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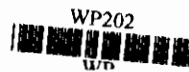
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## Working Paper

CORPORATE INVESTMENT IN 1978  
A FORECAST

by

C. Rangarajan



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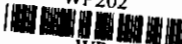


**INDIAN INSTITUTE OF MANAGEMENT  
AHMEDABAD**

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## ABSTRACT

Investment in the private corporate sector, including the joint sector, has shown a substantial rise in 1977 as compared with 1976. However, this substantial rise has been contributed largely by the projects in the joint sector. Corporate investment in 1978 is likely to rise above the 1977 level by 5 to 8 per cent.

The study entailed an analysis of the projects sanctioned by the all-India term lending institutions to the private corporate sector including the joint sector. Capital expenditure on all the projects sanctioned by these institutions will amount to Rs.955 crores in 1977 compared with Rs.702 crores in 1976. This steep increase in investment is largely accounted for by the 18 new joint sector projects initiated in 1977 which will alone incur capital expenditures of Rs.102 crores. As of now, based on the projects sanctioned until the end of 1977, the capital expenditures in 1978 will be Rs.735 crores. If we add to this the likely expenditures to be incurred on projects to be sanctioned in 1978, the total capital expenditures in the corporate sector in 1978 should rise above the 1977 level by 5 to 8 per cent.

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## CORPORATE INVESTMENT IN 1978: A FORECAST

C. Rangarajan

An attempt is made in this paper to forecast private corporate investment in 1978. Corporate investment is taken to include gross capital expenditures of all companies including joint sector companies. Government companies alone are excluded. This study also provides an estimate of investment behaviour in 1977.

### FORECASTING TECHNIQUE

The methodology applied in this paper to forecast corporate investment relies on the data available with the term lending institutions on the phasing of capital expenditures of projects sanctioned by them. These may be regarded as a kind of anticipatory data for forecasting. The details of the technique followed have been explained by the present author in his earlier writings.<sup>1</sup>

It has been observed that most projects in the corporate sector approach one or the other of all-India term lending institutions for obtaining the necessary financial assistance. The companies provide the lending institutions with data not only on the total cost of the project but also the capital expenditures (project as well as normal) to be incurred in the various years. These informations form part of the cash flow statements attached to the proposals. By aggregating the information on the phasing of capital

expenditures of proposals sanctioned in all the previous years, it should be possible to forecast capital expenditures for any year. The scope of the study is strictly restricted to the enterprises which have taken assistance from the term lending institutions. Thus, obviously the estimates arrived at may not fully cover the corporate sector. Nevertheless, since most of the companies come to the financial institutions for assistance, this estimate can be regarded as a reliable reflection of the behaviour of the entire corporate sector. What is relevant from the point of the corporate sector as a whole is the trend revealed than the absolute figures.

A limitation of this particular method of forecasting is that part of the capital expenditures to be incurred in any year comes out of projects sanctioned in that very year itself and we have no information on this. The proportion of such expenditures to the total expenditures has varied from year to year (see Table 1). There is in fact a substantial jump in the ratio for 1977 which may perhaps be accounted for by the introduction of new schemes such as Soft Loan Schemes and Technical Development Fund Scheme. Expenditures on projects coming under such schemes may not have much lag.

Table 1

Capital Expenditures incurred in a year out of Projects sanctioned  
in the same year

(Rs. in crores)

| Year | Capital expenditure on projects sanctioned in the year | Total capital expenditure to be incurred in the year | Percentage |
|------|--|--|------------|
| (1)  | (2)  | (3)  | (2) + (3)  |
| 1972 | 152  | 463  | 32.8       |
| 1973 | 156  | 531  | 29.4       |
| 1974 | 198  | 681  | 29.1       |
| 1975 | 114  | 530  | 21.5       |
| 1976 | 194  | 637  | 30.5       |
| 1977 | 437  | 955  | 45.76      |

Thus a part of the capital expenditures to be incurred in a year will largely depend upon the factors that operate within that year and these cannot be forecast by our model. While the pending applications with the term lending institutions can give some clue, they do not provide a satisfactory indicator. However, this method at least indicates the minimum investment that will be forthcoming.

The other limitations of this model of forecasting have been pointed out by the author in his earlier writings. The validity of the estimates depends upon how closely companies adhere to the expenditure pattern outlined in the initial project proposal. Cost over-run of projects by itself is not a limitation. So long as companies seek assistance from the term lending institutions for financing the cost over-run, they would get incorporated in our estimates. In the case of such projects necessary adjustments are also made in the phasing of capital expenditures in the light of the new information. The crux of the problem is how closely even in normal circumstances companies stick to their original phasing of capital expenditures. We have initiated a study of comparing the original and the actual phasing of actual expenditures of projects financed by the term lending institutions. The study is not yet complete. However, an analysis of 44 projects indicates that the total cost of the projects increased from Rs.397 crores to Rs.475 crores. Thus the actuals were higher than the original in nominal terms by 20 per cent. According to the original phasing, 23 per cent is to be spent in the first year, 39 per cent in the second year, 27 per cent in the third year and 7 per cent in the following year. But the actual capital expenditures on projects indicate that 11 per cent of the total cost is spent on the first year, 27 per cent in the second year, 38 per cent in the third year

and 23 per cent in the following year. This difference in the pattern will affect the forecast depending upon the total cost of the projects sanctioned in each year. We are also trying to find out if the difference between the original and actual phasing is explained by the type of industry, size of the project and the year in which they are initiated. When more detailed conclusions are available we will also examine the implication of these results for our forecast.

Forecasts using this model have been made in the past several years on corporate investment. It is, however, only very recently data are available on actual corporate investment. Here again, there are problems since the Reserve Bank of India has confined itself to supplying the data for sample companies rather than for the entire corporate sector. We have given below our estimates and the Reserve Bank of India's estimates for gross fixed asset formation for medium and large public limited companies.



Table 2

## Estimates of Gross Fixed Asset Formation

(Rs. in crores)

| Year    | Gross Fixed<br>Asset Formation | Year | Our<br>Estimate |
|---------|--------------------------------|------|-----------------|
| 1971-72 | 378                            | 1971 | 318             |
| 1972-73 | 469                            | 1972 | 462             |
| 1973-74 | 526                            | 1973 | 530             |
| 1974-75 | 693                            | 1974 | 681             |
| 1975-76 | 747                            | 1975 | 529             |

If the gross fixed asset formation of the large public limited companies is a good indicator of the behaviour of corporate investment, our estimate is a good representation of that. Our estimates have forecast more or less correctly the trend for the four years beginning 1971. However, for 1975 our estimate shows a down trend whereas the RBI estimate shows a rise. The Economic Times estimate also shows a rise for 1975. We need to examine further this discrepancy between our estimates and others. Part of the problem arises because our forecast and estimate are for calendar years whereas the other estimates pertain to fiscal year with all the attendant complications that arise from different account closing dates of companies.

## PICTURE FOR 1977

Table 3 provides the data on the phasing of capital expenditures of projects sanctioned by the three major term lending institutions - IDBI, ICICI and IFCI.<sup>2</sup> Read horizontally, each row shows the expenses to be incurred in the various years by companies whose projects were approved in a particular year. These include normal as well as project capital expenditures in the case of old companies and project expenditures in the case of new companies. Read vertically, each element indicates expenditures to be incurred in a year out of projects sanctioned in a previous year. The total of each vertical column indicates the expenditures to be incurred in a particular year out of projects sanctioned in all the years.

From Table 3, it can be noticed that capital expenditures in 1977 would be Rs.955 crores as against Rs.702 crores in 1976, an increase of 36 per cent. Thus the investment in the corporate sector is substantially higher in 1977 as compared to the previous year. Actually Rs.955 crores of capital expenditure is an all time high record. This steep increase in investment can largely be attributed to 18 new joint sector projects initiated in 1977 which alone would incur capital expenditures to the tune of Rs.102 crores.

All the capital expenditures indicated are in current prices. The cost estimates of projects sanctioned in any year would be at the price level of that year.<sup>3</sup> Thus, while aggregating the estimates of projects sanctioned in the previous years, a need is called for to reduce all the figures to a common price level. We have deflated all the elements in the columns by the combined price index of Electrical machinery, Non-electrical machinery and Transport equipment. Thus, it is seen that the total capital expenditures for 1974, 1975, 1976 and 1977 would be Rs.357 crores, Rs.242 crores, Rs.289 crores and Rs.384 crores respectively.<sup>4</sup>

Thus investment in the corporate sector including the joint sector in 1977 even in real terms would be higher than in 1976. It has even exceeded the 1974 level. However one should note the fairly stagnant level of corporate investment in constant prices.

The estimates provided are based on projects approved by the all-India institutions. There are cases where the financing of projects even in the corporate sector is done by state level term lending institutions. In order to have a more complete picture, we thought we should cover projects which have been granted assistance by the state level institutions without the involvement of the all-India institutions. Since it is difficult to go to each state

level institution, we tried to make an estimate through the information available with the IDBI when it refines projects sanctioned by the state financing institutions. We found that during 1977 IDBI had refinanced projects approved by state level institutions whose total cost would be Rs.144 crores. But it is difficult to apportion this amount to any particular year because we do not have details of the phasing of expenditures of these projects. Since there is a time lag between the granting of assistance by the state level institutions and the refinancing by IDBI, it would be incorrect to treat these expenditures as falling in the year the IDBI provided refinance.

#### PATTERN OF CAPITAL EXPENDITURES IN 1977

Table 4 provides an industrywise break up of the capital expenditures incurred in 1977. 'Chemicals and Pharmaceuticals' (including fertilisers and pesticides) have topped the list with nearly 21 per cent of total capital expenditures. 'Minerals and Metals' ranked second with 18 per cent of the total capital expenditures in 1977. There was a substantial rise in 'Paper' due to new projects coming forth in this industry with a couple of them being of large size. 'Textiles' and 'Cement' accounted for much larger proportion of total capital expenditures in 1977 as compared to 1976 due to the newly introduced soft loan scheme.

As a result, the shares of 'Textiles' and 'Cement' rose from 3.75 and 2.12 per cents in 1976 to 10.89 and 4.04 per cents in 1977 respectively. The share of 'Transport' had declined from 28 per cent in 1976 to 10.45 per cent in 1977.

Table 5 indicates an industrywise analysis of the projects sanctioned in 1977. It shows where the new investment is going. The total number of projects approved in 1977 swelled to 302 from only 149 during 1976. Here again, such spectacular rise can be explained by the new soft loan scheme and TDF scheme which covered a large number of small projects. There were 83 soft loans and about 40 TDF projects during 1977.

The total cost of projects sanctioned in 1977 had climbed a new peak of Rs.1129 crores as against Rs.622 crores in 1976. Out of this amount, financial assistance sanctioned by way of soft loans came to Rs.70 crores. As mentioned earlier, there were 18 joint sector projects including a giant fertiliser project. The total cost of these projects is Rs.330 crores. In addition there were 11 big projects in the private sector whose total cost came to Rs.350 crores.

'Fertilisers' and 'Pesticides' claim 24 per cent of the total capital cost in 1977. The next place was taken up by 'Paper' with nearly 16 per cent of the total capital cost. 'Textiles' and 'Minerals and Metals' products followed next with 13.4 per cent and 12.7 per cent respectively.

#### FORECAST FOR 1978

As of now, based on the projects sanctioned until 1977, the capital expenditures in 1978 will be Rs.735 crores. We have to add to this the likely expenditures to be incurred on projects to be sanctioned in 1978. Even on the assumption that the total cost of projects sanctioned in 1978 will be Rs.800 crores, the expenditures in 1978 out of these projects could be of the order of Rs.270 crores so that the total capital expenditures in 1978 will be higher by at least 5 per cent over the 1977 level. If the total cost of projects to be sanctioned in 1978 is close to Rs.900 crores, corporate investment in 1978 can rise by 8 per cent. Our forecast therefore is that corporate investment in 1978 will rise above the 1977 level by 5 to 8 per cent.

Notes

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1. Samuel Paul and C. Rangarajan, "Short Term Investment Forecasting," Macmillan, 1974.  
 C. Rangarajan, "Forecasting Capital Expenditures in the Corporate Sector," Economic and Political Weekly, December 19, 1970.  
 "Investment in Private Corporate Sector in 1972: A Forecast," Economic and Political Weekly, February 26, 1972.  
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 "Capital Expenditure by Corporate Sector: A Forecast for 1975," The Economic Times, February 26, 1975.  
 "Corporate Investment in 1976 : A Forecast," Economic and Political Weekly, February 28, 1976.  
 "Corporate Investment in 1977: A Forecast," Economic and Political Weekly, April 2, 1977.
2. For 1977 we have not been able to collect all data from all the term lending institutions. The data on projects sanctioned exclusively by IFCI remain to be collected. Since this is usually a small figure this should not affect the conclusions drawn.
3. It can be argued that particularly in the case of plant and machinery, the prices at which they are shown are prices at which they have been

contracted and not necessarily at the price level of that year. Since it is difficult to obtain this information, we have made the assumption that the project cost is at the price level of that year.

4. In last year's forecast (Economic and Political Weekly April 2, 1977) the figure for 1974 was given as Rs.493 crores which is incorrect.

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Table 3

## PHASING OF CAPITAL EXPENDITURES ON PROJECTS SANCTIONED BY TERM LENDING INSTITUTIONS

(Rs. in Lakhs)

| Year of sanction | 1966  | 1967  | 1968  | 1969  | 1970  | 1971  | 1972  | 1973  | 1974  | 1975  | 1976  | 1977  | 1978  | 1979  | 1980 |
|------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| 1960             | 72    | 39    | 44    |       |       |       |       |       |       |       |       |       |       |       |      |
| 1961             | 212   | 76    | 41    | 21    |       |       |       |       |       |       |       |       |       |       |      |
| 1962             | 269   | 238   | 134   | 52    | 26    |       |       |       |       |       |       |       |       |       |      |
| 1963             | 1738  | 165   | 112   | 80    | 63    | 53    | 40    | 30    |       |       |       |       |       |       |      |
| 1964             | 3498  | 1447  | 354   | 295   | 153   | 79    | 47    | 28    | 12    | 2     |       |       |       |       |      |
| 1965             | 10147 | 7227  | 1897  | 754   | 449   | 203   | 184   | 135   | 21    |       |       |       |       |       |      |
| 1966             | 5994  | 7393  | 6202  | 5930  | 2397  | 1127  | 623   | 397   | 359   | 151   |       |       |       |       |      |
| 1967             | 201   | 4651  | 12160 | 9407  | 4377  | 2041  | 424   | 308   | 190   | 138   | 23    | 3     | 12    |       |      |
| 1968             |       | 232   | 4276  | 9170  | 6655  | 4219  | 2768  | 1711  | 178   | 110   | 53    | 5     |       |       |      |
| 1969             |       |       | 74    | 8914  | 14168 | 7859  | 6213  | 2172  | 445   | 164   | 54    | 12    |       |       |      |
| 1970             |       |       | 279   | 74    | 4545  | 7817  | 6704  | 2193  | 647   | 403   | 176   | 332   | 315   |       |      |
| 1971             |       |       |       | 63    | 766   | 7600  | 10990 | 9062  | 4487  | 854   | 396   | 260   | 260   | 238   |      |
| 1972             |       |       |       |       |       | 762   | 15288 | 17531 | 11778 | 4036  | 977   | 397   | 283   | 229   |      |
| 1973             |       |       |       |       |       |       | 2652  | 15622 | 26183 | 11053 | 5167  | 4046  | 1003  | 836   |      |
| 1974             |       |       |       | 95    |       |       | 361   | 3689  | 19832 | 20413 | 14411 | 2193  | 1245  |       |      |
| 1975             |       |       |       |       |       |       |       | 17    | 4016  | 11423 | 23122 | 21535 | 11854 | 5200  | 873  |
| 1976             |       |       |       |       |       |       |       |       | 4248  | 19462 | 19462 | 23084 | 13015 | 1652  | 701  |
| 1977             |       |       |       |       |       |       |       |       |       | 6364  | 43703 | 45549 | 23537 | 23537 | 8040 |
| TOTAL            | 22131 | 21468 | 25574 | 33759 | 34048 | 31844 | 46294 | 53095 | 68148 | 52995 | 70205 | 95530 | 73536 | 21692 | 9620 |

Table 4

INDUSTRYWISE CAPITAL EXPENDITURE FOR 1976 AND 1977 and  
EXPECTED CAPITAL EXPENDITURES FOR 1978

(Rs. in Lakhs)

| S. No. | Industry                    | 1976             | 1977             | 1978             |
|--------|-----------------------------|------------------|------------------|------------------|
| 1.     | Chemicals & Pharmaceuticals | 11833<br>(16.88) | 19035<br>(20.83) | 16545<br>(22.64) |
| 2.     | Electrical                  | 5191<br>(7.40)   | 3959<br>(4.33)   | 4172<br>(5.71)   |
| 3.     | Engineering                 | 4828<br>(6.89)   | 6429<br>(7.04)   | 2137<br>(2.92)   |
| 4.     | Jute                        | 92<br>(0.13)     | 255<br>(0.28)    | 791<br>(1.08)    |
| 5.     | Minerals & Metals           | 16013<br>(22.84) | 16444<br>(18.00) | 6765<br>(9.26)   |
| 6.     | Paper                       | 1704<br>(2.43)   | 9493<br>(10.39)  | 12926<br>(17.69) |
| 7.     | Textiles                    | 2868<br>(4.09)   | 9954<br>(10.89)  | 6634<br>(9.08)   |
| 8.     | Transport                   | 17968<br>(25.63) | 9552<br>(10.45)  | 6297<br>(8.62)   |
| 9.     | Cement                      | 1884<br>(2.69)   | 3690<br>(4.04)   | 6551<br>(8.96)   |
| 10.    | Miscellaneous               | 7723<br>(11.02)  | 12561<br>(13.75) | 10262<br>(14.04) |
|        | TOTAL                       | 70104<br>(100)   | 91372<br>(100)   | 73080<br>(100)   |

Note: Figures in brackets refer to % to total

## INDUSTRYWISE TOTAL CAPITAL COST AND PHASING OF CAPITAL EXPENDITURES ON PROJECTS SANCTIONED BY IDBI AND ICICI DURING 1977

(Rs. in crores)

| Industry   | Total capital cost             | Phasing of Capital Expenditure |               |               |               |                  | Number of Projects | Completion expected in |               |                |                    |
|--|--------------------------------|--------------------------------|---------------|---------------|---------------|------------------|--------------------|------------------------|---------------|----------------|--------------------|
|  |                                | 1976                           | 1977          | 1978          | 1979          | 1980 and onwards |                    | The same year          | The next year | The year after | Four or more years |
| Automobile and Cycles  | 48.15<br>(4.27)                | 2.83                           | 24.06         | 20.06         | 1.18          | -                | 8                  | 1                      | 5             | 2              | -                  |
| Cement   | 73.46<br>(6.51)                | 5.33                           | 14.47         | 25.43         | 25.02         | 3.21             | 7                  | 1                      | 2             | 2              | 2                  |
| Chemicals and Petrochemicals (except fertilisers and pesticides) | 31.54<br>(2.79)                | 3.50                           | 17.80         | 12.86         | 2.65          | 0.21             | 17                 | 8                      | 7             | 2              | -                  |
| Electrical Equipment   | 19.28<br>(1.71)                | 0.54                           | 10.18         | 6.22          | 1.56          | 0.78             | 13                 | 5                      | 5             | 1              | 2                  |
| Electricity, Gas and Steam                                       | 56.10<br>(4.97)                | -                              | 9.72          | 14.16         | 30.06         | 2.16             | 2                  | 1                      | -             | -              | 1                  |
| Fertilisers and Pesticides                                       | 272.99<br>(24.18)              | 20.00                          | 71.16         | 104.35        | 77.48         | -                | 4                  | 1                      | 1             | 2              | -                  |
| Food Products (other than sugar)                                 | 6.88<br>(0.61)                 | 1.08                           | 3.63          | 2.17          | -             | -                | 2                  | 1                      | 1             | -              | -                  |
| Glass, Pottery, etc.   | 0.23<br>(0.02)                 | -                              | 0.23          | -             | -             | -                | 1                  | 1                      | -             | -              | -                  |
| Machinery manufacture (other than electrical)                    | 33.04<br>(2.93)                | 2.47                           | 12.67         | 12.72         | 4.43          | 0.75             | 35                 | 20                     | 8             | 5              | 2                  |
| Metals and Metal Products  | 143.94<br>(12.75)              | 16.26                          | 68.70         | 40.04         | 13.98         | 4.96             | 53                 | 30                     | 14            | 5              | 4                  |
| Printing and Publishing  | -                              | -                              | -             | -             | -             | -                | -                  | -                      | -             | -              | -                  |
| Pulp, Paper and Paper Products                                   | 175.28<br>(15.53)              | 0.59                           | 51.53         | 93.00         | 29.12         | 1.04             | 14                 | 4                      | 5             | 3              | 2                  |
| Rubber Products  | 15.89<br>(1.41)                | 0.51                           | 13.16         | 1.72          | 0.50          | -                | 4                  | 3                      | -             | 1              | -                  |
| Shipping   | -                              | -                              | -             | -             | -             | -                | -                  | -                      | -             | -              | -                  |
| Sugar  | 40.34<br>(3.57)                | 0.06                           | 9.11          | 15.24         | 6.34          | 9.59             | 6                  | 1                      | 1             | 3              | 1                  |
| Textiles   | 151.59<br>(13.43)              | 4.53                           | 64.82         | 60.27         | 20.85         | 1.12             | 65                 | 15                     | 30            | 19             | 1                  |
| Wood, Cork and Hardboard   | 7.10<br>(0.63)                 | -                              | 0.60          | 6.50          | -             | -                | 1                  | -                      | 1             | -              | -                  |
| Miscellaneous  | 52.97<br>(4.69)                | 3.36                           | 30.94         | 16.82         | 1.85          | -                | 70                 | 55                     | 10            | 5              | -                  |
| <b>TOTAL</b>   | <b>1128.78</b><br><b>(100)</b> | <b>60.65</b>                   | <b>398.58</b> | <b>430.71</b> | <b>215.02</b> | <b>23.82</b>     | <b>302</b>         | <b>147</b>             | <b>90</b>     | <b>50</b>      | <b>15</b>          |