Companies Limited have a fast emerging growing market in the years to come in India.

The analysis of company wise dispersion in market shares of Indian cement industry revealed that the mean rates of market share vary greatly in the case of all the companies. It is observed that Associated Cement Companies Limited, Grasim Industries Limited and India Cements Limited had the highest market share during the study period.

Sl. No.	Companies	Year of Incorporation	Market Share (%)
1	Associated Cement Companies Limited	1936	10.16
2	Birla Corporation Limited	1919	2.69
3	Chettinad Cement Corporation Limited	1962	1.91
4	Dalmia Cement Limited	1951	2.12
5	Grasim Industries Limited	1946	5.42
6	India Cements Limited	1947	9.71
7	Madras Cements Limited	1957	3.32
8	Shree Cement Limited	1979	3.8
	Total		39.13

Table 1: List of sample companies included in the present study
Source: PROWESS Database

Year	ACCL	BCL	CCCL	DCL	GIL	ICL	MCL	SCL
1995-96	84.66	33.24	8.46	8.22	25.48	23.71	15.12	9.27
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)
1996-97	89.31	35.57	9.15	8.53	32.71	25.87	18.29	8.62
	(105)	(107)	(108)	(104)	(128)	(109)	(121)	(93)
1997-98	90.32	34.31	8.34	8.10	7.07	25.51	7.98	11.85
	(107)	(103)	(99)	(99)	(28)	(108)	(53)	(128)
1998-99	88.82	35.69	8.02	8.61	47.09	30.42	23.04	17.26
	(105)	(107)	(95)	(105)	(185)	(129)	(152)	(186)
1999-00	91.47	31.26	8.32	8.89	58.23	54.64	25.76	20.44
	(108)	(94)	(98)	(108)	(229)	(231)	(170)	(221)
2000-01	100.36	38.94	8.27	10.04	83.96	59.69	27.25	23.12
	(119)	(117)	(98)	(122)	(330)	(252)	(180)	(249)
2001-02	102.05	39.46	7.77	10.18	90.98	52.85	26.52	23.83
	(121)	(119)	(92)	(124)	(357)	(223)	(175)	(257)
2002-03	114.69	41.72	9.37	10.45	95.28	48.48	31.77	18.06
	(135)	(126)	(111)	(127)	(374)	(204)	(210)	(195)
2003-04	134.24	45.57	16.81	12.25	110.88	49.46	35.23	27.47
	(159)	(137)	(199)	(149)	(435)	(209)	(233)	(296)
2004-05	146.50	47.70	19.11	12.93	118.48	54.10	36.99	28.41
	(173)	(144)	(226)	(157)	(465)	(228)	(245)	(306)
2005-06	129.31	50.17	22.11	14.05	124.41	54.93	38.09	30.16
	(153)	(151)	(261)	(171)	(488)	(232)	(252)	(325)
2006-07	187.33	51.50	23.60	15.69	138.26	72.62	47.11	32.20
	(221)	(155)	(279)	(191)	(543)	(306)	(312)	(347)
2007-08	199.21	52.56	26.84	27.37	144.18	84.24	56.69	47.99
	(235)	(158)	(317)	(333)	(566)	(355)	(375)	(518)
2008-09	208.36	52.78	29.06	32.94	153.64	92.34	58.45	63.37
	(246)	(159)	(344)	(401)	(603)	(389)	(387)	(684)
2009-10	213.69	52.88	31.49	33.84	163.18	91.11	65.26	77.65
	(252)	(159)	(372)	(412)	(640)	(384)	(432)	(838)
Mean	132.02	42.89	15.78	14.81	92.92	54.66	34.24	29.31
CV	0.35	0.18	0.54	0.58	0.51	0.40	0.47	0.65
CAGR (%)	6.84	3.37	9.85	10.63	14.18	10.09	11.01	16.39

Table 2: Annual production of selected cement companies in India (1995-1996 to 2009-2010) (lakh in MT)

- *ACCL- Associated Cement Companies Limited GIL - Grasim Industries Limited*
- *BCL - Birla Corporation Limited ICL - India Cements Limited*
- *CCCL- Chettinad Cement Corporation Limited MCL- Madras Cements Limited*
- *DCL - Dalmia Cement Limited SCL - Shree Cement Limited*
- *Figures in brackets are indices.*
- *Source: CMIE Database*

Year	ACCL	BCL	CCCL	DCL	GIL	ICL	MCL	SCL
1995-96	94.24	94.35	140.92	139.14	56.62	91.19	81.74	122.00
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)
1996-97	90.47	100.21	152.42	144.49	65.42	99.50	98.87	113.42
	(96)	(106)	(108)	(104)	(116)	(109)	(121)	(93)
1997-98	91.49	96.64	139.08	137.13	78.91	98.09	106.53	155.98
	(97)	(102)	(99)	(99)	(139)	(108)	(130)	(128)
1998-99	88.14	100.54	133.72	83.30	90.57	86.91	83.79	86.28
	(94)	(107)	(95)	(60)	(160)	(95)	(103)	(71)
1999-00	80.15	79.97	138.76	86.01	63.99	99.35	93.66	102.18
	(85)	(85)	(98)	(62)	(113)	(109)	(115)	(84)
2000-01	83.69	99.58	137.90	97.09	92.26	99.48	78.97	115.62
	(89)	(106)	(98)	(70)	(163)	(109)	(97)	(95)
2001-02	80.14	100.91	129.56	98.46	92.22	88.08	46.11	119.17
	(85)	(107)	(92)	(71)	(163)	(97)	(56)	(98)
2002-03	73.77	92.50	62.50	84.69	83.83	63.04	53.04	107.17
	(78)	(98)	(44)	(61)	(148)	(69)	(65)	(88)
2003-04	83.14	95.34	112.12	99.24	85.86	64.32	58.81	105.65
	(88)	(101)	(80)	(71)	(152)	(71)	(72)	(87)
2004-05	90.73	99.79	127.46	104.74	90.34	70.35	61.75	109.25
	(96)	(106)	(90)	(75)	(160)	(77)	(76)	(90)
2005-06	67.97	104.95	147.42	113.88	94.86	71.43	63.59	115.98
	(72)	(111)	(105)	(82)	(168)	(78)	(78)	(95)
2006-07	94.09	89.11	118.03	44.83	105.42	94.43	78.65	117.53
	(100)	(89)	(84)	(32)	(186)	(104)	(96)	(96)
2007-08	88.90	90.94	134.19	78.19	109.93	98.75	94.64	101.57
	(94)	(96)	(95)	(56)	(194)	(108)	(116)	(83)
2008-09	92.08	91.31	145.29	94.11	91.72	104.82	73.16	92.85
	(98)	(97)	(103)	(68)	(162)	(115)	(90)	(76)
2009-10	81.66	91.49	78.72	52.07	83.04	70.36	65.33	113.78
	(87)	(97)	(56)	(37)	(147)	(77)	(80)	(93)
Mean	85.38	95.18	126.54	97.16	85.67	86.67	75.91	111.89
CV	0.09	0.06	0.19	0.29	0.17	0.16	0.23	0.14
CAGR(%)	-1.02	-0.22	-4.07	-6.78	2.77	-1.84	-1.59	-0.50

Table 3: Capacity utilisation ratio of selected cement companies (1995-96 to 2009-10) (in %)
Figures in brackets are indices. Source: CMIE Database

Year	ACCL	BCL	CCCL	DCL	GIL	ICL	MCL	SCL
1995-96	1776.14	749.92	151.07	176.78	2060.60	544.23	296.75	152.08
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)
1996-97	2004.30	914.82	196.66	219.53	2742.10	700.85	388.30	179.19
	(113)	(122)	(130)	(124)	(133)	(129)	(131)	(118)
1997-98	2129.00	901.47	207.03	253.16	3088.90	728.36	415.24	214.27
	(120)	(120)	(137)	(143)	(150)	(134)	(140)	(141)
1998-99	2055.80	828.32	211.65	257.53	3499.80	771.01	487.32	280.59
	(116)	(111)	(140)	(146)	(170)	(142)	(164)	(185)
1999-00	2265.40	744.66	196.00	282.43	3756.90	1156.67	521.03	372.75
	(128)	(99)	(130)	(160)	(182)	(213)	(176)	(245)
2000-01	2323.39	853.87	199.28	320.44	4272.60	1194.85	513.65	409.68
	(131)	(114)	(132)	(181)	(207)	(220)	(173)	(269)
2001-02	2576.37	868.46	185.10	362.83	4453.50	1256.95	618.34	466.84
	(145)	(116)	(123)	(205)	(216)	(231)	(208)	(307)
2002-03	2827.91	959.25	201.81	368.05	4371.90	1019.11	706.30	333.51
	(159)	(128)	(134)	(208)	(212)	(187)	(238)	(219)
2003-04	2853.56	944.51	266.19	387.85	4609.20	851.58	626.14	484.26
	(161)	(126)	(176)	(219)	(224)	(156)	(211)	(318)
2004-05	3274.61	973.00	324.77	369.09	5221.80	1016.90	695.32	494.28
	(184)	(130)	(215)	(209)	(253)	(187)	(234)	(325)
2005-06	3887.40	1131.04	427.77	449.36	6206.10	1162.14	738.98	602.15
	(219)	(151)	(283)	(254)	(301)	(214)	(249)	(396)
2006-07	3177.47	1216.50	485.49	571.43	6672.80	1541.75	1009.10	694.83
	(179)	(162)	(321)	(323)	(324)	(283)	(340)	(457)
2007-08	5716.98	1564.79	725.30	982.64	8607.60	2255.21	1573.52	1403.00
	(323)	(209)	(480)	(556)	(418)	(414)	(530)	(923)
2008-09	6880.66	1721.50	930.18	1467.63	10281.00	3044.25	2011.03	2108.20
	(387)	(230)	(616)	(830)	(499)	(559)	(678)	(1386)
2009-10	7189.56	1790.19	1137.67	1758.68	10864.00	3358.34	2530.90	2716.46
	(405)	(239)	(753)	(995)	(527)	(617)	(853)	(1786)
Mean	3395.9	1077.42	389.73	548.49	5380.59	1373.48	875.46	727.47
CV	0.50	0.31	0.76	0.84	0.48	0.60	0.72	1.00
CAGR (%)	10.50	6.41	15.51	17.83	12.61	13.88	16.54	22.86

Table 4: Annual sales of selected cement companies in India (1995-96 to 2009-2010) (Rs. in crores)
Figures in brackets are indices, Source: CMIE Database

Year	ACCL	BCL	CCCL	DCL	GIL	ICL	MCL	SCL
1995-96	16.3	5.01	1.52	1.49	3.87	4.74	2.42	1.54
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)
1996-97	14.66	5.09	1.48	1.43	4.72	4.63	2.57	1.42
	(90)	(102)	(97)	(96)	(122)	(98)	(106)	(92)
1997-98	13.69	4.30	1.29	1.33	5.38	4.42	2.45	1.22
	(84)	(86)	(85)	(89)	(139)	(93)	(101)	(79)
1998-99	12.57	4.04	1.16	1.31	5.59	4.74	2.79	1.18
	(77)	(81)	(76)	(88)	(144)	(100)	(115)	(77)
1999-00	12.59	3.37	1.06	1.22	7.11	7.17	2.74	1.85
	(77)	(67)	(70)	(82)	(184)	(151)	(113)	(120)
2000-01	11.65	3.57	0.87	1.16	8.95	6.66	2.35	2.10
	(71)	(71)	(57)	(78)	(231)	(141)	(97)	(136)
2001-02	11.90	3.71	0.83	1.25	9.82	6.51	2.65	2.20
	(73)	(74)	(55)	(84)	(254)	(137)	(110)	(143)
2002-03	12.49	3.76	0.89	1.13	10.08	5.03	2.84	2.25
	(77)	(75)	(59)	(76)	(260)	(106)	(117)	(146)
2003-04	10.18	3.93	1.35	1.12	10.39	4.33	2.48	2.47
	(62)	(78)	(89)	(75)	(268)	(91)	(102)	(160)
2004-05	11.30	3.88	1.50	1.11	10.37	4.53	2.51	1.82
	(69)	(77)	(99)	(75)	(268)	(96)	(104)	(118)
2005-06	10.71	4.07	1.75	1.13	10.68	4.37	2.39	2.04
	(66)	(81)	(115)	(76)	(276)	(92)	(99)	(132)
2006-07	10.53	3.64	1.63	1.13	10.98	5.12	2.66	1.91
	(65)	(73)	(107)	(76)	(284)	(108)	(110)	(124)
2007-08	10.71	3.32	1.69	1.74	10.68	5.25	3.05	2.76
	(66)	(66)	(111)	(117)	(276)	(111)	(126)	(179)
2008-09	10.45	3.01	1.81	2.13	9.84	5.77	3.10	3.37
	(64)	(60)	(119)	(143)	(254)	(122)	(128)	(219)
2009-10	10.16	2.69	1.91	2.12	9.71	5.42	3.32	3.8
	(62)	(54)	(126)	(142)	(251)	(114)	(137)	(247)
Mean	11.16	3.83	1.38	1.39	8.54	5.25	2.69	2.13
CV	0.14	0.03	0.25	0.25	0.28	0.17	0.10	0.34
CAGR (%)	-3.32	-4.34	1.64	2.55	6.79	0.96	2.28	6.66

Table 5: Market Share of selected Cement Companies (1995-96 to 2009-10) (in %)
Figures in brackets are indices. Source: CMIE Database.

Company	$P = \acute{\alpha} + \beta t + e$				Calculated Value of $\chi 2$	Hypotheses
	Ά	β	R^2	F Value		
ACCL	52.193 (5.524)	9.979 (9.602)*	0.876	92.20*	33.36	Rejected
BCL	29.302 (22.170)	1.699 (11.685)*	0.913	136.53*	1.99*	Accepted
CCCL	1.279 (0.653)	1.813 (8.410)*	0.845	70.72*	21.20*	Accepted
DCL	1.269 (0.469)	1.692 (5.682)*	0.713	32.28*	26.42	Rejected
GIL	6.431 (1.108)	10.811 (16.938)*	0.957	286.80*	35.21	Rejected
ICL	16.968 (3.479)	4.712 (8.785)*	0.856	77.172*	20.10*	Accepted
MCL	5.752 (2.157)	3.561 (12.139)*	0.919	147.30*	14.56*	Accepted
SCL	-1.858 (-0.362)	3.896 (6.898)*	0.785	47.58*	52.70	Rejected

*Table 6: Estimates of trend co-efficients for production of selected cement companies in India (1995-1996 to 2009-2010) *Significant at 5% level; Table value of Chi-square (0.05)-23.7 with df=14, Source: Computed*

Company	P = ά+ βt+e				Calculated Value of χ2	Hypotheses
	ά	β	R^2	F Value		
ACCL	87.363 (20.633)	-0.311 (-0.663)	0.033	0.440	9.51*	Accepted
BCL	97.400 (28.179)	-0.278 (-0.731)	0.040	0.535	5.51*	Accepted
CCCL	143.046 (10.82)	-2.063 (-1.419)	0.134	2.014	63.17	Rejected
DCL	133.177 (11.525)	-4.502 (-3.543)*	0.491	12.458*	61.26	Rejected
GIL	67.390 (11.356)	2.284 (3.500)*	0.485	12.251*	18.21*	Accepted
ICL	93.710 (11.786)	-0.880 (-1.006)	0.072	1.012	32.88	Rejected
MCL	89.083 (9.772)	-1.847 (-1.642)	0.172	2.697	50.58	Rejected
SCL	120.834 (14.389)	-1.117 (-1.210)	0.101	1.464	29.96	Rejected

*Table 7: Estimates of trend co-efficients for capacity utilization ratio of selected cement companies in India (1995-1996 to 2009-2010), *Significant at 5% level; Table value of Chi-square (0.05)-23.7 with df=14, Source: Computed*

Company	P= ά+ βt+e				Calculated Value of χ2	Hypotheses
	ά	β	R^2	F Value		
ACCL	639.20 (1.297)	345.08 (6.407)*	0.759	41.05*	3070.49	Rejected
BCL	549.92 (5.510)	65.946 (6.008)*	0.735	36.09*	412.70	Rejected
CCCL	-68.023 (-0.725)	57.219 (5.544)*	0.703	30.73*	1233.85	Rejected
DCL	-139.73 (-0.883)	86.029 (4.944)*	0.653	24.45*	1366.43	Rejected
GIL	907.80 (1.707)	559.08 (9.556)*	0.875	91.32*	2180.04	Rejected
ICL	124.01 (0.454)	156.18 (5.196)*	0.675	27.00*	2101.69	Rejected
MCL	-103.93 (-0.523)	122.42 (5.603)*	0.707	31.39*	5884.73	Rejected
SCL	-358.24 (-1.411)	135.71 (4.862)*	0.645	23.63*	1200.20	Rejected

*Table 8: Estimates of trend co-efficients for sales of selected cement companies in India (1995-1996 to 2009-2010) *Significant at 5% level; Table value of Chi-square (0.05)-23.7 with df=14, Source: Computed*

Company	Production	Capacity Utilisation	Sales
ACCL	251.76	81.65	7536.90
BCL	63.27	91.84	1868.80
CCCL	37.53	101.78	1076.40
DCL	35.11	43.13	1580.80
GIL	222.66	113.08	12089.60
ICL	111.21	76.12	3247.70
MCL	76.96	56.15	2344.60
SCL	76.07	98.49	2356.10

Table 9: Projections for cement companies in India (for the year 2014-15) (Rs. in cr)

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