Diagnostic

The *Diagnostic* feature presents a case, rich in implications for managers, administrators or policymakers, for examination and analysis.

Maruti Udyog Limited

J K Satia and P S Thomas

Maruti Udyog Ltd. (MUL) was set up in 1980 by the government to produce automobiles. By collaborating with Suzuki Motor Company in 1982, it was hoped that the famed Japanese style of management would catalyze the small and backward car industry and some of the others to which it was linked. Maruti got off to an excellent start by public sector standards. However, by 1985, fiscal, balance of payments, and technology transfer problems began to surface. With current order books winding down by 1990, questions arise as to MUL's mission, its product-market strategies, its pricing policy, and the value of Japanese participation. Questions also arise regarding the coherence, long term stability, and developmental aims of government's policy towards the automobile industry.

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The leadership of the world's 100 year old car manufacturing industry passed from the extended monopoly of the US to far away Japan in 1980. In October that year, the Government of India nationalized a defunct car company and named it Maruti Udyog Ltd. Nearly two years later, MUL's Chief Executive, Mr V Krishnamurthy, signed up a Japanese collaborator, Suzuki Motor Company (SMC) which took a 26 per cent equity share and helped in commissioning a gleaming assembly line about 30 km. away from Delhi in 13 months' time.

MUL made profits from the very first year (Exhibit 1), captured a 50 per cent market share by 1985, and crossed the 100,000 vehicle (cumulative) sales mark in September 1986, a year ahead of schedule. With over 50,000 customers (each of whom had made a 15 per cent down payment) still on its waiting list, the company re-opened its order books in September/October 1986, for only the third time in the hope that another hundred thousand or so would sign up for its new model which had appeared just a couple of months earlier.

But since early 1985, the company, which had sparked off the long overdue process of modernizing India's archaic car industry as well as triggering experimental changes in the government's cumbersome licensing policy, began to encounter bumpy conditions on both the supply and demand sides. Set up like a typical Japanese car company with a maximum 30 per cent inhouse manufacturing share in the vehicle's overall value, MUL began to figure in some national forums with regard to the 1988-89 target of 90 per cent local content.

The company's unexpectedly fast start as a volume car producer had left domestic parts suppliers flat-footed. The parts suppliers were having trouble meeting the company's Japanese-style quality, cost, and delivery standards, at what were unprecedented levels of car production for India.

Oh the demand side, a combination of factors, including the sudden appreciation of the yen in 1985-86, and hikes in import tariffs as well as excise

duties led to a 15 per cent price increase per car in a matter of months (Exhibit 2). This made it problematic for MUL to follow its low price, high volume strategy. The foregoing developments led Mr Krishnamurthy to declare that "the rules of the game" had changed. He was concerned about the future development of the Indian car industry.

Indian Car Industry

The Indian car industry dates back to the 1920s when American automakers opened assembly plants in Bombay, Calcutta, and Madras. These were re-opened after World War n and others were subsequently set up with Indian partners. But when the new government insisted on local parts manufacturing programmes, the foreign companies decided to close down their operations around 1954.

Thereafter, the industry developed entirely in the private sector because government gave low priority to passenger car production and even to truck transport. Consequently, the state-owned railways became the single largest undertaking in India. A survey published some years ago showed that out of about a dozen global industries, the automobile industry was the only one in which state ownership was nil in India. All the others (and several more besides) were 100 per cent state-owned except steel which had a 25 per cent private sector share in the Indian context.

Nevertheless, the relentless influence of industry-specific as well as gener..' industrial regulations (such as capacity, price, import, foreign exchange, and other controls) led to a set up which was not much different from the rest of Indian industry. Local content levels did rise (from an average of 50 per cent for cars in 1959) to practically 100 per cent for all automobiles (i.e. including trucks and buses) some years later but volumes were minuscule by world standards and unmet demand was high. Trucks and buses (in the production of which there was significant European shareholding) did succeed in breaking into overseas markets, chiefly other developing countries. But Indian companies appeared unable or unwilling to design and develop new cars or create car manufacturing technologies suitable for Indian or third world conditions.

As early as 1959, Indian policy makers became interested in small, low-cost cars affordable by middle class families. The idea appeared to be to sell a car for about half the price of what the two principal producers were then charging. To this day, however, about 40 per cent of the value of a car consists of taxes and duties applicable at various stages of car manufacture.

The government considered various projects for such cheap cars and even held discussions with foreign makers both European and Japanese (the Americans having little interest in small cars). However, a license for making 50,000 cars a year was eventually given to Sanjay Gandhi in the early 1970s, since he believed that he could produce such a car completely indigenously for a price of about Rs 25,000. A 300 acre site was acquired by his company, Maruti Ltd., near Delhi. But only 20 (may be a hundred) cars were ever produced. None were sold, however, because the car could not obtain a roadworthiness certificate. The company closed in 1977. In 1980, Sanjay Gandhi died while piloting a two-seater plane.

MUL: The Early Years

Maruti Ltd was nationalized in October 1980 and its assets were transferred to the newly created public sector company Maruti Udyog Ltd. in April 1981. Thus, MUL began with Mrs Indira Gandhi's personal blessings though its prospects were otherwise rather bleak.

Perceptions regarding the project differed at that time. A local management consultant took a look at Maruti's run down plant and machinery and suggested that for export purposes a new and coastal plant would be advisable. But overseas circles noted that the 300 acre site offered a good opportunity to introduce a new "people's" car for the home market with modern technology.

Major European and Japanese companies, 13 in all, were again approached by the government. Nothing much came of this, however. The situation changed with the constitution of MUL's board in April 1981 and the appointment of professional managers. Mr S Moolgaokar (the Chief Executive of Tata's highly successful truck company, TELCO) was made the Chairman and Mr V Krishnamurthy was appointed Vice Chairman and Managing Director. Two government officials and a politician were also named on MUL's board. But the post of Marketing Director (later Managing Director) went to Mr R C Bhargava who was earlier Director (Commercial) on BHEL's board.

Two things became clear to MUL management at this time. First, the viability of mid-size car production for large scale export became doubtful in

view of the well-publicized troubles of makers such as GM, Ford, and especially Chrysler in the late 1970s. Second, the possibility of initially making trucks evaporated when a market survey, which MUL commissioned in September 1981, showed that there was significant interest in a small car in India in terms of both purchase price and operating cost. The management realized that the key to low price was high production volume resulting from steady demand. This tilted the balance in favour of a small car, but the decision led to the departure of Mr Moolgaokar from the Board in October 1981.

Search for Foreign Collaboration

On a tip from a friend in Ford (Australia), Mr Krishnamurthy decided to explore the possibility of Japanese collaboration. He and his team visited an automobile exhibition in Japan in November for exploratory purposes. Four Japanese companies—Nissan, Mitsubishi, Daihatsu, and Fuji—showed interest in a tie-up. Although Suzuki was reportedly cool to the team, two gentlemen from SMC happened to drop in for a chat the following month at MUL offices in Delhi on their way back from Pakistan, where the company had a small LCV project since 1979. Besides Mr Krishnamurthy and Mr Bhargava, they met Mr D S Gupta and other members of the MUL corporate staff. The SMC representatives were given the standard MUL questionnaire to fill out.

In January 1982, when Mr Krishnamurthy visited Japan again, he had discussions with (among others) Mr O Suzuki, the Chairman of SMC. As a result of this trip, MUL decided to formally seek collaboration for a small car project. The decision sparked off a flurry of earnest efforts from European and Japanese car companies to secure their selection. But the Europeans' bids were way above those of the Japanese. So an MUL team visited Japan once more to obtain the final offers of Nissan, Mitsubishi, Daihatsu, and Fuji. After the return of the team to India and just before the applicable deadline, two Suzuki executives flew to Delhi for talks and submitted a complete bid i.e. lump sum payment, royalty, and CKD price. It-was even lower than those of the other Japanese firms and, as a result, Suzuki was selected in April, 1982.

At that time, MUL and SMC signed a Memorandum of Understanding (MOU) on the basis of which a project report was prepared and government's approval obtained. Six months later, on Mahatma Gandhi's birth anniversary (October 2,1982}, the two companies cemented the collaboration with three agreements which were signed in the presence of Mr N D Tiwari, Minister for Industry, and the Japanese ambassador to India.

The agreements, valid for ten years, included:

- a licence agreement for the production of Suzuki vehicles with 800 cc engines
- a joint venture or management agreement revolving around SMC's 26 per cent share in cluding an option to increase Suzuki's stake to 40 per cent within five years
- a purchase agreement regarding payment for parts, CKD packs, and components from SMC.

Suzuki's agreement with MUL emphasized the transfer of shop floor (or manufacturing) technology rather than (product) designs, drawings, and the like. Shop floor technology was somewhat general in nature and included such things as techniques of assembly, quality and cost control, inventory management, etc. Regarding the common preference for operating elaborate and sophisticated machinery, Mr O Suzuki had remarked at the time of commissioning the Maruti factory:

> People generally think that if you have modern sophisticated machines imported, for example, from Japan, that solves all problems. But that is a wrong idea. We need modern machines certainly but technical skill levels must also be upgraded. To produce a quality product you need good machines as well as a high level of technical skill. And to improve skill levels (in automobile manufacture) takes time.

Between October 1982 and March 1985, MUL imported capital equipment worth $60 million from Japan. In 1985-86, such imports totalled $70 million. Most of these purchases escaped the sudden escalation in yen/dollar rates after September 1985, and there were no over-runs in the Rs. 2,700 million project cost.

Car Manufacture

Two basic stages characterize the overall process of making a car. First, there is the phase in which the car is designed which includes not only the modelling of the car itself but also of the production machinery and organizational system for manufacture. The second phase comprises the actual building of the car and it has two parts as well. The first of these is the processing of raw material in order to

manufacture the components (several thousand separate ones) which make up a modern car. Next comes the final assembly of all these components into a finished and tested car.

In some instances, complete cars do not roll off the assembly lines; only components and sub-assemblies do These are called knock down (KD) packs or kits. They entail less shipping space and lower factory costs. Import duties are also less in the countries to which they are despatched.

In March 1986, MUL interrupted production and, after expansion of capacity from 40,000 to 100,000 per annum, introduced a contemporary model (without additional payment to Suzuki) while discontinuing the previous one. The wedge shaped design of the new Maruti 800 combined a larger interior and better suspension while offering greater fuel economy. It also featured a full rear door.

Components

In India the components industry was concentrated in pockets which, however, were at the four points of the Indian compass: Bombay in the West, Calcutta in the East, Madras/Bangalore in the South, and Delhi in the North.

The materials, parts, and components used in car manufacturing can be categorized in at least three ways, viz. by source, by type, and by value.

Classification by source results in:

- inhouse manufacture by the car assembler
- manufacturers of finished parts such as radiators, clutches, brakes, shock absorbers, etc.
- sub-contractors for two above and for secon dary parts (i.e. for regular parts such as screws, gears, springs, etc.)
- sub-contractors of the assemblers (i.e. com panies involved in casting, forging, machine-processing, plating, etc.)
- manufacturers of related parts like tyres, bat teries, bearings, etc.

These could be either established companies or new entrants. They ranged in size from the larger companies in the land to some of the smaller ones. The total output of the organized segment of the Indian ancillary sector was around Rs 8,000 million. According to the *London Economist,* the ingenuity of Indian parts suppliers was great but productivity was poor and quality unreliable. Japanese companies considered that Indian auto ancillaries were comparable to those in South Korea.

Classification by type results in:

- metal parts (fuel, oil, and exhaust systems; radiator, transmission, metal stamping, shock absorber, wheel, springs, fasteners such as bolts, screws and hinges; zinc castings, chrome plating, etc.)
- electrical parts (wiring harness, battery, starter, generator, air-conditioner, etc.)
- upholstery (carpet, seat cover lining, seat pad, other plastic parts)
- miscellaneous (rubber parts, paint, tyres, glass, tool set, etc.)
- non-car parts (name plates, decals, stickers, etc.).

There are several thousand separate parts altogether in a car. One category (fasteners) itself comprises numerous pieces.

Classification by value results in:

- major mechanical components (e.g. engines, transmissions)
- finished parts which are expensive to ship be cause of their bulk
- minor mechanicals which are best suited to automated manufacture
- optionals such as.radios, air-conditioners, etc.

Engines alone accounted for an estimated 20-30 per cent of the total value. However, fasteners which comprised only 5 per cent in value had a disproportionate effect because they were to cars what stitching was to garments. About 20-40 per cent *of labour* cost went in joining' components with fasteners. Manufacturers had to avoid the proliferation of fasteners. MUL ordered fasteners in matched quantities only. Fasteners not only had to be of the right design, they also had to be fitted properly.

Local Content

MUL started 'production' with zero local content, and a programme for progressive indigenization. The first stage of indigenization began when the assembly shop was completed. This involved the assembly of SKD (semi knock down) packs. Components like tyres, tubes, batteries, electric ring, wheel rims, seats, and glass had to be fitted together. This operation was essentially a process of indigenization of labour

inputs.

Before selecting vendors, the. company's Chief of Engineering, Mr R B Deshpande and his vendor development team carefully evaluated them for their commitment to quality, design base, testing facilities, material handling, and scrap control. MUL sought to buy from only those vendors who could do the job best. This meant producing the required (high quality) parts in the required quantities at competitive cost and to precise delivery schedules. Often materials and parts had to be delivered directly to the assembly line without inspection, storage, and inventory accumulation. Under these circumstances, an assessment of the vendor's company as a whole and not just the part which was being purchased became crucial.

The licence agreement ensured that the components used by the company met design requirements previously established and that the overall design concept was not compromised by introduction of local content. However, the Japanese believed in automation of parts manufacture to obtain consistent quality by reducing the human factor wherever possible.

Even at peak production, MUL planned to manufacture only 30 per cent of the car's value inhouse, with external suppliers (domestic and foreign) providing the rest. Inhouse facilities being set up by MUL (currently on schedule) pertained to erection of cylinder head and cylinder block machining lines and the setting up of additional sub-assembly lines for welding of Gypsy (jeep/utility vehicle) bodies.

Since the inception of MUL in 1982 till the end of March 1986, its total import bill on components amounted to $138 million. In 1986-87, it was expected to go up to $141 million (about $1,600 per car) and decline rapidly thereafter.

Maruti Culture

In relation to the industrial culture at MUL, the Director of Production, Mr A Shinohara stated at the time of inception of operations:

> Such concepts as team-work, zero defect production, cost-cutting and quality circles and just-in-time inventory management will be introduced but everything cannot be done at once. We will have to proceed step by step.

However, a journalist who interviewed Mr O Suzuki in Japan in 1984 filed this report:

> Mr O Suzuki strongly believes that Maruti must be prepared to accept Japanese systems 100 per cent. He believes this is possible given the will but points out that at Maruti they are willing to accept our systems in their mind, but at the stage of implementation they start making excuses and say it is not possible. He refers to this somewhat deprecatingly as "desk planning" and emphasizes that it is not easy to make a quality car.

Many modern management systems had indeed been introduced in MUL. Developing and refining them involved a learning process which naturally took time. But a certain amount of "unlearning" of organizationally anachronistic behaviour had also to be effected. In 1984, Mr Krishnamurthy identified some of these in a circular to all employees at MUL wherein he said:

> We certainly would not like to become a 'typical* government company which suffers from all the weaknesses a public sector company is supposed to suffer from. We want to break away from the traditional styles of working and set the pace for a modern management style.

He noted, however, that there were a number of areas where the prevailing levels of commitment and discipline tended to undermine the achievement of MUL's five objectives relating to productivity, quality, cost control, indigenization, and profitability. One of these areas was recruitment where he found a tendency to select people for "extraneous" reasons. He, therefore, cautioned the employees' from influencing the Personnel Division to employ unsuitable candidates. Another area was absenteeism which he found exceeded 10 per cent daily during a four month period in spite of a system of block holidays. He said there was a direct correlation between absenteeism in a work- shop and rejection rates experienced. A third area was attendance where it appeared that some employees were punching time cards for colleagues who were late or absent. Mr Krishnamurthy took a serious view of this since some superiors seemed to be going along with such indiscipline. Fourthly, he also took a serious view of damage to Maruti vehicles in the factory premises due to rash driving by unauthorized drivers. Finally, he spoke of the need for financial discipline not only in relation to manufacturing costs but vis-a-vis all resources. He alluded, for example, to the tendency to overstate claims for reimbursement of personal expense accounts. "It would be

more useful if each of us makes an attempt to seek clarifications or to understand the rationale behind a company policy or procedure," Mr Krishnamurthy concluded, " rather than allow the unclarity to become a cause of' indiscipline."

Productivity, Cost, and Quality

As indicated above, productivity, cost, and quality were three of the key objectives of MUL. Given below are the steps taken by the company in relation to each of them.

Productivity. A concern for productivity existed from the very inception of the Maruti car project in 1982. When the team went to Japan to consult Suzuki on the project report, a key issue was the number of working hours per day at the plant. Factories in Japan worked for eight hours per shift while Indian factories worked only for 6.5 hours per shift. This meant a 20 per cent lower level of output and a corresponding increase in investment to compensate for the shortfall which Suzuki was reluctant to go along with due to its resource constraints. It was finally agreed that each shift would be 7.75 hours excluding half an hour for lunch and two seven-and-a-half minute rest periods.

Productivity of labour was also monitored at the highest level and MUL top management frequently referred in their speeches to the cars per employee at Maruti in relation to that in other Indian companies as well as in foreign countries. At the targeted output of 100,000 cars per annum. MUL was expected to have 4,000 employees resulting in a 25:1 ratio. Currently it has reached a level of about 30:1 which compares with 1.5:1 in the Indian automobile industry, and 12:2 in Europe. At Suzuki the ratio is however, 70:1. Exhibit 3 gives data on the production rates achieved by MUL.

An important factor in MUL's productivity strategy was its speedy implementation of the various components of the project in a phased manner while tightly controlling the cost. The management could claim that no shop took more than six months to be utilized optimally. The assembly shop was set up first. Then press and welding shops were added. Subsequently, the engine assembly and transmission shops went into production. Currently, MUL is adding manufacturing facilities for cylinders.

The factory worked for 290 days a year (i.e. excluding 52 Sundays, 22 public and other holidays which include 15 days planned shutdown). The plant was shut down for about a week, twice a year, for maintenance and the rest of the workforce took their annual leave at that time. The company had a system of paying wages for unutilized leave at the end of the year. This helped to reduce absenteeism to about 5 per cent in September 1986 (2 per cent at Suzuki). An additional incentive was provided by means of an 'attendance bonus.' Workers reached the factory by a cooperatively organized bus system, 15 minutes before the shift started. This enabled them to do calisthenics and have a group meeting, section-wise. The assembly lines continued to work during the change to the second shift.

The company faced a problem of turnover especially among its supervisors. But there were many new entrants and so the net effect was not adverse though there was a loss of trained human resources. There were departures at higher levels too but some of these were not necessarily unwelcome from the company's stand point. MUL looked for flexible individuals with a positive outlook. At the factory, written instructions were not routinely used and remedial action had to be taken "in real time," as one senior manager put it.

Cost. While capital costs were carefully controlled and capacity utilization was optimized (perhaps not unlike other well managed companies), MUL went a step further and tried to minimize the cost of finance. The company's Finance Director, Mr S Natarajan had begun to search the world for funds for borrowing in whatever currency was cheapest at the time and "swapping" into the currency it actually needed.

In 1982, MUL and Suzuki had agreed on the exchange rates to be used for the purchase of com-, ponents and kits. MUL had the option to pay in dollars anticipating a higher yen/rupee appreciation compared to the dollar/rupee. According to the agreement, MUL would pay Suzuki in dollars as long as the yen/dollar rate stayed in the 210-240 range in international markets. If the dollar price fell below or rose above this range, the dollar figure would be adjusted upwards or downwards according to a formula which split the difference in gains or losses, 50:50. As a result, MUL was only marginally affected by the yen appreciation while the Light Commercial Vehicle (LCV) units launched in collaboration with the Japanese suffered severe price escalations and resulting loss of orders.

Another innovation in the area of costs related to the designation of the press shop as a bonded warehouse to achieve a reduction in customs duty. Earlier, pressed bodypanels were imported attracting 55 per cent customs duty. When the press shop was

commissioned, MUL began importing steel sheets instead. But the duty on this material was 120 per cent. So by declaring the press shop, as a bonded warehouse, the duty applicable was reduced to that of pressed sheets rather than steel sheets.

The company paid a total of Rs 860 million to the exchequer in the form of customs and excise duties (Rs 540 million and Rs 320 million respectively) in 1985-86. The excise duty was changed in 1986 from a specific rate of Rs 5,906.25 per vehicle to 25 per cent ad *valorem* from March 1,1986, for the fuel efficient engine of up to 1,000 cc. This was subsequently reduced to 20 per cent on representations made by the company. The customs duty which was 60 per cent on all component imports till March 1985 was reduced to 45 per cent but was increased by the Finance Minister to 50 per cent in December 1985 and to 55 per cent in March 1986. Under the new rates, MUL's contribution to the exchequer would increase to Rs 1,950 million (about evenly divided between customs and excise).

These developments had an adverse effect on the price of Maruti vehicles which rose rapidly from 1985 onwards. MUL management believed that its market (personal rather than institutional buyers) was price sensitive. Car sales were also known to be sensitive to increases in income especially when the market became saturated and replacement demand was dominant.

Quality. MUL made no compromise on quality. Mr Bhaskaruddu, Chief General Manager (Production and Production Engineering), said that Mr Shinohara rarely made an issue over production volume but he always did when quality was involved. Mr Shinohara was known to have brought up the matter of cleanliness on the shopfloor due to some internal construction work to a senior production manager some time ago. Moreover, even the buttons on the uniforms of workers were protected so that they did not accidentally scratch the paint of the cars on the assembly line.

MUL had encountered more accidents to its cars (partly due to its lightweight design) than it had anticipated. Hence its new model incorporated a slightly thicker sheet of steel which could withstand dents better. The head and leg room was also increased for Indian conditions. Since the car was in the stylish "prestige" category in India (rather than the runabout it was in Japan) the noise level was also reduced Although SMC made all information about design changes available to Maruti, the latter took the decisions as to whether these would be introduced in India. MUL tended to go slow on some of these changes as they created problems for its suppliers. As it is, the scale on which it operated in India resulted in a "vacuum cleaner effect" on all eligible parts supplies in the case of three or four items, according to Mr V K Mathur, Chief General Manager, Purchase.

Indo-Japanese Relations at MUL

In a speech at IIMA to top public sector managers, Mr V Krishnamurthy noted that the main lesson of Japanese management was that one could get great benefit from human resource development. Their corporate success was due to a high level of employee motivation. He thought individually Indians were far better. The Japanese did not neglect individual brilliance either but they were very strong on team work. They had the feeling that they were one. If there was any problem, they all got together. They shared information. They also showed tremendous concern for their employees. They spent more time on employees than on purely technological matters. Compared to this, he felt, we in India had scant concern for our employees.

One of the key members of the Suzuki team was Mr Nakanishi, a youthful and outgoing person. He said that Maruti was strong on technical skills. The project made much better progress than they expected and the plant was now a showpiece for Suzuki's overseas activities. Maruti showed that it was able to absorb state-of-the-art-technology. But greater attention was required in the area of organizational behaviour. Pressed to make a comparison, he offered the comment that Indians were more aggressive than Japanese. For the benefit of the visitors, his Indian counterpart, "interpreted" this as "not necessarily a good thing"!

The Road Ahead

In mid-October 1986, MUL management extended the one month period for customer bookings by a few more weeks. It also advertised the availability of its van and jeep "off the shelf " from dealer show rooms.

A few days later, Mr Vengal Rao, a senior politician, was inducted into the Union Cabinet in place of Mr N D Ti wari as Minister of Industry. Comprising mainly the Departments of Industrial Development, Chemicals and Petrochemicals, Public Enterprises and Company Affairs, the ministry was

responsible for India's industrial policy. However, it had become increasingly obvious that the decisions (mostly *ad hoc)* taken by the Finance Ministry were, in effect the controlling ones from a policy standpoint.

A draft paper on automobile policy had been circulated before Mr Tiwari's shift as the External Affairs Minister. One of the key issues was the capacity of the Indian car market which was approaching saturation and yet many proposals had been received to enter it (Exhibit 4). Mr R C Bhargava, Managing Director, expressed his views on the automobile industry in the following words:

A major advantage of this industry is the very wide linkage effects. All over the world, the automobile sector has been a major force in bringing about a change in a country's industrial culture. A start has to be made somewhere and we have made a start in Maruti. We look for support from people who recognize the need for industry to change in India.

In early December 1986, Maruti announced that the bookings for its vehicles had reached the figure of 144,000 exceeding the level reached on the previous two occasions by a small margin. This order book would sustain its operations till early 1990.

Exihibit 1: Four Year Digest

(Rs in Million)

	1986-87	*1985-86*	*1984-85*	*1983-84*
Sales & Other Income	6662.3	3402.8	1479.6	182.7
Cost of Goods Sold	6241.4	3200.7	1402.6	145.6
Gross Profit	420.9	202.1	77.0	37.1
Depreciation & Deferred Revenue Expenditure	139.2	65.9	33.8	14.3
Operating Profit	281.7	136.2	43.2	22.8
Interest on Loans	179.4	106.2	34.2	5.8
Profit before Tax	102.3	30.0	9.0	17.0
Provision for Tax	—	—	—	—
Profit after Tax	102.3	30.0	9.0	17.0
Proposed Dividend	—	—	—	—
Retained Profit	102.3	30.0	9.0	17.0
Net Block (including capital except in progress)	2015.3	1616.1	715.8	410.0
Investments	6.8	—	—	—
Current Assets, Loans, & Advances	4389.5	3267.4	2117.8	1645.3
Current Liabilities & Provisions	3435.9	2550.2	1543.7	1447.5
Net Working Capital	953.6	717.2	574.1	197.8
Long Term Loans	2110.1	1720.6	846.9	310.4
Short Term Loans	—	26.2	82.6	—
Total Borrowings	2110.1	1746.8	929.5	310.4
Share Capital	758.6	572.0	360.7	294.2
Reserves and Surplus	161.2	58.7	27.5	17.0
Net Worth	865.6	586.5	360.4	297.4
Capital Employed	2968.9	2333.3	1289.9	607.8
Current Ratio	1.28	1.28	1.37	1.14
Return on Capital Employed (%)	10.62	7.52	4.55	6.07
Profit before Tax to Net Worth (%)	11.82	5.12	2.50	5.72
Profit before Tax to Turnover (%)	1.62	1.05	0.72	10.77
Number of Employees	3497	2815	2176	883

Exhibit 1 Contd.

Sources of Funds				
Own				
Retained Profit	102.3	30.0	9.0	17.0
Depreciation	125.7	56.9		11.5
DRE Written Off	13.0	8.9	5.0	2.6
Capital Reserve	0.1	1.3	1.4	—
Equity	186.6	211.3	66.6	208.2
Total Own Funds	427.7	308.4	110.6	239.3
	1986-87	*1985-86*	*1984-85*	*1983-84*
Borrowings				
Long Term	389.6	873.6	536.5	252.0
Shor term	(26.2)	(56.3)	82.6	—
Total Borrowings	363.4	817.3	619.1	252.0
Total Sources	791.1	1125.7	729.7	491.3
Application of Funds				
Capital Expenditure	524.9	957.2	334.4	345.2
Investments	6.8	—	—	—
Miscellaneous Expenditure	23.0	25.4	19.0	16.0
Working Capital				
Sundry Debtors	329.8	(7.8)	24.3	(0.8)
Inventory	515.5	337.0	348.2	32.4
Loans and Advances	257.8	955.6	11.4	1499.0
Other Current Assets	4.2	—	0.7	—
Current Liabilities and Provisions	(885.7)	(1006.6)	(96.2)	(1439.4)
Total Application	776.3	1260.8	641.8	452.4
Resulting in Increase/(Decrease) in Cash	14.8	(135.1)	87.9	38.9

Exhibit 2: Changes in Maruti Prices (Ex-Factory Price in Rupees)*

	14/12/83	*4/85*	*3/86*	*4/6/86*
Maruti 800				
White and Blue	47,500	49,950	57,100	63,900
Red and Racing Blue	47,500	50,700	57,850	63,900
Brown and Green	47,500	50,700	57,850	63,900
Maruti 800	—	79,450	85,000	93,800
Deluxe	—			
800 Van (Flat Roof)				
White andBlue	47,500	54,500	61,500	67,500
Red and Brown	47,500	55,250	62,250	67,500
800 Van (High Roof)				
White and Blue	47,500	56,250	63,100	68,900
Red and Brown	47,500	57,000	63,850	68,900
Gypsy (14/12/85)		83,900	87,000	94,900

* Delivery charges, state sales tax extra

Exhibit 3 : Select Production Data

Cumulative production of vehicles as on Januray 1, 1984 and after every 6 months thereafter

Date	*Cumulative Production*	
1st Jan. 1984	175	Vehicles
1st Jan. 1984	2,142	,,
1st Jan. 1985	12,262	,,
1st Jan. 1985	36,577	,,
1st Jan. 1986	60,910	,,
1st Jan. 1986	85,831*	,,
1st Jan. 1987	130,617	,,

Months which production milestones were crossed

Months	*Cumulative Production*	
Dec. 84	12,500	vehicles
Apr. 85	25,000	,,
Sep. 85	50,000	,,
Sep. 86	100,000	,,

Months when productivity landmarks were achieved

*Months***	*Vehicles produced per Day (2 shifts)*
Sep. 84	50
Dec. 84	100
Aug. 85	200
Jul. 86	300

* Production was stopped for a month to carry out increase in plant capacity

** These are the months when it was achieved for the first time. Does not necessarily mean that it was maintaine the following months.

*** This is the average productivity over a month.

Exhibit 4: Indian Auto Industry*: Present Position and Future Outlook

	*Licenced Capacity***	*Installed Capacity*	*Desired Addition*	*Production 1984****	*Collaboration Existing (E) Planned (P)*
Maruti	PAX 100,000	100,000		12,087	Suzuki (E)
Hindustan	PAX 50,000	n. a		24,376	Isuzu (P)
	CV 30,000	n.a.		218	
	Jeep n.a.	n.a.		1,697	
Premier	PAX 28,600	n.a.		26,620	Nissan (P)
	CV 15,000	n.a.		379	
Sipani	PAX 3,000	3,000		938	Reliant (E)
					Fuji-Subaru (P)
	CV 3,000				
Standard	PAX 3,400	3,400			Austin Rover (E)
	CV 27,500	7,200		5,810	
Tata	CV 78,000	n.a.	40,000	46,740	Honda (P)(PAX)
Leyland	CV 47,000	23,000		14,430	B L (E)
Mahindra	Jeep 27,000	n.a.		22,246	Peugot (P)
Bajaj T	CV 30,000	n.a.		12,906	Daimler-Benz (P)
D C M	CV 15,000	n.a.		neg.	Toyota (E)
Allwyn	CV 10,000	n.a.		neg.	Nissan (E)
Eicher	CV 12,000	n.a.		neg.	Mitsubishi (E)
Swaraj	CV 10,000	n.a.		neg.	Mazda (E)
Escorts	PAX		50,000		Citroen (P)
Modis	PAX		20,000		Volvo (P)
Mehta	PAX			n.a.	Volkswagen (P)
Rayalaseema	PAX			n.a.	Renault (P)

* Excludes two and three wheelers.

** Capacity for PAX, Jeeps, and CVs has been broadbanded with effect from Jan. 85.

***Production of up to 25% above licensed capacity is allowed.