

# Large Scale Corporations in India's Non-Financial Sector: Protagonists or Predators?

Lalitagauri Kulkarni and Akshay Dhume

Gokhale Institute of Politics and Economics  
Pune 411 004  
Maharashtra, India

## Abstract

*The objective of the research study is to test the hypothesis that the dominant position of the firms aids them to improve their financial performance at a higher rate as compared to the other residual firms in industry and overall average performance of the industry.*

*The analysis is based on the sample of 392 NSE listed firms from 9 industries in the non-financial sector in India for 2006 to 2015. By using "Cluster analysis tool" these firms have been bifurcated into dominant and non-dominant firms for each sector. Panel data methodology has been used to test the hypothesis.*

## I Introduction

Competition is widely endorsed phenomenon in every business economics. Due to advantage of abundant available resources, climate or natural conditions, some firms enjoy favourable profitability and market share over others from same industry, resulting into contravention in fair competition. The economics of competition strives to identify the abuse of market power due to abrasion on competitive market structure. The regulatory definition according to The Competition Act, 2002 (Amended, 2012), Dominance refers to a position of strength which enables an enterprise to operate independently of competitive forces or to affect its competitors or consumers or the market in its favour. This definition is silent on the methodology for identifying the dominant firms in the economy. The regulations vaguely state that the abuse of dominant position impedes fair competition between firms, exploits consumers and makes it difficult for the other players to compete with the dominant undertaking on merit.

The textbook definition of the dominant firm market structure is characterized by a single firm which delivers the major portion of the output of an industry and by a "fringe" of smaller firms.

Theoretically, the dominance of a "dominant" firm is defined as a firm producing a commodity, whose dominance rests on its lower cost structure and it is a large scale firm having high market share. In this market structure, a "fringe" of other firms produce the same commodity and that have higher costs and have difficulties expanding their outputs (e.g., because they have greater difficulties in managing at large scale); but they are

---

We thank Mrs. Mrudula Risbud for her research assistance in this study.

persistent and cannot be permanently scared away by temporarily low prices. The fringe firms are price takers and do not have the market power to influence the price due to their very small market share. However, when one considers the large-scale firms with high market share in monopolistically competitive market, with product differentiation; the dominant firm's advantage rests on its superior brand reputation. On the other hand, the fringe firm's limited capability of expanding their sales is due to their weaker brand images.

Thus, the problem arises when there is no proven 'abuse' of market power by the dominant firm but it enjoys the economies of scale, market power and higher profits by virtue of its efficient cost structure and customer loyalty. The use and abuse of market power by large corporations remains a highly debated issue in regulatory practice as well as economic theory.

Objectives of the study are as follows:

- To identify the dominant firms in Indian corporate sector, based on the market share as well as the profitability and try to compare the extent to which these firms procure profits as compared to the non-dominant firms.
- to discover the dominant status of large-scale firms in Indian corporate sector and to verify whether it significantly differs from that of residual firms
- the study tries to examine the effect of market share and industrial concentration on the financial performance of the firms

## **II Literature Review**

The literature on the dominant firm can be divided into theoretical literature and empirical studies. The theory deals with the definition of market structure and the models to identify the dominant firm. The theoretical literature on the dominant firm is rich with a number of studies examining various aspects of the dominant firm. However, the empirical testing of dominant status and moreover the abuse of dominance has been elusive.

The problem is how to verify the exploitation of market power by firms to raise prices above competitive levels empirically. The theoretical concepts of marginal cost, optimal market price and minimum efficient cost which are the parameters to identify the dominance of a firm in a market are difficult to estimate with the practical data in real markets.

Gaskins' (1971) generalizes the theory of entry barriers: A long-run equilibrium market share is determined by the dominant firm by its cost advantages against actual or potential rivals (or both). Initially with any other market share, the wealth-maximizing dominant firm manipulates its price so as to give up market share to entrants or to drive out disadvantaged fringe rivals, converging eventually on this optimal market share. Kamien and Schwartz (1971) established the basic prediction that an increase in entry barriers surrounding a dominant firm both raises the present value of its profits and delays the erosion of its market share.

The optimal price permits no gain in pre-entry profit from either change. An increase in entry barriers provides the dominant firm with a superior trade-off; in general, it

thereupon enjoys both some increase in its short-run price (and profit) and some postponement in the expected date of entry (Kaves 1984).

Figueiredo and Silverman (2006) examine the predictions of the theory with a study of price, quantity, entry and exit across 24 product classes in the desktop laser printer industry from 1984 through 1996. The dominant firm acts as a low-cost Stackelberg leader, driving down prices and triggering a sales takeoff in the new segment. They identify a “churn” effect associated with the dominant firm entry: fringe firms that precede the dominant firm into the segment tend to exit the segment, while new fringe firms enter, causing a net increase in the number of firms in the segment. As the segment matures and sales decline in the segment, the process repeats itself.

Caves, Fortunato and Ghemawat (1984) enquire into empirical issues like an increase in entry barriers increases the incumbent's post-entry profits as well as the probable lag before entry occurs, do the predicted effects on the dominant firm's pre-entry price and the actual occurrence of entry survive unchanged? What if the dominant firm's unit costs are not constant?

These empirical studies juggle with the theoretical notion of the dominant firm as they have to ignore the effects of inter-industry variations and intra-industry heterogeneity on optimal price or minimum efficient cost. The studies relying on optimal price to examine the limit pricing behavior, cannot find an optimal price for an industry as the perfectly homogeneous goods do not exist in real markets. These studies rely on statistically estimated proxy variables for these important theoretical identification marks of the dominant firm. Thus, the empirical studies providing the models for identification of dominant firms are constrained due to the inadequate treatment of minimum efficient costs, and marginal costs.

The structure performance relation is non- linear barriers to entry may lead to concentration and increase the profits. (Weiss 1972, Apte and Vaidyanathan 1982)

In the absence of an appropriate empirical measure of theoretical optimum price and minimum costs, application of price leadership or limit pricing models is not suitable to assess the impact of large-scale prominent firms on the market. It is not desirable to wait for the abuse of market power and then take ex-post regulatory measures.

Based on the above discussion the study attempts to test the following two hypotheses.

*Hypothesis 1:* Financial performance of the firm is positively influenced by the market share

*Hypothesis 2:* The dominant firms procure more profits than the industry level causing consistent loss to the fringe firms

### **III Data and Methodology**

Data has been extracted from CMIE for all 1800 listed and permitted companies for 10 years. Data gaps have been observed in case of many companies. The companies having data gaps are not considered for the purpose of research. After removing the data gaps we get the sample of 392 companies having the data for 10 years. These 392

companies are further segregated into 9 different sectors as per given in the CMIE data set only. Table containing the list of the sectors and number of companies across the sectors is as follows.

Sector	No of companies
Chemical	79
Constructions	16
FOOD	30
Machinery	27
Metals	26
Real Estate	38
Services other than Finance	125
Textile	25
Transport	26
Total	392

## ***Methodology***

### *Cluster Analysis*

Cluster analysis is applied for identifying the dominant and non-dominant firms within each sector.

It is done on the basis of two financial indicators, which are derived as follows

1. Net Profit to sales

Net Profit to sales = Profit after tax / Net sales

2. Return on Asset

Return on asset = Profit after Tax / Total assets

Above indicators are expounding two foremost financial reports as Profit and loss account and balance sheet.

### *Hypothesis Testing*

To test the above two hypotheses, the study is divided into two parts. Part A tests the Hypothesis 1 that there exists a positive relation between market share and performance indicators of the firms. This analysis is based on the panel data model.

Four financial performance indicators are selected based on the commonly accepted variables for financial performance, i.e., profitability and indebtedness or leverage. The profitability indicators are Return on assets, Profit after Tax to Net worth and Net Profit to sales ratio. The fourth dependent variable is a debt to equity ratio. The explanatory variables are market share and Hirschman Herfindahl Index. The growth rate of GDP is used as a control variable for the macroeconomic environment.

### *Model and Model Selection*

It is argued that growth in financial performance is directly related to the market share of the firm in the industry. The financial performance indicators like net profit to sales ratio, return on asset shall bear positive relationship with the output in the economy. The relationship between debt to equity ratio and market share is ambiguous. The adverse economic environment reflected in lower GDP growth rate may have an adverse impact on the firm performance.

The study examines appropriateness of model/estimation procedure by testing for Fixed Effect versus OLS with F statistic, Random Effect versus OLS with Breusch Pagan Lagrange Multiplier test and Fixed Effect versus Random Effect estimation with Hausman test. The results obtained from each of these tests are presented in Table 1 to 4. It can be observed from the table that for the different industry segments different model is selected based on the above tests.

The random effects model assumes that the individual firm specific effects are uncorrelated with the independent variables while the fixed effect model assumes that the individual firm-specific effect is correlated with the independent variables. If the firm specific effects are correlated with the independent variables, then, the random effects model is more efficient than the fixed effects model. However, if this assumption does not hold, the random effects model is not consistent. The fixed effects model captures the unobserved heterogeneity among the sample firms by emphasizing on the firm-specific effects.

## **IV Results of the Empirical Analysis of Hypothesis**

### *Summary of Panel data Analysis Results*

The Tables in the Annexure 1 present the results of the panel data analysis. As explained in the earlier section, this analysis tries to examine the association between financial performance and the market share and market concentration.

The financial performance in terms of Return on Assets (ROA) is statistically significant for some sectors, e.g., Transport, Textile, Services, food and construction. But the direction of this association is varied, in some cases, it shows a positive association while in other cases it is negatively associated. Market concentration in terms of Herfindahl Index has a statistically significant positive association with ROA in most sectors.

The remaining performance indicators, viz., Profit after tax as percentage of Net worth, debt equity ratio as well as net profits to sales ratio show similar results that are indeterminate.

The results of the panel data analysis fail to accept the first hypothesis that there exists a positive relation between market share and performance indicators of the firms.

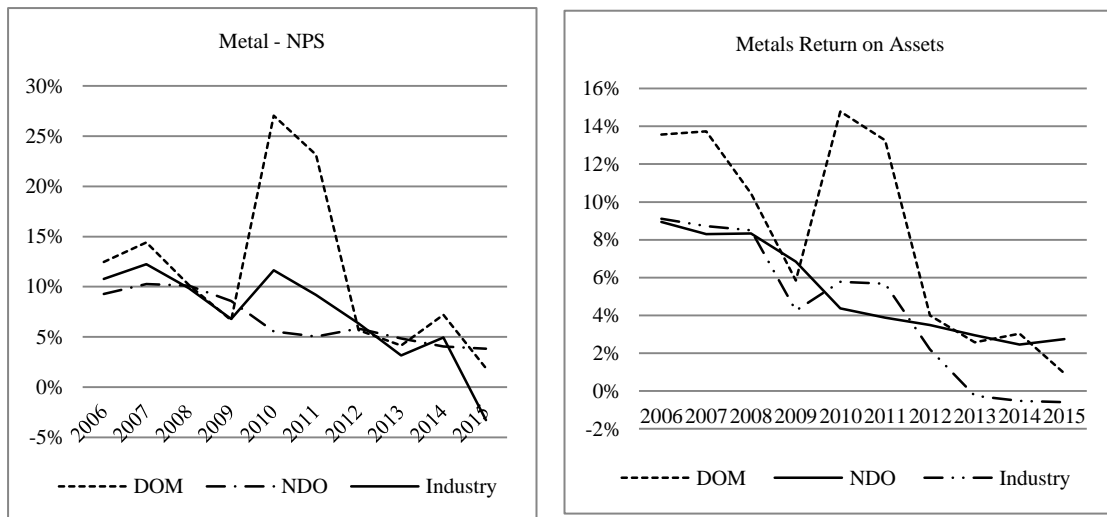
### *Empirical Results of Cluster Analysis*

Cluster analysis classifies the data from sample into groups by using the variables. Such groups are called as cluster. Here, the number of cluster is 2. Since the number

of cluster has been predefined, K- Means cluster method is used. Squared Euclidean Distance is used for divergence measure between units. In ANOVA results, the difference between the F ratios shows the role of variables i.e. of “Net profit to sales and return on assets.”

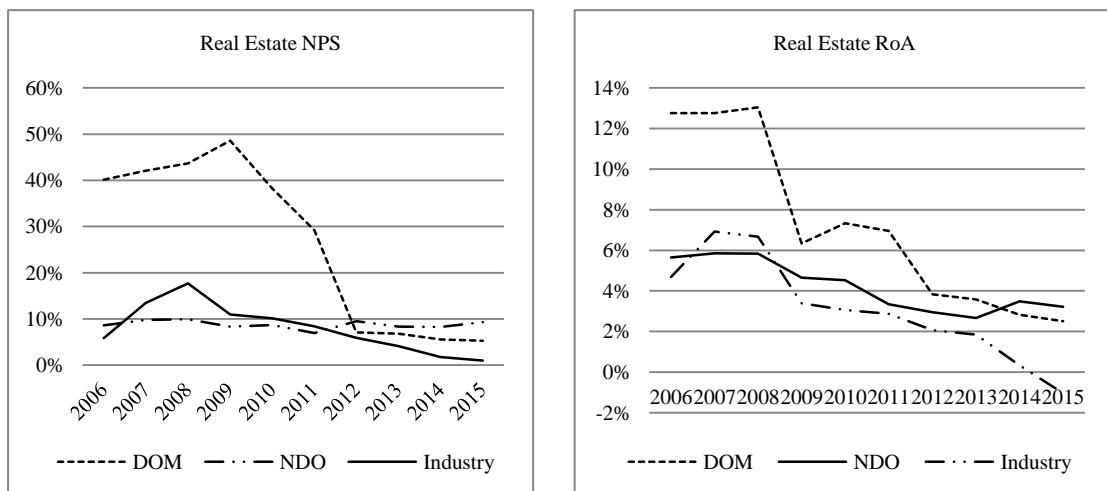
The companies which are having highest net profit to sales ratio are showing the highest return on asset. So, on the basis of ANOVA results, firms are classified into two clusters; one cluster comprises firms having the highest return on asset and /or Net profit to sales ratio and other cluster contain the residual firms from the sample. First cluster is termed as “DOM” having the prominent firms; the other is termed as “NDO” having the residuals. The return on asset and net profit to sales ratio is compared across the years for two clusters and industry as well. This comparison shows how the prominent firms twitch the industry trend when it is suffering from turmoil.

Chart 1: Metal Industry Sector



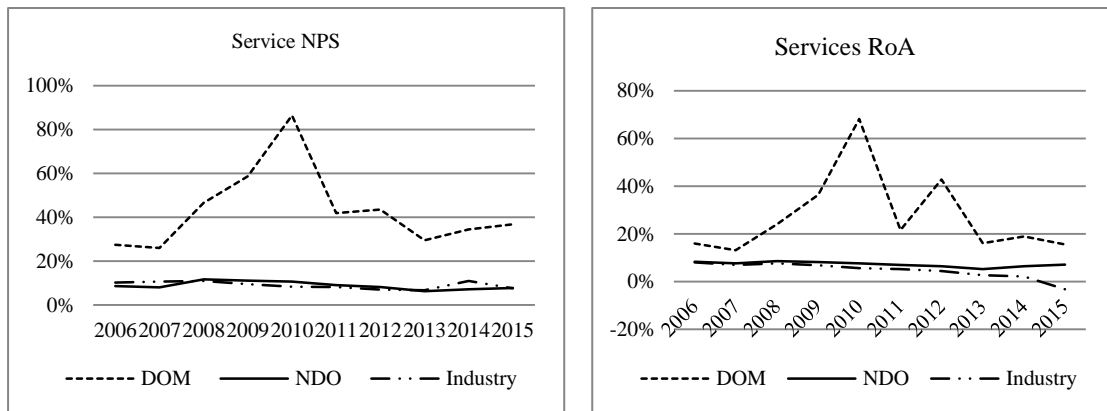
It is observed that prominent firms are pulling the industry average during the period of 2009 to 2011, when there was dip in ROA and NPS of industry. During the same period the gap between the prominent firm and residual firms is wider.

Chart 2: Real Estate Sector



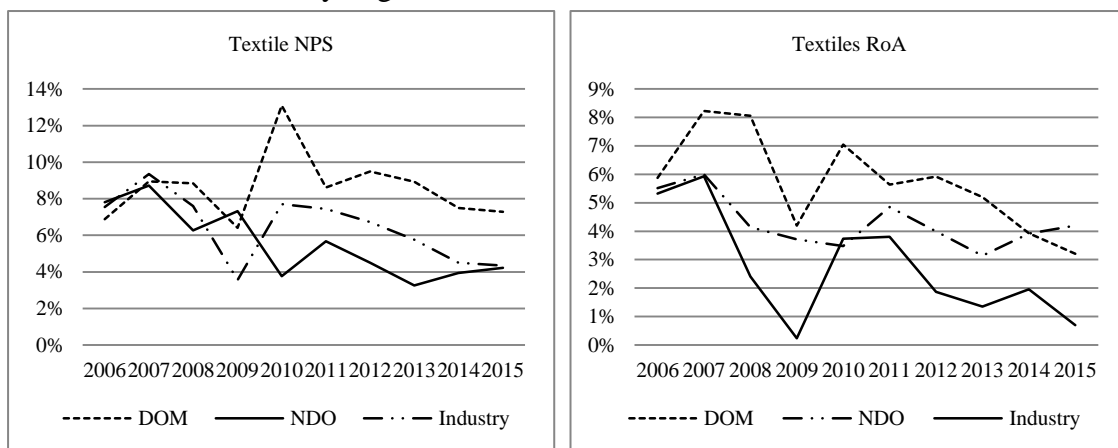
It can be seen that, in 2012 industrial average is declining but negative growth rate is minimised by non-dominant firms.

Chart 3: Services Segment



Volatility in NPS and ROA can be observed in case of dominant firm. It can be observed that the gap between average NPS and average ROA of Dominant firm and industry is wider.

Chart 4: Textiles Industry Segment



It is observed that higher volatility in NPS and ROA of dominant firms is resulting into the volatility for the industry also.

Chart 5: Transport Segment

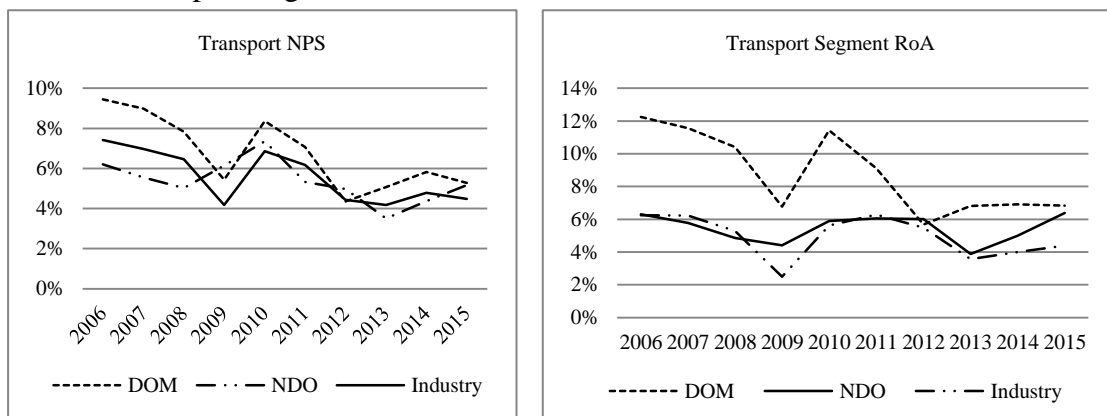
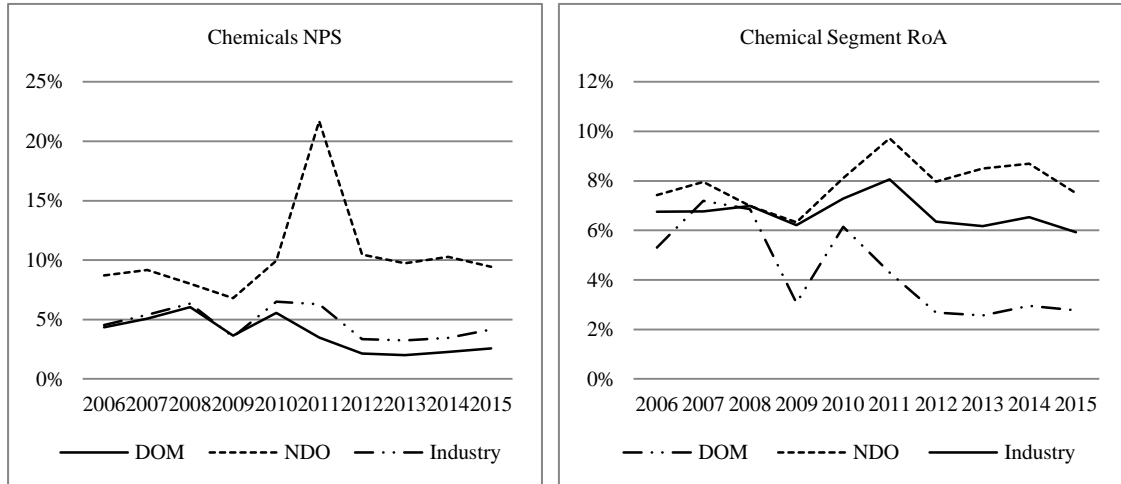


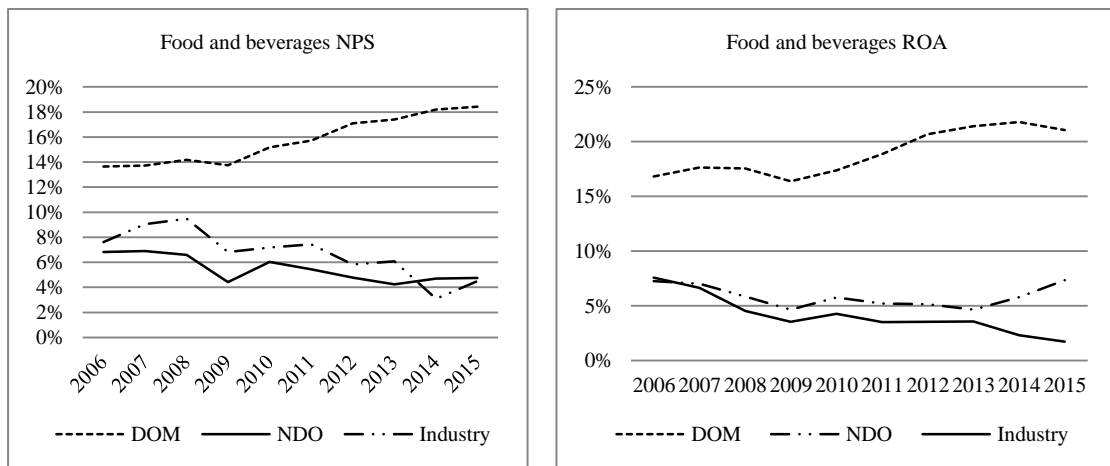
Chart 5 shows that the average level of RoA for transport sector is volatile and the dominant firm group is moving in tandem with the industry and non-dominant firm average. The average level of ROA for dominant firms is not much higher than the non-dominant firm average.

Chart 6: Chemicals Segment



Chemical segment is showing the exceptional feature. Average NPS and ROA of the non-dominant firms are higher than dominant firms as well as industry. It is observed that industrial average is pulled down by the dominant firms only.

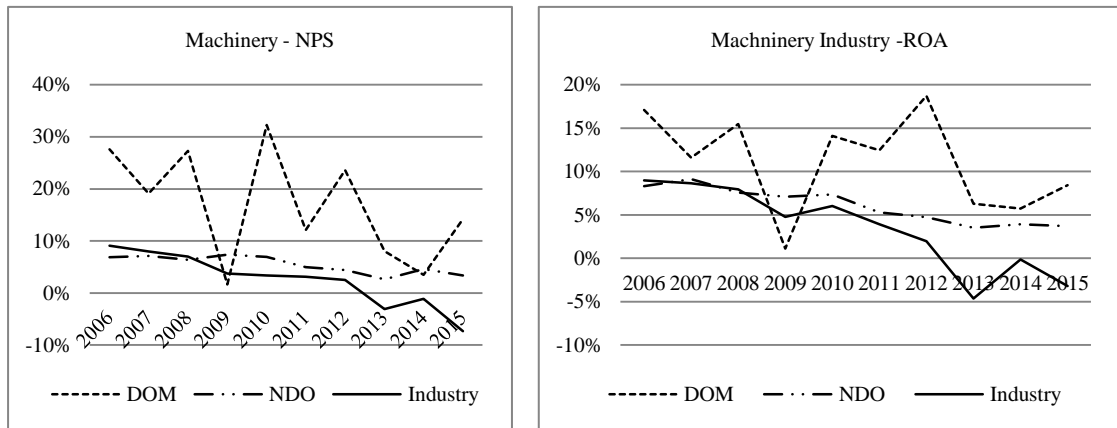
Chart 7: Food and Beverages Segment



It can be seen that the profitability of dominant firms is much higher than non-dominant firms and industry. Irrespective of increase in ROA of non-dominant firms, decline in ROA has been observed due to negative growth in case of dominant firms.

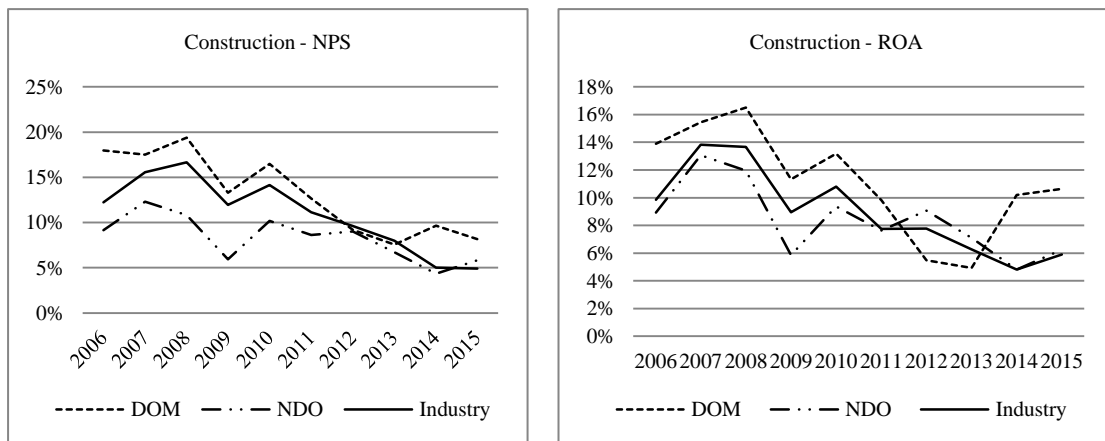


Chart 8: Machinery Industry Segment



It is observed that dominant firms have greater impact on the industrial average profitability.

Chart 9: Construction Segment



It is observed that the profitability for dominant, non-dominant and industry is more or less same till 2011.

## V Summary of the Cluster Analysis

The above analysis shows that the dominant firms in all the selected industrial and service sectors enjoy higher return on assets and net profit to sales ratio than industry average. During the periods of external shocks for instance 2008, the dominant firms continue to enjoy the highest Return on assets in the respective segment. This reflects their dominant position. On a positive note, the dominant firms are pulling the industry from a slump during the crisis times. This trend is observed in almost all the segments except chemicals.

The above analysis has certain limitations like the segments are classified very broadly as per the CMIE classification, which includes a broad range of products in each of the sector. However, the cluster analysis has been used to identify the firms having market power based on market share and profitability (NPS ratio).

## VI Conclusion

The newly amended Competition Act emphasizes that its main objective is to prohibit the abuse of dominance and not the dominance itself. The present study tries to examine whether the market share and market concentration influence the financial performance. This analysis aims at verifying whether a generic association between large market share and firm performance exists in reality.

The results of the panel data analysis show that an exact association between the financial performance and market share or market concentration is difficult to establish. The study fails to accept the first hypothesis that financial performance of the firm is positively influenced by the market share. Secondly, the present research tries to identify the dominant firms in terms of actual procurement of profits by these firms and not by the ‘abuse of market power in terms of limit pricing or price leadership behaviour. In this sense, these firms are prominent firms and not dominant firms. This prominence is also important as the analysis shows that the fringe firms are incurring consistent losses as the prominent firms are seeking higher profits by virtue of their market power. The identification of ‘prominent’ firms with cluster analysis and the further comparison of the return on assets as well as that of the Net Profit top Sales ratio shows that the prominent firms enjoy the highest possible average profits in most of the segments under consideration. Even during the period of crisis, these profits are not affected with the same intensity as those of the non-prominent firms. The study fails to reject the second hypothesis that the dominant firms procure more profits than the industry level causing consistent loss to the fringe firms.

## Annexure 1

### Panel Data Model Results Summary

Chemicals		Independent Variable			
Dependent Variable	Model	Intercept	Market Share	Herfindahl Index	GDP Growth
Return on Assets	Random Effect	0.03	-0.068	0.133	0.005
Profit After Tax As % Net Worth	Random Effect	-20.001	-3.863	132.43**	-0.05
Debt Equity Ratio	OLS	19.714	-3.906	-69.491	2.877
Net Profits to Sales	Random Effect	-0.076	-0.141	0.566	0.016
Constructions		Independent Variable			
Variable	Model	Intercept	Market Share	Herfindahl Index	GDP Growth
Return on Assets	Random Effect	0.354***	0.355***	-2.307***	0.003
Profit After Tax As % Net Worth	Random Effect	104.50***	39.032	-693.78***	1.298
Debt Equity Ratio	Random Effect	-0.113	2.495*	5.887**	0.094
Net Profits to Sales	Random Effect	0.439***	0.212**	-2.893***	0.004
Consumers Goods		Independent Variable			
Variable	Model	Intercept	Market Share	Herfindahl Index	GDP Growth
Return on Assets	Random Effect	0.136*	0.225	-0.31	0.01
Profit After Tax As % Net Worth	Random Effect	15.948	102.51	21.09	-3.88
Debt Equity Ratio	Fixed Effect	2.786***	-11.11***	-3.08*	-0.16
Net Profits to Sales	Random Effect	0.120**	0.121	-0.32*	0.02*

Food		Independent Variable			
Variable	Model	Intercept	Market Share	Herfindahl Index	GDP Growth
Return on Assets	Fixed Effect	-0.123***	-0.721**	1.278***	-0.004
Profit After Tax As % Net Worth	OLS	-2164.05*	-616.57	15182.88*	35.313
Debt Equity Ratio	Random Effect	6.597**	-5.901	-29.427	0.176
Net Profits to Sales	Random Effect	-0.2***	0.206	1.554***	-0.009

Machinery		Independent Variable			
Variable	Model	Intercept	Market Share	Herfindahl Index	GDP Growth
Return on Assets	Random Effect	0.031	0.121	-0.092	0.014
Profit After Tax As % Net Worth	OLS	14.084	-268.65**	-65.129	9.133
Debt Equity Ratio	Random Effect	1.298	3.822	-4.684	-0.02
Net Profits to Sales	Random Effect	0.046	3.683	-1.692	-0.294

Real Estate		Independent Variable			
Variable	Model	Intercept	Market Share	Herfindahl Index	GDP Growth
Return on Assets	Random Effect	0.143***	0.073	-0.573***	0.007
Profit After Tax As % Net Worth	OLS	86.652***	21.283	-373.418***	-2.943
Debt Equity Ratio	Random Effect	-3.06	1.215	24.117**	0.25
Net Profits to Sales	Random Effect	-19.85	21.249	101.822	-9.248

Services Other Than Finance		Independent Variable			
Variable	Model	Intercept	Market Share	Herfindahl Index	GDP Growth
Return on Assets	Random Effect	0.352***	0.828***	-5.061***	0.009
Profit After Tax As % Net Worth	Random Effect	79.04***	201.488*	-1195.296***	4.156
Debt Equity Ratio	Random Effect	-1.052	5.231	33.252*	-0.171
Net Profits to Sales	Random Effect	4.579*	4.285	-71.605	-0.466

Transport		Independent Variable			
Variable	Model	Intercept	Market Share	Herfindahl Index	GDP Growth
Return on Assets	Random Effect	0.073	0.157*	-0.236	0.012**
Profit After Tax As % Net Worth	Random Effect	46.545	44.814	-228.064	0.276
Debt Equity Ratio	Random Effect	4.718	-7.519	-10.68	-1.339
Net Profits to Sales	OLS	-0.124	0.356	0.927	-0.04

## References

- Apte, P.G. and R. Vaidyanathan (1982), Concentration, Controls and Performance in Twenty-nine Manufacturing Industries in India, *Indian Economic Review*, 17(2/4): 241-262.
- Bain, Joe S. (1956), *Barriers to New Competition*, Cambridge: Harvard University Press.
- Caves, Richard E., Michael Fortunato and Pankaj Ghemawat (1984), The Decline of Dominant Firms, 1905-1929, *The Quarterly Journal of Economics*: 523-546.
- Gaskins, Darius (1970), *Optimal Pricing by Dominant Firms*, unpublished doctoral dissertation, University of Michigan.
- Geroski, Paul A. (1982), Simultaneous Equations Models of the Structure-Performance Paradigm, *European Economic Review*, 19(1): 145-158.

- Kamien, Morton, and Nancy Schwartz (1971), Limit Pricing and Uncertain Entry, *Econometrica*, 39: 441-454
- Kydland, F. (1975), Noncooperative and Dominant Player Solutions in Discrete Dynamic Games, *Internal Econ. Rev.*, Vol. 16.
- Orr, Dale (1974), The Determinants of Entry: A Study of Canadian Manufacturing Industries, *this REVIEW*, 56: 59-66.
- Scherer, F.M. (1980), *Industrial Market Structure and Economic Performance* Chicago: Rand McNally.
- Shepherd, William G. (1970), *Market Power and Economic Welfare*, New York: Random House.
- Stackelberg, H. (1934), *Marktform and Gleichgewicht*, Vienna: Julius Springer. English translation, entitled *The Theory of the Market Economy* (1952).
- Strickland, Allyn D. and Leonard W. Weiss (1976), Advertising, Concentration, and Price-cost Margins, *journal of political Economy*, 84(5): 1109-1121.
- WEISS, L.W. (1974), *The Concentration-Profits Relationship and Antitrust*, in H.J. Goldschmidt *et. al.*, Eds., *Industrial Concentration: The New Learning*, Columbia University Centre for Law and Economic Studies, Boston: Little, Brown and Company, pp. 184-223.