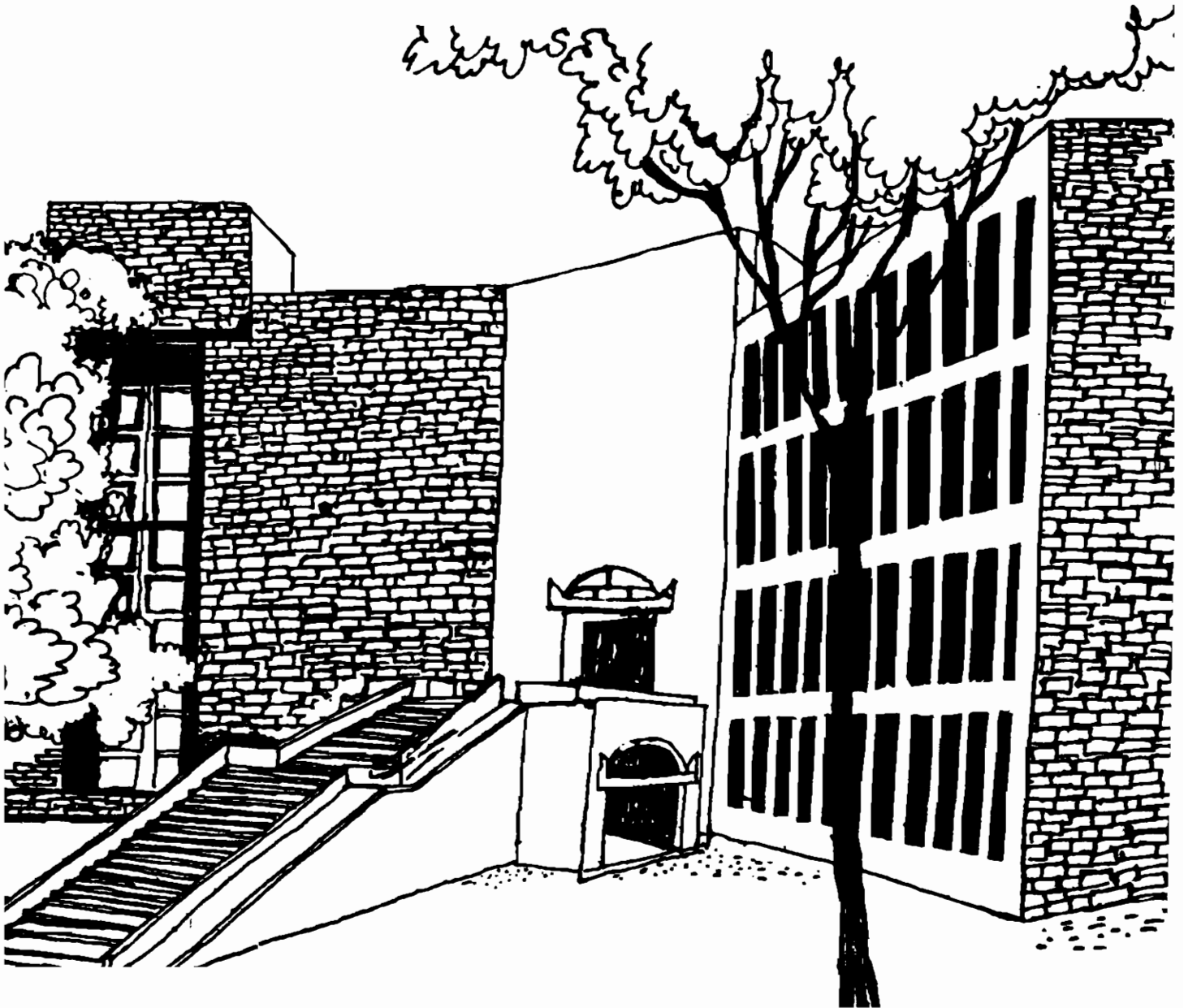




# Working Paper



CORPORATE RESPONSE TO ECONOMIC REFORMS  
IN INDIA

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### *Abstract*

Recent economic liberalisation in India has significantly changed the policy environment and has forced the domestic firms to review their strategies. As the situation is still evolving, the paper essentially explores changes in some key corporate strategies during the 1990s through an analytical description of available evidence. Some salient aspects of corporate strategies followed in the post-reform period are: (a) Vigorous restructuring, mainly geared towards consolidation to retain competitiveness in few chosen areas and correct the inefficiencies created by over-diversification in the pre-reform era; (b) Active participation of MNCs in the merger and acquisition process to get quick market entry and access to various complementary assets; (c) Better position of MNCs vis-a-vis domestic firms in the acquisition game because of their deep pockets and relatively cheaper access to capital; (d) Increased reliance of the Indian corporate sector on foreign technology purchase (usually tied with equity) while inhouse technology generation has taken a backseat; (e) Increased efforts to improve manufacturing capability (especially quality upgradation) through building alliances as well as through initiatives within the firm; although these efforts may still prove to be inadequate to meet the competitive challenges; (f) Dominance of product differentiation strategy over strategies of building R&D and manufacturing capabilities and distribution and marketing related complementary assets; (g) Adoption of export based growth strategies by some of the corporate sector firms but such strategies are not widespread and exposure to the international market is still inadequate to put the Indian firms on higher growth and learning trajectories. The paper argues that the policy initiatives will need to encourage investments in R&D and complementary assets like manufacturing etc. and a rapid increase in exports. Besides cost of capital advantage of the MNCs is real and needs to be tackled squarely. Else, the Indian corporate sector may not be able to benefit from the strategic initiatives taken in recent years.

# CORPORATE RESPONSE TO ECONOMIC REFORMS IN INDIA

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The literature widely recognises now that firms' strategies are influenced by the "environment/ regime" they operate in. The regime is broadly defined by a combination of variables capturing industrial structure, nature of technical knowledge and the policy environment. Recent economic liberalisation in India has significantly changed the policy environment and has forced the domestic firms to review their strategies. The success of the new policy regime may well depend on the strategies adopted by these firms and the fine-tuning of policies that impinge on firm level choices. An in-depth analysis of corporate strategies in the post 1991 era may provide useful insights into the corporate decision making processes and pointers for refinement of policy. The paper attempts such an analysis. It may be premature at this stage to attempt a rigorous econometric exercise to analyse corporate response to economic reform in India. As the situation is still evolving, the paper essentially explores, changes in some key corporate strategies through an analytical description of available evidence.

The paper is divided into four parts. The key aspects of economic reforms and their implications for the Indian corporate sector are summarised in the first section. Corporate strategies followed by Indian firms in the 1990s are analysed in section 2. Strategies involving corporate restructuring, alliances, technology development, manufacturing and other aspects of non-price competition are discussed here. Section 3 analyses the impact of policy and corporate strategies on profitability, exports, import dependence etc.. The paper concludes with a summary of major trends in corporate strategies in recent years and their implications for policy.

## **1. Some Key Dimensions of Economic Reforms**

In 1991, the Indian economy was seen as having a variety of problems including an inefficient, high cost and non-competitive industrial structure; serious infrastructure related bottlenecks and significant constraints on the availability of financial capital. It was argued that policy induced micro-economic

rigidities had constrained firm choices, apart from protecting Indian enterprises from internal and external competition. And if these rigidities did not exist, industrial performance would have been better. A variety of micro-economic rigidities induced by industrial, trade, public sector and foreign investment policies were identified:

- *Industrial Policy* did not encourage competition but contributed to inefficiencies. Bureaucratic determination of plant capacity, product mix & location resulted in ignoring the market processes. Industrial licensing and other controls led to severe entry & exit barriers and encouraged rent-seeking and lobbying. Besides, trade in scarce materials became more lucrative than efficient manufacturing. Further, licensing and product reservation for small scale sector inhibited firms from reaping economies of scale. Finally, pronounced pro-labour stance restricted workforce rationalisation.
- *Trade Policy* had an anti-export bias, which blunted export orientation. This bias was reinforced by curbing of imports via tariffs and quantitative controls as a part of import substitution strategy. This led to reduction in external competitive pressures and increases in input costs; the firms were denied optimisation in the use of inputs. The foreign exchange policy with an over-valued rupee made Indian exports non-competitive. Markets for illegal foreign exchange transactions emerged; and capital flight took place.<sup>1</sup>
- *Public Sector policy* contributed to inefficiencies through its pervasiveness in heavy industry & infrastructure. And provided monopoly power to Public Sector Units (PSUs) in industries which were reserved for them. Entry barriers and inefficiencies in PSUs led to higher input costs for the private corporate sector. Inefficiencies along with soft budget constraints meant low rates of return and no surpluses for reinvestment in the PSUs. Similarly, lack of competition meant that PSUs had no incentives to be efficient.
- *Foreign Investment (FDI) policy* put severe restrictions on portfolio and direct investment (which presumably led to serious infrastructural bottlenecks), imposed tight controls on technology transfer, licensing & consultancy, adding to the constraints faced by firms in terms of technology, international marketing (brand) and in building strategic alliances<sup>2</sup>. Foreign Exchange Regulation Act (FERA) sought to control the use of scarce foreign exchange resources limiting the freedom of foreign investors. Restrictions on FDI flows combined with anti-export bias meant that internationally efficient scales of production could not be achieved.

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<sup>1</sup> US\$5 billion illegal transactions were estimated for the year 1990 and an amount of about Rs 2,60,000 crores (US\$ 65 billion @ \$1=Rs 40/-) was apparently stashed away by Indians in Swiss accounts (Wadhva, 1997).

<sup>2</sup> There were restrictions on MNC activity in terms of industries it can invest in, levels of equity it can hold, licensing fees and royalty it can charge for transferring technology and so on. More on this in subsequent discussion.

- *Financial Sector policy* added to capital constraints by "crowding out" of private sector and diminished bank profits by ignoring market forces and imposing administered interest rates, directing "Policy Loans" to agriculture and small industry and government. Moreover, there were restrictions on raising equity from the market; both the quantum and pricing was decided by bureaucrats.

These micro-economic rigidities did not allow firms to make rational choices. The New Economic Policy in theory is designed to remove these policy induced distortions. Therefore, liberalisation is seen as a remedy for the longer-term constraints to growth. Some salient policy changes and their implications are:

- Widespread industrial delicensing has resulted in more flexibility for firms in their investment decisions and in choosing plant capacities. Delicensing also has a potential for increasing domestic competitive pressures.
- Dilution of MRTP Act has removed many restrictions on corporate investments and growth. This also has a potential of increasing competitive pressures as the dominant incumbents earlier did not face competition from less dominant firms because the latter were also covered by the MRTP act.
- Trade reform lowered tariffs and removed many physical barriers on imports (e.g. quotas). These changes enhance import competition for tradables and permit firms to rationalise their input purchase decisions.
- Many new sectors were opened up for FDI and higher equity participation. This permits MNCs to have better control over ventures through higher equity.
- Changes in FERA removed shareholding and business restrictions (e.g. income repatriation) on MNCs.
- Policies related to foreign technology purchase and licensing were liberalised. This improved access to technology. With technology based entry now possible to provide competition to incumbents can be expected. The firms can also make more rational choices about "making and buying" of technology.
- Capital market reforms coupled with the removal of restrictions on firms to tap capital markets reduced entry barriers. Earlier, access to financial resources was better for business houses which had control over many "independent" enterprises.
- The new regime permits Indian firms to access international capital markets.

- Inward flow of foreign portfolio investments from foreign institutions has increased foreign exchange availability as well as creating a condition in which non-performance may be severely punished.

## **2. Corporate Strategies in the 1990s**

What has been the impact of these reforms on firm level strategies? Economic liberalisation and the associated opening up of the Indian economy has changed the nature of oligopolistic rivalry in the Indian context. Competition for licenses which pre-empted potential entry, and which was often accompanied with oligopolistic co-ordination among incumbents, seem to be giving way to conventional non-price strategies to increase market shares and deter entry. Consequently, new strategies for developing technological capabilities (through R&D and technology purchase) and acquiring a variety of complementary assets and intangible assets (via advertising and new manufacturing related practices) have become important. To the extent feasible, this paper attempts to document the changes in corporate investments (and their relative emphasis) in the creation of tangible and intangible assets.

The private corporate sector in India responded favorably to economic reform with larger investments in the early 1990s. The rate of growth of fixed capital formation, however, started to decline after 1994-95. In 1995-96, gross fixed capital formation in the private corporate sector actually declined as a proportion of GDP (Table 1). More recent data on actual rates of capital formation are not available. However, information on investment intentions for the period 1999-98 reported in Table 1 suggest a definite down turn since 1995. Rates of corporate investments, therefore, seem to have declined in the second half of 1990s. The rates of growth of the Indian industrial sector also declined in the years immediately after the initiation of economic reforms in 1991 but picked up to reach a high of 12.8 per cent in 1995-96. It started to fall subsequently and the deceleration seems to have continued since then (Table 1). The corporate strategies discussed in the subsequent sections are a response to the increasing competitive pressures (internal and external), induced by economic liberalisation. But these strategies need to be seen in the context of the overall trends in industrial growth and private investments.



### ***Strategies in the Pre-reform Period***

Non-price competition is typical of oligopolistic market structures. Chandrasekhar (1994), has identified three phases of oligopolistic rivalry in post-independence India. Till the early 1980s, Indian business houses sought to preempt entry by monopolising industrial licenses. These licenses provided them with significant degrees of monopoly power as subsequent entry was not possible. Even when fresh capacities were to be created in specific industries with new licenses, these were captured by the same business houses and often not converted into actual capacities. Since gaining access to licenses in new industries had the potential of monopolising those markets, large firms lobbied for these licenses even when the products/industries were outside the ambit of the firms' area of activity. As a result, over diversified, and fragmented but monopolistic firms emerged in the Indian manufacturing sector.

Absence of mature capital markets during this phase sustained these entry barriers because capital availability was restricted to incumbent oligopolies; "outsiders" could not access capital easily. Development of capital markets and accumulation of capital outside the domain of the traditional oligopolies (business houses), reduced entry barriers and the 1980s saw emergence of new business houses. This intensified domestic rivalry and induced some attempts at restructuring by the traditional oligopolies to face new competition. Even before this phase could get completed, economic reforms of 1991 significantly enhanced external competitive pressures. Consequently, the Indian corporate sector had to face both internal and external competition simultaneously.

Corporate strategies discussed below need to be seen in this broad historical context. Although, the paper is focusing on the last phase of oligopolistic competition referred to above, strategies in this phase cannot be delinked from the strategies in the earlier two phases.

### ***Corporate Restructuring***

The Indian corporate sector has seen an unprecedented rise in M&A activity. Domestic firms have

taken steps to consolidate their position to face increasing competitive pressures and MNCs have taken this opportunity to increase their control of the Indian corporate sector. Of late, the business press has been full of stories about such corporate restructuring. However, very little is known about the patterns of M&A activity. Barring a few journalistic pieces based on rudimentary data, nobody seems to have systematically explored the industrial and other patterns of the ongoing restructuring process. A data base on all the major mergers, acquisitions and alliances entered into by the Indian firms after 1991 has compiled at the Indian Institute of Management, Ahmedabad (IIMA)<sup>3</sup>. The data on mergers and acquisitions will be explored in this section to identify the major trends.

Economic reform has significantly reduced micro-economic rigidities and enhanced competitive pressures. Corporate restructuring in recent years is a response to this opportunity provided by policy in order to meet the emerging competitive challenges. The firms are apparently trying to retain competitiveness and increase their value. Table 2 shows that more than 50 per cent of mergers in the 1990s were horizontal in nature. In additional 16 per cent cases, mergers were vertical in nature. The share of horizontal acquisitions during the 1990s was even higher (about 74 per cent). It is possible that the share of horizontal mergers/acquisitions has been underestimated. The categorisation was based on a four digit industrial classification of the merging firms' main product group. It is quite likely that some of the "horizontal" mergers/acquisitions have been misclassified as conglomerate unrelated.

These patterns suggest that firms are trying to consolidate in few chosen areas. That the consolidation process in a few chosen areas is under way is also reflected in the fact that in about 74 per cent cases the merging companies belonged to the same business group. Over diversification resulting from earlier business strategies is being corrected. In the pre-reform period, often companies within the group competed with each other for market share. Such anomalies are being rectified.

The dominant pattern, therefore, is of consolidation at the business and/or group levels to derive economies of scale, increase market share, reduce costs, achieve focus and eliminate intra-group competition (See also Venkiteswaran, 1997). This does not mean that unrelated mergers and

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<sup>3</sup> The details of data used in this paper are given in Appendix I.

acquisitions have not taken place in recent years. A significant share of mergers and acquisitions have been undertaken for unrelated diversification (Table 2). Thus, while the earlier tendency of overdiversification is being curbed, it has not been eliminated.

It has also been suggested that predominance of mergers among firms within business groups (or related firms) could partly be explained by the need of the management to increase its controlling block in order to guard against a take over or a dilution of control (Beena, 1999).

As a consequence of the dominance of horizontal mergers and acquisitions, the concentration ratios at the product group level would have gone up. While reliable data on concentration levels for various product group levels is not available, some aggregate estimates seem to show this tendency (Mani & Bhaskar, 1998).

The multinationals have played an important role in the mergers and acquisition activity; MNCs were involved in about 32 per cent of acquisition and 8 per cent of merger cases (Table 3). In the case of MNCs, the mergers in India have often been prompted by mergers of their parent companies overseas<sup>4</sup>. No estimates of MNCs share in the value of M&A transactions are available. But most large acquisitions transactions were involved MNCs (Venkiteswaran, 1997). For the bulk of mergers and acquisitions, however, the active company was a private India firm. Besides, these Indian firms were usually large (Beena, 1999).

MNCs have typically used the acquisition route (controlling block of shares) as an entry strategy to strengthen their presence (by increasing their equity share) in the country. There have been very few greenfield ventures. Broadly, acquisitions have been utilised to access quickly the manufacturing, marketing and distribution facilities. Interestingly, according to some estimates, “within group” mergers have been significant even in cases where the active company was foreign owned (Beena, 1999). Some of these MNC strategies, reflected in the nature of FDI flows discussed later, have been conditioned by the capabilities and strategies of domestic firms.

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<sup>4</sup> See Pray and Basant (1999) for some detailed information for the Indian agri-business sector on this issue.

Mergers and acquisitions have been spread across various industry groups (Table 4). Overall, as compared to other industry groups, firms in beverages, spirits and vinegar, financial and other services, chemicals, drugs and pharmaceuticals, electrical machinery and electronics sectors have had relatively higher involvement in mergers and acquisition activity. Fragmentation in many of these industries drugs and especially pharmaceuticals and spirits industry was known to have been high. As we shall see below, in many of these sectors like chemicals, electrical machinery, electronics and services, MNCs have invested (or proposed to invest) significantly in recent years, enhancing thereby, the competitive pressures.

### ***Foreign and other Collaborations***

Just like mergers and acquisitions, the number of alliances of various types has grown at a rapid pace in the post liberalisation period. Once again, very little is known about the patterns of these alliances and nobody seems to have systematically explored the incentives for these arrangements. Who is co-operating with whom? What form do these alliances take? The data on alliances includes tie-ups for equity, technology, marketing, manufacturing, brands and combinations thereof. Very little information is available on such alliances. In this section, we primarily analyse data on foreign collaborations approved by the Indian government in the 1990s. Many of these approved collaborations do not fructify, or materialise much later than they were originally envisaged. However, trends in the nature of these collaborations provide us with insights about the intentions of MNCs vis-a-vis the Indian market.

A total of 11,169 foreign collaborations were approved during August 1991 - August 1997. Of these nearly 58 per cent (6435) were accompanied by some amount of foreign equity. Detailed information on the percentage of equity participation was, however, available for 10,923 collaborations for this period (Rosario, 1999). Table 5 shows that of the equity participation cases, about 838 (13 per cent) cases were intentions to form fully owned subsidiaries, 1770 (29 per cent) were majority controlled collaborations and 3567 (58 per cent) were cases of minority participation. Broadly, therefore, for the period as a whole, the bulk of the approvals (76 per cent) either did not involve equity participation or involved minority (less than 50 per cent) equity holding.

It is apparent from Table 5 that the shares of low control and non-equity categories are on the decline. For example, the non equity cases declined from 69 per cent in 1991 to 30 per cent in 1997. This shift is particularly evident after 1995. The majority equity control categories rose dramatically from 4.2 per cent in 1991 to 27 per cent in 1997. The wholly owned subsidiaries formed 17 per cent of all collaborations in the year 1997; their role in the earlier years of liberalisation was insignificant. Not only did the share of collaborations with equity increase during the 1990s, but also the equity control sought in an average collaboration also increased throughout this period, from about 36 per cent in 1991 to 66 per cent in 1997. The rise in the share of higher control categories follows significant liberalisation of the economy in 1995, with the government opening up new sectors for “automatic approvals” upto 51 per cent equity participation and for case by case approval for higher levels of equity participation. Though case by case, these have been generally granted. Similarly, the rise in the share of wholly owned subsidiaries reflects the effect of further opening up of sectors in 1995 and 1997 for 100 percent equity participation. Some of the industries thus opened up to foreign participation in the later years are power, ore extraction, and certain services sectors such as hotels and restaurants etc. Clearly, government policy plays a significant role in determining the level of control sought.

Services, and the power sector have attracted the bulk of the proposed foreign investments during the 1990s. Other sectors in which either the number of collaborations and/or the proposed equity flows was high are agricultural and food products, chemicals, electronics and electricals (Table 6). It may be recalled that a large number of mergers and acquisitions also took place in many of these industries.

Overall, therefore, the level of control sought in collaborations during the 1990s increased, especially since 1995, following stronger liberalisation. A declining trend is seen in licensing agreements and general increase in financial participation in most industry sectors as seen in the following sections. In the initial years, MNCs may have made strategic entry into the Indian market through automatic approval route of non-equity or minority participation collaborations, with a view to seek increased control later. The number of approvals seeking an increase in equity was 40 during 1993-94, which went up to 68 in 1994-95 and 226 in 1996-97. This was made possible due to the

raising of the upper cap for foreign investments in specific industries in 1993 and 1995. (See, Rosario, 1999, for details).

### *Technology Strategies*

During the pre-reform period licensing or purchase of technology from foreign firms was difficult. Besides, there were several restrictions on the royalty rates to be charged, period of the contract etc. Consequently, the “price” of technology (including transaction costs) was high. Besides, import substitution policies induced local (mainly adaptive) research. Economic liberalisation in recent years has reduced the “relative price” of foreign technology purchase vis-a-vis making one’s own technology. Consequently, more options are available to the Indian corporate sector in the make/buy decision.

As mentioned earlier, the number of approved foreign collaborations have increased significantly in recent years. Apparently, the Indian corporate sector is actively seeking technology from foreign companies. Significantly, the share of pure technology licensing collaborations, in the total approved collaborations has declined dramatically in the 1990s (Table 7). Indian firms are, apparently, opting for equity linked technology transfer (See also Subrahmanian et. al, 1996).

The data on actuals for such alliances is not readily available. Besides, technology is not acquired only through licenses; other types of alliances can also contribute to technology flows. Moreover, many other inputs may be required to effectively implement newly acquired technologies. Information was compiled from the Centre for Monitoring Indian Economy (CMIE) publications on the recent non-equity alliances, including domestic and foreign. Information on a total of 190 such alliances was collected for the period of 1995-97. A tabulation of these alliances by objectives shows interesting patterns (Table 8). A significant proportion of alliances are designed to access critical complementary assets like marketing and manufacturing. Together these two objectives account for about two-thirds of the alliances. About 20 per cent of these arrangements are for licensing technology. Interestingly in about 5 per cent of the cases, firms have decided to come together to develop new technologies or products. This is an encouraging development which needs to be

supported. What has been the impact of these strategies on R&D investments of the Indian corporate sector?

The real R&D expenditures in the private sector grew at about 7 per cent in the 1990s, a rate slightly lower than what was achieved in the late 1980s. There were, however, significant differences across industry groups. In a large number of industries (12 out of 28 in Table 9) real R&D expenditures declined. In six out of 28 industry groups (metallurgical industries, transportation, fertilizers, sugar, food processing and rubber goods), the rate of growth of real R&D expenditures was positive in the 1990s but lower than the growth in the late 1980s. Only in 9 out of 28 industries did it grow at a rate faster than in the late 1980s. These industries were telecom, agricultural machinery, chemicals, dyestuff, drugs and pharmaceuticals, textiles, soaps and cosmetics, glass and cement. In almost all these industries (except textiles) competition has increased through entry of multinationals and other domestic firms. Firms in chemicals and drugs and pharmaceutical industries may be gearing up for the new intellectual property rights regime. Dyestuff industry may be conducting research to grapple with environmental regulation.

Even in industries where real R&D expenditures have risen, the R&D/sales ratios have either stagnated or declined. The only exceptions are telecom, machine tools, scientific instruments and transportation. One observes a relative stagnancy even in industries where real R&D expenditures in the 1990s grew faster than in the late 1980s (Table 10).

### ***Manufacturing Strategies<sup>5</sup>***

Manufacturing related initiatives in the post-reform era are not restricted to alliances of the type mentioned above. Several initiatives to improve manufacturing capabilities within the firm have also been taken. A recent study, based on survey of firms sought to make an assessment of these initiatives (Chandra and Sastry, 1998). The survey results suggest that the Indian firms will give the highest priority to *quality improvements* in the next five years, seeking to improve conformance to specifications and standards, product reliability and durability. The other

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<sup>5</sup> This section is based on Chandra & Sastry (1998).

priorities, in descending order, are *operations* (e.g. improving distribution network and performance, delivery time, flexibility in handling different volumes of production, after sales service etc.), *structural changes* (to develop capabilities for fast delivery, rapid product mix changes and low prices) and *innovation and R&D* (to develop new products and designs and broaden product line). Chandra and Sastry (1998) argue that while these priorities are appropriate, the synergies among initiatives to achieve better quality, operational performance, structural changes and innovation will have to be reaped in order to get full benefits. According to them, the Indian corporate sector is yet to fully recognise the links between these priorities.

This is not to suggest that manufacturing related performance has not improved in recent years. In fact, the survey results of Chandra and Sastry (1998) suggest that improvements have been significant, especially in quality. Table 11 reports the extent of improvements during the last two years (1995-97). The authors summarise the highlights in the following words:

“The maximum improvement has occurred in the productivity of direct production workers (about 38 per cent)<sup>6</sup>. There could be a variety of reasons for the same: improved as well as increased emphasis on training of workers, incorporation of faster machines that also require fewer workers, etc. This has been followed by reduction in customer returns, improvements in first-pass yields and in the overall perception of quality by customers. Other dimensions that are worth mentioning in terms of improvements are on-time delivery, speed of response on the shop floor to design changes and reduction in manufacturing cycle times. It is apparent that shop floor improvement programmes, in many firms, are proving to be beneficial. However, there are three disturbing trends. First, though the mean improvement scores for factors like productivity of direct labour, customer return rates and profitability were the highest, the variance was also very high. Thus, many firms have done well on these factors, but several others have not. In fact, 9 per cent of firms have reported a decline in productivity of production workers, 13 per cent have seen an increase in return rates and 23 per cent of firms have witnessed a loss in profitability in the last two years. Second, there has not been adequate improvement on inventory levels, i.e., raw material, work-in-process (WIP) and finished goods. In this case, 27 per cent, 26 per cent and 27 per cent of sample firms have reported an increase in raw material, WIP and finished goods inventory respectively, over the last two years. This increase is not entirely explained by a corresponding increase in turnover. Third, the pre-occupation with labour productivity is evident although on the average, labour is only 10% of total cost. This is reflected in the fact that improvements in costs are relatively low

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<sup>6</sup> This can be partly attributable to the more amicable industrial relations in recent years, with more and more unions agreeing to productivity linked wages. (Footnote ours)



compared to other improvements. More attention to materials and overheads which comprise 90% of costs is perhaps needed.” (Chandra and Sastri, 1998:29-30).

Overall, the data seem to suggest that while improvements in manufacturing capabilities seem to be taking place in recent years, Indian firms still have a long way to go. The relative neglect of manufacturing in the pre-reform period has put an average Indian firm far behind the International standards. They will need both time and effort to catch up. Recent initiatives in this direction augur well for the future provided they are sustained and the recent recession has not resulted in shelving or aborting of them.

### *Some Additional Aspects of Nature of Non-price Competition*

Imports of materials, equipment etc. can also be seen as embodied technology purchase. Reliance on such sources of technology has increased in the 1990s (Table 12). Evidently, import liberalisation has facilitated imports and the corporate sector is utilising this opportunity. However, part of these increases may also be due to depreciation of the rupee.

Total selling expenses as a proportion of sales for the Indian corporate sector increased in the early 1990s but declined thereafter. Significantly, the rise in such expenses was essentially due to increases in advertising and marketing. Only the former has grown consistently throughout the 1990s. Distribution related expenditure has suffered. The role of product differentiation as a strategy seems to have become more prominent in recent years.

Selling expenses as a proportion of sales differ significantly across industries depending on the requirements of advertising, marketing and distribution. For example, importance of marketing expenses is significantly higher for petroleum products than for all other product groups. Similarly, advertising expenditures as a proportion of sales are significantly higher for beverages and tobacco than most other industries (Table 13). The rates of growth of selling expenses by industry groups throw up some interesting patterns. In non-electrical machinery, electrical machinery, electronics, wood, paper and related products, non-metallic mineral products, beverages and tobacco and auto sectors all types of selling expenses have seen a positive growth. Advertising expenditures have increased significantly

in all these sectors, at a pace much faster than the marketing and distribution expenses. As mentioned, many of these sectors have seen significant multinational entry in recent years. A decline in advertising expenditures in drugs and pharmaceuticals and tyre and rubber products is surprising as competitive pressures in these industries have also increased. Rapid growth in advertising expenditures in industries like iron and steel, petroleum products and non-metallic mineral products signifies emergence of product differentiation strategies in sectors which were hitherto known for their homogeneous products.

Overall, rates of growth of advertising expenditures were higher in the 1990s than those of distribution and marketing expenses in almost all industries. Product differentiation strategy seems to be taking precedence over building of complementary assets, especially those relating to distribution. A recent study of foreign collaboration proposals showed that *ceteris paribu*, MNCs settle for lower equity control in those industries in which distribution intensity is high. It was argued in the study that in such industries domestic firms have a relative advantage over MNCs as they have better access to distribution channels. As a result, they are able to bargain better and retain control in terms of larger equity share (Rosario, 1999).

In such circumstances, lower investments in complementary assets like marketing and distribution can result in two types of problems. One, the relative competitiveness of the Indian corporate sector may decline given the significant role of complementary assets in facilitating appropriability and enhancing efficiency. Two, the bargaining power of the Indian corporates for future equity based foreign collaborations may get adversely affected.

### **3. Some Performance Related Issues**

What has been the impact of corporate responses to economic reform. This section explores this question. All indices of profitability declined in the first two years of economic reform but picked up thereafter (Table 14). The ongoing recession had set in by 1996-97 when profit rates had started to fall again. As mentioned earlier, the recovery is yet to take place. Price-cost margins are significantly

different across industry groups, reflecting variations in the intensity and levels of competitive pressures. Changes in price-cost margins have also been different across industries during the 1990s (Table 15). Profitability rose significantly for iron and steel, drugs and pharmaceuticals and automobile sectors. Effective rates of protection in the steel sector have increased in recent years. Multinational entry in pharmaceutical industry was still constrained during the period under study; only the most recent budget has significantly reduced these restrictions. Besides, absence of stringent intellectual property rights related regulations may have stood in the way of large scale MNC entry. Consequently, competitive pressures may have been relatively low in this sector. High growth of profitability in the auto sector is somewhat surprising as competitive pressures have increased in this sector<sup>7</sup>.

Inventory to sales ratio has declined in the 1990s (Table 14). The estimates by industry groups (Table 15) suggest that inventory to sales ratio virtually declined for almost all industries except non-metallic mineral products and leather products. The decline was particularly significant for non-electrical machinery, electronics and automobile sectors. The competitive pressures in all these sectors are known to have increased. It is difficult to assess whether the declining trend in the inventory to sales ratio during 1990s is a reflection of improvements in manufacturing capabilities referred to above. In general, during periods of boom, this ratio has a tendency to go down and by all measures the Indian manufacturing sector grew at a more than average rate between 1992-93 and 1995-96. Interestingly though, inventory to sales ratio continued to fall in 1996-97 when the growth rate had started to decline. Besides, 1990s have been a period of rising interest rates. This would have increased inventory holding costs inducing firms to rationalise inventory levels.

Overall, export intensities rose somewhat rapidly till 1993-94 but rather slowly thereafter. (Table 14) Export intensities have increased in all industries except petroleum products and beverages and tobacco products<sup>8</sup>. (Table 15) Part of the increase in export intensities is attributable to the devaluation of the rupee. Between 1990-91 and 1997-98, the real effective exchange rate has fallen by about 20 per cent

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<sup>7</sup> It is possible that the estimates do not adequately capture all the players in this sector.

<sup>8</sup> The picture remains more or less the same even if the growth rate of export intensities are computed at a more disaggregated level. The only other industries for which export intensity declined during this period were alkalies, paints and varnish, industrial machinery, wires and cables, batteries and airconditioners. (Data not reported)

(Economic Survey, 1998-99). Exports to sales ratios rose significantly in the case of leather products, wood, paper and paper products, electronics, metal products and textile products. Most of these are products which India has traditionally exported. Surprisingly, in all these industries except wood and paper and metal products, profitability declined during this period.

It is difficult to interpret the trends in export to import ratios. Import intensity of exports, price elasticity of Indian exports and a variety of other factors can contribute to changes in this ratio. Exports rose faster than imports till 1993-94 but showed lower growth rates thereafter (Table 14). At the industry level, for the post reform period as a whole, exports rose significantly faster than imports for wood and paper products, electronics, iron and steel and metal products.

Without any detailed product level analyses, it is difficult to assess the changing strategies of the Indian corporate sector vis-a-vis exports. Improvements in product quality referred to earlier can also be seen as investments to improve export competitiveness. An increase in export intensities in a large number of industry groups suggests an increase in export orientation of Indian firms. But this rate of change in orientation is still inadequate and a further devaluation of the rupee is called for to give a real push to this strategy.

#### **4. In Lieu of a Conclusion**

It is premature to draw any firm conclusions on the basis of the analytical description attempted in this paper. It may be useful, however, to identify some salient aspects of corporate strategies followed by the Indian corporate sector in the post-reform period to cope with the increasing competitive pressures. These need to be viewed as hypotheses which can be tested with more rigorous methods of analysis and better data.

- The Indian corporate sector is vigorously restructuring itself to retain competitiveness. Restructuring is mainly geared towards consolidation in few chosen areas to correct the inefficiencies created by over-diversification in the pre-reform era.
- MNCs have actively participated in the merger and acquisition process to get market entry or to

strengthen their presence. Acquisitions have been used by MNCs to quickly get access to various complementary assets.

- MNCs are better placed vis-a-vis domestic firms in the acquisition game because of their deep pockets and relatively cheaper access to capital. A recent study has shown that intentions to invest in India are significantly influenced by these differences in the cost of capital. (Rosario, 1999)
- The reliance of the Indian corporate sector on foreign technology purchase has increased. More and more technology flows are now tied with equity. Purchase of technology (especially foreign) is taking precedence over R&D; inhouse technology generation has taken a backseat.
- Firms are making efforts to improve manufacturing capability. This is being done through building alliances as well as through initiatives within the firm. Quality upgradation seems to be their key priority. These efforts at improving manufacturing capability may still prove to be inadequate to meet the competitive challenges.
- Product differentiation strategy seems to be dominating over strategies of building distribution and marketing related complementary assets. Such a strategy along with inadequate attention on R&D and manufacturing may reduce competitiveness of the Indian corporate sector apart from curtailing their bargaining power vis-a-vis MNCs.
- Export based growth strategies are being adapted by some of the corporate sector firms but such strategies are not widespread; export orientation increased appreciably in the early years of reform but have seen a major collapse since 1977-78. Overall, exposure to the international market is still inadequate to put the Indian firms on higher growth and learning trajectories.
- The performance of the Indian corporate sector in the 1990s has shown mixed tendencies. Profitability rates, export performance as well as export to import ratios have shown varied trends across industry groups. Performance related parameters are probably yet to stabilise.

The policy initiatives will need to encourage investments in R&D and complementary assets like manufacturing etc. and a rapid increase in exports. The cost of capital advantage of the MNCs is real and needs to be tackled squarely. Else, the Indian corporate sector may not be able to win the battle in spite of all the strategic initiatives discussed in this paper. Overall, the Indian oligopoly seems to be coming of age. The range and depth of non-price competitive strategies observed today suggest that in the coming years it will prove to be a gold mine for the students of industrial organisation.

**Table 1: Trends in Industry Growth, Gross Fixed Capital Formation in the Private Corporate Sector and Industrial Investment Intentions (Rs '000 Crores)**

Year	Annual Rate of Growth		Gross Fixed Capital Formation (1980-81 Prices)		Industrial Investment Intentions				
					Year	IEMs		LOIs	
	Industry	Mfg.	Total	Machine & Equip. Stock		No.	Proposed Invest.	No.	Proposed Invest.
1990-91	8.2	9.0	10.0 (4.2) <sup>1</sup>	9.0 (3.4)	1991 <sup>2</sup>	3084	76.3	195	2.0
1991-92	0.6	-0.8	14.8 (6.2)	13.4 (5.5)	1992	4860	115.92	620	14.0
1992-93	2.3	2.2	16.2 (6.4)	14.6 (5.7)	1993	4456	64.0	528	12.8
1993-94	6.0	6.1	18.8 (7.0)	17.1 (6.4)	1994	4664	68.8	546	18.0
1994-95	8.4	8.5	21.6 (7.5)	19.6 (6.8)	1995	6502	125.5	355	14.3
1995-96	12.8	13.8	22.7 (7.4)	20.7 (6.7)	1996	4825	73.3	522	29.9
1996-97	5.6	6.7			1997	3873	52.4	321	9.5
1997-98	6.6	6.6			1998 <sup>3</sup>	2530	51.0	144	3.3
1997-98 <sup>4</sup>	6.7	6.9			1997 <sup>3</sup>	3590	46.7	294	9.0
1998-99	3.5	3.7			Total	34794	647.1	3231	103.8

Sources: Economic Survey, 1998-99; National Accounts Statistics, 19950-51 to 1995-96; Economic and Political Weekly, Research Foundation; IEM-Industrial Entrepreneurs Memorandum; LOI - Letter of Intent

Notes: <sup>1</sup> Figures in parentheses are percentages to GDP at 19980-81 prices; <sup>2</sup> Relates to August-December 1991

<sup>3</sup> Relates to January-November 1997 and 1998; <sup>4</sup> Relates to April-December.

**Table 2: Distribution of Mergers and Acquisitions in India by Various Categories, 1991-97**

Type	Mergers <sup>1</sup>	Acquisition
Horizontal	134 (53.2)	107 (73.8)
Vertical Backward <sup>2</sup>	31 (12.3)	3 (2.1)
Vertical Forward <sup>2</sup>	8 (3.2)	2 (1.4)
Conglomerate Related	26 (10.3)	11 (7.6)
Conglomerate Unrelated	53 (21.3)	22 (15.2)
All	252 (100.0)	145 (100.0)

Source: IIMA Data Base.

Notes: <sup>1</sup> In about 73.8 per cent cases, the merging companies belonged to the same group and in 16 per cent cases, the merging companies were unrelated. There were 4 (1.6 per cent) cases of reverse merger and in 22 cases (8.7 per cent) the relationship between firms could not be identified.

<sup>2</sup> Whether the linkage is backward or forward is seen from the perspective of the active company.

**Table 3: Distribution of Mergers and Acquisitions in India by Identity of the Active Company**

Identity	Mergers	Acquisitions
Private Indian	221 (87.7)	88 (60.7)
Private Foreign	19 (7.5)	47 (32.4)
Non-Resident Indian	1 (0.4)	6 (4.1)
Joint Venture between Indian and Foreign	4 (1.6)	2 (1.4)
Others	7 (2.8)	2 (1.4)
All	252 (100.0)	145 (100.0)

Source: IIMA Data Base

Industry Groups	Mergers	Acquisitions
Mineral Products	4.1	-
Food Products	3.6	4.1
Beverages, Spirits & Vinegar	15.9	13.1
Textiles & Textile Products	4.4	5.5
Wood & Wood Products	0.4	2.1
Paper & Paper Products	0.4	1.4
Chemicals	9.5	6.2
Drugs and Pharmaceuticals	5.2	8.3
Plastics & Rubber Products	4.8	4.1
Non-metallic Mineral Products	3.2	4.8
Metal & Metal Products	5.2	2.8
Non-electrical Machinery	4.4	5.5
Electrical Machinery	7.1	4.1
Electronics	4.8	6.9
Transport Equipment	2.4	4.1
Construction	0.4	1.4
Electricity & Power	0.4	-
Financial Services	11.9	4.1
Other Services	10.7	9.0
Diversified	4.8	12.4
All	100.0 (252)	100.0 (145)

Source: IIMA Data Base

Year	Equity Control Categories					Total	Avg Equity per collaboration
	Non-equity	Minority	Majority	Wholly Owned Subsidiary			
1991 <sup>1</sup>	69.0	27.0	4.2	0.0	5.7	35.6	
1992	55.0	31.0	13.0	2.0	13.8	41.1	
1993	50.0	32.0	13.0	5.0	12.2	35.4	
1994	44.0	34.0	17.0	6.0	16.0	47.4	
1995	54.0	47.0	18.0	9.0	20.5	45.3	
1996	33.0	34.0	20.0	13.0	20.4	49.7	
1997 <sup>2</sup>	30.0	29.0	27.0	17.0	11.5	65.8	
All	43.5	32.7	16.2	7.7	100.0	47.5	

Source: Rosario (1999).

Note: Figures in parenthesis report percentages to row totals except in the last column. In the last column, figures in parenthesis report percentage to the column total.

<sup>1</sup> August 1991 to December 1991; <sup>2</sup> January 1997 - August 1997.

**Table 6: Industrial Distribution of Equity Flows Approved Each Year, 1991-97**

Industry	Year							Total
	1991-92 <sup>1</sup>	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98 <sup>2</sup>	
Primary Sector <sup>1</sup>	1.18	33.68	10.781	9.20	18.62	5.80	2.873	11.21
Food Products <sup>2</sup>	14.03	4.52	13.46	6.21	3.19	11.89	13.94	8.55
Textiles	3.95	1.09	1.98	8.67	1.14	1.62	0.29	2.21
Leather Products	0.33	0.51	0.15	0.33	0.08	0.06	0.10	0.13
Paper and Paper Products	0.07	0.05	2.32	2.48	0.45	1.28	0.36	1.08
Chemicals <sup>3</sup>	14.40	9.20	4.95	10.02	4.65	7.55	2.19	6.43
Plastics and Rubbers	0.09	0.12	1.23	0.19	0.26	1.19	0.32	0.65
Non-Metallic Minerals <sup>4</sup>	1.55	0.97	3.24	3.26	1.01	2.14	0.23	1.75
Base Metals <sup>4</sup>	3.79	1.70	15.74	2.88	4.20	3.31	3.98	4.18
Machinery	1.64	1.08	4.47	3.46	1.27	3.33	0.55	2.40
Electronics & Electricals	14.72	7.14	8.33	4.69	4.16	5.84	2.03	5.08
Transport Equipment	12.10	0.91	5.13	1.55	7.74	4.26	4.18	4.97
Construction Activity	0.36	0.16	0.05	0.42	0.17	0.43	1.77	0.45
Electric / Non Conventional Energy	0.06	32.32	7.28	21.05	6.16	22.49	39.05	18.35
Services <sup>5</sup>	9.74	3.49	20.90	18.46	44.85	28.37	26.25	30.44
Total	100.00	100.000	100.000	100.00	100.00	100.00	100.00	100.00

Source: Rosario (1999).

Note: Industry groups: 1. Primary industries other than extractive - Live animals and products, agricultural product. 2. Food products - Meat preparation, dairy products, instant semi-processed food, fruit and vegetable products. 3. Chemicals and pharmaceuticals. 4. Non-metallic minerals and base-metals - Includes a majority of collaborations in the extractive industries. 5. Services - Trading and commissioning agents, hotels and restaurants, transport, communication, banking and finance and consulting

<sup>1</sup> 1991 - 92 includes collaborations from August 1991 and March 1992; <sup>2</sup> 1997- 98 includes collaborations from April 1997 - August 1997. The rest of the years pertain to April to March.

**Table 7: Trends in the Forms of TNC Participation in India in the 1990s**

Year	Type of Collaboration						Total
	Marketing	Licensing	Consultancy	Holding cos.	Technical	Equity	
1991 - 92 <sup>1</sup>	3 (N)	492 (45.1)	1 (N)	0	27 (2.5)	568 (52.1)	1060
1992 - 93	3 (0.2)	505 (36.3)	1 (N)	0	19 (1.4)	888 (63.7)	1393
1993 - 94	15 (1.0)	515 (34.5)	0	2 (0.1)	54 (3.6)	976(65.5)	1491
1994 - 95	10 (0.5)	606 (31.5)	1 (N)	2 (N)	47 (3.2)	1319(68.5)	1925
1995 - 96	19 (0.9)	660 (28.5)	2 (N)	7 (0.3)	67 (2.8)	1655(71.5)	2315
1996 - 97	17 (0.7)	555 (24.2)	3 (0.13)	28(1.2)	93 (4.1)	1736(75.8)	2291
1997 <sup>2</sup>	7 (1.0)	157 (22.6)	1 (0.1)	11 (1.5)	23 (3.3)	537 (77.4)	694

Source: Rosario (1999).

Note: Since the same collaboration can be classified into more than one of the above categories e.g. a collaboration can have both financial equity participation as well as have explicit marketing agreement. The total in the last column indicates total collaborations approved in that year. It is not the sum of the previous columns.

Figures in parentheses are percentages to the total collaborations.

<sup>1</sup> August 1991 - March 1992, <sup>2</sup> April 1997 - August 1997. N-Negligible.



Technology Development	9 (4.8)
Technology Licensing	37 (19.6)
Manufacturing	33 (17.5)
Plant and Division Setting	9 (4.8)
Distribution	8 (4.2)
Marketing	72 (38.1)
Marketing and Manufacturing	10 (5.3)
Input Sourcing	4 (2.1)
Financial Support	4 (2.1)
Consultancy Services	4 (2.1)

Source: IIMA Data Base

Industry	1974-80	1980-86	1986-91	1991-95	1974-95
Metallurgical Industries	21.5	1.5	4.9	3.7	5.1
Fuels	17.9	-6.8	6.5	-16.4	-0.4
Boilers & Steam Generating Plants	-29.5	21.3	53.3	-19.0	10.4
Prime Movers	6.5	-6.0	14.9	-24.1	6.6
Electrical & Electronics Equipments	12.6	5.0	5.8	-1.5	5.5
Telecommunications	23.7	-8.3	-0.7	14.4	8.4
Transportation	27.5	-2.6	28.6	12.0	10.6
Industrial Machinery	26.8	12.5	3.9	-4.1	5.3
Machine Tools	28.5	9.4	26.3	-16.6	9.3
Agricultural Machinery	15.2	-4.3	-0.3	33.9	2.0
Misc. Mechanical, Engg Industries	-37.3	-4.1	57.6	-6.8	13.3
Commercial Offices, Household	16.1	12.4	39.6	-15.2	10.8
Industrial Equipment	28.8	5.6	-32.6	32.3	9.2
Scientific Instruments	44.1	25.8	-4.2	-40.5	6.3
Fertilizers	-12.3	-10.0	42.5	7.4	6.9
Chemicals (Other than fertilizers)	20.2	-0.2	-10.2	11.7	5.3
Dye-Stuffs	10.4	-10.5	5.5	11.4	2.2
Drugs & Pharmaceuticals	7.6	8.2	0.0	14.0	7.2
Textiles (Dyed, Printed, & Processed)	19.9	4.3	-11.9	11.4	4.4
Paper & Pulp	17.2	7.6	-30.6	-7.7	-2.4
Sugar	40.9	19.2	16.3	4.4	11.9
Food Processing Industries	19.5	24.9	29.1	7.2	12.7
Soaps, Cosmetics, Toilet Preparations	9.9	2.3	-7.1	12.3	3.8
Rubber Goods	31.9	6.9	32.8	0.4	9.6
Leather & Leather Goods & Pickers	NA	1.7	100.0	-11.7	20.8
Glass	13.0	-15.0	9.3	12.4	2.5
Ceramics	23.7	2.0	7.2	-2.8	1.7
Cement & Gypsum	27.8	0.6	2.0	2.3	1.6
Total	17.1	4.0	7.6	7.4	6.7

Source: R&D Statistics, (various volumes), Department of Science & Technology, Government of India, New Delhi.

Industry	1974-77	1980-83	1984-87	1988-91	1991-92	1992-93	1993-94	1994-95
Metallurgical Industries	0.33	0.48	0.32	0.29	0.25	0.36	0.41	0.33
Fuels	0.71	0.17	0.46	0.52	0.79	0.37	0.34	0.35
Boilers & Steam Generating	1.81	0.40	0.78	0.63	0.82	1.43	0.51	0.67
Prime Movers	1.15	1.28	1.25	1.51	1.26	0.79	0.75	0.52
Electrical & Electronics	0.91	0.80	1.06	0.94	0.66	0.85	0.84	0.78
Telecommunications	0.64	1.86	1.33	1.23	2.14	1.61	2.29	1.96
Transportation	0.84	1.07	0.57	0.65	0.77	0.86	1.32	1.09
Industrial Machinery	0.80	1.13	0.97	0.74	0.69	0.87	0.69	0.67
Machine Tools	0.40	3.92	1.53	1.37	1.42	2.32	1.91	1.67
Agricultural Machinery	1.59	0.62	0.33	0.85	0.35	0.62	0.47	0.63
Misc. Mechanical Enge	0.74	1.07	0.63	1.09	0.67	0.47	0.44	0.43
Offices & Household Equipments	0.28	0.57	0.46	0.54	0.56	0.39	0.37	0.4
Industrial Equipment	1.46	1.02	0.94	1.96	0.54	0.54	1.1	0.96
Scientific Instruments	0.00	4.69	1.40	2.65	9.35	2.12	2.07	3.46
Fertilizers	0.29	0.49	0.27	0.21	0.27	0.33	0.33	0.38
Chemicals (Other than fertilizers)	1.07	0.95	1.01	0.69	0.57	0.66	0.64	0.65
Dye-Stuffs	1.01	1.06	0.80	0.74	0.72	0.87	0.96	0.92
Drugs & Pharmaceuticals	2.10	1.93	2.02	1.40	1.35	1.37	1.37	1.58
Textiles (Dyed, Printed &	0.44	0.45	0.34	0.25	0.2	0.28	0.29	0.26
Paper & Pulp	0.21	0.49	0.53	0.23	0.19	0.14	0.13	0.12
Sugar	0.25	0.44	0.52	0.77	0.67	0.39	0.36	0.47
Food Processing Industries	0.22	0.29	7.77	4.25	0.96	1.05	0.99	1.2
Soaps, Cosmetics, Toilet	0.48	0.37	0.63	0.42	0.39	0.55	0.51	0.53
Rubber Goods	0.17	0.51	0.31	0.58	0.5	0.57	0.47	0.44
Glass	0.73	1.11	0.68	0.51	0.45	0.46	0.51	0.5
Ceramics	1.36	1.39	1.06	1.27	0.67	1.23	0.87	0.69
Cement & Gypsum	0.94	0.68	0.38	0.45	0.3	0.6	0.38	0.44
Total	0.76	0.74	0.74	0.73	0.60	0.67	0.71	0.70

Source: R&D Statistics, (various volumes), Department of Science & Technology, Government of India, New Delhi.

Parameter	Percentage improvements
Worker productivity	37.5
Customer return rates	37.2
Profitability	26.9
First year yield	23.4
Customers' perception of quality	21.7
On-time delivery	18.9
Manufacturing to design changes	13.7
Manufacturing cycle time	13.7
Speed of new product development	13.5
Delivery lead time	13.5
Finished goods inventory	13.3
Market share	11.9
Changeover times	11.0
Procurement lead time	10.5
Raw materials inventory	8.9
Work-in-process inventory	8.2
Raw material defect rates	7.4
On-time completion of new production projects	7.2
Average unit production cost	5.9

Source: Chandra and Sastry (1998).

**Table 12: Corporate Strategies in the 1990s: Some Aspects of Non-Price Competition**

Year	Selling Expenses				Imports/ Sales	Number of Firms
	Advertising/ Sales	Marketing/ Sales	Distribution/ Sales	Total/ Sales		
1990-91	0.42	2.90	2.48	5.80	11.50	3434
1991-92	0.41	3.34	2.50	6.25	12.17	4031
1992-93	0.46	3.80	2.64	6.89	13.64	4577
1993-94	0.56	4.14	2.70	7.40	12.78	5682
1994-95	0.55	3.31	2.19	6.06	14.06	7332
1995-96	0.59	3.02	2.17	5.78	15.88	8373
1996-97	0.58	3.49	2.17	6.24	16.50	8022

Source: Centre for Monitoring Indian Economy (CMIE) Data Base.

**Table - 13: Corporate Strategies in the 1990s: Some Aspects of Non-Price Competition by Major Product Groups**

Industry Group	Advertising/ Sales		Marketing/ Sales		Distribution/ Sales		Total Selling/ Sales		Imports/Sales	
	AVG	GR	AVG	GR	AVG	GR	AVG	GR	AVG	GR
Food Pdts.	0.61	4.0	0.60	1.1	2.68	-2.8	3.90	-1.1	1.8	27.4
Beverages & Tobacco	2.26	12.2	2.04	5.8	1.16	3.9	5.46	8.0	3.1	21.8
Textiles	0.27	0.1	1.79	0.0	1.30	4.4	3.36	1.7	9.2	12.7
Chemicals	0.43	1.5	7.13	0.0	2.54	-5.8	10.10	-1.4	18.4	2.4
Drugs & Pharma	1.16	-2.3	4.16	-0.7	1.43	-1.0	6.76	-1.0	13.5	7.9
Tyre & Rubber Pdts.	0.93	-3.2	2.38	3.9	2.12	-2.0	5.43	0.4	10.8	4.8
Petroleum Pdts.	0.03	19.7	11.92	-0.3	2.10	-8.1	14.05	-1.4	22.4	-2.2
Non-Metallic Mineral Pdts.	0.32	12.4	1.70	4.7	7.35	0.9	9.36	2.0	9.2	14.9
Iron & Steel	0.04	8.1	0.75	8.1	3.90	-6.0	4.69	-3.6	14.7	4.6
Metal Pdts.	0.18	5.4	1.22	-2.4	1.52	0.4	2.92	-0.4	13.2	10.2
Non-Electrical Machinery	0.22	0.5	1.80	2.9	0.63	0.2	2.65	2.1	12.2	2.6
Electrical Machinery	0.56	15.8	1.53	7.7	0.93	4.4	3.02	8.2	14.5	4.3
Electronics	1.26	15.4	1.68	7.1	0.82	1.4	3.76	8.6	20.2	5.3
Automobile	0.47	6.5	1.16	2.7	1.11	1.8	2.74	3.0	10.8	10.4
Automobile Ancillaries	0.21	-0.6	1.30	1.6	1.41	-0.2	2.93	0.6	10.6	9.0
Wood, Paper & Paper Pdts	0.20	22.4	1.84	3.8	2.13	2.4	4.17	4.0	10.3	6.1
Leather Pdts.	1.04	-6.6	1.96	-12.6	4.09	-0.7	7.09	-4.8	9.2	21.1
Miscellaneous	4.44	4.7	2.99	5.6	1.01	7.2	8.45	5.3	17.4	5.3
Diversified	0.68	5.8	1.56	-5.6	2.68	3.3	4.92	0.8	11.2	20.1
Total	0.51	6.6	3.43	0.7	2.41	-3.0	6.35	-0.3	13.8	5.9

Source: Centre for Monitoring Indian Economy (CMIE) Data Base.

Note: AVG-Average; GR-Growth Rate.

Year	PBT/ Sales	PAT/ Sales	Exports/ Sales	Inventories/ Sales	Exports/ Imports	Number of Firms
1990-91	3.41	2.14	4.52	22.68	39.28	3434
1991-92	3.23	1.81	5.15	21.86	42.33	4031
1992-93	2.56	1.28	6.15	22.98	45.11	4577
1993-94	3.70	2.41	7.16	22.06	56.02	5682
1994-95	5.35	4.03	7.25	20.47	51.55	7332
1995-96	5.52	4.11	7.66	19.71	48.22	8373
1996-97	3.88	2.59	7.98	18.89	48.34	8022

Source: Centre for Monitoring Indian Economy (CMIE) Data Base.

Note: PBT = Profit before tax; PAT = Profit after tax.

Industry Group	PAT/Sales		PBT/Sales		Exports/ Sales		Inventories/ Sales		Exports/ Sales	
	AVG	GR	AVG	GR	AVG	GR	AVG	GR	AVG	GR
Food Products	2.7	-12.3	1.7	-9.2	6.2	12.3	36.9	-1.8	419.6	-12.4
Beverages & Tobacco	5.1	2.9	3.1	5.8	8.0	-2.8	12.2	-0.2	316.6	-20.9
Textiles	1.0	-26.1	0.4	-35.4	12.5	19.0	21.5	-0.6	136.1	6.4
Chemicals	4.2	5.4	2.8	7.2	5.1	4.3	15.2	-2.8	28.1	2.0
Drugs & Pharma	5.0	19.3	3.5	25.6	13.2	12.7	21.0	-0.2	97.1	4.8
Tyre & Rubber Pdts.	2.0	-20.0	1.2	-22.3	8.9	3.0	14.6	-1.2	81.9	-1.6
Petroleum Pdts.	3.7	-3.4	2.4	-4.2	3.4	-8.3	10.3	-4.2	14.9	-6.4
Non-Metallic Mineral Pdts.	4.0	-1.1	3.1	2.4	10.6	15.2	20.0	1.7	115.4	1.1
Iron & Steel	1.4	45.7	1.1	61.4	6.3	14.1	30.2	-3.7	42.7	10.2
Metal Pdts.	2.6	13.6	1.7	23.8	11.0	17.2	25.0	-4.6	81.8	7.2
Non-Ferrous Metals	10.0	12.1	8.1	12.1	10.3	8.7	27.7	-4.0	76.9	0.9
Non-Electrical Machinery	4.5	8.4	2.0	21.2	6.5	1.6	33.0	-7.7	53.0	-1.0
Electrical Machinery	4.6	7.2	2.5	8.4	5.4	5.3	24.2	-3.2	38.2	0.3
Electronics	4.4	-3.3	3.0	-0.5	6.9	16.8	28.9	-6.7	33.5	11.7
Automobile	4.9	26.4	3.1	31.4	6.0	4.6	17.8	-7.9	57.2	-3.8
Automobile Ancillaries	6.8	6.6	4.3	10.3	6.4	4.2	16.0	-5.6	62.1	-4.1
Wood, Paper & Paper Pdts.	5.5	6.2	4.0	7.6	3.0	19.6	19.5	-0.9	28.8	14.0
Leather Pdts.	-0.5	-22.9	-1.0	-15.6	29.1	23.6	31.8	3.3	327.9	3.4
Miscellaneous	0.9	-47.7	0.2	-180.8	6.8	28.3	36.1	-1.6	37.6	24.3
Diversified	5.3	14.8	4.2	20.1	6.0	6.4	26.9	-4.9	61.7	-14.4
Total	4.0	7.9	2.6	11.8	6.6	9.0	21.2	-3.1	47.3	3.4

Source: Centre for Monitoring Indian Economy (CMIE) Data Base.

Note: <sup>1</sup> Less than 0.05 per cent.

PBT = Profit before tax; PAT = Profit after tax.

AVG-Average; GR-Growth Rate.

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## Appendix I Sources of Data

Data from a variety of sources has been used in this paper. In what follows, these data sources and the adjustments made in them are described.

**Mergers and Acquisitions:** Data on mergers and acquisitions was compiled from the reports of the Centre for Monitoring Indian Economy (CMIE), various financial dailies and business weeklies. We have used data on only those transactions here which have been completed; M&As in process have not been included. These data was matched with the firm level information in the PROWESS data base of the CMIE to get information on the participating firms to characterise the nature of mergers etc..

**Alliances:** Data on non-financial alliances was compiled from the reports of the Centre for Monitoring Indian Economy (CMIE).

**Foreign Collaboration Approvals:** The data on the foreign collaboration approvals was collected from Secretariat of Industrial Approvals (SIA), Government of India, New Delhi. Ms Shirly Rosario had access to detailed data on these approvals which she kindly shared with me.

**Industry Level Data:** All the industry level data on profitability, exports, imports, inventory levels etc. were compiled from the reports on the Indian corporate sector published by the CMIE.

**R&D data:** The volumes of *R&D Statistics* published by the Department of Science and Technology (DST) are the major source of estimates of R&D expenditures in India. The estimates are reported separately for two broad sectors: (a) the *Government* (central / state ) sector and (b) the *Industrial* (private/ public) sector. The data on the *Government* sector R&D are derived from the expenditures of various ministries/departments which support research or research institutions and from the budgets of these institutions. The estimates of R&D in the *Industrial* sector are based on the data provided by the recognised R&D units of the public and private sector industries.

The estimates of R&D expenditure in the industrial sector are based on periodic surveys of recognised in-house R&D units. The scheme for granting recognition to in-house R&D units of the public and private sector firms and private and public funded R&D institutions is in operation since 1973. Prior to 1973, the R&D estimates were based on surveys of large and medium sized companies. Apart from providing tax and other fiscal concessions, the scheme provides liberalised import facilities to recognised R&D units for purchase of equipment, components, raw materials etc. necessary for carrying out R&D work. For recognition, the firm has to apply to the DST. The DST monitors the technological activities of enterprises and, on the basis of certain criteria, decides whether or not to recognise an enterprise's R&D unit. These criteria include the number of processes and products developed and an evaluation of these by expert teams of scientists from the National Research Development Corporation (NRDC) and from Institutes of Technology. However, one does not know the consistency and strictness with which these criteria are followed.

*Prima facie*, since the R&D estimates for the industrial sector are based on the data collected from the

recognised units only, they are likely to be underestimated; R&D expenditure of non-recognised firms (large, medium or small) will not be covered. At the same time, any firm doing some amount of R&D would seek recognition because of the various fiscal and other benefits. These incentives have declined somewhat in recent years. Since we do not know the extent to which the recognition criteria are followed, it is difficult to assess the seriousness of this under-estimation. In fact, the degree of under-estimation can vary across industry groups. Besides, the DST data does not provide any information on the extent of diversification of firms in different industry groups and the firms are categorised according to their **main** industry group. Further, except for a couple of years the R&D estimates do not distinguish between capital and current expenditures. These inadequacies make the R&D estimates less useful. However, these estimates are good enough to get a broad idea about the trends in R&D in the Indian private sector.

The R&D expenditures of the industrial sector are reported separately for 38 industry groups. These groups have remained more or less the same since the early 1970s. However, these data also required some adjustments which are listed below.

(1) Not all recognised R&D units participated in the surveys conducted by the DST. This problem of non-response mainly existed for the private sector firms as almost all the public sector firms participated in these surveys. The DST adjusted for this non-response in the aggregate estimates of R&D expenditures of the private sector. However, the industrial distribution of R&D expenditure was based only on the response of the participating enterprises. We have used the industrial distribution weights of the participating enterprises to redistribute the residual R&D expenditure (adjusted minus unadjusted R&D expenditure) among industrial groups.

(2) For the years 1974-75, 1975-76 and 1976-77, the adjusted aggregate estimates of private sector R&D were not available in the published reports. A scrutiny of the unadjusted and adjusted estimates showed that the ratio of reporting to total recognised units was used to adjust the estimates. We followed the same procedure to adjust the estimates for these three years.

(3) For the period prior to 1974-75, the distribution of R&D by industry groups was not available. The 1974-75 industrial distribution was used to allocate the aggregate R&D estimates among industrial groups.

(4) The R&D estimates are published every two years and each volume provides data for three years prior to the publication of the report. Consequently, there is an overlap between the estimates provided in two consecutive reports. The estimates of overlapping years do not match partly because the response rate varies across surveys. For each overlapping year we have used the higher estimate. This partly compensates for the problem mentioned earlier of the general under-estimation of R&D expenditures of the industrial sector reported in the DST reports.

