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STIPULATION AND EXERCISE OF
CONVERTIBILITY OPTIONS BY FINANCIAL
INSTITUTIONS

by

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STIPULATION AND EXERCISE OF CONVERTIBILITY OPTIONS BY FINANCIAL INSTITUTIONS

U.k. Srivastava
and
Nikhil M. Oza

The Industrial Licensing Policy Inquiry Committee (Dutt Committee) gave the following justification for its recommendation regarding conversion of loans into equity by term lending institutions:

"We consider it important that when public sector financial assistance in any significant scale is provided for the private sector, not only should an appropriate share in the benefits accruing from the project after it is completed be available to state, but the project should also necessarily be treated as belonging to the 'Joint sector' with proper representation for the state in its management. This purpose may be achieved by the financial institutions insisting on the whole or part of their assistance in the form of loans and debentures being convertible into equity at their option and, if necessary, the law should be amended to provide for this."

The recommendation of the Dutt Committee and its acceptance by the Government of India had two fold objectives: (i) to share benefits accruing from projects assisted by Public Financial Institutions, and (ii) to participate in management of assisted concerns. Thus it was expected that financial institutions should not merely be passive agencies concerned with the timely repayment of their loans but be active partners in the enterprise which they help to bring into being.

The all-India financial institutions began stipulating the convertibility clause in the financial year 1970-71. Option of converting loans into equity was supposed to be exercised by these institutions two or three years

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after the implementation of the project. At present most of these institutions are in the process of exercising this option. They have developed suitable methodologies which are designed to help them in taking decisions pertaining to this option.

This study is designed to analyse their experience with respect to i) stipulation of convertibility option, ii) decision criteria used for the exercise of options and related problems, iii) suggest alternative decision criteria which can incorporate risk and uncertainty involved in decisions to convert or not to convert in case of profitable and loss making companies at the time of decision making, and iv) to raise policy issues. Before pursuing the main objectives a brief digression is made to present the operational guidelines in the first section.

The details of loan granted during the period 1971-76, data on profitability of assisted concerns, share prices, and methodologies developed by financial institutions were collected from official records and balance sheets of individual companies, and through discussion with officials handling specific cases. Some data were also taken from the publication of the Bombay stock exchange.

I. OPERATIONAL GUIDELINES

Subsequent to acceptance of Dutt Committee recommendations, the Department of Banking (Government of India) issued broad guidelines to all-India financial institutions (IDBI, IFCI, ICICI, LIC and UTI). According to these guidelines, the convertibility clause is to be included in loan agreements subject to following operational limits:

1. A convertibility clause may be written in at the discretion of financial institutions in cases where the aggregate financial assistance to an industrial concern does exceed Rs.25 lakh but does not exceed Rs.50 lakh. A convertibility clause need not be written if aggregate assistance is below Rs.25 lakh.
2. A convertibility clause should normally be written in all cases when aggregate financial assistance exceeds Rs.50 lakh. In case it is proposed to waive the convertibility clause in such concerns, reference has to be made to the Government of India through the Industrial Development Bank of India before finalizing terms and conditions. Such a reference should also accompany the reasons for waiver.

The convertibility clause is not to be written in case of foreign currency loans. However, if financial institutions provide rupee loans in addition to foreign exchange, the convertibility clause is to be written on rupee loan component. According to the guidelines, financial institutions are expected to settle with assisted concerns, at the very time of sanctioning of financial assistance, terms and conditions on which loan may be converted into equity. These terms and conditions include three main items: i) the amount of the loan which is to be available for conversion; ii) price at which loan may be converted; and iii) period during which the option may remain open. These terms and conditions are to be arrived at by financial institutions by exercising their judgement with respect to reasonable debt-equity ratio, intrinsic value of shares at the time of conversion, profitability of the projects, and circumstances in such case.

Besides the broad guidelines of the government, several operational guidelines and rules were evolved by the all-India term lending institutions themselves in various inter-institutional meetings and the government was informed about these operational rules. The guidelines are briefly summarized below:²

1. In all cases involving conversion of loans into equity, the decision should be based on the combined judgement of all institutions involved.
2. Pending the issue of separate guidelines relating to the exercise of conversion rights, proposals to exercise or waive conversion options should be first discussed among institutions at inter-institutional meetings; IDBI is to keep the government informed in advance of implementation of such decisions.
3. In case the government wants to intervene, particularly in waived cases, it has to inform its decision to IDBI well in advance.
4. In case of new companies, decisions of senior executives on the stipulation of convertibility options on normal terms (20% of loans at par) be merely reported in the next inter-institutional meetings for information. In the case of existing companies which involve conversion of loans into equity at a premium over the face value of their shares, terms of conversion would require ratification at the inter-institutional meeting. Similarly, decision in cases involving the exercise of conversion option should be reported in the next inter-institutional meeting for information. Cases where waiver of convertibility option is contemplated would need to be placed before the inter-institutional meeting. Similarly, decision in cases involving the exercise of conversion option should be reported in the next inter-institutional meeting for information. Cases where waiver of convertibility option is contemplated would need to be placed before the inter-institutional meeting for decision.
5. In the case of existing concerns which have been assisted in the past and which require additional assistance, "substantial assistance" would include assistance by way of subscription to shares/debentures by institutions either directly or as a result of underwriting obligations but should exclude market purchases of such shares/debentures by LIC and UTI. Subsequently, it was agreed to take the aggregate of outstanding assistance and shares and debentures held by institutions for judging whether or not assistance was "substantial".
6. Guidelines on conversion clause have been amended to exclude foreign currency loans, such as U.K. investment loan, which are earmarked by the government to public financial institutions for sub-lending. For determining "substantial assistance", loans sanctioned/outstanding under the exempted category are to be excluded.
7. No conversion rights may be stipulated for additional assistance upto Rs.10 lakh, whatever the size of aggregate assistance sanctioned earlier.

8. In the case of public issue of debentures when conversion is proposed by Institutions, the right of conversion and terms thereof should common for both institutional and non-institutional holdings.
9. Financial institutions would have no objection to underwriting convertible debentures offered to the public provided the quantum of conversion and the terms of conversion are settled to the satisfaction of institutions. Generally, the quantum of conversion should not be less than 20% of the total issue. Institutions may, if so desire, reserve a specified portion of debenture issue for direct allotment to them.
10. The conversion clause would not apply to concerns in the cooperative sector but private limited companies are not exempt from the conversion clause.
11. The conversion clause need not be written in case of the public sector companies as the benefits are already available to the state. For other government companies conversion option should continue to be stipulated. Conversion option need not be stipulated in case of those government companies which are not in a position to fulfil requirements of listing their shares in the stock exchange (minimum 20% of share capital to be offered to the public).
12. The minimum/maximum percentage of 10/25 proposed for conversion of loans/debentures into equity at an earlier inter-institutional meeting in 1971 should cover the face value of shares to be taken up by institutions. It does not include the amount of premium which should be adjusted separately.
13. In case where institutions already have some shareholding in a company, as a general rule, conversion option might be stipulated in respect of such portion of the institutional loan as would ensure that the total institutional holdings does not exceed 40% of the share capital of the company if the option were to be exercised, subject to 10% of loan/debentures would be stipulated for conversion.
14. The price at which conversion option should be exercised should be decided on merits of such case after taking into account various factors including market price, break-up value, and profitability.
15. The period of conversion should not be linked to the accounting year of the company but should extend around six months after the accounting year.
16. Outstanding instalments of repayments of principal of the loan granted by financial institutions may be reduced on a pro-rata basis in the event of conversion of loan into equity.
17. Option for conversion of loans into equity would not apply to such portion of institutional loan which is received from the central government as subsidy for the project.

In addition, the question about period for holding shares acquired by the exercise of convertibility option was also discussed. There was, however, predominance of the view that the institutions be left free to dispose of the holdings from conversion as they think appropriate.

II. STIPULATION OF CONVERTIBILITY CLAUSE IN THE PERSPECTIVE OF TOTAL TERM-LENDING

It is shown in Table 1 that between 1970-71 and 1975-76 the convertibility option was introduced in 653 cases, taking each loan as a separate case (A few companies received more than one loan during the period, therefore, they account for more than one case in the total). Of those cases, about 19 per cent are companies for whom less than Rs.25 lakhs was contemplated as loan assistance. If these cases were to be considered excluding previous assistance, they would not have attracted the stipulation of convertibility clause. Since conversion guidelines required the institutions to take the aggregate assistance into account which included any outstanding amount from previous loans and share capital acquired by the institutions because of underwriting assistance, these companies fell within the discretionary limits (between Rs.25 lakh and Rs.50 lakh). This explains the introduction of convertibility clause into the agreements with less than Rs.25 lakhs assistance. These loans were mainly required for meeting cost overruns, and rehabilitation needs.³

The remaining 81 per cent of loan cases with convertibility clause stipulation belong to the above Rs.25 lakh assistance category (in addition to any previous outstanding loans and share capital etc.) Although conversion guidelines put the cases with Rs.25 and Rs.50 lakh assistance in the discretionary category, (subject to discretion of concerned financial institution), the clause was stipulated in nearly all cases by the lending

TERMS OF CONVERSION

Conversion options stipulated so far have fixed the period for the exercise of option commencing two/three years after the project is implemented. In 1970-71 and 1976-77, on an average 14 to 18 per cent of total assistance to companies with stipulation of the convertibility clause was subject to the convertibility option (Table 2). In case of individual companies, the percentage of amount subject to conversion to total assistance has ranged between 10 and 25 per cent (in initial years, there were a few cases where 100 per cent of additional assistance was subject to conversion option). Although a large number of companies were in less than Rs.50 lakh assistance category (Table 2), the bulk of loan assistance with stipulation of convertibility clause was confined to companies with above Rs.50 lakh assistance (for example in 1976-77 93 per cent of assistance to companies with convertibility option went to companies in the category above Rs.50 lakh assistance). A similar picture is observed with respect to the percentage of amount subject to conversion to total assistance to companies with convertibility clause stipulations (Table 2).

It can be observed from Table 2 that total assistance to companies with the stipulation of convertibility option accounted for the bulk of total term finance available from the all-India term lending institutions taking the direct rupee loan assistance.⁴ This further substantiates the observations made above that the lending institutions have introduced the convertibility option in most cases including for those falling within discretionary limits (between Rs.25 and Rs.50 lakhs).

Coming to the rate at which conversion options were effected, it can be seen from Table 3 that 72.43 per cent of cases carried the conversion option at par, 10.42 per cent of cases carried the option at premium, and 17.15 per cent of cases with terms either not yet settled or not readily available to the authors. The conversion option in case of new companies was introduced at par. In case already existing companies, conversion options were considered and in some cases introduced at premium, depending on calculations of fair prices for shares. Several difficulties were experienced between the company concerned and the financial institution and even between financial institutions themselves because no formula or norms were fixed for deciding the rate of conversion in case of existing companies, particularly well-run companies. Some working guidelines have emerged recently in the discussions in the inter-institutional meetings and these have been followed in last few years by the institutions. These guidelines as evolved and applied for arriving at a fair price of the shares and thereby the premium are given in detail below:

The fair price of shares is calculated on the basis of past data of companies concerned available at the time of the stipulation of convertibility clause.⁵ The following elements were considered in arriving at a fair price based on the past records: 1) break up value per share; 2) notional value based on earnings and yield expectations, and 3) market value per share.

BREAK UP VALUE

The break up value of equity shares is arrived at by taking into account the following:

Assets:

1. The value of assets as disclosed by the balance sheet and not their replacement value was taken into account.
2. Adjustments, if any, arising from the revaluation of assets were also made.
3. Arrears of depreciation, and bad and doubtful debts not provided for were deducted.
4. Intangible assets were excluded.

Liabilities:

1. Preference share capital
2. Outside liabilities by way of loans, debentures, deposits, sundry creditors, etc.
3. Provisions for gratuities and taxes
4. Dividends payable out of reserves and surpluses
5. Undeclared dividends
6. Arrears of preference dividends
7. Contingent liabilities (other than normal trading liabilities such as bills accepted, guarantees, etc.)

After deducting liabilities from assets, the net assets value is divided by the number of equity shares to give the break up value per equity share.

EARNING CAPACITY VALUE

Earning capacity value is worked out by computing average earnings. To smooth out fluctuations, past three years' average profits after taxes less preference share dividends is taken as the base. In computing average profits, suitable adjustments are made for sizeable extraneous income (e.g. sale of assets net of taxes was excluded). In cases where there is pronounced declining trend in profit earning capacity for industry in general or for the particular unit, three year average is not regarded as appropriate. Similarly, the average is also misleading in those cases where sizeable part of the project was completed (other than replacement and rehabilitation) in the last two or three years and benefits of this did not

get reflected in the past earning record. In those cases, discretion is to be exercised by the lending institution. Sometimes more weightage is given to profit of the latest year while computing the average earning of past three years.

The average earnings arrived at as above are capitalized taking current yield rates (currently an yield rate of 15 per cent is assumed). The notional value per share was computed taking into account the share capital of the company as would be enlarged after conversion of institutional loans into equity and also rights issued subsequent to the last balance sheet and unrelated to the financing pattern of assisted projects.

MARKET PRICE OF SHARES

The market price of a share depends upon several factors such as expectations regarding dividend and capital appreciation, and speculative pressures. Therefore, it is not always a useful indicator in determining conversion price. The market price cannot be ignored either. Thus the average market price (including highs and lows) for the last three years was taken into account.⁶ The break up value, the earning capacity value, and the average market price are averaged further to arrive at the fair price. In case where the latest market quotation is less than the fair price thus arrived, due weightage is given to this fact and intermediate price is taken as the conversion price.

The above discussed norms in computing fair price have brought some degree of uniformity in fixing the premium but in general the effort has been to fix it as low as possible.

III EXERCISE OF CONVERTIBILITY OPTION

At the time of actual conversion two situations arise: i) the company has achieved profitability as envisaged (or even more) at the time of appraisal, or ii) the profitability has not been achieved to the extent envisaged. In the former case, it becomes necessary to compare gains from conversion vis-a-vis the option of keeping loans. In the latter case also it may be profitable to exercise the option depending on the assessment of future profitability of the company. Even if it is not profitable to convert, the conversion option can still be exercised for more effective control on the management and also because of the fact that the company may not be able to generate necessary cash surplus. The decision in these cases is, however, more complex than is the case of profitable companies.

Since the decision on conversion option is to be taken two to three years after the project is implemented, cases that have come up so far have been few. Of the 62 cases that came up till the end of June 1977, conversion option was exercised in 36 cases and waived in 26 cases (Table 4). In a large number of cases, where conversion option was exercised, the actual amount converted was much lower than the amount subject to conversion (because of restriction of 40% of share holdings already held by all the institutions combined).

DECISION CRITERIA USED

Where companies were making losses, mostly the decision was to waive the convertibility option. These were considered obvious cases where no rigorous analysis was needed.

In case of those companies which had achieved profitability (even if it below the envisaged level), net cash flows were compared with two alternatives: 1) convert and 2) do not convert.

In case of alternative 1, net cash flows comprise of a) net income from dividend (net of expenses on borrowing, plus expenses on opportunity cost of net worth and taxes); b) net capital gains (net of taxes); and c) net interest earnings from sale proceeds of shares in the terminal year. In case of alternative 2, net cash flows comprise of a) net income from interest earning on unpaid balance of loans (net of expenses on borrowing plus the opportunity cost of net worth and taxes), and b) net income from interest earned on repaid instalments (net of taxes). Symbolically these cash flows (including their components) can be shown as below:

Alternative 1: Convert specified loan amount into equity.

The present value of cash flow in this case=

$$\sum_{t=1}^n \frac{[\{(ID_t - EB_t) (1-TD) - EN_t\} + \{(IS_n - PS) (1-TG)\} + \{IR_n (1-TC)\}]}{(1+r)^t}$$

where t = period for which the analysis is done (normally considered $t=1, \dots, 5$)

ID_t = dividend income from equity shares in the t th year;

EB_t = expenses on borrowing;

EN_t = opportunity cost of net worth

TD = rate of taxation on dividend

IS_n = gross income from the sale of equity shares in the n th year;

PPS = loan amount used for conversion into equity shares in the first year;

TG = rated of tax on capital gains;

IR_n = interest on reinvestment in n th year

TC = rate of tax on capital gains;

r = discount rate used (current relending rate of the institution)

Alternative 2: Do not convert loan into equity (i.e. take the repayment and interest on loan as envisaged in the loan agreement).
The present value of cash flows in this case =

$$\sum_{t=1}^n \left[\frac{\{(IL_t + IR_n - EB_t)(1-TC)\} - EN_t}{(1+r)^t} \right]$$

Where IL_t = income from interest on unpaid balance from loan amount subject to conversion in the t th year. Other terms are as defined in alternative 1.

The present value of net cash flows alternatives 1 and 2 are compared and the decision to convert or waive is taken based on whichever cash flow is larger. To assess the appropriateness of criterion for decision-making on convertibility option, it is necessary to review the process of quantifying each component of both cash flows. Componentwise details are given below.⁷

Time period for the analysis (t): Although there is no unanimity on the number of years financial institutions should hold the shares acquired after conversion, the analysis was generally carried on for a period of 5 years (i.e. the present value of return from alternatives 1 and 2 are computed for the next 5 years period). Terminal year for the analysis was set accordingly.

Dividend Income from Equity Shares (ID_t): This requires projection of dividends in equity shares for the next 5 years. This is done on the bases of past performance of the company and judgements regarding the future profitability of the industry and the company. After projecting profit after taxes, a reasonable dividend is taken into account and the surplus, if any,

was transferred to reserves in taking projections. A rate of 12 to 15 per cent is considered reasonable returns to shareholders.

Expenses on borrowing (EB_t): This is the current rate of interest at which financial institutions are borrowing funds from the public and other sources. This is treated as constant over the next 5 years period.

Opportunity cost of networth (EN_t): This is the cost of equity (assuming a rate of dividend) to the institution. Since dividends are paid always after tax, this represents net outflow.

Rate of taxation on dividend income (TD): The current rate of taxation on dividend income is generally assumed to be applicable to the next 5 years.

Gross Income from the sale of Equity Shares: Calculations of gross income from sale of shares acquired under convertibility options after 5 years from the time when decision is taken require projection of market prices of shares after next five years in future. This is done by estimating the relationship between the book value and market price in the past. Book values are then projected by addition in the form of profits expected to be transferred to reserves. Market prices are also similarly projected. Since these estimates are prepared for future prices which are uncertain, two or three sets of share prices are assumed. The difference between projected share prices and prices paid under convertibility option represent the amount of capital gain.

Loan amount to be used for conversion into equity shares (PS): This is the amount specified in loan agreements which is subject to the convertibility clause. Financial institutions can convert an amount less than this at their

discretion; such situations arises in profitable companies when institutional holdings in the company after conversion are likely to exceed 40 per cent of the expanded capital. In such cases generally a minimum of 10 per cent of conversion is effected. If alternative 1 is not profitable, the question of conversion does not arise.

Rate of tax on capital gains (TG): This is the current rate of tax on capital gains applicable to financial institutions. Generally the same rate is assumed to be applicable in the next five years for which cash flows are projected.

Interest on reinvestment (IR_n): This is the current lending rate. It is assumed to be same in the n th year when the sale proceeds from shares are to be put to alternate use.

Rate of tax on corporate income (TC): It is the rate of tax on corporate income applicable at the time decision on conversion option is taken. It is assumed to be same for the next five years.

Income from interest on unpaid balance (IL_t): This is calculated on the basis of interest rate specified and repayment terms agreed upon in the loan agreement.

Discount rate used (r): The current lending rate is used as discount rate for making calculations of the present value of cash inflows in the next five years.

It can be seen from the above details of data for each components that cash flow components of alternative 2 are known with certainty (exceptional cases where the company is not in a position to repay the principal and interest, and rescheduling has either been already done or is being contemplated).

In case of alternative 1, two components of cash flow are extremely uncertain: a) dividend on equity shares (ID_t) and b) gross income from the sale of equity shares in n th year (in this case, fifth year). The accuracy of projections of these uncertain variables determines the accuracy of decision on the exercise of convertibility option or its waiver. The procedure currently used for projecting the two uncertain variables is heavily weighted by the performance of the unit in reference in the past years and general conditions of the industry at the time of decision. The projected values based on judgement are treated as treated as determinate for the purpose of analysis. This aspect will be analysed further in subsequent section.

IV ALTERNATIVE DECISION CRITERIA FOR EXERCISING CONVERTIBILITY OPTION

Financial institutions will face much larger number of decisions on convertibility options in the next five years than in previous years even if no more stipulations of convertibility options were to be made in subsequent years. On the basis of loan agreements concluded up to the end of March 1977, the number of companies coming up for the exercise of conversion option has been projected in Table 5. Furthermore, according to current indications, not more than 50% of the companies coming up for decision on conversion option would be profitable at the time the decision has to be made (Table 5). This implies that decision on conversion option will continue to be taken under two types of circumstances: (i) where the company has achieved the envisaged profitability and (ii) where the company has not achieved the envisaged profitability. Of the cases where the decision on convertibility option was taken till March 1977, the picture emerges as follows: of the converted cases

the assumption of profitability assumption seemed to work in 16 out of 26 cases (Table 6). In case of companies where conversion option was taken and profitability assumptions have not materialized, it may actually mean monetary losses to the financial institutions concerned. In case of companies where the option was waived and they have turned out profitable subsequently, it means an opportunity loss (i.e. opportunity of sharing gains has been lost because a wrong decision was taken in the form of waiver). Now that a large number of cases are coming up for decision, it is necessary to examine the adequacy of decision criteria currently used and look for alternative decision criteria which can avoid or minimize monetary losses and opportunity losses respectively.

OBJECTIVES OF THE FINANCIAL INSTITUTIONS

The primary objective of development banks is to provide assistance to industrial enterprises; sharing gains, at best, can be regarded only as a secondary task. If the primary objective is to be met, funds cannot be tied up in holding shares of assisted companies for a long time. In view of this constraint, they are perfectly justified in waiving the option under conversion clause in case of those companies which have not achieved profitability at the time of decision-making. In fact, if these institutions were to convert looking at the expectations of future profitability in case of loss making companies it will amount to a investment decision which was not the intent of Dutt Committee. Besides these, two additional points arise: (i) funds will be locked up for quite a while because of carry over losses, (ii) if the institutions were looking for investment decision, they could have bought shares of loss making companies in most cases at below par value. Therefore,

the financial institutions will be fully justified if they waived the option summarily in case of loss making companies. If these companies subsequently turn out to be profitable, and if there is a possibility of getting higher (higher than the interest rate) and capital gain, the opportunity loss of development banks can be made more than good by investment institution's purchasing shares in the open market. Therefore, the existing decision criteria are adequate for future decision making as well. The institutions can still convert on management grounds but it will be meaningful only if the unit under consideration is out of the line of the profitability of comparable concerns in the industry and there is reason to believe that management intervention may improve the performance.

In case of companies which have attained profitability (whether at envisaged level or more) existing criterion is that if the net present value of returns in alternative 1 is greater than that of alternative 2, the decision is to convert. The way data are computed for comparing alternative 1 with alternative 2 does not, however, recognize risk and uncertainties with respect to rate of dividend and capital gains. Cash flows 1 or 2 are uncertain because (i) dividends rate is uncertain in future years, and (ii) share price is uncertain at the time of disposal in future. One may say that since the company is making profits and share prices are higher than per level, there is no uncertainty. The shares acquired by conversion can be sold at profit. But, in actual practice, even if share prices were above par at the time of conversion, they go down immediately afterwards since conversion is effected by expanding equity base). Thus, the institutions have to hold shares for some time before prices get back to the level which obtained before the conversion. It is in this period that the profitability assumption must hold

good. If share prices do not come up to profitable level in the near future, it may mean monetary loss. This implies that the uncertainty with respect to dividend and share prices during the holding period must be explicitly recognized and incorporated in decision-making.

RISK AND UNCERTAINTY IN CASE OF PROFITABLE COMPANIES

Several methods have been applied to problems having multi-period decisions under uncertainty.⁸ The commonly used methods are: (i) the risk adjusted discount rate method; (ii) certainty equivalent⁹ (CE) of present value method; and (iii) the discounted certainty equivalent method. Although risk adjusted discount rates can transform certain future cash flows into present values, the major difficulty arises in picking a rate that represents the decision-maker's attitude towards risk. The certainty equivalent of present value method is used by practitioners because it is substantially less complex than other approaches. Yet in the context of multi-period decisions under uncertainty, this method makes some very simplifying assumptions. Two of those assumptions are: (i) constant risk aversion on the part of the investor during the period for which cash flows are considered; and (ii) independence of investments (i.e., the decision-maker's computation of the value to him of all assets would be unaffected by changes in his wealth resulting from resolution of other investments).

The discounted certainty equivalent method converts future uncertain cash flows at any point of time into certainty equivalent at the future date and then present values of these certainty equivalents are worked out by discounting these at a riskless rate of interest. The discounted certainty equivalent method differs from the certainty equivalent of present value in

one aspect: while the former method applies the Von Neumann-Morganstern logic in all future decision years, the latter applies the logic only once to present values.

Tennican has compared both the certainty equivalent methods and has come to the conclusion that the discounted certainty equivalent approach for multi-period decision problems is most appropriate.¹⁰ Using the discounted CE approach, we can rewrite net gains from alternative 1 (convert loan into equity) in the previous chapter as follows:

$$\sum_{t=1}^n \frac{CE \left[\left\{ (ID_t - EB_t) (1-TD) - EN_t \right\} + \left\{ (IS_n - P_s) (1-TG) \right\} + \left\{ IR_n (1-TC) \right\} \right]}{(1+r)^t}$$

Where all terms are as defined in the previous chapter except the certainty equivalent (CE). We have to find the CE of the numerator each year ($t=1, \dots, n$) and discount it by $(1+r)^t$ which has no uncertainty. In the numerator, finding the CE will imply the calculation of CE only of dividend (ID_t) and sale price of shares (IS_n) since other terms do not have any uncertainty attached (i.e. their values are known with probability 1). Thus, the question is how to find the certainty equivalent of dividends (ID_t) and share prices at the time of disposal (IS_t)

The certainty equivalent is an amount which a person is willing to pay for an uncertain investment with chances that he will receive nothing or a much higher amount. The certainty equivalent will differ from person to person depending on his attitude to risk, which, in turn, is affected by his wealth position. It is possible to compute certainty equivalent by following five simple axioms given by Von Neumann and Morganstern.¹¹ But the certainty equivalent will still differ from person to person. It has been

found, however, that in average business situations the certainty equivalent is equal to the expected monetary value.¹² In case of the decision of institutions on each conversion option, wealth and attitudes towards risk can be considered stable. Thus, each decision can be regarded as the average business situation and in this situation expected monetary values can be taken as certainty equivalent.

The question arises as to how to find expected monetary values of dividend (ID_t) and market prices of shares at the time of final disposal (IS_n). Currently, the institutions are making judgements on the values of these variables directly. For finding expected monetary values, two types of data will be required: for determining the range of values of the variable and calculating probabilities attached to each value. In other words, we require the probability distribution of these variables. This requires recourse to past data, which can be acquired by making judgements about (i) comparable companies (because the company for whom the decision is being made only has three or four years of working results unless, it is an ongoing company and has not undergone major expansion and diversification), and (ii) identifying relevant years for which the data will be meaningful. It is not difficult for the financial institutions to make this judgement because they continuously carry on industry studies and monitor data from previously assisted companies.¹³ Once a judgement has been made regarding relevant comparable companies and relevant years, the past data of dividends and share prices can be used (see illustrative case in subsequent section) to arrive at a probability distribution for dividends (ID_t) and sale prices of shares (IS_n) and this is to be used in computing the expected monetary value of these variables. If the number of comparable companies and data

relating to them for relevant years is not very large complete distribution can be enumerated. If the observations are large, one can approximate the distribution by normal distribution.¹⁴ The frequency distribution do not have to be necessarily constructed from the past data. Frequency distribution can be subjective (judgement based)¹⁵ when required amount of past data from the company under reference and other comparable companies are not available. •

ILLUSTRATIVE CASE

The above mentioned discounted certainty equivalent of dividends (ID_t) and market prices of shares (IS_n) can be illustrated by reworking cash flows of Bhavanipur Paper Products Ltd. (BPPL) (see Appendix for details).¹⁶

The judgements of present researchers and the financial institutions were pooled to identify three companies comparable to BPPL. These are mentioned as companies 'A', 'B', and 'C'.¹⁷ It was further decided that data of five years immediately preceding the year of decision (the decision was in 1976) would be relevant therefore, the data of dividends (in % terms) and share prices was collected (see Table 7).

Based on data in Table 7, probability distributions of dividends paid by the company and other comparable companies were worked out as in Table 8. The probabilities in Table 8 were calculated by frequency approach (observed frequency/total frequencies in col.2). The probabilities were multiplied by the rate of dividends paid by BPPL and other companies (in % terms) and the values put in the fourth column. The sum of all values in column 4 gives the expected monetary value which comes to about 10%.

Similarly, data in Table 7 were used to get the probability distribution of percentage changes in market price of shares of BPPL and other comparable companies (see Table 9). First of all, high and low values of share prices of BPPL and other comparable companies were converted into percentage changes from the par value. These were then put in ascending order along with frequencies of these percentage changes (increase or decrease). The observed frequencies against each percentage change were divided by the total frequencies to arrive at probabilities in col. 3. The probabilities were multiplied with percentage changes and summed up (col. 4) to get the expected monetary value. The expected monetary value of percentage changes in share prices worked out to be 53.7, implying the price of Rs. 15.37 for a share of par value Rs. 10.

The expected monetary values of dividends and market prices of shares were used to rework the net cash flow and present value (see Table 10). Except for changes in dividend and capital gain, other figures were worked out based on assumption given in case study (see Appendix). Since the probability distribution of the rate of dividends in the next four years were assumed to be same, the expected monetary values were also kept same. The discounted certainty equivalent worked out to be Rs. 5,93,700 (Table 10) which is nearly half of amount worked out in Exhibit 3 of case study in the Appendix 1. Since the pay-off from alternative 1 is still higher than that from alternative 2 (see Exhibit 3, case study in Appendix), the decision still is to convert. However, the illustration brings out the fact that under discounted certainty equivalent analyses which explicitly incorporate uncertainty, present values have been drastically different that when

judgement was directly exercised with respect to the rate of dividend and market prices of shares.

To apply the discounted CE method to a larger number of forthcoming decisions (in cases of profitable companies) it is necessary to collect input of forming judgements with respect to (i) somewhat comparable companies, and (ii) relevant years for the past data. Once this is done, risk and uncertainty can be explicitly incorporated into the analysis, providing a better base for decision-making on convertibility options.

SOME RULES OF THUMB

The above discussion can be summarized into some rules of thumb which can in fact minimize elaborate calculations involved in present value of cash flows as well as discounted CE of cash flows for comparison purposes (comparison between alternatives 1 and 2).¹⁸ These rules of thumb are as follows:¹⁹

- (A) In case of companies which are not profitable or marginally profitable at the time of decision, check the following two conditions:

$$(1-TD) ID_t \leq (1-TC) IR_t$$

and

$$IS_n < PS$$

Where all terms are as defined in section III, except IR_t which is interest earnings from existing loans in t th year. If the conditions are met, the decision is waive the option.²⁰

- (B) In case of companies which are reasonably profitable, check, if:

$$(1-TD) CE \quad ID_t \geq (1-TC) IR_t$$

and

$$CE \quad IS_n > PS$$

Where all terms are as defined in section III. If the conditions are met, the decision is to convert.²¹

- (C) In case of companies which are profitable but when both conditions do not have similar signs, i.e.

$$\begin{array}{ccc} (1-TD) CE ID_t < (1-TC) IR_t & & (1-TD) CE ID_t > (1-TC) IR_t \\ \text{and} & \text{or} & \text{and} \\ CE IS_n > PS & & CE IS_n < PS \end{array}$$

It is necessary to do the full calculation (like those in Table 8) and check if:

$$\sum_{t=1}^n \frac{CE \left[\left\{ (ID_t - EB_t) (1-TD) \right\} - EN_t \right]}{(1+r)^t} \lessgtr \frac{CE \left[\left\{ (IS_n - PS) (1+TG) \right\} + \left\{ IR_n (1+TC) \right\} \right]}{(1+r)^t}$$

If the left hand side is greater than the right hand side, the decision is to convert and vice versa. If the decision is to convert, the actual amount of conversion (within the upper limit of total amount subject to conversion given in the loan agreement) would, of course, depend on the percentage of shares already held by all institutions together as discussed in Section 3. In case of profitable companies, investment institutions already have substantial amount of shareholdings. This fact again indicates that the amount of loan actually converted (out of the amount subject to conversion) will be much smaller.

V OTHER PROBLEMS AND EXPERIENCES

Stipulation and exercise of convertibility clause has posed several problems. Some of these are summarized below.²²

Delay in disbursement of loan assistance:

The introduction of convertibility clause has been one of the major contributory factors towards the time lag between the sanctioning of assistance and its disbursement. Before a company can use the loan with convertibility option, it has to obtain the consent of shareholders in a general body meeting and obtain the consent of shareholders in a general body meeting and obtain the approval of the Company Law Board. This is a time consuming process. However, with the framing of rules called "Public Companies (Terms of issue of Debentures and of raising of loans with option to convert such debentures or loans into shares) Rule 1977" which were published in Gazettee of India dated May 7, 1977 compliance with the cumbersome and time consuming procedures have been disposed with except in the cases where such conversion is to be exercised at a premium of more than 25%.

Concerns which attract convertibility clause:

A large number of companies for whom convertibility option has been stipulated belong to the less than Rs. 50 lakh category. Although companies requiring assistance between Rs. 25 and 50 lakh were within discretionary limits, financial institutions have introduced the clause for almost all. This has created an anomaly in the sense that IDBI normally allows companies to avail of indirect assistance up to Rs. 90 lakh and the conversion clause is not applicable to this assistance.

Moreover, the existing mandatory and discretionary limits (fixed according to 1971 guidelines) have become unrealistic in the context of present day price levels and project costs. Financial institutions would like to waive

the stipulation of convertibility options in the following cases: (i) assistance for modernization or replacement programme, (ii) assistance for meeting cost overruns; and (iii) rehabilitation of weak projects. But in case the aggregate assistance exceeds Rs. 50 lakh waiver of the convertibility stipulation involves lengthy correspondence with the government.

Joint Sector Projects:

Since the idea of joint sector has gained acceptance, many joint sector and government companies are coming up to the all-India institutions for financing. This has eroded the justification of introducing convertibility clause on mandatory basis.

Determination of Fair Price of Shares:

It has been indicated in previous section that the financial institutions have been conservative in allowing premium on shares of existing profit making companies to be acquired under conversion clause with a rationale of course. The rationale behind this view is that gains should accrue to the financial institutions also. This has, however, created a conflict of interest of LIC, UTI and GIC as investors and other development institutions in setting the terms of conversion option.

Constraint on Conversion:

In case of assisted companies which are not doing well, the companies are keen that financial institutions should exercise their option because it improves their profitability.²³ However, in these cases it is not in the interest of institutions to convert. In case of loss making companies, in financial institutions convert loans into equity, they have to move from

the position of creditors to the less preferred position of shareholders with no returns. In case of profitable companies, the exercise of conversion option creates a different kind of problem. Since these companies are profitable, institutional investments like UTI, LIC, and GIC also own large amount of equity in these companies. Consequently, institutional holdings in these cases often exceed 40% of the total, limiting the quantum of actual conversion to a minimum of 10 per cent.

Average yield of Equities, Share prices vis-a-vis Lending Rates:

One of the objectives of the Dutt Committee in suggesting the convertibility option was to share profits of the enterprise. In this connection, it is to be noted that average yields for equities was more or less at the same level in 1975-76 as in 1970-71, while lending rates of all-India financing institutions have meanwhile been raised from 8.5 per cent in 1970-71 to 11.25 per cent in 1975-76. Similarly the index of equity prices for the Bombay Stock Exchange (1970-71=100) shows a slight decline (Table 11). This indicates that alternative 1 in fact does not turn out to be more profitable than alternative 2 in actual practice on an average.

VI CONCLUDING OBSERVATIONS AND
POLICY ISSUES

On the basis of findings and discussions, the following recommendations can be made.

1. The mandatory limit for inserting the convertibility clause needs to be raised to atleast Rs. 75 lakh. A few financial institutions even wanted the mandatory limit to be fixed at Rs. 1 crore.

2. The stipulation of convertibility option needs to be exempted in the following cases: assistance for modernization and replacement programme

assistance for meeting cost over runs, and rehabilitation of weak projects.

3. To avoid delay in disbursement of sanctioned assistance because of required formalities, provision should be made for interim withdrawals pending the completion of requirements. Already IDBI is allowing the withdrawal of a part of sanctioned assistance even before the formalities are completed. Other all-India financial institutions should also permit such facilities.

4. Starting with the framework of primary objective of financial institutions, the existing criteria for arriving at a decision on convertibility option in case of loss making companies also suffice for forthcoming cases. In fact, in these cases, if the financial institutions were to convert loan equity looking at future profitability, it will amount to an investment decision which was not the intention of the Dutt Committee. Moreover, if the investment decision was to be made, these institutions could have purchased shares in the open market in most cases much below the par value. The opportunity loss (arising from the fact that the company has turned out to be profitable after the option was waived), if any, can still be made up by subsequent gains in investment institutions.

5. In case of profit making companies, evidence indicates the possibility of even monetary losses in some cases because profitability assumptions have not materialized after conversion and share prices have not come up to the assumed level. Now that a much larger number of cases are coming up for decision than in the past, it is necessary that chances of such wrong decisions are minimized. We have proposed and illustrated the use of discounted certainty equivalent method for arriving at the comparable cash flows in this study. The method explicitly incorporates risk and uncertainty in the future stream

of cash flows. Application of this method in practice means the use of expected monetary values of dividends and capital gain (under certain assumptions) in arriving at the certainty equivalent of cash flows for discounting purposes. The method followed in the illustrative case to arrive at probability distributions of dividends and capital gain also has the advantage of reducing weightage of the performance of unit in the years immediately preceding the time of decision. However, several other alternatives for arriving at the required probability distributions of dividend and capital gain need to be explored.

6. If the discounted certainty equivalent method is to be used for decision-making on convertibility options, the financial institutions will have to collect data on units comparable to the case under decision and sharpen the judgement relating to relevant years for which past data will be appropriate. This implies that, instead of directly making judgements on future values of dividend and capital gain, the financial institutions will have to strengthen the inputs for making judgement on the process which generates the probability distributions of dividend and market prices of shares (and thereby capital gains)

The above mentioned recommendations can help get over the operational difficulties in stipulating and exercising the convertibility option; they can also improve the gains to the financial institutions by minimizing the possibility of wrong decisions. Gains from convertibility options will, however, be limited because a large number of assisted companies which will be coming up for convertibility decision are not expected to achieve profitability or achieve profitability which is not attractive vis-a-vis lending rates. Even in case of those companies which turn out to be profitable

another constraining factor would be the large amount of holdings of investment institutions (which will continue to invest in profitable companies).

This will restrict the actual amount of conversion within the total amount subject to conversion. This raises the following policy issues:

1. How far the stipulation and exercise of convertibility clause has helped in bringing about the idea of joint sector in practice?
2. If the convertibility clause has not served the objective of bringing about the joint sector concept, should it be continued as a ritual as seems to be the case.
3. How far the limited gains from convertibility options are real, and not merely a transfer of gains from investment institutions to development institutions?
4. The development banks have to assume development as well as commercial roles in exercising the convertibility clause. How far these two roles are compatible?
5. Has the convertibility option deterred several companies from seeking assistance from the all-India term lending institutions?
An example of this is found in case of soft-loan scheme. While the scheme did not pick up between 1976 and early 1978, it has started picking up only after the convertibility clause was dropped.

Table 1: Distribution of cases with convertibility clause stipulated according to magnitude of assistance (year wise all-India institutions combined)

Years (April- March)	Total number of cases classified according to loan amount			Total No. of cases *
	Up to Rs. 25 lakh	Rs. 25.01 to 50.00 lakh	Above Rs. 50 lakh	
1970-71	5 (13.52)	16 (43.24)	16 (43.24)	37
1971-72	11 (18.04)	24 (39.34)	25 (42.62)	61
1972-73	20 (19.80)	23 (22.77)	58 (57.43)	101
1973-74	21 (21.00)	28 (28.00)	51 (51.00)	100
1974-75	17 (21.52)	24 (30.38)	38 (48.10)	79
1975-76	26 (23.42)	24 (21.62)	61 (54.96)	111
1976-77	27 (16.46)	29 (17.68)	108 (65.86)	164
Entire Period	127 (19.45)	168 (25.72)	358 (54.83)	663

* Some companies had taken several loan in different years. Each loan treated as separate case in this table.

Figures in parenthesis denote the percentage of number in respective column to total number of cases.

Source: Records of industrial development bank of India

Table 2: Distribution of amount subject to conversion with respect to total assistance for by cases with stipulation of convertibility clause and total assistance by all-India term lending institutions

	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77
TOTAL FOR ALL CATEGORIES							
i) Total assistance sanctioned by all India term lending institutions (Rs. in lakh)	6084.00	12754.00	13603.00	13971.00	11239.00	18830.00	25647.00
ii) Total assistance accounted for by cases with stipulation of convertibility clause (Rs. in lakh)	5469.14	7661.79	11082.76	13372.06	9564.54	16565.47	23311.11
iii) Total amount subject to conversion (Rs. in lakh)	1010.43	1204.52	2038.86	2094.71	1683.65	2436.09	3307.95
iv) Percentage of (ii) to (i)	89.89	60.07	81.47	95.71	85.10	87.97	90.89
v) Percentage (iii) to (ii)	18.47	15.72	18.40	15.66	17.60	14.71	14.19
Percentage of amount subject to conversion to the assistance sanctioned categorywise							
A. Up to 25.00 lakh	83.10	20.77	13.82	16.23	14.02	12.68	13.89
B. Up to 25.01 to 50.00 lakh	20.03	14.60	19.04	14.84	13.07	17.08	10.80
C. Above 50.00 lakh	17.34	15.72	16.50	15.72	18.17	14.61	14.37

The assistance sanctioned relates only to those companies where the clause was stipulated.

Source: Compiled from records of Industrial Development Bank of India.

Table 3: Terms of conversion option.

Years (April- March)	Total number of cases classified according to terms of conversion (rate)			Total no. of cases*
	At par	With Premium	Terms not specified/ available	
1970-71	23 (62.16)	11 (29.73)	3 (8.11)	37
1971-72	45 (73.77)	3 (4.92)	13 (21.31)	61
1972-73	71 (70.30)	21 (20.79)	9 (8.9)	101
1973-74	74 (74.00)	8 (8.00)	18 (18.00)	100
1974-75	58 (73.42)	6 (7.59)	15 (18.99)	79
1975-76	84 (75.68)	10 (9.01)	17 (15.31)	111
1976-77	118 (71.95)	9 (5.49)	37 (22.56)	164
Entire Period	473 (72.43)	68 (10.42)	112 (17.15)	663

*Some companies had taken several loan in different years. Each loan treated as separate case in this table.

Figures in paranthesis denote the percentage of number in respective column to total number of cases.

Source: Records of Industrial Development Bank of India,

Table 4: Distribution of companies where the decision on convertibility option has been taken (category upto June 1977)

Categories	Total no. of companies	Converted	Waived
Up to Rs. 25 lakh	10	6 (60.00)	4 (40.00)
Between Rs. 25 and 50 lakh	23	15 (65.22)	8 (34.78)
Above Rs. 50 lakh	29	15 (51.72)	14 (48.28)
Total	62	36 (58.06)	26 (41.94)

Figures in parantheses denote percentages to total in column 2.

Table 5: Profitability of companies coming up for the exercise of convertibility option and amount involved in next five years *

Years (April- March)	Making Profit	Making Loss	Incep- tion stage	Total	Amount involved in con- version according to loan ** agreement (Rs. in lakh)	Aggregate assistance sanctioned to companies (Rs.in lakh)	Percentage of col.6 to col.7
1977-78	43 (48.86)	35 (39.77)	10 (11.37)	88	1943.75	12083.00	16.09
1978-79	32 (40.00)	34 (42.50)	14 (17.50)	80	1705.79	8989.47	18.98
1979-80	21 (31.82)	18 (27.28)	27 (40.90)	66	2012.09	11347.46	17.73
1980-81	24 (34.78)	9 (13.04)	36 (52.18)	69	1974.30	10372.50	19.03
1981-82	8 (19.51)	4 (9.76)	29 (70.73)	41	1220.95	6437.99	18.96
Total				344	8856.88	49230.42	17.99

* Profitability of the companies coming up for the exercise of convertibility option is based on the latest available balance sheet, profit and loss account.

** The projected number of companies in the table is based on the data for companies for which the conversion clause was already stipulated by the Quarter ending March 1977. For the purpose of yearwise classification, we took the first year when the option will become open. In practice however, the option will in most cases will remain open for two years and years will spill over beyond financial year.

Figures in paranthesis denote percentage of each figure in raw to raw totals.

Table 6: Profitabilities of companies with convertibility option exercised

	Converted cases where the assumptions		Waived cases where the assumptions	
	worked*	did not work	worked*	did not work
Up to 25.00 lakh	6 (18.18)	-	2 (12.5)	2 (20.0)
Between 25.01 and 50.00 lakh	13 (39.39)	2 (66.66)	6 (37.5)	2 (20.0)
Above 50.00 lakh	14 (42.43)	1 (33.34)	8 (50.0)	6 (60.0)
Total	33	3	16	10

* According to the latest available balance sheets. Figures in parentheses indicate percentage of categorywise number to col. total.

Table 7: Market Price of Shares and Gross Dividends paid (in percentage terms) of Brahanipur Paper Products Limited and other comparable companies

D	Share prices Brahanipur Paper Products Limited		D	Share prices Company 'A'		D	Share prices Company 'B'		D	Share prices Company 'C'	
	High	Low		High	Low		High	Low		High	Low
1971 4	9.19 (-8.1)	6.53 (-34.7)	13	252 (152)	191 (91)	-	150 (50)	117.5 (17.5)	8	14.72 (47.2)	10.92 (9.2)
1972 7	8.75 (-12.5)	5.81 (-41.9)	13	223 (123)	181 (81)	10	152 (52)	131 (31)	10	12.80 (28)	10.36 (3.6)
1973 4	9.62 (-3.8)	6.31 (-36.9)	13	207 (107)	181 (81)	10	169 (69)	132 (32)	10	11.60 (16)	8.60 (-14)
1974 7	12.37 (23.7)	6.00 (-40)	12	310 (210)	158 (58)	12	255 (155)	138 (38)	8.5	26.85 (168.5)	11.24 (12.4)
1975 12	15.67 (56.7)	10.19 (1.9)	14	289.5 (189.5)	160 (60)	12	235 (135)	146 (46)	10	24.75 (147.5)	14.75 (47.5)

D - Rate of dividend paid

Figures in parantheses indicate percentage increase or decrease in market price over the par value of the share.

Table 8: Probability Distribution of Dividend paid by BPPL and other comparable companies

Rate of dividend paid by BPPL and other comparable companies (Percentage term)	Observed frequency of the rate of dividend *	Probability of various dividend rates (Percentage)	4 = col (1) x col (3)
4	2	.1052	0.4208
7	2	.1052	0.7364
8	1	.0527	0.4216
8.5	1	.0527	0.4480
10	5	.2631	2.6310
12	4	.2105	2.5260
13	3	.1579	2,0527
14	1	.0527	0.7378
		Expected monetary value of dividend (Percentage)	9.9743

Based on data in Table 7.

Table 9: Probability Distribution of Percentage Changes in Market Price of Shares of BPPL and other comparable companies

Percentage changes in market price of shares of BPPL and other comparable companies *	Frequency *	Probabilities	col (1) x col (3)
-41.9	1	.025	-1.0475
-40.1	1	.025	-1.0
-36.9	1	.025	-0.9225
-34.7	1	.025	-0.8675
-14.0	1	.025	-0.3500
-12.5	1	.025	-0.3125
-8.1	1	.025	-0.2025
-3.8	1	.025	-0.0950
1.9	1	.025	0.0475
3.6	1	.025	0.0900
9.2	1	.025	0.2300
12.4	1	.025	0.3100
16.0	1	.025	0.4000
17.5	1	.025	0.4375
23.7	1	.025	0.5925
28	1	.025	0.7000
31	1	.025	0.7750
32	1	.025	0.8000
38	1	.025	0.9500
46	1	.025	1.15

Table 9: (Continued)

Percentage changes in market price of shares of BPPL and other comparable companies *	Frequency distribution *	Probabilities	col (1) x col (3)
47.2	1	.025	1.18
47.5	1	.025	1.1875
50	1	.025	1.25
52	1	.025	1.3
56.7	1	.025	1.4175
58	1	.025	1.45
60	1	.025	1.5
69	1	.025	1.725
81	2	.05	4.05
91	1	.025	2.275
107	1	.025	2.675
123	1	.025	3.075
135	1	.025	3.375
147.5	1	.025	3.6875
152	1	.025	3.8
155	1	.025	3.875
168.5	1	.025	4.2125
189.5	1	.025	4.7375
210	1	.025	5.25
Expected monetary value percentage increase in share price			53.7075

* The range of percentage changes in market price of shares from their per value and their frequency include both high and low values given in Table 7.

Table 10: Present value of income with conversion of Rs. 20 lakh in 1976-77 (Revised by taking expected values of dividends and market price of shares at the time of disposal)

	Income	Expenses	Net in- flow 3=1-2	Tax on income	Tax savings on expenses	Tax payments (4-5)	Net in- flow 7=3-6	PV factor (%)	PV net inflow
1976-77	177170 I	137720	39450	91685	60548	31137	8313	.900	7623
1977-78	-	137720	(137720)	-	60548	60548	(71172)	.842	(64979)
1978-79	200000 D	137720	62280	46000	60548	(14548)	76828	.772	59311.22
1979-80	200000 D	137720	62280	46000	60548	(14548)	76828	.708	54394.22
1980-81	200000 D	137720	62280	46000	60548	(14548)	76828	.650	49938.2
1981-82	200000 D	137720	62280	46000	60548	(14548)	76828	.596	45789.48
1982-83	330000 IR 1000000 CG	137720	192280	170775	60548	110227	82053	.547	44883
			1000000	350000		350000	650000		355550
1983-84	330000 IR	137720	192280	170775	60548	110227	82053	.502	41190.6
									593700.72

D = Dividend income

CG = Capital gain at Rs. 10 per share on 200000 shares.

I = Interest at 8.5% rate on rupee loan and 9% on foreign currency loan.

IR = Interest on reinvestment at 11%.

() = Figures in the brackets are negatives values.

Table 11: Lending rates average yield on equities, and index of equity prices

Years	Lending rates of the term lending institu- tions	Average yield for equities in percentage term	Index of equity prices (1970-71=100)
1970-71	8.5	5.6	100.0
1971-72	9.0	6.7	94.9
1972-73	9.5	6.9	97.8
1973-74	9.5	6.9	121.8
1974-75	10.0	5.4	112.5
1975-76	11.25	5.5	95.7

Source: Report on currency and Finance, Reserve Bank of India, Bombay, 1977.

APPENDIX: EXTRACT FROM CASE STUDY*

BHAVANIPUR PAPER PRODUCTS LIMITED**

Bhavanipur Paper Products Limited was one of the oldest paper manufacturing unit in the country. Looking at the adequate demand of paper it decided to diversify its production. In order to enable the company to do so the 'BPPL' (Bhavanipur Paper Products Limited) applied for the loan assistance from ICICI, IDBI and IFCI. After considering the projected profitability and other requirements ICICI sanctioned in to 1971 a foreign currency loan of 377,000 (about Rs. 71.7 lakh) and a rupee loan of 26.3 lakh totalling to Rs. 100 lakh. IDBI and IFCI also sanctioned an amount of Rs. 380 lakh and Rs. 50 lakh respectively.

ICICI had an option to convert 20 percent of the loan which unless exercised would expire on March 31, 1977. Other institutions which had sanctioned Rs. 430 lacs to BPPL (IDBI - Rs. 380 lacs, IFCI Rs. 50 lacs) had similar conversion rights. If all the institutions including ICICI exercised their right of conversion they acquire Rs. 106 lakh worth 'A' ordinary shares increasing the company's total 'A' ordinary shares from Rs. 364 lakh to Rs. 470 lakh.

Of the current 'A' ordinary shares of Rs. 304 lakh, LIC, UTI, and GIC held shares worth Rs. 151.8 lakh (41.7 percent). After exercising the option, the combined institutional holdings of nationalised banks were considered as institutional holdings, the total holdings of the institutions after conversion would be 58 percent.

* For detailed presentation and more case studies see "Uma Kant Srivastava and Nikhil M. Oza, Stipulation and Exercise of Convertibility Options by Financial Institutions: Analysis and Case Studies (mimeographed) Indian Institute of Management, Ahmedabad, 1978.

** The real name has been disguised to protect the identity of the company.

Looking at the operating results, ICICI made the following assumptions to arrive at a decision:

ASSUMPTIONS

- i) Terminal period was assumed to be March 1981 according to past practice of holding shares for not less than 5 years.
- ii) Opportunity investment rate was assumed to be 9 per cent being the likely return on rupee funds in the next five to seven years.
- iii) Interests on foreign currency loan of Rs. 71.7 lakh and the rupee loan of Rs. 28.3 lakh were calculated at 9.0 per cent and 8.5 per cent respectively, being the lending rates on loans. Interest on reinvestment would be calculated at 11 per cent.
- iv) On the basis of trends of BPPL's market price of shares (Exhibit 1) expected dividends were assumed as below:

1975-76	12 per cent
1976-77	12 per cent
1977-78	15 per cent
1978-79	15 per cent
1979-80	15 per cent
1980-81	15 per cent
- v) It was assumed that the dividend for the current year would be received in the subsequent year, while interest was paid in the year of accrual.
- vi) It was assumed that at the time of sale of shares ICICI would receive Rs. 20 per share (net brokerage); the market quotation of Rs. 10 and book value of Rs. 20 were expected to appreciate considerably by 1980-81 (for past data on book value and market value of shares, see Exhibit 1)
- vii) The capital gain of Rs. 10 per share (Rs. 20 less the acquisition price of Rs. 10) was taken on 200,000 shares, as income in the beginning of 1981-82.
- viii) Sale proceeds (net of capital gain tax) were assumed to be reinvested at 11 per cent up to the terminal date.

- ix) It was assumed that ICICI's capital structure would be 1:9. The cost was 11 per cent and with the assumption of ploughback ratio at p.5, the dividend as percentage to book value would be 5 per cent. As dividend payment was always taken after tax, it was grossed at the corporate tax level of 51.75 per cent. In short, the cost of equity was taken at 10.36 per cent (at actual tax rate of 51.75 per cent).
- x) To show the effect of tax savings, calculation regarding tax on income and tax saving on tax deductible expenses were worked out separately.

The rate of corporate tax on business income was taken at 51.75 per cent, on dividend at 23 per cent, and on capital gains at 35 per cent. This tax structure was assumed to remain same for next seven years. Hence tax saving available on expenses of interest on borrowing was Rs. 1,17,000 and on this amount the saving worked out to be Rs. 60,548 (51.75 per cent of the cost).

From the cash flow analysis (see Exhibit 2 and 3) it was observed that, by exercising the option, the total net inflow up to March 1984 would work out to Rs. 11.76 lakh (Rs. 4.65 lakh if no capital gain was assumed) as against Rs. 1.17 lakh during the same period if the option was not exercised. It was further felt that after the completion of the modernization cum expansion scheme, the company would be making more profit.

Considering all these facts it was decided to exercise the conversion option by converting 200,000 ordinary shares of Rs. 10 each at par during the period April 1, 1975 to March 31, 1977.

Exhibit 1

EQUITY SHARE DATA OF THE BPPL

	Dividend	Dividend	Earnings	Book Value	Market Price	
	Gross	Gross	per share	per share	High	Low
	Rs.	%	Rs.	Rs.		
1968	-	-	1.12	12.23	8.12	4.19
1969	-	-	0.33	12.55	8.00	4.19
1970	0.25	2.50	0.45	12.74	10.00	7.19
1971	0.40	4.00	0.48	12.83	9.19	6.53
1972	0.70	7.00	2.09	14.22	8.75	5.81
1973	0.40	4.00	1.66	15.49	9.62	6.31
1974	0.70	7.00	1.84	16.27	12.37	6.00
1975	1.20	12.00	4.08	20.61	15.67	10.19
1976	1.20	12.00	4.08	23.27	13.25	8.31
1977 [*]	0.80	8.00	1.48	22.99	9.62	7.06

* Data refers to post decision year.

Exhibit 2

PRESENT VALUE OF NET INCOME WITH NO CONVERSION

Years	Income	Expenses	Net Income	Tax on Income	Tax saving on expenses	Tax payment	Net inflow	P.V. factor at 9%	P.V. of net inflow (7 x 8)
1	2	3 (1-2)	4	5	6 (4-5)	7 (3-6)	8	9	
1976-77	I 181453	I 137720	43733	93902	60548	33354	10379	.917	9518
1977-78	I 190019	I 137720	52299	98335	60548	37787	14512	.842	19219
1978-79	I 198585	I 137720	60865	102768	60548	42220	18645	.772	14394
1979-80	I 207151	I 137720	69431	107201	60548	46653	22778	.708	16127
1980-81	I 215717	I 137720	77997	111634	60548	51086	26911	.650	17492
1981-82	I 220000	I 137720	82280	113850	60548	53302	28978	.596	17271
1982-83	IR 220000	IR 137720	82280	113850	60548	53302	28978	.547	15051
1983-84	IR 220000	IR 137720	82280	113850	60548	53302	28978	.502	14547
									<u>117419</u>

I - Interest at 9% on F/E and 8.5% on R/L.
 IR - Interest on reinvestment at 11%.

Exhibit 3

PRESENT VALUE OF INCOME WITH CONVERSION OF RS. 20 LAKHS
IN 1976-77

Years April- March	Income	Expenses	Net Income	Tax on Income	Tax saving on expenses	Tax payment	Net Inflow	P.V. factor at 9%	P.V. of net inflow
1	2	3	4	5	6	7	8	9	
		(1-2)	(3-4)	(4-5)	(3-6)			(7 x 8)	
1976-77	177170	I 137720	39450	91685	60540	31137	8313	.917	7623
1977-78	-	137720	(137720)	-	60548	(60540)	(77172)	.842	(64979)
1978-79	300000	D 137720	162280	60000	60540	8452	153828	.772	118755
1979-80	300000	D 137720	162280	69000	60548	8452	153828	.708	108910
1980-81	300000	D 137720	162280	69000	60540	8452	153828	.650	99988
1981-82	300000	D 137720	162280	69000	60540	8452	153828	.596	91681
1982-83	363000	IR 137720	225280	187853	-	127305	97975	.547	53592
	2000000	CG	2000000	700000		700000	1300000		711100
1983-84	363000	IR 137720	225280	187853	60543	127305	97975	.502	49103
									<u>1175853</u>

- D - Dividend income.
- CG - Capital gain at Rs. 10 per share on 200000 shares.
- I - Interest at 0.5% rate on rupee loan and 9% on foreign currency loan.
- IR - Interest on reinvestment at 11%.

FOOTNOTES

¹ See, Government of India (Department of Industrial Development, Ministry of Industrial Development, Internal Trade and company Affairs), Department of the Industrial Licensing Policy Enquiry Committee (Delhi: Manager of Publications, 1959), pp. 106-107; for further classification on the implications of convertibility clause, also see Chari, V.V. "Conversion of Loans and Participation in Management" Reserve Bank of India, Bulletin, January 1971, pp.62-64; Mani, R.H.S. "Beneficiaries under Convertibility Options of Financial Institutions", The Chartered Accountant, 23(10), April 1975, pp. 481-484; and Nigam R.K., "Convertibility Guidelines, Impact of Operation", Economic Times April 17, 1974.

² This part of the sections is based on the minutes of several inter-institutional meetings.

³ Normally companies requiring Rs. 30 lakh in the form of rupee loan go to state level term lending institutions. It is only when rupee loans less than Rs. 30 lakh are required along with foreign exchange loans or when additional loans are required to meet cost overruns and rehabilitation needs that all-India term lending institutions get involved.

⁴ In arriving at the direct loan sanctioned, assistance provided to underwriting and direct subscriptions, refinance, redicounting of bills and subscription to shares/bonds of other institutions by the Industrial Development Bank of India were excluded from total amount sanctioned.

⁵ If fair price for shares is to be worked out on the basis of projected value at the time of conversion, the profit element would automatically get discounted and this would defeat the objective of gain sharing set out by the Dutt Committee.

⁶ In taking the average due adjustments were made in cases where a high quotation was cum dividend bonus rights shares.

⁷ The discussion on data collection process and numbers are based on ICICI analysis, The numbers differ from institution. For example the cost of funds is different for ICICI, IDBI, IFCI, UTI and LIC

⁸ See, Tennican, Michael L. Convertibility Debentures and related Securities, (Boston: Division of Research - Graduate School of Business Administration, 1975), pp. 136-173.

⁹ The certainty equivalent is that amount which an investor would be willing to pay for an uncertain investment whose outcome would be known in future after the investment is made. For example, consider an investment where it is equally likely that pay off may be Rs. 10000 or nothing. If the investor is willing to pay Rs. 3000 for this investment this amount is considered to be his certainty equivalent.

- 10 Tennican, Michael L. Convertible Debentures and Related Securities, op.cit pp. 166-173
- 11 Von Neumann, John and Morganstern, Oskar Theory of Games and Economic Behaviour (Princeton: Princeton University Press, 1947)
- 12 Schlaiffer, Robert O. Introduction to Statistics for Business Decisions (New York: McGraw-Hill, 1961), pp. 28-29
- 13 Management of Development Banks, Proceedings of a Seminar (New Delhi: Management Development Institute), 1975
- 14 Reutlinger, Sholmo, Technique for Project Appraisal Under Uncertainty World Bank Staff Occasional Paper No. 10 (Baltimore, Johns Hopkins Press, pp. 18-24
- 15 There is a systematic way to arrive at judgemental probabilities. See Raifa, Howard, Decision Analysis: Introductory Lectures on Choices under Uncertainty (Massachusetts: Addison Wesley, 1968), pp. 161-168.
- 16 In this case, the company was profitable at the time of conversion decision but the profitability and share prices have been very low after the conversion. Thus, the projected gains have not materialized.
- 17 Actual names of all companies have been disguised to protect identities.
- 18 The rules of thumb are such that even if we go through elaborate calculations of cash flows, the decision would be the same.
- 19 The cases included in A and B will mostly exhaust most of the companies because of the 'Short Sighted Character' of stock market in India. If the dividend rate is reasonable, share price is also high and vice-versa. See, Prasanna, Chandra, Valuation of Equity Shares in India (Delhi: Sultan Chan & Sons, 1978)
- 20&21
The income from dividends (ID_t) and income from interest payments (IT_t) have to be adjusted for respective tax payments: The capital gain need not be tax adjusted for the limited purpose of comparison between the alternative because any positive capital gain will still be positive after tax adjusted. Our thanks are due to Miss Madhu Agarwal of ICICI for bringing this to our attention
- 22 This part of the discussion draws heavily from discussion papers of inter-institutional meetings.
- 23 Murthy, Guruprasad, "Conversion of loans into Equity" An Economic Analysis", The Chartered Accountant, 22(5) Nov. 1973, pp. 235-259.