Lesson Objectives

- To understand the process of credit rating, mechanism of credit rating.

Credit Rating Process

The rating process begins with the receipt of formal request from a company desirous of having its issue obligations rated by credit rating agencies. A credit rating agency constantly monitors all ratings with reference to new political, economic and financial developments and industry trends. The process/procedure followed by all the major credit rating agencies in the country is almost similar and usually comprises of the following steps.

1. **Receipt of the request**: The rating process begins with the receipt of formal request for rating from a company desirous of having its issue obligations rated by credit rating agencies. An agreement is entered into between the rating agency and the issuer company.

   The agreement spells out the terms of the rating assignment and covers the following aspects:
   
   i. It requires the CRA (Credit Rating Agency) to keep the information confidential.
   ii. It gives right to the issuer company to accept or not to accept the rating.
   iii. It requires the issuer company to provide all material information to the CRA for rating and subsequent surveillance.

2. **Assignment to analytical team**: On receipt of the above request, the CRA assigns the job to an analytical team. The team usually comprises of two members/analysts who have expertise in the relevant business area and are responsible for carrying out the rating assignments.

3. **Obtaining information**: The analytical team obtains the requisite information from the client company. Issuers are usually provided a list of information requirements and broad framework for discussions. These requirements are derived from the experience of the issuers business and broadly confirms to all the aspects which have a bearing on the rating. The analytical team analyses the information relating to its financial statements, cash flow projections and other relevant information.

4. **Plant visits and meeting with management**: To obtain classification and better understanding of the client’s operations, the team visits and interacts with the company’s executives. Plants visits facilitate understanding of the production process, assess the state of equipment and main facilities, evaluate the quality of technical personnel and form an opinion on the key variables that influence level, quality and cost of production.

   A direct dialogue is maintained with the issuer company as this enables the CRAs to incorporate non-public information in a rating decision and also enables the rating to be forward looking. The topics discussed during the management meeting are wide ranging including competitive position, strategies, financial policies, historical performance, risk profile and strategies in addition to reviewing financial data.

5. **Presentation of findings**: After completing the analysis, the findings are discussed at length in the Internal Committee, comprising senior analysts of the credit rating agency. All the issue having a bearing on rating are identified. An opinion on the rating is also formed. The findings of the team are finally presented to Rating Committee.

6. **Rating committee meeting**: This is the final authority for assigning ratings. The rating committee meeting is the only aspect of the process in which the issuer does not participate directly. The rating is arrived at after composite assessment of all the factors concerning the issuer, with the key issues getting greater attention.

7. **Communication of decision**: The assigned rating grade is communicated finally to the issuer along with reasons or rationale supporting the rating. The ratings which are not accepted are either rejected or reviewed in the light of additional facts provided by the issuer. The rejected ratings are not disclosed and complete confidentiality is maintained.

8. **Dissemination to the public**: Once the issuer accepts the rating, the credit rating agencies disseminate it through printed reports to the public.

9. **Monitoring for possible change**: Once the company has decided to use the rating, CRAs are obliged to monitor the accepted ratings over the life of the instrument. The CRA constantly monitors all ratings with reference to new political, economic and financial developments and industry trends. All this information is reviewed regularly to find companies for major rating changes. Any changes in the rating are made public through published reports by CRAs.

Rating Methodology

Rating methodology used by the major Indian credit rating agencies is more or less the same. The rating methodology involves an analysis of all the factors affecting the creditworthiness of an issuer company e.g. business, financial and industry characteristics, operational efficiency, management quality, competitive position of the issuer and commitment to new projects etc. A detailed analysis of the past financial statements is made to assess the performance and to estimate the future earnings. The company’s ability to service the debt obligations over the tenure of the instrument being rated is also evaluated. In fact, it is the relative comfort level of the issuer to service
obligations that determine the rating. While assessing the instrument, the following are the main factors that are analysed into detail by the credit rating agencies.

1. Business Risk Analysis
2. Financial Analysis
3. Management Evaluation
4. Geographical Analysis
5. Regulatory and Competitive Environment
6. Fundamental Analysis

These are explained as under:

I. Business Risk Analysis
Business risk analysis aims at analysing the industry risk, market position of the company, operating efficiency and legal position of the company. This includes an analysis of industry risk, market position of the company, operating efficiency of the company and legal position of the company.

a. Industry risk: The rating agencies evaluate the industry risk by taking into consideration various factors like strength of the industry prospect, nature and basis of competition, demand and supply position, structure of industry, pattern of business cycle etc. Industries compete with each other on the basis of price, product quality, distribution capabilities etc. Industries with stable growth in demand and flexibility in the timing of capital outlays are in a stronger position and therefore enjoy better credit rating.

b. Market position of the company: Rating agencies evaluate the market standing of a company taking into account:
   i. Percentage of market share
   ii. Marketing infrastructure
   iii. Competitive advantages
   iv. Selling and distribution channel
   v. Diversity of products
   vi. Customers base
   vii. Research and development projects undertaken to identify obsolete products
   viii. Quality Improvement programs etc.

c. Operating efficiency: Favorable locational advantages, management and labor relationships, cost structure, availability of raw-material, labor, compliance to pollution control programs, level of capital employed and technological advantages etc. affect the operating efficiency of every issuer company and hence the credit rating.

d. Legal position: Legal position of a debt instrument is assessed by letter of offer containing terms of issue, trustees and their responsibilities, mode of payment of interest and principal in time, provision for protection against fraud etc.

e. Size of business: The size of business of a company is a relevant factor in the rating decision. Smaller companies are more prone to risk due to business cycle changes as compared to larger companies. Smaller companies operations are limited in terms of product, geographical area and number of customers. Whereas large companies enjoy the benefits of diversification owing to wide range of products, customers spread over larger geographical area.

Thus, business analysis covers all the important factors related to the business operations over an issuer company under credit assessment.

II. Financial Analysis
Financial analysis aims at determining the financial strength of the issuer company through ratio analysis, cash flow analysis and study of the existing capital structure. This includes an analysis of four important factors namely:

a. Accounting quality
b. Earnings potential/profitability
c. Cash flows analysis
d. Financial flexibility

Financial analysis aims at determining the financial strength of the issuer company through quantitative means such as ratio analysis. Both past and current performance is evaluated to comment the future performance of a company. The areas considered are explained as follows.

a. Accounting quality: As credit rating agencies rely on the audited financial statements, the analysis of statements begins with the study of accounting quality. For the purpose, qualification of auditors, overstatement/understatement of profits, methods adopted for recognising income, valuation of stock and charging depreciation on fixed assets are studied.

b. Earnings potential/profitability: Profits indicate company’s ability to meet its fixed interest obligation in time. A business with stable earnings can withstand any adverse conditions and also generate capital resources internally. Profitability ratios like operating profit and net profit ratios to sales are calculated and compared with last 5 years figures or compared with the similar other companies carrying on same business. As a rating is a forward-looking exercise, more emphasis is laid on the future rather than the past earning capacity of the issuer.

c. Cash flow analysis: Cash flow analysis is undertaken in relation to debt and fixed and working capital requirements of the company. It indicates the usage of cash for different purposes and the extent of cash available for meeting fixed interest obligations. Cash flows analysis facilitates credit rating of a company as it better indicates the issuer's debt servicing capability compared to reported earnings.

d. Financial flexibility: Existing Capital structure of a company is studied to find the debt/equity ratio, alternative means of financing used to raise funds, ability to raise funds, asset deployment potential etc. The future debt claims on the issuer's as well as the issuer's ability to raise capital is determined in order to find issuer's financial flexibility.

III. Management Evaluation
Any company’s performance is significantly affected by the management goals, plans and strategies, capacity to overcome unfavorable conditions, staff’s own experience and skills, planning and control system etc. Rating of a debt instrument
requires evaluation of the management strengths and weaknesses.

IV. Geographical Analysis
Geographical analysis is undertaken to determine the locational advantages enjoyed by the issuer company. An issuer company having its business spread over large geographical area enjoys the benefits of diversification and hence gets better credit rating. A company located in a backward area may enjoy subsidies from government thus enjoying the benefits of lower cost of operation. Thus geographical analysis is undertaken to determine the locational advantages enjoyed by the issuer company.

V. Regulatory and Competitive Environment
Credit rating agencies evaluate structure and regulatory framework of the financial system in which it works. While assigning the rating symbols, CRAs evaluate the impact of regulation/deregulation on the issuer company.

VI. Fundamental Analysis
Fundamental analysis includes an analysis of liquidity management, profitability and financial position, interest and tax rates sensitivity of the company. This includes an analysis of liquidity management, profitability and financial position, interest and tax rates sensitivity of the company.

1. Liquidity management involves study of capital structure, availability of liquid assets corresponding to financing commitments and maturing deposits, matching of assets and liabilities.

2. Asset quality covers factors like quality of company’s credit risk management, exposure to individual borrowers and management of problem credits etc.

3. Profitability and financial position covers aspects like past profits, funds deployment, revenues on non-fund based activities, addition to reserves.

4. Interest and tax sensitivity reflects sensitivity of company following the changes in interest rates and changes in tax law.

Fundamental analysis is undertaken for rating debt instruments of financial institutions, banks and non-banking finance companies.

Credit Rating of Instruments
Credit rating is the process of assigning standard scores which summarize the probability of the issuer being able to meet its repayment obligations for a particular debt instrument in a timely manner. Credit rating is integral to debt markets as it helps market participants to arrive at quick estimates and opinions about various instruments. In this manner it facilitates trading in debt and money market instruments especially in instruments other than Government of India Securities.

Rating is usually assigned to a specific instrument rather than the company as a whole. In the Indian context, the rating is done at the instance of the issuer, which pays rating fees for this service. If it is unsatisfied with the rating assigned to its proposed instrument, it is at liberty not to disclose the rating given to it. There are 4 rating agencies in India. These are as follows:

CRISIL - The oldest rating agency was originally promoted by ICI CI. Standard & Poor, the global leader in ratings, has recently taken a small 10% stake in CRISIL.

ICRA - Promoted by IFCI. Moody’s, the other global rating major, has recently taken a small 11% stake in ICRA.

CARE - Promoted by IDBI.

Duff and Phelps - Co-promoted by Duff and Phelps, the world’s 4th largest rating agency.

CRISIL is believed to have about 42% market share followed by ICRA with about 36%, CARE with 18% and Duff and Phelps with 4%.

Grading System
Each of the rating agencies has different codes for expressing rating for different instruments; however, the number of grades and sub-grades is similar eg for long term debentures/bonds and fixed deposits, CRISIL has 4 main grades and a host of sub-grades. In decreasing order of quality, these are AAA, AA+, AA, AA-, A+, A, A-, BB+, BBB, BBB+, BB+, BB, BB-, B+, B, B-, C and D. ICRA, CARE and Duff and Phelps have similar grading systems. The following table contains a key to the codes used by CRISIL and ICRA.

Credit rating is a dynamic concept and all the rating companies are constantly reviewing the companies rated by them with a view to changing (either upgrading or downgrading) the rating. They also have a system whereby they keep ratings for particular companies on “rating watch” in case of major events, which may lead to change in rating in the near future. Ratings are made public through periodic newsletters issued by rating companies, which also elucidate briefly the rationale for particular ratings. In addition, they issue press releases to all major newspapers and wire services about rating events on a regular basis.

Factors Involved in Credit Rating
Credit rating depends on several factors, some of which are tangible/numerical and some of which are judgmental and intangible. These factors are listed below:

- Overall fundamentals and earnings capacity of the company and volatility of the same
- Overall macro economic and business/industry environment
- Liquidity position of the company (as distinguished from profits)
- Requirement of funds to meet irrevocable commitments
- Financial flexibility of the company to raise funds from outside sources to meet temporary financial needs
- Guarantee/ support from financially strong external bodies
- Level of existing leverage (borrowings) and financial risk

As mentioned earlier ratings are assigned to instruments and not to companies and two different ratings may be assigned to two different instruments of the same company eg a company may be in a fundamentally weak business and may have a poor rating assigned for 5 year debentures while its liquidity position may be good, leading to the highest possible rating for a 3 month commercial paper. Very few companies may be assigned the highest rating for a long term 5 or 7 year instrument eg
CRISIL has only 20 companies rated as AAA for long term instruments and these companies include unquestionable blue chips like Videsh Sanchar Nigam, Bajaj Auto, Bharat Petroleum, Nestle India apart from institutions like ICICI, IDBI, HD FC and SBI.

**Derived Ratings and Structured Obligations**

Sometimes, debt instruments are so structured that in case the issuer is unable to meet repayment obligations, another entity steps in to fulfill these obligations. Sometimes there is a documented, concrete mechanism for recourse to the third party, while on other occasions the arrangement is loose. On such occasions, the debt instrument in question is said to be “credit enhanced” by a “structured obligation” and the rating assigned to the instrument factors in the additional safety mechanism. The extent of enhancement is a function of the rating of the “enhancer”, the nature of the arrangement etc and usually there is a suffix to the rating which expresses symbolically that the rating is enhanced e.g. A bond backed by the guarantee of the Government of India may be rated AAA (SO) with the SO standing for structured obligation.

**Limitations of Credit Rating - Rating Downgrades**

Rating agencies all across the world have often been accused of not being able to predict future problems. In part, the problem lies in the rating process itself, which relies heavily on past numerical data and standard ratios with relatively lower usage of judgment and understanding of the underlying business or the country economics. Data does not always capture all aspects of the situation especially in the complex financial world of today. An excellent example of the meaningless over reliance on numbers is the poor country rating given to India. Major rating agencies site one of the reasons for this as the low ratio India’s exports to foreign currency indebtedness. This completely ignores two issues – firstly, India gets a very high quantum of foreign currency earnings through remittances from Indians working abroad and also services exports in the form of software exports which are not counted as “merchandise” exports. These two flows along with other “invisible” earnings accounted for almost US$11bn in FY 99. Secondly, since India has tight control on foreign currency transactions, there is very little error possible in the foreign currency borrowing figure. As against this, for a country like Korea, the figure for foreign currency borrowing increased by US$50bn after the exchange crisis began. This was on account of hidden forward liabilities through swaps and other derivative products.

In general, Indian rating agencies have lost some amount of their credibility in the last two years due to their inability to predict defaults in many companies, which they had rated quite highly. Sometimes, some of the agencies had an investment grade rating in place when the company in question had already defaulted to some of the fixed deposit holders. Further, rating agencies resorted to mass downgrading of 50-100 companies as a reaction to public criticism, which further eroded their credibility. The major reasons for these downgrades are as follows:

Corporate earnings fell very sharply due to persistent recessionary conditions prevailing in the economy. Many of the corporate are in commodity sectors where fluctuations in selling prices of products can be very sharp - leading to complete erosion of profitability. This problem was compounded by the Asian crisis, which led to increased competition from cheap imports in many product categories.

Rating agencies substantially overestimated financial flexibility of corporate especially from traditional corporate houses. Much of the financial flexibility was implicit on raising money from new issues from the capital market, which has been impossible in the last 3 years.

In the case of finance companies, widespread defaults like CRB and tightening of regulations made it virtually impossible for them to raise money in any form. These finance companies had been in the habit of investing in longer term, illiquid assets by borrowing shorter term fixed deposits. When the flow of credit stopped, they faced liquidity problems. These were further compounded by defaults by some of the companies to which they had on lent money.

The experience is no different from the international scenario where reputed and highly experienced rating agencies like Standard & Poor (S&P) and Moody’s were unable to predict the Asian crisis and had to face the embarrassment of seeing the credit rating of South Korea as a country go from A+ to BB+ in a short span of 3 months.

By and large, the rating is a very good estimate of the actual creditworthiness of the company; however, it is not able to predict extreme situations such as the ones described above, which are unlikely to have been predicted by most investors in any case. Investors should realize that a credit rating is not sacrosanct and that one has to do one’s own due diligence and investigation before investing in any instrument. They should use the rating as a reference and a base point for their own effort. One good way of doing this is examining the behavior of the stock price in case the stock is listed. As a collective, the market is far smarter at predicting problems than any credit rating agency. Witness the sharp erosion in stock prices of companies much before their credit ratings were downgraded. Witness also the fact that foreign currency bonds from Indian issuers trade at yields lower than countries which have been rated higher by rating agencies.

**Critical Factors Influencing Financing Decisions: Credit Rating**

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This paper deals with the credit rating services in countries, such as Japan, the UK, the US, and traces the genesis of credit rating in India, in general, and CRISIL the credit rating agency in India in particular. It feels that with the growth in volume and depth of capital markets in India, the volume credit rating is bound to increase and thus boost the investors’ confidence.

A prospective investor would naturally like an assessment of risk involved in his investment for enabling a proper evaluation of the risk return trade-off. Factors, such as lack of time, lack of knowledge of the process of security evaluation, lack of reliable information, etc., could leave any investor wishing for an agency which would provide an unbiased judgment of risks underlying the security. In the US, a number of investment advisory firms, such as Moody’s Investor Services, Standard and Poor’s (S&P), and Dun and Bradstreet make an ongoing study...
of thousands of securities floated by various corporations and publish periodically their ratings of such securities. In India, the notorious defaults of certain well-known companies and fly-by-night operators which ensued the stock market boom of 1985 led to the setting of the Credit Rating Information Services of India, Ltd (CRISIL) in 1988, entrusted with the important task of evaluating the creditworthiness of companies trying to tap the capital markets through the issue of debt instruments.

Credit rating is an issue-specific or security-specific evaluation of the credit/default risk associated with a security and it conveys to the investor an independent assessment of the borrower's expected capability and inclination to service the debt on the due dates. The following are descriptions of credit rating as given by a few well-known rating agencies.

"Ratings are designed exclusively for the purpose of grading bonds according to their investment qualities (Moody's Investor Services, 1984)."

"Corporate or Municipal debt rating is a current assessment of the creditworthiness of an obligor with respect to specific obligation (Standard and Poor, 1984)."

"A corporate credit rating provides lenders with a simple system of gradation by which the relative capacities of companies to make timely repayment of interest and principal on a particular type of debt can be noted (Australian Ratings, 1984)."

The above descriptions emphasize the use of credit rating to assess the probability of timely repayment of principal and interest by a borrower. It must also be noted that these descriptions associate credit rating with only debt or bond rating since credit rating by the very nature of the procedures adopted under it is more suitable for rating fixed income securities, such as debts or bonds on the basis of the default risk underlying them. Default risk, which is a major risk, accompanying the purchase of a fixed income security is that portion of total risk that results from changes in the financial integrity of the investment. Financial integrity changes when the company that has issued the security moves further away from or closer to bankruptcy. The weakening of the financial integrity of a firm triggers a fall in the prices of the firm's securities, and usually the loss suffered by an investor on account of the fall in security prices will be higher than the losses suffered due to actual bankruptcy. The default risk is essentially determined by the amount of funds available to the issuer relative to the amount of funds required to be paid and as modified by the strength of the security owner's claim for payment (Francis, 1987).

**Objectives and Benefits of Credit Rating**

Diagram 1 depicts the various types of credit ratings that are usually done.

![Diagram 1: Types of Credit Ratings](image)

Bond rating refers to the rating of bonds or debt securities issued by a corporate, governmental or quasi-governmental, body, such as rating of debentures, public sector bonds, municipal bonds, etc. Equity rating refers to the rating of equity shares issued by a company. Short-term instruments rating refers to the rating of short-term debt instruments, such as commercial papers issued by companies. Customer rating refers to the assessment of creditworthiness of a customer to whom credit sales are to be made. Borrower rating requires the assessment of the ability to repay of a borrower to whom a grant of loan is under consideration. If the customer or borrower is a country in which an investment is envisaged or to which a loan is to be given, the evaluation of the creditworthiness of such a country is referred to as sovereign rating.

The objectives of credit rating are: To (i) provide superior information to the investors at a low cost; (ii) provide a sound basis for proper risk return structure; (iii) subject borrowers to a healthy discipline; and (iv) assist in the framing of public policy guidelines on institutional investment.

In an efficient market, the return earned on investments must match the risks associated with them. The availability of unbiased ratings would directly assist in the formation of such efficient capital markets. It has been observed in highly developed markets that bonds with higher ratings can offer lower rates of returns and those with lower rating have to offer higher rates of return. Also, as the rating of a bond declines, the market price starts falling, and this, in turn, pushes up the effective cost of the bond. A company whose instruments have been rated and published would follow rational and sound financial and business policies as the rating agency would keep a close watch on the company's management and would not hesitate to lower the ratings if the circumstances so warrant. The government can also base its guidelines on the types of securities to be included in the various institutional portfolios on the ratings published by various agencies. In addition to these, credit rating can be used as a marketing tool for placement of debt obligations with the public and can provide increased liquidity in secondary markets.

It is also important to understand what purposes that debt or credit rating does not serve:

A rating is not a general overall evaluation of the issuing organisation. If a security issued by a firm A is rated lower than a security floated by a firm B, it does not necessarily mean that firm A is worse off than firm B. Since credit ratings are security-specific, the rating assigned can be used only to study
the default risk associated with the security and not for any other purpose.

A rating cannot be taken as a recommendation for purchasing, selling or holding of a security. Decisions to invest in securities must properly be based on (a) the expected rate of return, (b) the risks associated with the investment and (c) the risk profile of the investor. Of these three issues, credit rating only provides information on one of them, namely, the credit risk associated with the investment. Hence, rating cannot provide guidance for buying, selling or holding of securities.

A rating agency does not conduct a comprehensive audit of the operations of the issuing organisation. Though the rating agency does make a complete study of the information made available by the company and tries to gather data on the various aspects of the business, it cannot certify that all the information provided by the company are true and fair.

A rating once issued by an agency does not remain valid for the entire life of the security. Whenever the risk characteristics of the security changes, the rating must be reviewed and upgraded or downgraded.

Most important of all, credit rating does not create a fiduciary relationship between the rating agency and the users of the ratings. There is no legal relationship between the agency and the user.

**Credit Rating Information Services of India Ltd**

The progressive liberalisation of economic policies which led to increased number of new projects being set up, coupled with the corporate sector's increasing dependence on primary markets for mobilisation of funds highlighted the need to set up a credit rating agency in India. The year 1985 witnessed a phenomenal growth in the size of the capital market and an increasing number of players in both the primary and secondary markets. However, subsequent huge losses caused by investments in ventures or which all claims had been made by the promoters resulted in the investors shying away from the capital market. The Credit Rating Information Services of India Ltd (CRISIL) was set up in 1987 by ICICI, UTI, GIG, and LIC, with the major objective of restoring the confidence of the investors in the capital market and to provide unbiased assessment of the creditworthiness of companies issuing debt instruments. The other share-holders of CRISIL include the Asian Development Bank, the State Bank of India, the Mitsui Bank, the Bank of Tokyo, the Hong Kong and Shanghai Banking Corporation, and the Housing Development Finance Corporation Ltd. (CRISIL, 1987). CRISIL commenced its operations in January 1988 and released its first rating in March 1988. As on September 1990, this agency had rated instruments of 28 manufacturing companies, and 21 finance companies (Economic Times, September 1990). The instruments rated by CRISIL include bonds, non convertible debentures, convertible debentures (valid till the time of conversion), debenture portion of equity linked debentures, fixed deposits, preference shares, and commercial papers (Keya Sarkar, 1987). So far, CRISIL has not taken up rating of equity shares.

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**Table 1: Rating of Debentures**

<table>
<thead>
<tr>
<th>High Investment Grades</th>
<th>Speculative Grades</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAA (Triple A)</td>
<td>B3 (Double B)</td>
</tr>
<tr>
<td>AA (Double A)</td>
<td></td>
</tr>
<tr>
<td>Investment Grades</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>B</td>
</tr>
</tbody>
</table>
The rating process adopted by CRISIL culminates in the attaching of some specified symbols to the instruments. These symbols are designed to indicate, in a summary form, CRISIL’s opinion regarding the relative safety of timely payment of interest and principal on the instruments. The instruments based on the symbols are divided into three broad categories: High investment grades; investment grades; and speculative grades. The symbols used for rating the debentures and the interpretation to be attached to the symbols are given in Table 1 (CRISIL 198–). The symbols used in rating of other instruments are given in Appendix 1. CRISIL may apply ‘+’ (plus) or ‘-’ (minus) signs for ratings from “AA” to “D” to reflect the comparative standing within the category. Different instruments of the same company could carry different ratings due to the different characteristics or features of the instruments and the different indenture provisions.

The rating process of CRISIL begins at the request of a company. An analytical team assigned the task of rating, obtains and analyses information, meets the company’s management and also interacts with a back-up team which would have collected industry information. The findings are submitted to a ratings committee, comprising certain directors who are not connected with any CRISIL share-holder, decides on the rating which is communicated to the company. If the company wishes to present some additional information, it can do so at this stage. The issuer can also appeal against the rating and ask for a review. If the additional information provided so warrant the rating will be reviewed and revised. During the rating process, strict confidentiality of client information is maintained and the board of directors of CRISIL does not get involved in the rating process nor does it know of what ratings are in progress. Moreover, once a company decides to use the rating, CRISIL is under an obligation to monitor the rating over the life of the instrument. CRISIL may change the rating depending upon new information or developments concerning the company and any change so effected is made public (CRISIL 198–). The rating process for a new issue is shown in diagram 2.

CRISIL considers the following key factors in its analysis.

a. Business analysis. This covers (i) industry risk (factors, such as nature and basis of competition; key success factors; demand supply position; structure of industry; government policies, etc.); (ii) market position of the company within the industry (factors, such as market share; competitive advantages; selling and distribution arrangements; product and consumer diversity, etc.); (iii) operating efficiency of the company (factors, such as locational advantages; labour relationships; cost structure and manufacturing efficiency, compared to those of competitors, etc.); (iv) legal position (such as, terms of prospectus, trustees and their responsibilities, systems for timely payment and for protection against forgery/ fraud, etc.).

b. Financial analysis. This covers, accounting quality (overstatement/ understatement of profits; auditors qualifications; method of income recognition; inventory valuation and depreciation policies; off balance sheet liabilities, etc.); (ii) earnings protection (sources of future earnings growth; profitability ratios; earnings in relation to fixed income charges, etc.); (iii) adequacy of cash flows (in relation to debt and fixed, and working capital needs; variability of future cash flows; capital spending flexibility; working capital management, etc.); (iv) financial flexibility (alternative financing plans in times of stress, ability to raise funds; asset redeployment potential etc.).

c. Management evaluation. This covers (i) track record of the management, planning and control systems; depth of managerial talent; succession plans; (ii) evaluation of capacity to overcome adverse situations; (iii) goals, philosophy and strategies. While all the above factors are considered for companies with manufacturing activities, the assessment of finance companies lays emphasis on the -
following factors in addition to the financial analysis and management evaluation as outlined above.

d. Regulatory and competitive environment. This covers (i) structures and regulatory framework of the financial system; (ii) trends in regulation, deregulation and their impact on the company.

e. Fundamental analysis. This covers (i) liquidity management (capital structure; term matching of assets and liabilities; policy on liquid assets in relation to financing commitments and maturing deposits); (ii) asset quality (quality of the company’s credit risk management; systems for monitoring credit; sector risk, exposure to individual borrowers; management of problem credits, etc.); (iii) profitability and financial position (historic profits; spreads on fund deployment revenues on non-fund-based services; accretion to reserves, etc.); and (iv) interest and tax sensitivity (exposure to interest rate changes; hedge against interest rate and tax law changes).

The entire rating process takes between four to six weeks. CRISIL also plans to conduct equity research to provide information to investors and to guide them in their equity investment decisions. It also plans to provide additional information on companies to bankers and financial institutions and to perform payment record analysis to analyse the credit record of dealers as also their competence in meeting obligations (Mamta Suri, 1989).

The State Bank of India has decided recently that the leasing and hire purchase companies banking with it and wishing to borrow more than Rs. 50 lakhs must obtain a rating from CRISIL. The State Bank is insisting on the rating even if it is a smaller number of the consortium. The rating will be a one-time rating and a fresh rating will be insisted only when the borrower asks for a rise in Maximum Permissible Bank Finance (MPBF) (Chartered Financial Analyst 1989). The Union Government, in September 1990, cleared a proposal by the Industrial Finance Corporation of India (IFCI) to set up a second credit rating agency in the country to meet the requirements of companies based in the north (Economic Times, September 1990).

**Approaches to Credit Rating**

In the foregoing analysis, the meaning and scope of credit rating and how CRISIL rates an issue, was discussed. In this section, a narration of the usual approaches to the credit rating process and whether quantitative models can be used to carry out credit rating is given.

The approaches usually adopted for credit rating are: (i) implicit judgmental approach; (ii) explicit judgmental approach; and (iii) statistical approach.

**Implicit Judgmental Approach**

This approach rates a security by considering a broad range of factors, some of which may be quantified, and others not quantified. It is not necessary that all the factors considered should be specified. The factors covered are weighted and combined in an unspecified manner, and a credit rating is arrived at. The rating of equity issues by the periodical Capital Market is an illustration of the implicit judgmental approach.

The factors considered by Capital Market (1986) are divided into six categories:

**I. Promoters**
1. Industry house
2. Group companies (market price)
3. Group companies (EPS)
4. Existing company (market price)
5. Existing company (EPS)
6. Auditors qualifications
7. Experience
8. Qualifications
9. Age

**II. Project**
1. Product technology
2. Collaborators
3. Gestation
4. Location
5. Utilities
6. Labor
7. Cost of project
8. Cost of finance
9. Institutional appraisal
10. Other similar project

**III. Prospects**
1. Consumer
2. Present market size
3. Future market size
4. Competitors
5. Marketing arrangements
6. Technology obsolescence
7. Future projects

**IV. Government Policy**
1. Price control/subsidy
2. Import (OGL, etc.)
3. Taxation
4. Government attitude

**V. Security Characteristics**
1. CCI consent
2. Secured/Unsecured
3. Interest
4. Capital appreciation
5. Dividend
6. Premium
7. Size of issue
8. Tax benefits
9. Liquidity
VI. Miscellaneous

Capital Market assigns a maximum of 100 points, distributed among the characteristics mentioned above. Since there are about 40 sub criteria, the total of 100 points is divided among the sub-criteria at about 2.5 points per sub criterion. As a result no sub criteria is given undue weightage. Though all the criteria used for evaluation are spelt out, the way in which the criteria are weighted and combined to form a final score is not explicitly specified. An example of issue rating published by Capital Market (1990) is given below.

<table>
<thead>
<tr>
<th>Company</th>
<th>Promoters</th>
<th>Project</th>
<th>Cost of the project</th>
<th>Present issue</th>
<th>Credit Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Videocon VCR Ltd.</td>
<td>Videocon group in collaboration with Toshiba Corporation Japan</td>
<td>Manufacture of VCR/VCP including video tape deck mechanism with a capacity of 6 lakh numbers per annum.</td>
<td>Rs. 49.80 Crores.</td>
<td>Equity shares of Rs. 10 Each for Cash at par 4.45</td>
<td>52/100</td>
</tr>
</tbody>
</table>

The periodical has also made the following observations to justify the rating assigned:

- The company proposes to import most of the raw materials against yen payment till the company, s phased indigenisation materialises. With the bad balance of payments position and the government’s thinking on conspicuous consumption the venture is a bold bet; it has opted for a very high debt gearing of 5.43 times its equity; it has borrowed Rs. 8.85 crores from Videocon International Ltd as unsecured loan; and the issue prospectus makes no mention of the schedule of the implementation of the project. Though according to the company sources, production would commence within a short time, the orders placed for machinery as shown under “material contracts” amount to only Rs.48 lakhs worth of yen.

Explicit Judgmental Approach

This approach involves the following: (i) A set of factors which are considered relevant for rating purposes, is defined; (ii) The weights which are to be assigned to these factors are also explicitly specified; (iii) For each of the factors, a quantitative assessment of the entity to be rated is made; and (iv) The weights are applied to the quantitative assessment and a numerical credit score or Index is arrived at.

The illustration given below shows the application of the explicit judgmental approach.

Illustration. A rating agency considers the following set of factors and their relative weights for rating a debt instrument issued by a company. The rater quantitatively assesses each of the factors listed above on a 0-1 scale, and such assessment is based purely on the judgment of the rater. Combining the weights with the assessment made, the overall credit score is derived. Table 2 shows how the final score is arrived at.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Networth</td>
<td>7</td>
</tr>
<tr>
<td>Current ratio</td>
<td>5</td>
</tr>
<tr>
<td>Turnover</td>
<td>15</td>
</tr>
<tr>
<td>Profitability</td>
<td>20</td>
</tr>
<tr>
<td>Business risk</td>
<td>23</td>
</tr>
<tr>
<td>Financial risk</td>
<td>15</td>
</tr>
<tr>
<td>Managerial competence</td>
<td>15</td>
</tr>
</tbody>
</table>

Overall Credit Score = 59.75

Statistical Approach

In both the implicit judgmental and explicit judgmental approaches, the rating of a security is based on the subjective assessment of the rater and hence the final score arrived at could be biased. The statistical approach, in contrast uses a statistical method in selection of factors, the weights to be assigned to them and in the interpretation of scores. Though the judgment of the rater plays an important role in the initial selection of factors and model specification, the credit rating model that finally emerges is based on an objective process and statistical concepts.

The steps involved in the statistical approach are as follows: (I) A set of factors which are considered to be relevant for rating purposes is defined; (II) A sample of objects (in this case instruments already issued) is taken and based on historical experience, an “a priori” classification of these objects is made; (III) Using an objective statistical method, the credit rating model is developed. This model shows the factors which are really relevant the relative importance of these factors and the manner in which they should be combined to determine the credit rating- (iv) The model developed is tested by scoring the sample of objects already gathered in order to determine the predicting power of the model.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Weight</th>
<th>Quantitative assessment</th>
<th>Weight X quantitative assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Networth</td>
<td>7</td>
<td>0.50</td>
<td>3.50</td>
</tr>
<tr>
<td>Current ratio</td>
<td>5</td>
<td>0.75</td>
<td>3.75</td>
</tr>
<tr>
<td>Turnover</td>
<td>15</td>
<td>0.60</td>
<td>9.00</td>
</tr>
<tr>
<td>Profitability</td>
<td>20</td>
<td>0.40</td>
<td>8.00</td>
</tr>
<tr>
<td>Business risk</td>
<td>23</td>
<td>0.50</td>
<td>11.50</td>
</tr>
<tr>
<td>Financial risk</td>
<td>15</td>
<td>0.80</td>
<td>12.00</td>
</tr>
<tr>
<td>Managerial competence</td>
<td>15</td>
<td>0.80</td>
<td>12.00</td>
</tr>
</tbody>
</table>

Overall Credit Score = 59.75

The scores as generated by the model are compared with the actual scores and inferences are drawn about the reliability of the model. Edward Altman, a leading investment banker in the US, has developed a Z-score model to predict corporate collapses. He has used the statistical technique of discriminant analysis for identifying the financial ratios which are most important for predicting corporate health and also for assigning weights to such ratios. The key ratios identified by him cover profitability, leverage, asset turnaround, and liquidity. Based on the analysis, the Z-score is arrived at. Research in the US has indicated that if the Z-score dropped below 1.8, the corporation would be heading towards bankruptcy (Economic Times, Jan. 1990). A brief note on discriminant analysis is given in Appendix 2.

The use of the quantitative models as under the statistical approach can help in reducing inconsistencies; that is, there is less chance for different ratings to be assigned by different ratings to the same instrument. Also, investors can use quantitative models to rate those privately placed debt issues for which no ratings are available. However, the quantitative models in exclusion may not always lead to a correct rating as a number of subjective, judgmental and qualitative factors have to be considered in a rating process. A rater can, therefore, use
quantitative models to test his judgment and to reduce inconsistencies in rating.

**Sovereign Rating**

In recent times, the credit rating of countries or sovereign rating has assumed a great importance. While rating agencies, such as Standard and Poor, Japan Centre for International Finance and the London based Economist carry out periodical studies of the creditworthiness of various countries, lenders and exporters use such reports to fine-tune the rates at which funds are made available to the borrowing countries and to add clauses of varying stringency in the export sales agreements. The higher the risk associated with a country, the higher the margin charged above the benchmark rates, such as the LIBOR (London Inter-bank Offered Rate) or the long time prime at which financial institutions are willing to lend or borrow at a particular point of time (Financial Express, May 1990). The Economist follows the explicit judgmental approach in sovereign rating. The factors considered and the maximum points assigned to each of these factors (to reflect their relative importance) are given in table.

**Sovereign Rating: Factors of**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Maximum Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic</td>
<td></td>
</tr>
<tr>
<td>Falling GDP</td>
<td>8</td>
</tr>
<tr>
<td>Inflation</td>
<td>5</td>
</tr>
<tr>
<td>Capital flight</td>
<td>4</td>
</tr>
<tr>
<td>Foreign debt</td>
<td>6</td>
</tr>
<tr>
<td>Low food output</td>
<td>4</td>
</tr>
<tr>
<td>Commodity dependence</td>
<td>6</td>
</tr>
<tr>
<td>Political</td>
<td></td>
</tr>
<tr>
<td>Bad neighbours</td>
<td>3</td>
</tr>
<tr>
<td>High authoritarian</td>
<td>7</td>
</tr>
<tr>
<td>Staleness</td>
<td>6</td>
</tr>
<tr>
<td>Illegitimacy</td>
<td>9</td>
</tr>
<tr>
<td>Generals in power</td>
<td>6</td>
</tr>
<tr>
<td>War</td>
<td>20</td>
</tr>
<tr>
<td>Social</td>
<td></td>
</tr>
<tr>
<td>Urbanisation</td>
<td>2</td>
</tr>
<tr>
<td>Islamic fundamentalism</td>
<td>4</td>
</tr>
<tr>
<td>Corruption</td>
<td>6</td>
</tr>
<tr>
<td>Ethnic tension</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

For each country a score is assigned for each factor within the range of zero and the maximum possible points. The scores for all the factors are added to get the aggregate risk score and the higher the score, the greater is the risk associated with the country. The countries, based on the risk scores are also classified into: Hyper-risk, very high risk, high risk- medium risk, and low risk categories. In the 1986 risk ranking of countries the Economist classified India as a medium risk country with a risk score of 35. In the same year, the Japan Centre for International Finance (JCIF) gave the rating of G to India (Bagchi, 1986). According to JCIF, an “A” rated country is fully capable of servicing existing debt and will be able to continue to do so for the next four years. It will also be able to meet any fresh fund requirements. “B” rated countries are also fully capable of servicing the existing debt but while “A” rated countries have the capacity to service a higher level debt than the existing, the same cannot be said of “B” rated countries. The “C” rated countries are also capable of making current debt payments but could have borrowing or debt servicing problems if global financial conditions change. Countries which could have imminent financing problems are rated by JCIF as “D”, and those countries which have already run into problems in servicing their external debt are rated as “E”.

Of late, the credit rating of India has taken a beating. In May 1990, the rating agency of the US, Standard and Poor, noted that the long-term credit rating of India is likely to be “BBB” (Financial Express, May 1990). The rating of “BBB” implies that the country’s borrowing capacity is poor. According to the rating agency, the country is extremely vulnerable to changes in world oil prices and due to the unfavorable balance of payments situation, the country is relying more on commercial debt which could further expose it to international market pressures. Other factors causing the low rating are high monetary expansion leading to increased inflation which exerts pressure on balance of payments, and the low rate of investment in the country.

**Conclusions**

Credit rating in recent times is being looked upon as an important investment advisory function. In countries with highly developed markets, such as the US, and Japan, though there is no statutory requirement to have the securities rated, as high as 90 per cent of the securities floated are voluntarily rated due to the pressure exerted by investors and bankers. In India, a beginning has been made with the establishment of CRISIL and the RBI insisting that all commercial papers prior to their issue must be rated. With the growth in volume and depth of capital markets and the increasing knowledge and awareness of the investors, it can be expected that voluntary credit rating would be on the increase.

**Appendix I**

Crisil’s Credit Rating Symbols For Securities Other Than Debatures (Based on CRISIL’S Booklet on Rating)
<table>
<thead>
<tr>
<th>Rating Symbol</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Deposits</td>
<td></td>
</tr>
<tr>
<td>FAAA-High safety (F-AAA)</td>
<td>This rating indicates that the degree of safety regarding timely payment of interest and principal is very strong.</td>
</tr>
<tr>
<td>FAA- High safety (F-AA)</td>
<td>This rating indicates that the degree of safety, timely payment of interest and principal is strong. However, the relative degree of safety is not high as for fixed deposits with “FAAA” rating.</td>
</tr>
<tr>
<td>FA - Adequate safety</td>
<td>This rating indicates that the degree of safety regarding timely payment of interest and principal is satisfactory. Changes in circumstances can affect such issues more than those in higher rated categories.</td>
</tr>
<tr>
<td>FB - Inadequate safety</td>
<td>This rating indicates inadequate safety of timely payment of interest and principal. Such issues are less susceptible to default than fixed deposits rated below this category, but the uncertainties that the issuer faces would lead to inadequate capacity to make timely interest and principal payments.</td>
</tr>
<tr>
<td>FC - High Risk</td>
<td>This rating indicates that the degree of safety regarding timely payment of interest and principal is doubtful. Such issues have factors at present that make them vulnerable to default. Adverse business or economic conditions would lead to lack of ability or willingness to pay interest or principal.</td>
</tr>
<tr>
<td>FD - Default</td>
<td>This rating indicates that the issue is either in default or is expected to be in default upon maturity.</td>
</tr>
<tr>
<td>CRISIL may apply ‘+’ (plus’) or ‘-’ (minus) signs for rating from “FAA’ to “FC” to indicate the relative position within the rating category of the company raising Fixed Deposits.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Commercial Paper:</th>
</tr>
</thead>
<tbody>
<tr>
<td>p - 1</td>
</tr>
<tr>
<td>P - 2</td>
</tr>
<tr>
<td>P - 3</td>
</tr>
<tr>
<td>P - 4</td>
</tr>
<tr>
<td>p - 5</td>
</tr>
<tr>
<td>CRISIL may apply ‘+’ (plus) sign for ratings from 'P-1' to 'P-3' to reflect a comparatively high standing within the category.</td>
</tr>
</tbody>
</table>
Appendix 2

Discriminant Analysis Technique

The discriminant analysis technique is used in those cases where items have to be classified into one of two populations on the basis of one or more criteria. Examples of situations where the discriminant analysis can be used are,

1. Classification of customer accounts into two classes, such as good or bad on the basis of criteria such as current ratio and return on investment of the customers' business.
2. Classification of companies into two classes such as sick and non-sick on the basis of criteria, such as profitability ratios, leverage ratios and cash flow coverage ratio.
3. Classification of students into two categories such as likely to pass an engineering course and not likely to pass the engineering course on the basis of intelligence tests, aptitude tests etc.

In each of the examples given above a discriminant function must be established which can be used to classify the customer accounts or companies or students into the two classes.

Further, the cutoff point for the discriminant function must be established in such a way that the probability of wrong classification is minimised. The cutoff point may be visualised as under:

![Discriminant Function](image)

In the above figure though the distributions overlap and there are chances of misclassifications, at the cutoff value represented by the point $Z^*$, it can be seen that the misclassification is minimised.

The discriminant analysis makes the following assumptions:

1. There are two discrete groups
2. Two selected variables would be combined in a linear relationship and the linear function of the form, $Z_i = aX_i + bY_i$ would be used for discriminating between the two discrete groups
3. The two selected variables arise from multivariate normal populations. Though the means of the two variables in each group would be different, the variance/covariance matrix is the same for each group.

The discriminant function of the form $Z_i = aX_i + bY_i$ can be obtained by maximising the ratio given below:

$$G = \frac{\sum (Z_i - \bar{Z}_i)^2}{\sum (Z_i - \bar{Z}_i)^2}$$

Where $\bar{Z}_i$ is mean value of the $Z_i$ scores in group 1
$\bar{Z}_2$ is mean value of the $Z_i$ scores in group 2
$n_1 \sum (Z_i - \bar{Z}_1)^2$ = sum of squares of $Z_i$ scores in group 1
$n_2 \sum (Z_i - \bar{Z}_2)^2$ = sum of squares of $Z_i$ scores in group 2

Using partial derivatives, the values of $a'$ and $b'$ of the discriminant function can be determined as:

$$a' = \frac{\sigma_{XY}^2 - \sigma_{X} \sigma_{Y}}{\sigma_{X}^2}$$
$$b' = \frac{\sigma_{XY}^2 - \sigma_{X} \sigma_{Y}}{\sigma_{Y}^2}$$

Where, $\sigma_{X}^2$ = variance of $X$
$\sigma_{XY} = $ covariance of $X$ and $Y$
$\sigma_{Y}^2$ = variance of $Y$
$\bar{x}$ = difference between the mean values of $X$ for the two groups (group 1 and group 2)
$\bar{y}$ = difference between the mean values of $Y$ for the two groups.

For choosing the cutoff point for the discriminant function, the steps are as follows:

1. The $Z_i$ value for all observations as delivered from the discriminant function must be determined and arranged in an ascending order.
2. Identify where the observations from two groups overlap and consider the midpoints of adjacently ranked observations as possible cutoff scores.
3. Choose that cutoff score for which the number of misclassifications are minimized.