Chapter - 6

SUMMARY AND CONCLUSIONS

Cement industry is one of the major manufacturing industries in the Indian economy. With the progress of planned economic development in India, there have been an increase in demand for cement in all the sectors. During 1970's, the demand which was already regulated through price and distribution controls was higher than supply led to flourishing black market. Government had to import cement to relieve the situation. Continued import of cement clearly went against the national interest since the country was well endowed with the all necessary manufacturing inputs.

In general, given indigenously available resources and high demand, one could expect the cement industry to overcome demand-supply imbalance. However, this did not happen because the government controlled both demand and supply sides of cement industry.

The industry was under price and distribution control since 1942. This situation continued until the late 60's. During 1970's, the pricing policy had undergone substantial changes. Between 1971 and 1978, the uniform retention price policy was in vogue. In 1979, the three
tier retention price policy was introduced. In 1982, this was replaced by the partial decontrol of cement. And in view of the success achieved by this policy, complete decontrol of cement was announced in the budget 1989-90. These policy changes were accompanied by periodic upward price revisions. No wonder that these changes affected the performance of companies.

The revisions of the policy did not remain confined only to price initiatives. Appropriate changes were effected in other policy instruments. The Industrial licensing policy was modified in 1973 to allow big houses to enter into manufacture of cement. Similarly, import of technology was also liberalised. The industry was included for soft loan scheme to encourage modernisation and expansion. A number of concessions like liberalised housing finance, tax deductions on interest component of loans encouraged growth in urban housing. Rural housing and rural development were also accorded high priority in the sixth and seventh plans favourably affecting the prospects of the cement industry. All these factors had impact on market structure, conduct and performance of this industry.

The study has examined the structural changes in the industry since 1970 and determinants of corporate
financial decisions and profitability. The results indicate the interaction among structure, conduct and performance variables in cement industry.

SUMMARY OF RESULTS:

In the structural analysis, first basic conditions of industry namely demand and supply are discussed. Demand has increased from 24 million tonnes in 1978-79 to 42 million tonnes in 1986-87. According to one estimate, demand will be 49 million tonnes in 1989-90. Such an high demand has to be met by utilising capacity and available resources. Capacity utilisation index was above 85 per cent for three years 1975-78 but after that it has decreased. Since 1980, it has not gone beyond 75 per cent. Power shortage, wagon shortage and inadequate supply of coal are the main factors inhibiting the utilisation of production capacity. Another factor which significantly attributed for the loss of production during 1980-87 is teething problems and mechanical troubles. Though there are constraints in capacity utilisation, it is important to note that the supply of cement in the market is mostly by domestic production. There are substantial creation of additional capacity between 1981 and 1987. Industry capacity has nearly doubled in this period and this factor has led to substantial increase in the supply of cement.
The region-wise distribution of the capacity and production clearly shows that the cements plants are concentrated in Southern and Western regions. Both the regions account for about 70 per cent of capacity and production. Between 1971 and 1987, it is found that West has gained more share in capacity and production of cement. This is not surprising because cement production gets localised near the limestone reserves.

On ownership, the private sector holds a dominant share of 84 per cent of installed capacity. In this sector, Associated Cement Companies, Birla Jute and Industries Ltd., J.K. Synthetics and Cement Corporation of India hold a major share. However, after 1982 this position underwent drastic changes. Some large houses entered the industry with large size plants. Some existing companies went in for substantial expansion. This made for decline of ACC's market share from 37 per cent in 1971 to 20 per cent in 1987. Though the share of Birla Jute and Industries Ltd., and of J.K. Synthetics Ltd., declined, their group share went up with the entry of their new companies into this business.

In the process of structural change in cement industry, size of plants has increased over the years. As of 1986, 53 per cent of output is produced by kilns of size thousand tonnes per day and above. The increasing trend
towards adoption of modern dry process in the manufacture of cement indicates clearly that the technological profile of the industry is changing swiftly. In 1986, nearly 63 per cent of total production was generated by dry process plants. Wherever feasible some existing companies modified their old wet process plants to modern dry process through process modernisation.

Looking at market forms that prevailed in this industry, one finds that industry is organised along oligopolistic competition. Entry barriers are found to be moderate to high. In recent years, government erected entry barriers have considerably declined. The assurance of 12 per cent post tax return on networth, freeing entry to MRTP\PERA companies and partial decontrol are the major policy measures which have created favourable conditions of entry. However, high and rising capital costs, the need for large scale plants continued to be major entry barriers. Under these conditions, only big houses with cash surplus have managed to enter this industry.

Over the years, competition has intensified because of (i) the entry of big houses with substantial amount of resources, (ii) high exit barriers for poor performers and (iii) high strategic stakes for some companies in this industry.
Thus, structural analysis shows change in structural features and competitive conditions of the industry. This is mainly due to the government initiatives and corporate responses.

After analysis of market structure, the study probes the investment behaviour of firms. Investment decisions is one among the three major long-term financial policy decisions. In this study, determinants of investment in fixed assets are analysed. Sales accelerator, inventory investment, both external and internal finance and dividends are considered as major determinants of investment in fixed assets. The effect of accelerator is captured by a finite distributed lag model with four period change in sales, of which one is current and three are lagged. The result establishes importance of the two financial variables considered, namely flow of external finance and cash flow. The coefficient of external finance is marginally larger than the coefficient of cash flow and this indicates that external finance have relatively larger impact on investment. Inventory investment is also found to be a prominent. It has a negative coefficient bringing out competitive relationship between the two variables. Dividends and investment allowance reserves are not found to be prominent explanatory variables of investment in fixed assets.
The above mentioned results are for the period 1971-86. Within the period, there had been changes in economic environment relevant to this industry. The stability of estimated function can be studied by using dummy variable or splitting the sample period. The occurrence of certain events may cause change in the estimated function. If such changes occur, the coefficients may not be stable. In order to find out whether investment function has shifted, a dummy variable was introduced. Dummy was found to be insignificant. Therefore, the chow-test is used to infer about structural change. The sub-periods namely 1971-78, 1979-81 and 1982-86 are identified with the substantial changes in regulatory policies. Using chow-test, it is observed that the investment function has shifted between the periods 1971-81 and 1982-86.

The above analysis is supported by an inquiry into the effect of additional capacity by way of expansion and new entry on investment profile. We find that diversified companies which manufacture cement have grown faster than single product companies. There had been a good response from entrepreneurs into this industry after 1980. Entry of large houses support that companies with resources should find barriers to be low.
Under favourable conditions, investment has come up and existing firms have also modernised to be competitive. Thus, the relationship between structure of industry and behaviour of firms is established.

Our next task is analysing financing and dividend behaviour. If a company wants to grow or modernise at the existing level of operation, it needs long term finance. While analysing investment behaviour, external financing is found to be a prominent variable. These variables interact with each other. The importance of investment in fixed as well as inventory, dividends, cashflow, size and lagged borrowing in explaining external financing are investigated in this study.

The estimated regression equation obtained by the method of ordinary least square showed investment in fixed assets, inventory and cash flow to be significant explanatory variable of external finance. The existence of positive coefficients of investment in fixed assets and inventory indicate that investment needs are higher than growth rate permitted by internal sources and firms have relied on external finance. There is a negative relationship between cash flow and external finance which indicates that when internal flows are high, demand for external funds by firms are low.
The financing function is tested for structural change as done in investment function. When pooled equation of 1971-86 and the two sub-periods namely 1971-81 and 1982-86 are considered, it clearly indicates that the external financing function has shifted in the period 1982-86. Another interesting result in examining demand for borrowed funds is that of its relationship with the lagged net borrowing. The lagged net borrowing is not found to be prominent determinant of external financing and its coefficient is positive in the estimated function for the period 1982-86. This does not support the principle of increasing risk. This indicates existence of debt capacity with firms to finance investments. To understand this, the pattern of financial structure and coverage ratio are analysed. Debt equity ratio was below 1:1 till 1979 and since then it is increasing. Investment has also increased around this time. The low debt equity ratio could be because of fluctuating profits which affects the ability to pay interest on debt. It is also possible that companies diversify short term funds to long term needs. Relating interest coverage ratio and debt equity ratio, firms have opted for more debt when their interest coverage ratio improved.
Another important financial decisions is payment of dividends. Dividend policy depends on profits, investment opportunities, financing pattern, legal restrictions and shareholder preference etc. While analysing investment and financing behaviour of firms dividends is observed to be inconsistent in explaining investment and financing. The determinants of dividend behaviour in Cement industry are studied to understand whether investment and external finance are significant explanatory variables of dividends.

In this study, dividend behaviour is hypothesised to be explained by profits, lagged dividends, flow of external finance, leverage and investment expenditure. Profits is net of taxes but gross of depreciation. The equations are estimated for the period 1971-78, 1979-81 and 1982-86. The sub-periods are identified with changes in regulatory framework. The trends in dividends to equity and target payout ratio also indicates validity of this classification. Lagged dividends and long term borrowing are found to be consistently prominent explanatory variables of dividend in three sub-periods.

After studying financial decisions, we have analysed performance of firms. In the market structure, conduct and performance relationship, performance is assessed by
profitability. Profitability of a firm indicates the financial stability and determines its future growth. At the industry level, high profitability trend encourages the existing firms to expand and attracts new investors. This shows the relationship between performance and behaviour of firm which would lead to structural change. The trend in profitability is analysed to understand whether the industry earned consistently during the period of study. The crucial factors which determine profitability are identified and regression analysis is used for this purpose.

Industry profitability had a varying trend during the period of study i.e. 1971-86. Between 1971 and 1981, the cement industry profitability was lower than 'all industries' and other selected industries. In the years 1973-74, 1974-75 and 1980-81, the return on networth was negative. Though after the introduction of partial decontrol return on networth increased to 34 percent in 1982-83, it declined to 6 per cent in 1985-86. Looking at this, it is clear that whenever there was change in price policy and substantial increase in price, return on networth had improved. But there was no stability in earnings.

Size, growth in total assets, leverage, inventory turnover, assets turnover, current ratio and operative
expenses ratio are the explanatory variables considered to examine the determinants of profitability. Leverage, inventory turnover, growth in total assets and ratio of operating expenses to sales are found to be statistically significant in the explaining inter-firm differences in profitability for the period 1971-86. The significance of operating expenses ratio with a negative coefficient indicates that firms which are operationally efficient were able to earn higher profit compared to inefficient firms. Growth in total assets and leverage ratio have a positive coefficient with profitability. This indicates that high debt and growth of firms would improve profitability.

The coefficient of inventory turnover was negative and this means that in spite of high inventory turnover profitability was low. However, the relationship between inventory turnover and profitability was not statistically significant while analysing determinants of profitability for the sub-periods 1971-78, 1979-81 and 1982-86. The chow tests performed to infer whether the estimated functions are stable. It is found that the profitability function has shifted in all the three periods. This explains the sensitivity of explanatory variable to changes in policy environment.
To conclude, during the period 1971-86, the industry structure has changed because of policy measures. The Policy initiative started in the year 1977 and companies response was clearly seen from 1981. Companies have taken efforts to adopt efficient size and techniques of production. Entry of large number of firms along with modernisation and expansion of existing firms have made competitive forces active. The importance of financial variables in investment decisions and their interaction with each other explain the need for companies to generate cash surplus. And the study brings out operational efficiency as a prominent factor in explaining profitability. Government has effectively allowed competition by gradually reducing levy quota and finally bringing in complete decontrol. One can reasonably expect benefits of competition would flow to users of cement and manufacturers with the recent decontrol of the industry.

Implications of the study:

The results presented in this study show the influence of public policy on market structure, financial decisions and performance of firms in cement industry during the period 1971-86. The major implications of the study are highlighted here.
When entry conditions are liberalised the large houses with resources enter the market. The existing companies, under such conditions, should invest in the creation of additional capacity to hold their market share. Otherwise, the existing companies must diversify into related products in order to improve their financial performance. The financial requirement for such a move may be a constraint, if the existing cement manufacture fail to generate sufficient cash. The study has observed that the operationally efficient companies have earned higher profitability than inefficient firms. It is important for those inefficient firms to improve their efficiency through modernisation and expansion.

Firms which have high debt equity ratio will have to improve their operating profits. High debt firms will have to improve operating profits. This may entail strategies of output restriction. Under situation of complete decontrol, it is more likely that firms would tend to cut production in a cartel set up to maximise group profit. Individually, for a company this would lead to reducing capacity utilisation which would result in higher cost of production. Moreover, this involves the risk of government intervention. The management has to carefully formulate its production strategy since it will have direct bearing on financial performance.
The study is focussed on investment in fixed assets and industry capacity creation. It is mentioned that demand-supply gap will vanish by 1989-90. The companies which have their units in surplus region like south will face severe competition in selling cement. In such a situation where there is complete decontrol, producers are likely to form cartel. The cartel agreement is expected to increase price and cut production. Manufacturers are likely to lobby government to forestall entry. Companies will also initiate entry deterring tactics to raise entry barriers. It is under these situations, government has to monitor this industry so that consumers are not at a disadvantage. Government must encourage investment in capacity creation at deficit regions. Split location of plants must also be encouraged by providing attractive incentives for such investments. This would strengthen competition.

It seen in the above analysis that industry has evolved through interaction of investment behaviour of firms and policy decisions of regulatory agencies. It is important for policy makers and managers to respond effectively to dynamics of structural features. Managers should recognise that public policy can be a source of competitive advantage. The achievement of broader policy
goals carries with it possibly substantial competitive consequences. And the achievement policy goals may depend upon the willingness and ability of manufactures to exploit the environment. In this process, concerned regulatory authorities should ensure that none of the participants of market are at a disadvantage.

Another aspect which this study brings out the short run and long run implications of these issues. Investment and financing decisions are the long run strategic decisions. In this study, we found that investment and financing functions have shifted between the periods 1971-81 and 1982-86. This indicates that the long term strategies are influenced by policy shifts. This also brings out the reconciliation of social goals of policy makers and goals of manufactures towards the growth of the industry. On the other hand, in the case of profitability and dividend behaviour the relationships being studied changes over among all the three sub periods namely, 1971-78, 1979-81 and 1982-86. This shows the impact of short run measures like upward price to compensate for escalation in cost of production, on profitability and dividend payments. Based on these results, it is concluded that managers should be aware of the broader implications in time of both their behaviour or conduct of business and policy actions. To
be more precise, firms must invest when there are growth avenues in the industry even though it might, in the short run, affect their profitability.

The study implicates the need for consistent policy framework especially on pricing. This is inferred based on fluctuations in profitability of this industry. When input prices increase, the price of final product will have to go up to cover cost escalations. Since the industry is now decontrolled, this aspect may not be relevant. But policy makers must have guidelines for consistent policy environment without which it will be difficult to build future industry scenarios and initiate competitive actions by the firms and counter actions by the regulatory agencies.

Thus, these are the major implications of the study which will be useful to policy makers and managers.

Directions of future research

Industry studies are an important and useful area of research in the field of industrial organisation and management. An understanding of dynamics of structure, conduct and performance of firms in an industry are critical to the effective formulation of corporate strategies and industry-specific policy drives. This
study is focussed on market structure and performance of cement industry. There is need for similar industry studies which have general applicability in addressing issues related to structure, conduct and performance in regulated policy environment. The Bureau of Industrial Costs and Prices has published industry reports on a set of selected industries. Researchers will also have to independently look into interaction of behavioural aspects at firm level. There is a need to study the growth of an industry as an outcome of interaction of strategy, structure and public policies.

The other aspect which can be probed into is the motives behind diversification strategy of large houses which entered into manufacture of cement and impact of such diversification on their financial performance. Another interesting observation is that generally firms diversify into unregulated industries. In the case of cement industry, this does not seem to have happened. Most of companies which are traditionally in manufacture of cement have continued to exist in the same business and have not diversified in a big way. It could be due to financial constraints and this needs to inquired.