CHAPTER- 6

COST OF CAPITAL

6.1 INTRODUCTION

Cost of capital is the price that must be paid to obtain funds necessary for the operation of a firm. It is the minimum rate of return that must be earned out of an investment so that the net worth of a unit is not eroded. It influences the working capital policy, dividend policy and other functional parameters. It may be accepted as the cut-off rate, the hurdle rate, to determine the viability of a unit (Brigham and Smith, 1975). Cost of capital is important for financial budgeting of the firm. This variable determines the optimal capital structure which influences the firm's overall cost of investment, so that the return from it could be maximised. Modigliani and Miller (1958) pointed out that investment policy of a firm is not affected by its financial decision and therefore, the cost of capital is invariant with changes in the capital structure. Validity of this contention was examined by Sharma and Rao (1967) and they underlined that value of the firm is independent of its capital structure after allowing for tax concessions. Chakraborty (1977) examined the impact of the cost of capital - a resultant of the capital structure on the debt - equity ratio of the firms. Goyal (1990) has assessed cost of capital in different categories and sizes of units. His findings reveal that the cost of capital has declined with the increase in borrowed capital and increase in earnings per share. Supporting the findings of Chakraborty, Goyal did not trace any significant relation between the cost of capital and the three ratios - operating profits / capital employed, sales/asset and dividend paid/earnings per share. Pandey (1980) has held that the Modigliani - Miller conclusions are totally inapplicable under the Indian conditions. Though in the beginning cost of capital remains invariant with changes in the capital structure, it rises slowly with the growth in capital structure.

Cost of capital enters into the financial decision making in a two stage strategy. A firm first selects a financial policy that minimises the cost of capital and the cost, in turn, is then...
used as the discount rate while deciding the optimal investment policy (King, 1977; Auerbach, 1979). In this case, investment and financing decisions are recursive in character with respect to each other.

Firms are constrained by the cost of capital as regards use of debt or equity and these constraints may influence investment and financing. As such, cost of capital has important bearing on the profit planning, evaluation of the project and management of the capital structure. Moreover, it can be used not only as an investment criterion but also as a measure to evaluate the financial and managerial performance of the entrepreneur (Bhattacharya, 1970).

6.2 MEASURING COST OF CAPITAL

Capital of a small unit mainly comprises equity and debt. The former includes own funds, recycled profit and interest free borrowings from friends and relatives, and the latter incorporates interest bearing short term and long term credit. Thus cost associated with each specific capital component is to be calculated to measure the cost of capital.

However, due to certain inherent limitations of the small scale units it is difficult to ascertain their cost of capital. These units hardly maintain any record of capital. Firm profit is often mixed with personal assets and expenses, thereby making assessment of the value of the firm increasingly difficult. These units have restricted access to financial markets and the transaction cost of credit for them is very high due to the reasons already discussed.

1. Koskenkyla (1985) has contended that a third component of investment is financed by deferred taxes. But the cost of this tax credit component is zero and therefore, does not enter into cost calculation (see also Bergstrom and Sodersten, 1983).

Other factors, such as, personal taxes, inflation and depreciation also affect cost of capital. The disincentive effect of personal income tax (Bergstrom and Sodersten, 1983) discourages equity capital investment and therefore, increases credit requirement of the unit at higher rate of interest. The effect of inflation on real rate of interest has been discussed by Feldstein (1976), Feldstein, Green and Sheshink (1978) in a general equilibrium framework and Bergstrom and Sodersten (1983) in a partial equilibrium framework. However, these factors have not been considered in the present study.
These factors escalate the cost of borrowing for the SSI units. Despite these limitations, attempts are made to throw light upon different aspects of the cost of capital for the small units.

6.2.1. **COST OF EQUITY**

Equity funding comprises a major portion of the capital of small firms. The cost of equity capital is usually viewed as the opportunity cost of the funds invested, i.e., what the entrepreneur would have earned at the maximum by investing the funds otherwise. These entrepreneurs of small means would prefer moderate risk and more liquidity and therefore, expect to receive low rate of return. So for them, the opportunity cost of equity capital will not be very much different from the interest rates obtaining from bank deposits.

6.2.2. **COST OF DEBT**

The other component of capital of the small units is debt capital which has two cost components: interest cost and transaction cost. The firm receives tax exemption since interest on the borrowed funds is considered a part of cost. However, as the small firms mostly remain out of the tax net or pay a marginal tax the exemption is of no significance for them. This combined with financial market imperfections makes debt for small firms costlier than equity.

The present study is constrained not to consider the cost of equity because of the difficulties involved in estimating the cost of equity capital of a unit. Therefore, cost of debt in its two dimensions, interest cost and transaction cost measures the cost of capital. Interest cost, though fixed for various slabs of credit, increases with increase in the size of loan. Interest rate is government determined. Transaction cost, on the other hand, varies widely, depending on the time taken for the sanction and disbursement of the loan. Cost of documentation and grease money often escalate the transaction cost. In addition, the earnings losses of the applicant on account of the mandays spent in pursuing loan sanction adds to his transaction cost.

2. The tax shield moves in direct proportion to the marginal rate of tax and makes borrowed funds cheaper. Eresi (1989) observed that interest paid by the small units on institutional credit varies from 13 to 15 per cent and the cost of debt capital is invariably high for small units. As a result they frequently suffer from cash flow problems which erode the equity funding also.
6.2.3. **EMPIRICAL RESULTS**

In an attempt to examine how cost of credit affects access to institutional finance and hence investment decision of the surveyed small scale units, two multiple regression equations

\[
\begin{align*}
\text{IF} & = \alpha_0 + \alpha_1 \text{ROI} + \alpha_2 \text{TRC} + \varepsilon_1 \\
\text{TI} & = \beta_0 + \beta_1 \text{ROI} + \beta_2 \text{TRC} + \varepsilon_2,
\end{align*}
\]

are estimated by the OLS method.

In the equations

- IF = the amount of institutional finance obtained,
- ROI = rate of interest
- TRC = transaction cost of borrowing
- TI = total investment

Except for ROI which is expressed in terms of percentage all the variables are in lakhs of rupees. Transaction cost includes cost of travel, documentation cost, income loss in the process and other miscellaneous expenses in getting credit.

**Regression Results**

<table>
<thead>
<tr>
<th>Explanatory variables</th>
<th>Dependent variable IF</th>
<th>Dependent variable TI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>3.2494 (2.2647)</td>
<td>10.5269(5.6401)</td>
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<tr>
<td>ROI</td>
<td>0.3805(4.2026)*</td>
<td>0.1040(0.8826)*</td>
</tr>
<tr>
<td>TRC</td>
<td>0.0048(1.4914)*</td>
<td>0.0020(0.5148)</td>
</tr>
<tr>
<td>$\bar{R}^2$</td>
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<td>0.6542</td>
</tr>
<tr>
<td>F</td>
<td>12.0748</td>
<td>3.5148</td>
</tr>
</tbody>
</table>

(Figures in parentheses stand for 't values'.* stands for statistical significance maximum upto 10%.)

The coefficients of rate of interest and transaction cost of borrowing are positive and significant which implies that larger amount of credit is supplied at higher rate of interest /3/. The transaction cost coefficient for institutional finance is also positive and significant which reveals that lending institutions adhere to more rigorous and strict methods of appraisal for
larger loans thereby increasing the transaction cost. Positive and significant coefficients for both the cost components show that larger loans are costlier.

Considering the investment equation, a positive and significant coefficient of rate of interest reveals that in order to finance increased investment the entrepreneurs with low equity base look up to institutional credit in spite of high interest cost /4/. A positive coefficient of the transaction cost in the equation implies that larger total investment needs necessitates larger borrowing which could be had at a high transaction cost.

6.3. **RISK OF LENDING**

In a government regulated financial market, cost of credit fails to reflect the true value of borrowed funds. Interest rate does not work as an equibrating factor and is not a correct measure of risk involved in the lending by the financial institution. It is a permanent phenomenon in most of the third world countries and the reason for the same may be adduced to various factors like:

3. Auerbach and King (1982) derived an equilibrium relationship between interest rate and debt equity ratio in an individual optimising behaviour. In the explicit model, they have observed the relationship between the two to be complex and highly non-linear. On the other hand, Koskenkyla (1985) has developed a model on the assumption that rate of interest on total debt is an increasing function of the debt-equity ratio and has concluded that properties of the rising interest function affects both the demand for capital and the optimal debt-equity ratio. The study also suggests that though the rate of interest is a positive constant for low values of debt-equity ratio, it increases after a particular level of debt-equity ratio is reached.


Patvardhan has observed interest as a percentage of the value of production to be increasing as the range of original value of plant and machinery rises. In the RBI survey (1977), it was 1.96 percent for the range of Rs.1,000 - Rs.10,000 and went up steadily to 4.15 per cent in the range of Rs.50,000 - Rs.1 million.

Koskenkyla has however, argued that borrowing is the most profitable method of finance, internal funds or own finance comes next and new equity issues are the least profitable.
i] the size of loan

ii] interest charges and collateral requirements.

iii] the expected rate of return from the loan-financed proposed productive activity about which the borrowing and lending agencies largely differ.

iv] variable transaction and administrative cost of borrowing and lending.

v] government intervention like the interest ceiling, minimum lending requirements, lump sum subsidies and loan write-offs.

vi] moral hazard issues, representing non adherence to lending conditions and wilful dishonesty of the firms.

In an efficiently functioning credit market, the expected marginal product from the use of loan must equal the bank's opportunity cost of funds along with the transaction cost of lending (Virmani, 1982). Inefficiency occurs when expectation of the lenders is unmatched by that of the borrowers. Banks are often pessimistic about the performance of the firms due to asymmetries of information availability. High cost involved in collection of information about the firm's operation is another contributory factor to the pessimism. At times, the information provided are unsupported by written documents and records which the firms rarely maintain, making the banks suspicious thereby.

Government intervention in fixing a ceiling rate of interest compels the lenders to escalate collateral demand. Government's minimum requirement programmes to meet the small sector lending has a similar effect. Under the conditions, the less endowed firms are crowded out of the market despite their much proven creditworthiness and pressing loan requirement.

Insufficient information on the basis of which the projects are to be evaluated for purposes of sanction of loan, restrict the access of the SSIs to credit market (Constand et al, 1991; Berger and Udell, 1993; Keasey and Watson, 1993). However, information gap causing capital market imperfection could be avoided by close relationship between the lending institutions and their clientele. Stiglitz and Weiss (1981) examining capital market failure have concluded that debt gaps arise primarily because of adverse selection and moral hazard problems. The adverse selection problem arises because the borrowers have varying...
degrees of risk attached with their enterprises. The moral hazard problem resulting from the lenders' inability to monitor the projects reinforces the former.

Dishonesty of the lenders and borrowers also works as another deterrent to capital market functioning. Financial institutions are generally unable to distinguish between honest and dishonest firms. Therefore, their expectation of profit from lending to a group of firms, "the probability weighted average of the repayments by the honest and non-repayment by the dishonest firms" (Konlg and Koch, 1990), remains highly uncertain. Moreover, the urban based banks unacquainted with the habits and nature of the rural entrepreneurs discriminate against them. Demand for bribes while sanctioning credit channelises productive funds towards unworthy borrowers.

All these factors distort the functioning of the capital market to penalize the small scale enterprises by making loans unobtainable to them or the cost of borrowing comprising interest, collateral deposit and transaction cost to be prohibitively high. As a result of this, supply fails to match the demand for funds. Admittedly, capital markets can never be perfectly competitive. However, the element of uncertainty and imperfection could be arrested to a great extent by correct assessment of the risk of lending.

6.3.1. MEASURES TO REDUCE LENDING RISKS

The riskiness of a loan may be reduced by proper appraisal and appropriate supervision of proposed projects. On the other hand, appraisal and supervision escalate the administrative cost of lending. Risk - return trade off compels the lending institutions to favour the large loans against the smaller ones (Anderson and Khambata, 1981).

High interest rates covering the risk premium may prove fruitful in many a case. However, beyond a point, higher interest rates may reduce the borrower's ability and willingness to repay. It may also result in sanction of larger amount to dishonest or over-optimistic borrowers with risky projects, inviting thereby the problem of adverse selection. Some studies have advocated for a commercial rate of interest in a cost effective manner and
at a scale large enough to satisfy the need and ability of the market for which it is intended (Myrdal,1968; Adams,1971; Myint,1971; Shaw,1973; Mckinnon, 1973,1976; Donald, 1976; Lipton, 1976; Howell, 1980; and Ford, 1994).

However, since all the borrowers must be charged the same rate of interest, those with good projects are either driven out of the market or face constraints in borrowing. As contended by Rothschild and Stiglitz (1976) high risk individuals cause an externality: low risk individuals are worse off than they would be in the absence of high risk individuals.

Therefore, in most developing countries, government controlled interest rate is accepted as a measure to siphon off credit allocation to different sectors. Such a measure has favoured the large units against the small ones, who receive a low priority and only a few among them manage to obtain credit. Experience of many developing countries with regard to special schemes for subsidized lending reveals that the proportion of beneficiaries of these are invariably minute (See Levitsky, 1983; for empirical evidences). Administered interest rates and allocation of stipulated amounts have made access to credit by the small enterprises more difficult, resulting in misallocation of financial resources (Harris, 1981; Jackelen and Rhyne, 1991). Evidences suggest that micro credit programmes function well with profitability only when the interest rates are moderately high (Biggs, et al 1990). Low rates have been a major factor restricting accessibility of the poor to the credit market. Higher rates, on the contrary, reduce demand among the upper groups who largely go for cheap credit leaving thereby a large sum for the poor who are flexible and efficient enough to cover the cost.

5. Brick, 1984; Cramer and Sterk, 1982; Johnson and Grace, 1990; and Ferrari, 1992; have developed models for appropriate loan pricing based on cost of funds, origination costs and compensating balances which may proxy for the risk of lending.

Maniktala (1991) included bond rating as a measure of risk but was not explicit about the method of translating rating into risk premium. Cowling and Sugden (1995) have advocated higher interest charges from small firms and full collateralized lending.
Two approaches to risk coverage in the credit market could be discerned: pro-state view and pro-market view. The former highlights the imperfections in the credit market and contends that institutional network is the main obstacle to credit allocation in favour of the SSI sector. Elimination of imperfections necessitates government intervention, be it in the form of interest ceiling or minimum requirement or a combination of the both. The other view denounces government intervention as distortionary and considers credit availability rather than its cost as the prime concern. Risk coverage in pricing will ensure improved efficiency. However, the less developed economies are yet to adopt such liberalized measures in the financial sector and pricing of risk with the inclusion of uncertainty has remained highly unsystematic. There exists no coherent approach for the inclusion of this important variable in loan pricing (Edminister, 1984; Slater, 1986; Snyder, 1988; Wyman, 1991).

Therefore, not only to escalate the profitability and sustainability of the lending agencies but to ensure a smooth flow of credit towards the financially vulnerable group, all control systems and selection criteria should be evolved in a manner to strike a balance in the risk return trade off. Measures towards this end should reveal how credit is to be targeted, tampered and where the barriers to entry are to be erected. This calls for an assessment of the features of the enterprise and the entrepreneurs as well, which the lender consider to be risky and hence withhold supply of credit. As a way out, immitation of informal sector practices by financial institutions has been advocated by Jackelen and Rhyne, 1991. This largely comprises character based assessment, pragmatic concept of collateral, simple documentary requirements, simplified repayment terms, extremely rapid and decentralized approvals and over and above proximity to the clients. Experience of the Grameen Bank of Bangladesh,

6. Roy (1952) has estimated models for incorporating risk factors in commercial lending by using "chebyshev inequality".
Bank Rakyat Indonesia (BRI) unit Desa system of Indonesia and Prodem of Bolivia have explored a number of favourable effects of all these measures. Chief among these are substantial diminution in the use of subsidized credit and artificial rate ceiling and in consequence there has been a more rational allocation of scarce financial resources with higher returns.

Owualah (1988) has examined the risk factors influencing small business lending in Japan and Nigeria. These are categorized as "perceived risk factors" and "contributory factors" in the riskiness of small business loans. The former includes the extent of susceptibility to failure, poor collateral security, poor cash flow, poor credit rating, lack of competence, low equity and a poor market. The contributory factors, instead, comprises the extent of diversion and misuse of funds, shortage of information and absence of record keeping, weak ownership structure, inadequate screening and appraisal in the post sanction period, lending outside the bank's scope and specialization.

6.3.2. **EMPIRICAL OBSERVATION**

For the present study the factors singled out for measure the riskiness of small business lending are:

- $\text{ETY/TA} = \text{Equity as a proportion of total asset}$
- $\text{BD/TA} = \text{Bank debt as a proportion of total asset}$
- $\text{D/E} = \text{Debt-equity ratio}$
- $\text{S/TA} = \text{Sales as a proportion of total asset}$
- $\text{PFT} = \text{Profit}$
- $\text{AU} = \text{Age of the Unit}$
- $\text{EXB} = \text{Business experience of the owner}$

A number of studies have incorporated collateral deposit as an important factor for risk coverage (Mckillop and Hutchinson, 1994, Owualah). This factor, in a way, captures risk return trade-off. However, for the present purpose collateral deposit is not important as most of the loans considered are obtained against hypothecation of capital. Further, since the study is based on cross section data and there is no periodic record of the performance of the
units, factors like variable track records of the units, loan duration etc. have been kept outside the purview of the present study. Moreover, as most of the loans are in the form of cash credit, the sales proceeds are deposited against borrowing for which the loan amount decreases with each deposit, thereby causing the amount of loan to fluctuate from year to year. Therefore, it is difficult to determine the period of loan.

In the case of risky enterprises the assessment procedure becomes stringent and hence time consuming for which the transaction cost of borrowing increases ultimately. On the other extreme, the financial institutions withhold or reduce credit sanction which affects leverage of the units. Therefore, impact of various risk parameters on the transaction cost of borrowing and institutional credit obtained has been examined. /7/

The impact of all the risk factors on the debt-equity ratio is also examined to observe variability in the investment component (Chakravorty, 1977).

The ratio of total equity to total asset represents the proportion of total asset financed by equity which may be accepted as a proxy for firm size. A high value of the ratio provides a major financial buffer to absorb business uncertainty and this is expected to reduce lending institutions' apprehension of default risk. Therefore, transaction cost is hypothesized to be negatively related to this factor/8/ while equity is presumed to have a positive impact on institutional finance sanctioned/9/. It is obvious that relative increase in equity will lower debt-equity ratio implying thereby a negative relation between equity - total asset and debt-equity ratio.

7. Keasey and Watson (1995) have assessed the impact of various risk factors on the interest rate premium, which is the difference between the rate of interest and the bank rate. In the present case, however, administered rate of interest remains invariant to risk factors.
8. Keasey and Watson (1995) have observed that low proportion of equity with total asset has a negative coefficient for interest rate premium, implying thereby low equity increases the cost of credit.
9. Owulah (1988) observes low equity base to be ranked in a relatively lower position in the credit sanction by the banks both in the less developed economy of Nigeria and advanced economy of Japan.
Another explanatory variable in the three equations estimated is the proportion of bank debt to total assets. When the bank indebtedness of a small scale enterprise increases, the bankers grow more apprehensive of default and as such, intensify their screening process for which transaction cost of borrowing increases, thus establishing a positive relation between the bank debt - total asset ratio and transaction cost. It is self evident that the explanatory variable will be positively related with institutional finance and debt- equity ratio as bank debt constitutes a part of the two.

Proportion of sales to total assets is the next explanatory variable in the present study. With increased sales profit increases and is recycled for which the enterprise borrows less from the institutional and other sources. Therefore, the ratio of sales-total asset and profit as explanatory variables are expected to be positively related with transaction cost on the one hand and negatively related with institutional finance and debt equity ratio on the other.

It is self-explanatory that debt- equity ratio will have a positive relation with transaction cost and institutional finance.

Age of the unit seems to be influencing its cost of borrowing, institutional indebtedness and therefore, debt- equity ratio. Young enterprises find it difficult to obtain institutional finance. During the initial years, till the enterprise reaches the take-off stage, its difficulties go on multiplying with the advance of time and therefore, the financial institutions become increasingly disinclined to extend loan to these enterprises. As a result of this the flow of institutional finance to these relatively young enterprises keep on shrinking with time till the take off stage is reached. So it is not unlikely to expect age of the enterprise to be positively related with transaction cost and negatively with institutional finance and debt-equity ratio.

10. The study of Owulah (1988) has ranked poor market for product of the SSI units at the lowest in the perception of risk factors in small business loan both in Nigeria and Japan. It also observed poor cash flow to be not so very important in measuring riskiness of loan.

11. Elliehausen and Wolken (1990), Peterson and Rajan (1994) observed that transaction cost expectedly has a negative relationship with the age of the unit. Similar relationship is observed by Keasey and Watson (1995) on the interest premium charged from the small units.
But, in the case of relatively old units, the above traced relation will be slightly different. Over the years, oft-proven track record and efficiency of the firms enable them to acquire large loans from the financial institutions as a result of which the two variables exhibit a positive relation. For the reasons stated earlier, in the case of large indebtedness, transaction cost of institutional finance goes up. Therefore, despite the ease in procuring institutional finance, the units reduce their borrowing. Increased scope of profit recycling also pulls down their total indebtedness. Therefore, a negative relation can be expected between age of the unit and debt-equity ratio in the case of relatively older units.

The other factor exerting impact on the dependent variables under consideration is business experience of the entrepreneurs. Quite expectedly, the cautious bankers favour the entrepreneurs with experience and as such, more experienced enterprises bag larger amount of bank loan. Therefore, the relation between transaction cost, institutional finance and debt-equity ratio on the one hand and business experiences of the entrepreneur on the other, will be patterned after the relation between the former three dependent variables and debt-asset ratio, i.e., positive in all cases.

Three different regressions were run to verify the above anticipated relation.

\[
\text{TRC} = \alpha_0 - \alpha_1 \frac{ETY}{TA} + \alpha_2 \frac{BD}{TA} + \alpha_3 \frac{S}{TA} + \alpha_4 \text{Profit} + \alpha_5 \frac{D}{E} + \alpha_6 \text{Au}_2 \\
+ \alpha_7 \text{Au}_3 + \alpha_8 \text{Au}_4 + \alpha_9 \text{EXB} + \varepsilon_1
\]

\[
\text{IF} = \beta_0 + \beta_1 \frac{ETY}{TA} + \beta_2 \frac{BD}{TA} - \beta_3 \frac{S}{TA} - \beta_4 \text{Profit} + \beta_5 \frac{D}{E} - \beta_6 \text{Au}_2 \\
- \beta_7 \text{Au}_3 + \beta_8 \text{Au}_4 + \beta_9 \text{EXB} + \varepsilon_2
\]

\[
\frac{D}{E} = \gamma_0 - \gamma_1 \frac{ETY}{TA} + \gamma_2 \frac{BD}{TA} - \gamma_3 \frac{S}{TA} - \gamma_4 \text{Profit} - \gamma_5 \text{Au}_2 \\
- \gamma_6 \text{Au}_3 - \gamma_7 \text{Au}_4 + \gamma_8 \text{EXB} + \varepsilon_3
\]
### 6.3.2.1. RESULTS AND IMPLICATIONS

#### Regression Results

<table>
<thead>
<tr>
<th>Explanatory Variables</th>
<th>Dependent Variable Transaction cost</th>
<th>Dependent Variable Institutional Finance</th>
<th>Dependent Variable Debt-equity ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>86.1040</td>
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<td></td>
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<td>Profit</td>
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<td>(5.5157)*</td>
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<td>D/E</td>
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<td>(0.2726)</td>
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<td></td>
<td>(1.9794)*</td>
<td>(2.0547)*</td>
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<td>F</td>
<td>12.9279</td>
<td>14.2779</td>
<td>4.8326</td>
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</table>

( Figures in parentheses are 't' values. * stands for statistical significance maximum upto 10% )
In the case of equation for the explanation of transaction cost the coefficients of all the explanatory variables have the expected signs but the equity-total asset ratio and business experience of the entrepreneur turned out to be significant. Bank debt, sales profit, debt-equity ratio and age of the unit do not seem to be affecting transaction cost of borrowing.

In the case of the equation for institutional finance the significant factors are bank debt - total asset ratio, sales-total asset ratio, profit and business experience. The coefficients of the explanatory variables except equity - total asset ratio and profit have the expected signs. The negative sign of the coefficient of the equity - total asset ratio is also plausible because with increase in equity capital enterprises would repay old loans and reduce institutional loan. So also in the case of profit a positive sign of the coefficient in contrast with the expected negative sign could be explained by the fact that more institutional finance is made available to more profit earning enterprises.

In the case of the third equation concerning debt-equity ratio, the explanatory variables have the expected signs but bank-debt total asset ratio only is significant.

Financing small business is risky and calls for caution on the part of the lending agencies. Various measures have been suggested to diffuse lending risk. The lender is confronted with cost and default risk. Diffusion of these risks requires identification of the factors responsible for the same. The business and entrepreneurial traits of the units are the prime factors determining the risk of the lending institutions. Therefore, an attempt has been made to examine the extent of influence of these traits on transaction cost, institutional finance and debt-equity ratio of an enterprise. Empirical study shows that these individualistic features of an enterprise explain lending-risk expectedly but not significantly in many instances.

6.4. IMPACT OF CREDIT RATIONING

It is well known that small loans are risky and riskiness creates a debt gap. In such cases either finance is not provided at all or if provided, only in limited quantity, at a delayed time and on disadvantageous terms and conditions. Restricted access to finance not only erodes profitability of many an operating enterprise but checks a number of viable and profitable projects from being undertaken. Most of the small scale units are started with a
low fixed capital investment often financed from own savings or borrowals from friends and relatives. The real problem is encountered in meeting the working capital requirements which is more than half the investment needs. A number of studies have blamed shortage of working capital as the prime factor responsible for the failure, rather, non-starting of small business, least to speak of expansion programmes, research and innovative activities which could only be financed by working capital. Shortage of this portion of finance largely supplied by the banking sector retards the genuine growth potential of the SSI enterprises.

A positive association between external finance, particularly bank finance and growth of the enterprise is often recorded (Keasey and McGuiness, 1990; Keasey and Watson, 1992). When bank credit, the prime source to meet working capital requirements is rationed, industrialists are forced to depend on high cost, exploitative informal sector (Choudhury, 1981, 1989).

Investment in fixed assets without proportionate working capital provision leaves the small units under continuous financial stress and increases the risk of investment and then units are left with large overheads and a limited ability to respond to changes in order or quality of product.

On the other hand, though it is identified that working capital finance is inherently less risky as it is related to the current sales level and contracts, banks restrict credit because of the apprehended loss arising from deliberate non-repayment of loan. There exists no interest rate which will cover the projected loss in small business lending, let alone earning of the expected return /12/.

6.4.1. CREDIT RATIONING: SOME IMPLICATIONS

It is generally accepted that if the interest rate is market determined, credit will not be a constraint. However, many a study contend that flexible interest rate is an increasing function of the debt-equity ratio and there will be rising cost of borrowing at the margin.

12. Roe(1979) with a slight modification in the Harrod-Domar model contends that with capital market imperfection banks ration out credit in such a manner that fall in lending to the traditional sector far exceeds that to the modern sector.
Returns demanded by the lenders will tend to increase with increased leverage (debt-equity ratio) of the borrowing firm. A rightward shift in the cost of fund function will decrease the equilibrium value of both the capital stock and the debt equity ratio. An increased cost of funds will cause substitution between debt and equity finance causing debt-equity ratio to fall.

Sticky interest rates combined with imperfect screening possibilities of different borrowers often forces the banks to go for credit rationing (See Jaffee and Russell, 1976 and Koskela, 1976). Stiglitz and Weiss (1981) observe that even under flexible interest rates credit rationing is largely practised by the banks. The expected profits of the banks start to decline at some high rates of interest because of the "incentive effect".

Whatever it be, credit rationing restricts the firm in financing its desired or optimal capital stock and forces it to go for more expensive methods of financing. Moreover, credit rationing may also affect anticipatory capital investment. Small units, often apprehensive of credit constraint in future may go for larger investment at present, thus causing excessive overheads or piled up inventory. Again, timing of investment is also affected by credit constraint. When internal funds are insufficient to finance investment needs profitability is eroded by credit rationing/13/.

Impact of credit constraint, particularly bank finance rationing, which imposes a barrier on meeting the working capital needs, on the level of investment has been assessed here. Two ratios representing bank finance as a proportion of other sources of institutional finance and as a proportion of all other sources of finance are the two explanatory variables considered here for investment decision. For the purpose two equations with transaction cost and total investment as dependent variables have been regressed on the explanatory variables.

Bank credit constraint is expected to affect the volume of investment directly via its

13. There is no dearth of literature analyzing investment and financing policies in the presence of qualitative constraint on debt finance. Static investment models which assume a permanent credit rationing have been discussed by Hirshleifer (1958), V.L. Smith (1961), Havelmo (1961), Vickers (1968). Appelbaum and Harris (1978) and Schworm (1980) have examined the dynamic effects of credit rationing on investment.
impact on the working capital requirement. This forces the small units to go for other institutional and non-institutional sources to meet the investment needs.

Impact of the two ratios on the cost of borrowing is also examined in order to find out whether increased proportion of bank borrowing affects the cost of credit or not. Rate of interest, the prime component of the cost of credit is, however, exempted from the present purview as it remains almost invariant with changes in the volume of bank credit. Actual expenses towards transaction cost of borrowing represents cost. The two separately estimated equations are:

\[ TI = \alpha_0 - \alpha_1 BF/OF - \alpha_2 BF/OIF + \varepsilon_1 \]
\[ TRC = \beta_0 - \beta_1 BF/OF + \beta_2 BF/OIF + \varepsilon_2 \]

where \( BF \) = Bank finance
\( OIF \) = Other institutional finance
\( OF \) = Other finance

<table>
<thead>
<tr>
<th>Explanatory variable</th>
<th>Dependent variable</th>
<th>Dependent variable</th>
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<tbody>
<tr>
<td></td>
<td>Total investment</td>
<td>Transaction cost</td>
</tr>
<tr>
<td>Constnat</td>
<td>14.1304(13.6514)</td>
<td>264.8594(10.5832)</td>
</tr>
<tr>
<td>BF/OF</td>
<td>-1.0552(-2.2098)*</td>
<td>-9.3245(-0.8076)</td>
</tr>
<tr>
<td>BF/OIF</td>
<td>-0.2903(-0.8858)</td>
<td>15.5042(1.9569)*</td>
</tr>
<tr>
<td>( \bar{R}^2 )</td>
<td>0.5360</td>
<td>0.4543</td>
</tr>
<tr>
<td>( F )</td>
<td>4.0262</td>
<td>3.9225</td>
</tr>
</tbody>
</table>

( Figures in parentheses are t'values. * stands for statistical significance upto 10%)

The explanatory variable, proportion of bank finance to other finance has a negative and significant coefficient in the estimated equation of total investment. Plainly speaking, with increase in investment, the share of bank loan of the SSI units decrease. This is quite plausible because in the face of credit constraint and rationing/14/ the dynamic entrepreneurs look onto

14. Koskenkyla (1985) has observed that credit rationing does not seem to have a significant effect on the investment behaviour of the Finnish firms.
sources other than financial institutions for loan. Since other financial institutions are equally regulated as regards lending out, their financing does not increase in a big way to finance new investment compared to bank loan and it is not surprising that other explanatory variable in the total investment equation was found insignificant.

In the equation for transaction cost the coefficient of bank finance relative to other institutional finance has positive and significant coefficient. Its implication is that in the presence of credit rationing, when the SSI units apply for more bank finance, the banks become overtly cautious regarding their loan decision and more particular about risk avoidance. To comply with the stipulated conditions while maintaining their liquidity and profitability, the banks indulge in unwritten screening by asking for more information and imposing stringent conditions as a result of which transaction cost of borrowing increases. Credit rationing also calls for thorough assessment of the projects and the applicants. The resulted procedural delay contributes to rising transaction cost.

The negative sign of the coefficient of the ratio between bank finance and finance from all other sources in the equation is, of course, insignificant. However, its implication is quite intuitive.

As the SSIs get more finance from other sources, it increases their equity base and creditworthiness as well. Therefore, the banks adopt a liberal attitude towards the borrowers for which the transaction cost of borrowing decreases.

Credit rationing is observed to influence the level of output via its impact on total investment. Larger volume of output calls for larger working capital usually financed by banks. Therefore, restricted access to bank finance may work as a hurdle for increased production. Koskenkyla (1985) has contended that impact of credit rationing on total investment is felt indirectly via accelerated variables like output. He presumes a positive relation between credit and output. Wogart (1993) has also observed a direct relationship between loans, output and investment. He contends that with increased loan amount, output increases at a greater rate than the level of investment over time. Patnaik (1988) alleges that
inadequacy of credit resulted in reduction of output of the SSI units varying between 25 to 50 per cent.

To test the hypothesis, regression of output as the dependent variable and ratio of bank finance to total investment of the units as the explanatory variable was run to obtain the results detailed below.

Regression Results

<table>
<thead>
<tr>
<th>Explanatory Variable</th>
<th>Dependent Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constnat</td>
<td>9.0259</td>
</tr>
<tr>
<td></td>
<td>(9.8391)</td>
</tr>
<tr>
<td>BF/TI</td>
<td>-3.2146</td>
</tr>
<tr>
<td></td>
<td>(-1.5786)</td>
</tr>
<tr>
<td>( R^2 )</td>
<td>0.6140</td>
</tr>
<tr>
<td>F</td>
<td>3.4920</td>
</tr>
</tbody>
</table>

The negative coefficient of the explanatory variable is not significant. However, large borrowing from the banks suggest substantial dependence of the unit on bank finance mostly for working capital. When the entrepreneurs grow sceptical about further financing from banks, they are forced to limit production. Therefore, output decreases when the unit relies more on the finance from the suspicious bankers.

Credit rationing is primarily intended to help the hapless and enterprising units. But our findings go the other way. In a credit scarce situation, when the banks are compelled to ration credit, as in other markets, distortions creep in and as a result, cost of borrowing shoots up, increase in investment is arrested and expansion in output slows down.