

Local Firms versus MNCs in India: A Study of Competitive Performance

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ABSTRACT

We studied the performance of 187 firms drawn from MNC subsidiaries (55), domestic private-owned (76), and domestic state-owned (56) firms operating in India. The underlying objective was to assess which group of firm demonstrated superior economic performance and competitiveness. We analyzed data for two periods of time 2002-03 and 2011-12 using four measures of economic performance namely operating profit margin (OPM), net profit margin (NPM), return on net worth (RONW) and asset turnover ratio (ATR). As the data set did not lend itself to parametric analysis, we adopted the nonparametric method. We employed Kruskal-Wallis H Test, Mann-Whitney U Test, Two-Step Cluster Analysis, and Chi-Square Test. We found that domestic private-owned firms performed better and were more competitive than the other two groups of firms.

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1. INTRODUCTION:

During the past two decades foreign direct investment (FDI) flow into emerging markets has increased considerably, particularly to the BRICS (Brazil, Russia, India, China, and South Africa) countries. These countries have experienced relatively higher levels of economic growth rate compared to the developed economies and hence have attracted substantial amounts of FDI. While on the one hand

such investment can lead to positive implications in terms of stimulating economic activity, generating employment, raising the standard of living, increasing competition, bringing in new technology and international brands, it can also have certain negative consequences. A prominent factor is the fear that international competition is primarily inflicted by multinational firms (MNCs) which are more efficient vis-à-vis domestic firms in emerging markets; that the former will eventually dominate the latter and may even eliminate them from the competitive arena. This is based on the assumption that MNCs are better resource-endowed in terms of technology, capital, brands and management practices. With such assets multinational firms will be able to win over the loyalty of customers, attract the best talent and be able to quickly gain confidence of supply chain partners.

At a policy level emerging market governments enact laws to protect and nurture domestic firms. Protectionism has its consequences in terms of inefficiencies and below par quality besides creating unequal playing field for all players. We felt it necessary to study the performance of local and MNC firms to determine the level of competitiveness of both these sets of firms in India. Should the local firms panic and the government in turn legislate to give preferential treatment to Indian firms over MNCs?

There is yet another dimension of competition that happens between domestic firms. This is the competition between the private and the public sector firms. The general perception is that the private sector is more efficient and proactive and therefore more competitive. Consequently products and services offered by the private sector are of superior quality in comparison to the public sector counterparts. Our study intends to analyze this aspect as well.

2. LITERATURE REVIEW:

Extent literature on corporate performance and firm ownership is divided when it comes to performance between foreign firms and domestically owned firms. Some of the studies find that foreign firms are more efficient compared to domestically owned firms while other studies have found that both these types of firms have performed equally well. Very similar is the debate between domestic government-owned firms vis-à-vis privately-owned firms.

2.1. Studies supporting superior performance of foreign firms over domestic firms:

A study conducted by (Asheghian, 1982) examined the comparative efficiencies of foreign firms, which consisted of Iranian-American joint venture firms (IAJV) and local firms in Iran during the pre-revolutionary 1971-76 period. This study of inter-firm efficiency comparison of eleven matched firms was based on three indexes of efficiency namely, labour productivity, capital productivity and total factor productivity. The study concluded that with minor exceptions the IAJV firms were more efficient than their Iranian firms' counterparts. (Willmore, 1986) analyzed data of 282 pairs of foreign-owned and Brazilian firms in the manufacturing industry. The study found that differences between the two types of firms were large and highly significant. Compared to their local counterparts, foreign firms operated fewer plants, had higher ratios of value-added to output, higher levels of advertisement and royalty payments, higher labour productivity, greater exports, higher wages and greater capital intensity.

(Voicu, 2004) examined whether foreign firms in Romania were technologically superior to domestic firms by separately estimating the technology-related productivity differentials between domestic firms and international joint ventures, and between domestic firms and foreign wholly owned enterprises. The study revealed that both types of foreign firms exhibited a technological advantage in virtually all manufacturing sectors compared to domestic Romanian firms. (Kimura and Kiyota, 2004) utilized micro-panel data for firms located in Japan to examine differences in static and dynamic corporate performance between foreign-owned and domestically-owned firms in the 1990s. The authors found that foreign-owned firms not only reflected superior static characteristics but also achieved faster growth. Further, foreign investors invested in firms that may not be immediately profitable at the time of investment but those that had profit potential.

(Ayudin et al., 2007) in a study investigated whether foreign-owned firms performed significantly better than domestically-owned Turkish corporations listed on Istanbul Stock Exchange. The t-test statistic was applied to examine if there was significant differences in operating profit margin, return on assets and return on equity between the two groups of firms. The results revealed that firms with foreign ownership performed better than domestically-owned ones in respect of return on assets.

(Kesari, 2010) empirically examined the differences in the relative characteristics, conduct and performance of two different ownership groups of firms, namely, foreign affiliates of multinational enterprises and domestic firms. The study was restricted to non-electrical machinery industry in India for the period 2001 to 2007. Three alternative techniques were employed, univariate statistical method based on Welch's t-test, the multivariate linear discriminant analysis and the dichotomous logit and probit models. The findings suggest that foreign affiliates had greater technological efficiency, firm

size, export intensity, intensity of import of intermediate goods and intensity of import of disembodied technology along with lower advertisement and marketing intensity and financial leverage.

In a study which explored the differences between domestic and foreign-owned firms operating in Greece, (Valsamis et al., 2011) in particular focused on financial management characteristics of the firms under investigation for the year 2008. The firms were grouped into two categories based on the origin of their capital share. Using a non-linear model the study found that foreign enterprises made higher use of capital, managed more financial elements, had more access to long-term capital, while they fell short against domestic firms in short term financing. Overall, foreign firms had higher sales and presented greater profitability.

2.2. Studies that found no difference in performance between foreign and domestic firms:

In their study (Barbosa and Louri, 2003) investigated whether multinational corporations operating in Portugal and Greece performed differently than domestic firms. They used two sets of sample firms one set operating in Greece in 1997 and another set operating in Portugal in 1992. Results suggested that ownership ties did not make a significant difference with respect to performance of firms operating in both the countries. However, it was also found that when firms in the upper quartiles of gross profits were compared, MNCs were found to significantly perform better than domestic firms.

A study undertaken by (Basti and Akin, 2008) compared the relative productivities of foreign-owned and domestically-owned companies operating in Turkey. Non-financial sector companies listed in Istanbul Stock Exchange from the period 2003-2007 were included in the analysis. Malmquist index, which is a data envelopment analysis type nonparametric technique, was utilized as the productivity measurement tool. Study results indicated that there was no difference between productivity of foreign-owned and domestically-owned firms operating in Turkey. (Basti et al., 2011) analyzed the performance of foreign-owned firms in contrast to domestically-owned firms in the manufacturing sector in Turkey. The impact of several firm indicators like age, size, assets, firm risks on different corporate performance measures such as ROE, ROA, Basic Earning Power and Total Factor Productivity were investigated by a panel data regression model. Contrary to findings of former studies in Turkey, the results of this study revealed that there was no significant difference between the performances of foreign-owned and domestically-owned firms.

(Caves and Douglas, 1980) compared the post-war productivity performance of a public firm (Canadian National Railroads) with a private firm (Canadian Pacific Railroad) through a case study approach. In their study they found no evidence of inferior performance by the government-owned railroad. Their study concluded that any tendency towards inefficiency resulting from public ownership was overcome by the benefits of competition.

2.3. Studies that had mixed findings:

(Xu et al., 2006) examined the performance of domestic Chinese firms in various ownership categories versus foreign-invested enterprises based on two nation-wide surveys conducted by the National Bureau of Statistics in 1998 and 2002. The study found that both domestic non-state-owned firms and foreign-invested enterprises performed better than state-owned enterprises. Meanwhile, three categories of Chinese firms - privately owned, collectively owned, and shareholding - had higher performance levels than the foreign-invested enterprises.

(Erdogan, 2010) analyzed the major aspects of conduct and performance that distinguishes foreign-owned and domestically-owned firms that operated in Turkey. Repeated measures logistic regression technique was used on 77 foreign-owned and 215 domestically-owned firms for the period 2004-2008. The results showed that domestically-owned firms had higher capital productivity vis-à-vis foreign-owned firms. In terms of the other performance variables studied such as pre-tax profit margin, return on equity and labour productivity there was no difference between foreign-owned and domestically-owned firms. The two groups of firms also do not differ in terms of size, capital intensity, export intensity, patent intensity and trademark intensity.

2.4. Studies supporting superior performance of private firms' vis-à-vis public sector firms':

A study undertaken by (Majumdar, 1998) evaluated performance difference between public sector, joint sector (joint venture between private and public sector firms) and private sector enterprises in India for the period 1973-74 to 1988-89. The study results established that enterprises owned by the central and state governments were less efficient than joint sector or private sector enterprises. Further, it found that joint sector enterprises were less efficient than those in private sector. (Boitani et al., 2013) focused on how the ownership and selection procedure of firms operating in the Local Public Transport sector affected their productivity. A comparative analysis of 77 firms operating in large European cities over the period 1997 to 2006 was conducted using the measure of Total Factor

Productivity. The authors found that totally and partially public firms displayed lower productivity than privately owned firms.

3. RESEARCH METHODOLOGY

We intended to attempt a study on the competitive performance of multinational firms versus domestic firms as well as between domestic firms. We categorised domestic firms into private-owned and state-owned. In all, there are three groups of firms: MNCs, domestic private-owned and domestic state-owned. The study is for two different time periods; the base year 2002-03 and the recent year 2011-12.

There was a reason why these two time periods were considered for the study. The government of India ushered in reforms in periodic dosages from 1991 to liberalize the economy from a controls-driven to a market-driven one. It was assumed that over a ten-year period the economy would have changed significantly. Therefore, the base year of 2002-02 was chosen to determine how different groups of companies had performed in the post reform competitive era. Further, the year 2008 saw major changes in the global economy with recession raising its ugly head. By 2011-12, three years post the commencement of global downturn, the idea was to assess how well the firms had done given the hostile nature of the environment. The idea was also to observe the change in performance of the three groups of firms over the nine-year period.

Four financial measures are considered namely, Operating Profit Margin (OPM), Net Profit Margin (NPM), Return on Net Worth (RONW), and Asset Turnover Ratio (ATR). We found very little published research work on competitive performance of local firms and multinational firms in India. Our research, it is hoped, will fill this gap to an extent. We had done an earlier study taking a sample size of 45 firms (15 each from the three groups of firms mentioned above). The limitation of the study was the small sample size used which did not satisfy the requirements of some of the statistical tests employed. Therefore we undertook this exercise using a larger sample size of 187 firms using SPSS (16).

The hypothesis proposed to be tested is:

H0: There is no difference in the performance of foreign companies in India compared to domestic private-owned and domestic state-owned companies.

3.1. Sample:

The data for this study was extracted from secondary sources. The main source is the Ace Analyzer data base, besides the websites of the firms listed in the BSE (Bombay Stock Exchange) and NSE (National Stock Exchange) in India. 187 firms operating in India have been included in the study, of which 55 are foreign firms, 76 are domestic private-owned firms and 56 are domestic state-owned firms.

3.2. Data Analysis Method:

Our research design has two stages. First stage involved classifying the firms into three categories namely, low (7%), medium (7% to 15%) and high (>15%) performing ones using the financial measure 'Return on Capital Employed' (ROCE). To validate this classification we used four variables mentioned above namely OPM, NPM, RONW, and ATR. We wanted to use parametric tests for analyses and began with the one-way ANOVA test. The idea was to carry out this test for each of the four independent variables to determine if there is significant variation in the performance of the three groups of firms. However, the data set did not satisfy the basic tests of normality of population distribution and homogeneity of variance. If these two tests would have been satisfied and the ANOVA results were to be significant we intended to use a post hoc test and subsequently the discriminant analysis test to validate our initial classification of the three sets of firms. This would have enabled us to comment on the competitiveness of the three groups of firms.

Since this was not possible owing to the limitations of the dataset we decided to adopt the nonparametric approach to pursue our study. We chose the Kruskal-Wallis H test (the non-parametric version of the one-factor independent measures ANOVA) for comparing two or more independent samples. We then wanted to performed the Mann-Whitney U test (the nonparametric version of the independent samples t test) to determine which group median score(s) is/are responsible for the variation. Next, to cross validate our initial classification we used the Two-Step Cluster Analysis, which is somewhat similar to the discriminant analysis used in parametric analysis. Finally, we employed the Chi-Square test to find out if there exists an association between groups of firms and their performance during the two periods of time considered for the study. This was done to compare

and determine how foreign, domestic private-owned and domestic state-owned firms performed over the ten-year period and to comment on their competitiveness.

4. DISCUSSION

We intended to formally test the data vis-à-vis the two main conditions –normality of population and homogeneity of variance – for reliable results for the one-way ANOVA. To test for normality we used the Kolmogorov-Smirnov Test (since our n is >50), as it assesses whether there is a significant departure from normality in the population distribution of the four variables being studied.

The test statistic is:

$$W = \frac{(\sum_{i=1}^n a_i x_i)^2}{\sum_{i=1}^n (x_i - \bar{x})^2}$$

Where:

x_i (With parentheses enclosing the subscript index i) is the i^{th} order statistic, i.e., the i^{th} smallest number in the sample;

$\bar{x} = \frac{\sum_{i=1}^n (x_i)}{n}$ is the sample mean; the constants a_i are given by

$$(a_1, \dots, a_n) = \frac{m^T V^{-1}}{(m^T V^{-1} V^{-1} m)^{1/2}}$$

When we look at the test statistic and significance column (see table 1) for each of the variables for both 2002-03 and 2011-12, we find that the P-values are less than the chosen α (.05), so we reject the null hypothesis and conclude that the data violates normality assumption.

Table 1: Tests of Normality of Population Distribution 2002-03

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
NPM 2003	.346	187	.000	.190	187	.000

OPM 2003	.301	187	.000	.340	187	.000
RONW 2003	.286	187	.000	.641	187	.000
ATR 2003	.224	187	.000	.737	187	.000

a. Lilliefors Significance Correction

Table 2: Tests of Normality of Population Distribution 2011-12

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
NPM 2012	.436	187	.000	.129	187	.000
OPM 2012	.411	187	.000	.194	187	.000
RONW 2012	.155	187	.000	.862	187	.000
ATR 2012	.208	187	.000	.739	187	.000

a. Lilliefors Significance Correction

To test homogeneity (equality) of variance assumption we used Levene's Test, which assesses whether the population variances for the variables are significantly different from each other.

The Levene's test statistic, W , is defined as follows:

$$W = \frac{(N - k) \sum_{i=1}^k N_i (Z_{i.} - Z_{..})^2}{(k - 1) \sum_{i=1}^k N_i (Z_{ij} - Z_{i.})^2}$$

Where:

W is the result of the test,

k is the number of different groups to which the samples belong,

N is the total number of samples,

N_i is the number of samples in the i^{th} group,

Y_{ij} is the value of the j^{th} sample from the i^{th} group,

$$Z_{ij} = \begin{cases} |Y_{ij} - \bar{Y}_i|, & \bar{Y}_i \text{ is a mean of } i\text{-th group} \\ |Y_{ij} - \tilde{Y}_i|, & \tilde{Y}_i \text{ is a median of } i\text{-th group} \end{cases}$$

When we look at table 3 we see that the P-values for three variables in 2002-03 are $<.05$, which is less than our chosen α (.05), we reject the null hypothesis and conclude that the data violate the homogeneity assumption. Only for OPM the P-value is $>.05$ and it alone satisfies the homogeneity assumption. For the year 2012-13 again the P-values for three variables are $<.05$ (see table 4). Here again we reject the null hypothesis and conclude that the data violate the homogeneity assumption. However, in case of the OPM variable we accept the null hypothesis as the P-value is $>.05$.

Table 3: Test of Homogeneity of Variances for 2002-03

	Levene Statistic	df1	df2	Sig.
NPM 2003	3.605	2	184	.029
OPM 2003	1.620	2	184	.201
RONW 2003	10.020	2	184	.000
ATR 2003	10.698	2	184	.000

Table 4: Test of Homogeneity of Variances for 2011-12

	Levene Statistic	df1	df2	Sig.
NPM 2012	4.977	2	184	.008
OPM 2012	2.029	2	184	.134

RONW 2012	4.947	2	184	.008
ATR 2012	9.851	2	184	.000

Since the data did not satisfy the assumptions of one-way ANOVA, we decided not to proceed using parametric tests but shifted to the nonparametric method. Since Kruskal-Wallis H test enjoys the same power properties relative to the one-way ANOVA F test, we decided to employ this test.

The K-W test statistic is given by:

$$K = (N - 1) \frac{\sum_{i=1}^g n_i (\bar{r}_i - \bar{r})^2}{\sum_{i=1}^g \sum_{j=1}^{n_i} (r_{ij} - \bar{r})^2}$$

Where:

- n_i is the number of observations in group i
- r_{ij} is the rank (among all observations) of observation j from group i
- N is the total number of observations across all groups

$$\bar{r}_i = \frac{\sum_{j=1}^{n_i} r_{ij}}{n_i},$$

$$\bar{r} = \frac{1}{2} (N + 1), \text{ is the average of all the } r_{ij}.$$

When we look at table 5, we see that the P-values for 2002-03, where three of the variables have significance level of $<.05$, which is less than our chosen $\alpha (.05)$. We reject the null hypothesis and conclude that there are differences among the groups of firms and therefore their rank score cluster systematically. Only for ATR the P-value is $>.05$ and so we do not reject the null hypothesis. For the year 2011-12 (see table 6) for all the four variables P-values have significance level of $<.05$ and therefore we reject the null hypothesis. Thus considering the data for both the base year as well as the recent year, it is clear that there are significant differences in the performance of the three groups of firms.

Table 5: Kruskal-Wallis H Test for 2002-03

Test Statistics^{a,b}

	NPM 2003	OPM 2003	RONW 2003	ATR 2003
Chi-Square	22.424	16.037	37.047	3.447
df	1	1	1	1
Asymp. Sig.	.000	.000	.000	.063

a. Kruskal Wallis Test

b. Grouping Variable: PERM2002-03

Table 6: Kruskal-Wallis H Test for 2011-12

Test Statistics^{a,b}

	NPM 2012	OPM 2012	RONW 2012	ATR 2012
Chi-Square	51.654	34.561	93.773	32.842
df	2	2	2	2
Asymp. Sig.	.000	.000	.000	.000

a. Kruskal Wallis Test

b. Grouping Variable: PERM2012

Since Kruskal-Wallis test revealed significant differences in P-values for the variables being studied, we attempted the Mann-Whitney U test, a nonparametric test that can be used when there are two independent samples with the assumption that they are drawn from population with the same shape, although not necessarily normal. This test is used in lieu of parametric post-hoc tests. The null hypothesis is that the scores from the two groups are not systematically clustered and thus there is no difference between the groups.

The Mann-Whitney U test statistic is given by:

$$z = \frac{U - m_u}{\sigma_U}$$

Where, where m_U and σ_U are the mean and standard deviation of U

$$m_U = \frac{n_1 n_2}{2},$$

$$\sigma_U = \sqrt{\frac{n_1 n_2 (n_1 + n_2 + 1)}{12}}$$

When we examine table 7, it is observable that for all variables the significance level is lower than the chosen α (.05). This clearly indicates that there are significant differences in the values or median scores amongst the three groups of firms in the year 2002-03. The only exception is for the variable ATR 2003 and that too for one pair of 'low-medium' performing firms.

Table 7: Mann-Whitney U Test for 2002-03

Low-Medium

Test Statistics^a

	NPM2003	OPM2003	RONW2003	ATR2003
Mann-Whitney U	280.000	354.000	144.500	571.500
Wilcoxon W	776.000	850.000	640.500	1067.500
Z	-4.735	-4.005	-6.087	-1.857
Asymp. Sig. (2-tailed)	.000	.000	.000	.063

a. Grouping Variable: PERM2002-03

Low-High

Test Statistics^a

	NPM2003	OPM2003	RONW2003	ATR2003
Mann-Whitney U	323.000	550.000	67.000	831.000
Wilcoxon W	819.000	1046.000	563.000	1327.000
Z	-6.813	-5.655	-8.122	-4.222
Asymp. Sig. (2-tailed)	.000	.000	.000	.000

a. Grouping Variable: PERM2002-03

High-Medium

Test Statistics^a

	NPM2003	OPM2003	RONW2003	ATR2003
Mann-Whitney U	1443.500	1618.500	646.000	1964.500
Wilcoxon W	2668.500	2843.500	1871.000	3189.500
Z	-4.498	-3.830	-7.543	-2.509
Asymp. Sig. (2-tailed)	.000	.000	.000	.012

a. Grouping Variable: PERM2002-03

The results are similar when we examine the table 8, which shows SPSS output for the year 2011-12. We again arrive at the same conclusion as did for the year 2002-03. However, there are three variables which have P-values that are $>.05$, these are, ATR 'low-medium' firms and NPM and OPM 'medium-high firms. We decided to ignore these as aberration, since K-W test too showed significant differences in the performance of the three groups of firms and proceeded with further analyses.

Table 8: Mann-Whitney U Test for 2011-12

Low Medium

Test Statistics^a

	NPM2012	OPM2012	RONW2012	ATR2012
Mann-Whitney U	165.000	210.000	118.000	535.500
Wilcoxon W	795.000	840.000	748.000	1063.500
Z	-4.958	-4.393	-5.551	-.308
Asymp. Sig. (2-tailed)	.000	.000	.000	.758

a. Grouping Variable: PERM 2011-12

Low-High

Test Statistics^a

	NPM2012	OPM2012	RONW2012	ATR2012
Mann-Whitney U	442.000	753.000	281.500	1187.500
Wilcoxon W	1072.000	1383.000	911.500	1817.500
Z	-7.096	-5.765	-7.783	-3.905
Asymp. Sig. (2-tailed)	.000	.000	.000	.000

a. Grouping Variable: PERM 2011-12

Medium-High

Test Statistics^a

	NPM2012	OPM2012	RONW2012	ATR2012
Mann-Whitney U	1674.000	1887.000	404.000	816.000
Wilcoxon W	2202.000	9147.000	932.000	1344.000
Z	-1.112	-.149	-6.851	-4.990
Asymp. Sig. (2-tailed)	.266	.881	.000	.000

a. Grouping Variable: PERM 2011-12

As we found all four variables indicating significant differences in the performance of the groups of firms, hence we decided to use all the four variables to cross validate our initial classification of the three groups of firms (which was done using ROCE). We chose the Two-Step Cluster Analysis for this purpose. The Two-Step Cluster is an algorithm primarily designed to analyze large datasets. The algorithm groups the observations in clusters, using the approach criterion. The procedure uses an agglomerative hierarchical clustering method. Compared to classical methods of cluster analysis, the Two-Step enables both continuous and categorical attributes. Moreover, the method can automatically determine the optimal number of clusters.

Table 9: The Two-Step Cluster Analysis for 2002-03

			Two-Step Cluster Number_PERM2003			Total
			Low	Medium	High	
PERM 2002-03	Low	Count	31	0	0	31
		% of Total	16.6%	0.0%	0.0%	16.6%
	Medium	Count	48	1	0	49
		% of Total	25.7%	0.5%	0.0%	26.2%
	High	Count	0	4	103	107
		% of Total	0.0%	2.1%	55.1%	57.2%
Total		Count	79	5	103	187
		% of Total	42.2%	2.7%	55.1%	100.0%

Table 10: The Two-Step Cluster Analysis for 2011-12

			Two-Step Cluster Number_PERM2012			Total
			Low	Medium	High	
	Low	Count	34	1	0	35

PERM 2011-12		% of Total	18.2%	0.5%	0.0%	18.7%
	Medium	Count	32	0	0	32
		% of Total	17.1%	0.0%	0.0%	17.1%
	High	Count	0	1	119	120
		% of Total	0.0%	0.5%	63.6%	64.2%
	Total	Count	66	2	119	187
% of Total		35.3%	1.1%	63.6%	100.0%	

Table 9 shows the Two-Step Cluster Analysis results for 2002-03 data. Prominent is the fact that 48 or 25.7% of firms are classified as Low (instead of Medium) and 4 or 2.1% firms are classified as Medium (instead of High). In all 71.13% of the 187 firms are classified in the same way as we had done earlier. Table 10 shows the outcome for 2011-12 data. 81.87% of the 187 firms are classified as per our earlier classification. Here again the major difference in classification, like the base year, is with Medium performing firms with 17.15% classified as Low performing ones. We considered the overall classification which emerged from the Two-Step Cluster Analysis as a validation of our initial classification which was done using ROCE. Therefore, we decided to follow the same to study the relationship between the groups of firms' and their performances as well as competitiveness.

Superior firm performance can be inferred from the movement of firms from low-performer to medium or high-performer and medium to high. Maintaining high performance even after the lapse of a decade in a growing and competitive market is also an indicator of superior performance. To determine this, we undertook cross tabulation of the firms being studied to check the movements of low, medium and high performing firms from the base year (2002-03) to the recent year (2011-12). The result of this cross tabulating exercise can be seen in table 11. It is obvious from the table that domestic private-owned firms have shown greatest level of competitiveness as the number of high performing firms increased by 15 during the period of study. MNC as well as domestic state-owned firms have maintained status co.

Table 11: Result of cross tabulation of classification of groups of firms (2002-03 & 2011-2012)

Groups of firms	Classification	2002-03	2011-12	Difference
MNC	Low	8	11	+3
	Medium	9	6	-3
	High	38	38	0
Domestic Private	Low	11	8	-3
	Medium	27	15	-12
	High	38	53	+15
Domestic Public Sector	Low	12	16	+4
	Medium	12	9	-3
	High	30	29	-1

After observing the results of cross tabulation, we next wanted to use the Chi-square test to statistically arrive at a conclusion about the performance and competitiveness of the three groups of firms being studied. The test results revealed that the calculated P-values for MNCs and state-owned firms were .006 [significant at α (.01)] and .061 [significant at α (.05)] respectively. Thus the null hypothesis that there is no significant association between the performances of MNC firms and state-owned firms was not rejected. However, the calculated P-value for domestic private-owned firms was .250, which was higher than α (.05). Thus, in this case we reject the null hypothesis and conclude that there is significant difference in the performance of these firms during the two periods of time studied. In other words, the domestic private-owned firms have performed significantly differently in 2011-12, vis-à-vis 2002-03, which in fact is better performance. This finding matches our previous finding based on the cross tabulation. Thus, despite passage of time and increase in competition owing to liberalization of the economy and arrival of foreign competition, the domestic private-owned firms have managed to perform better than MNC and state-owned firms.

Table 12: Association between groups of firms and performance using Chi-Square Test

Chi-Square Tests

Sector		Value	df	Asymp. Sig. (2-sided)
MNC	Pearson Chi-Square	14.542 ^b	4	.006
	Likelihood Ratio	13.945	4	.007

	Linear-by-Linear Association	11.890	1	.001
	N of Valid Cases	55		
PVT	Pearson Chi-Square	5.380 ^c	4	.250
	Likelihood Ratio	6.659	4	.155
	Linear-by-Linear Association	.000	1	.998
	N of Valid Cases	76		
PSU	Pearson Chi-Square	8.992 ^d	4	.061
	Likelihood Ratio	9.325	4	.053
	Linear-by-Linear Association	4.786	1	.029
	N of Valid Cases	54		
Total	Pearson Chi-Square	18.552 ^a	4	.001
	Likelihood Ratio	18.593	4	.001
	Linear-by-Linear Association	11.292	1	.001
	N of Valid Cases	185		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.03.

b. 5 cells (55.6%) have expected count less than 5. The minimum expected count is .87.

c. 4 cells (44.4%) have expected count less than 5. The minimum expected count is 1.16.

d. 4 cells (44.4%) have expected count less than 5. The minimum expected count is 2.00.

5. CONCLUSION:

In this study, we analyzed the performance of 187 firms operating in India drawn from MNC (55), domestic private-owned (76), and domestic state-owned (56). The null hypothesis tested is that there is no difference in performance of MNC, domestic private-owned, and domestic state-owned firms. This hypothesis was arrived at based on the review of several research studies conducted in different countries, which indicated that subsidiaries of MNC firms perform better than domestic firms. A limitation of our study is that we could not undertake parametric analysis as the data did not satisfy the assumptions of one-way ANOVA model. This gives scope for future research using larger or different data set which may permit the use of parametric as well as nonparametric analysis and thus increase the robustness of the study.

At a managerial level, it indicates that executives of private-owned firms have demonstrated superior competitiveness vis-a-vis MNC firms despite increase in competition (both domestic and foreign) owing to liberalization of the economy and the global recession. This finding goes against many earlier research findings as well as general belief that MNCs are more competitive than local firms. However, in a dynamic environment there is no room for complacency for local private-owned firms. They have to further strengthen their competitiveness to take on the better endowed MNCs in future. As far as state-owned firms are concerned, there is need for introspection and self-analysis to determine reasons for less-than-desired performance. Corrective measures will enable them to improve performance and competitiveness. Same holds for MNC firms as well.

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