Chapter 37 Credit Risk Management

Learning Objectives

1. Describe the two main types of risks—business-related and control-related
2. Analyse the three main elements of credit risk management framework—credit risk policies and procedures, organisational structure for effective credit administration and risk management functions and credit risk rating framework
3. Outline the main elements of a credit risk scoring and rating model

INTRODUCTION

This chapter discusses the important dimensions of credit risk management in banks and financial institutions (FIs). A brief account of risks to which banks and financial institutions (FIs) are exposed is given in Section 1. Section 2 covers the RBI prescribed framework of credit risk management by Indian banks and FIs in the perspective of international practices. The last Section summarises the main points.

SECTION I RISKS

Risks can be categorised into: (i) business-related risks and (ii) control-related risks.

Business Related Risks

The business-related risks to which banks are exposed are associated with their operational activities and market environment. They fall into six categories: namely, (a) credit risk, (b) market risk comprising of interest rate risk, foreign exchange risk, equity price risk; commodity price risk and liquidity risk; (c) country risk; (d) business environment risk; (e) operational risk; and (f) group risk.

> **Credit risk** is the possibility of losses associated with the diminution in the credit quality of the borrowers.

Credit Risk **Credit risk**, a major risk faced by banks, is inherent to any business of lending funds to individuals, corporates, trade, industry, agriculture, transport, or banks/financial institutions. It is defined as the possibility of losses associated with a diminution in the credit quality of the borrowers/counterparties. In a bank's credit portfolio, losses stem from outright default due to inability or unwillingness of borrower(s)/counterparty(ies) to meet their commitments, as also due to the risk inherent in the nature of business activity and environment.

Credit risk relating to borrower(s), may arise due to non-payment of principal/interest amount; non-payment of guarantee or letter of credit liabilities on devolvement; in case of export business, non-receipt of proceeds against bills financed; in case of security trading, funds/securities settlement are not effected; in case of cross border exposure, the funds are not received due to seizure or restrictions imposed by the sovereign and so on. As regards risks related to the business activity financed, these may include obsolescence of technology/product(s) design, competition, inadequate supply of inputs, lack of infrastructural facilities, Government rules/regulations and so on.

In addition, banks may also face risks caused by a concentration of their credit portfolio in certain types of loan facilities like overdrafts, cash credit, term loans, lease/hire-purchase finance and so on. Further, the concentration risk may be caused due to high exposures in a single/group of borrowers or in a specific economic/industrial sector.

Market Risk Market risk is caused due to changes in the market variables, having an adverse impact on the earnings of a bank or on its capital. These variables may include unfavourable changes in the interest rates, foreign exchange rates, equity prices and commodity prices and so on. The market risk also includes liquidity risk which may arise when a bank is unable to meet its liabilities as and when these fall due and may need to borrow funds at higher rates to fund such liabilities. The various risks associated with market risks are discussed below:

Interest rate risk is caused due to changes in interest rate having an adverse impact on earnings.

Interest Rate Risk Interest rate risk, which forms a part of the market risk, has become more prominent after the removal of regulatory interest rates restrictions on banks by the RBI. Deregulation of interest rates has caused keen competition and exposed banks to a greater interest rate risk. A bank's net interest income, i.e., the difference between interest received on its assets (loans/advances, investments) and interest paid on its liabilities (deposits), which is a major source of profitability, has been shrinking. The interest rate risk may be on account of the following:

Mismatch Risk or Gap Risk In a situation where short term deposits of, say, one year maturity have been utilised for investment in long term securities of, say, 5 years, it would result in a mismatch. In case interest rates on deposits increase while the interest income on term loans and long-term securities remain the same, the interest spread would get reduced, having an adverse impact on the bank's interest income.

Basis Risk Changes in interest rates both of assets and liabilities, would affect the interest income. In a regime of falling interest rates, the interest rate on assets (loans/advances) may be lowered, while the interest rates on deposits, particularly fixed deposits, may continue at the contracted higher rate. Such a situation may result in a reduction in the interest income and, thus, it is a form of interest rate risk.

Price Risk The value of an investment made at a specific interest rate, may suffer a set back/ depreciate if there is an increase in the market interest rates'. However, any decline in the interest rates may result in a gain (appreciation) in the value of the investments in a banks' portfolio. This change in the value of the investments is on account of the present value of the cash flows when discounted by the new interest rates.

Forex risk is caused by an adverse exchange rate movement.

Foreign Exchange (Forex) Risk This risk is caused by an adverse exchange rate movement which affects a banks' foreign currency exposures when it is holding foreign exchange assets or liabilities that have not been hedged. Forex risk may include three types of commonly understood risks, namely: transaction exposure, translation exposure and economic exposure.

Transaction Exposure This risk arises due to an adverse movement of the exchange rate, from the time the transaction is budgeted till the time the exposure is extinguished by sale or purchase of foreign currency against the home currency.

Translation Exposure This arises from the need to translate foreign currency assets and liabilities into the home currency, for the purpose of finalising the accounts for any given period. It can, thus, be defined as the risk which will alter the domestic currency value of assets and liabilities in the balance sheet, which arises when the values of these assets and liabilities are translated at foreign exchange rates, resulting in a reported gain or loss.

Economic Exposure It can be defined as a change in the future earning power and cash flows, as a result of an adjustment of the currencies. It represents a change in the competitive position. Economic exposure to an exchange rate is the risk that the change in the exchange rates is likely to affect company's competitive position in the market.

Equity Price Risk Such a risk arises due to the potential of banks to suffer losses on their exposures in the capital markets, due to adverse movements in the prices of equity.

Commodity Price Risk A commodity is defined as a physical product which is or can be traded on a secondary market, for example, agriculture products, minerals, oils and precious metals and so on. The commodity price risk is often quite complex and more volatile than risks associated with currencies or interest rates. Banks in developed markets use derivatives to hedge the commodity price risk. Indian banks are yet to get into such business and, thus, are not exposed to the commodity price risk.

Liquidity risk is caused by a mismatch in the maturity of assets and liabilities.

Liquidity Risk **Liquidity risk** is caused by a mismatch in the maturity of assets and liabilities. Bank deposits generally, have a much shorter contractual maturity than loans and liquidity management needs to provide a cushion to cover anticipated deposit withdrawals. This risk may arise when a bank is unable to meet its liabilities as these become due for payment and it may have to fund the same at a cost much higher than the market cost. This may happen due to a mismatch of the timings of inflows and outflows of funds and from funding of long term assets by short term liabilities. Banks having surplus liquidity may also suffer due to idling of funds.

Country Risk Country risk arises due to cross-border lending and investment, particularly when a foreign country is unable to service and repay its debts. The country risk may include risk arising out of a currency transfer problem, the political currency situation in the country and/or cross border risk.

Currency Transfer Risk Such a risk arises when a borrower may be able to repay his debt in its local currency, but not in foreign currency. This type of situation may arise when foreign exchange shortages restrict a country's cross border foreign exchange market.

Political Risk/Non-Sovereign Risk Such a risk arises when the borrower is not able to repatriate the funds due to restrictions imposed for political reasons. Non-sovereign risk may include risks associated with the economic environment, legislative process and legal framework of the borrower' country and risks of appropriation and expropriation.

Cross Border Risk Such a risk may arise when the borrower is a resident of a country other than where the cross border assets are booked, and includes exposures to local residents, denominated in currencies other than the local currency.

Sovereign risk is associated with lending to Government.

Sovereign Risk This risk is associated with lending to the Government or taking their guarantee, particularly when they claim immunity from legal process or might not abide by a judgment and it might prove difficult to secure redress through legal action.

Business Environment Risk Such a risk can arise due to lending policies/strategies, particularly relating to identification of target markets, products and customer base and so on, without proper planning and study of the business environment.

Operational Risk Operational risk is caused due to deficient and fast changing internal processes/systems/procedures; non-conducive work environment; demotivated, untrained and incompetent staff or external events and so on. Operational risk may also be caused by actions of the bank which are not in conformity with the laws of the country, or they may arise due to a lack of knowledge of the laws of other countries, particularly in a foreign exchange business, cross-border dealings and so on. In addition, banks are faced with technology risks, which may arise due to the outsourcing of their various activities, fast unplanned computerisation and IT-related factors such as errors in the computer programming, lack of security, backup and disaster recovery systems and so on. Operational risk can also arise due to use of obsolete or untested technology which is not fully in line with the business needs, lack of trained staff or their negative response to new technology and so on.

Group Risk Such a risk may arise when a bank has other domestic/overseas subsidiaries dealing in various activities such as merchant banking, mutual fund, insurance, gilt securities, hire-purchase/leasing, which are not doing well and are incurring losses this may affect their bank's profitability.

Control Related Risks

Control related risks arises out of lack of control and supervisory systems.

Control related risks arise out of an absence/lack of control and supervisory systems. Banks have designed their own control systems. For loans, they have in place appraisal, monitoring/follow, surveillance, inspection/audit systems. They are also evolving credit risk evaluation, rating and management systems. For ensuring proper house keeping, they have set guidelines, as also a system of concurrent audit of the branches, in place. Banks are going in a big way to computerise their offices and have evolved some control systems, which may include security checks, backup and disaster recovery, testing of softwares/programmes at periodical intervals and so on. However, in practice, it is seen that there are many weaknesses in the control systems, which may be due to organisational bottlenecks in the form of inadequate or inappropriate structure. The organisation structure may lack flexibility and dynamism to meet the frequent and fast changing banking scenario.

In view of the growing complexities in the banking sector, particularly the speed of their operation and development of new financial products and services, leading to various risks, it is imperative for them to articulate their risk management philosophy and put in place appropriate risk management policies. Banks should define in detail, the various types of risks, indicating the tolerance levels. As regards the measurement of the various types of risks, banks should design tools and rating models. In addition, banks should evolve clear policy guidelines indicating the actions to be initiated to mitigate the risk and to effectively monitor the progress for reporting the same to the top management. For an effective and efficient handling of the various types of risks, banks should create a proper organisational setup, maintained by qualified/trained personnel with a positive outlook and put in place effective corporate governance practices.

Our focus in this Chapter is on credit risk. These are discussed in the following Section. In the framework of RBI guidelines relating credit risk management.

SECTION 2 CREDIT RISK MANAGEMENT

As a step towards enhancing and fine-tuning their existing risk management practices, the RBI has prescribed effective 2001, a comprehensive risk management framework for banks and FIs. This Section focuses on the three main elements of the framework: (i) credit risk policies and procedures; (ii) organisational structure for effective credit administration and risk management functions; and (iii) credit risk rating framework. The Section also illustrates credit risk scoring and rating models. Risk scoring and rating model used by one Indian bank is given in the **Appendix 37.1.**

Credit Policies and Procedures

As per RBI guidelines, banks should prepare a comprehensive and well articulated, written credit policy document, with the approval of their Boards of Directors, highlighting the strategy, policies and procedures for effective management of credit and mitigation of credit risks. The credit policies and procedures should have the following features:

- Based on studies of industries/business activities, banks should identify those which are doing well and have encouraging outlook/potential for growth. Such activities should be placed under target/preferred credits while others which are not doing well and have uncertain prospects/default risk may be kept under a watch list wherein exposures are increased-contained/reduced.
- Delegation of loan approving/sanctioning powers of officials, linking the same with the risk rating of the borrowers. The level of the loan sanctioning authority may increase as the risk rating worsens.
- Linking credit risk scoring and rating system and risk acceptance criteria with the risk rating of the borrowers so that no loan proposal below a certain cutoff level is entertained. The conditions under which deviations can be made by the sanctioning authority and the level of authority required to ratify the deviations should also be specified.
- The credit policies and procedures should lay down prudential exposure limits for loans to individuals and groups of borrowers, as also for different industries/sensitive sectors, as a proportion of the bank's capital funds.
- They should discuss concentration risks in terms of industry, sector exposures or regional exposures as also the steps that need to be taken for credit dispersions as to mitigate concentration risk. Banks should lay down a system to conduct a regular analysis of the credit portfolio for an ongoing control of risk concentration.

- They should discuss the loan review mechanism and renewal systems and may relate their frequency with the risk rating of the borrowers; Loans under high-risk categories need to be reviewed more frequently.
- Banks should evolve effective systems of monitoring the operational/financial performance of the borrowers, as also the conduct of their bank accounts so that the outstandings remain within limits. The monitoring system may vary depending upon the type of borrower, namely, normal borrower, NPA/sick/rehabilitated unit, suit file/decreed account, one with whom the bank has entered into a compromise settlement for the recovery of its dues and so on.
- The policies and procedures should discuss the system/procedure for judging the credit quality on an on-going basis and any migration of credit from low to high-risk categories and *vice-versa*.
- They should lay down clear guidelines for pre-sanction appraisal and monitoring of funded and non-funded exposures, which can get converted into funded liabilities in case the customer does not meet his commitment.
- They should discuss Forex risks, which may comprise of transfer risk, currency risk, cross border risk, sovereign risks, non-sovereign risk or political risk and so on and lay down countrywise exposure limits based on an analytical review and guidelines so as to mitigate such risk.
- They should lay down policies and fix limits for inter-bank exposures based on internal/external ratings or any other prudential parameters.
- They should lay down guidelines on multiple credit approver, making financial sanctions subject to approvals at various stages, namely, credit risk rating, risk approvals, credit approval grid and so on.
- They should lay down policies to control exposures in high-risk sectors, depending upon the bank's own experience, such as capital markets, gold and bullion, commercial properties development, loans against shares/debentures and so on.
- They should evolve a consistent approach towards an early recognition of a problem, exposures and remedial actions, by using appropriate rehabilitating, restructuring schemes.
- Establish proactive policies like periodical industry studies, plant visits, periodical credit calls that are documented, system of review of troubled/weak exposures and so on.
- Banks can evolve their own policies, but still, there may be some areas like maximum prudential exposure limits, financing against shares/debentures of companies, advances against gold/bullion and so on, where RBI guidelines may still be mandatory. The bank's policy document should include all mandatory instructions of the RBI, so as to ensure their compliance.
- Evolve mechanism of loan pricing (interest rates fixation) for borrowers, linking it with their risk categorisation. A higher interest rate maybe charged from in the borrowers higher risk category.
- To create an independent set-up for credit risk management, credit risk audit and loan review mechanism, in line with RBI guidelines and depending upon the type/size of the banking institutions.

Each bank should also develop, with the approval of its Board of Directors, its own strategy or plan that could guide the bank's credit granting activities and spell out the bank's credit appetite and acceptable level of risk reward trade-off for its activities. The strategy should include a statement of the bank's willingness to grant loans based on the type of economic activity, geographical location, currency, market maturity and anticipated profitability. This would necessarily translate into an the identification of the target markets and business sectors, preferred levels of diversification and concentration, the cost of capital in granting credit and the cost of bad debts.

It is not only important to evolve policies and procedures for the management of credit risk, but also to ensure that these are properly communicated to the various functionaries and are implemented in right earnest. Further, there has to be a system of periodic review of these policies/procedures at the top management/Board level, so that necessary amends are made wherever required, for their better implementation.

Organisational Structure For Effective Credit Administration and Risk Management Function

As per the RBI guidelines, for a successful implementation of effective credit administration and risk management system, banks should create a sound organisational structure, with the following basic features:

Functions of Board of Directors Relating to Risk Management The functions of the Board of Directors relating to risk management are listed below.

- The Board of Directors should have the overall responsibility for the management of credit and other risks. Banks may set-up a Board level sub-committee which should effectively coordinate between the various committees, namely, the Credit Risk Management Committee (CRMC), the Asset Liability Management Committee (ALCO) and the Operational Risk Management Committee (ORMC).
- The Credit Risk Management Committee (CRMC) should be headed by the bank's Chairman/ Chief Executive Officer (CEO) or Executive Director (ED) and should comprise of heads of the Credit Administration Department (CAD), Credit Risk Management Department (CRMD), Treasury Department and the Chief Economist. The size of the committee may depend upon the size of the bank and its loan book.
- The CRMC may undertake the following broad functions:
  - Be responsible for the implementation of the credit risk policy/strategy, approved by the Board of Directors (Board),
  - Monitor credit risk on a bank-wide basis and ensure compliance with limits approved by the Board,
  - Recommend to the Board, for their approval, a clear policy on the standards for presentation of credit proposals, financial covenants, rating standards and benchmarks,
  - Decide on the delegation of credit approving powers, prudential limits on large credit exposures, standards for loan collaterals, portfolio management, loan review mechanism, risk concentration, risk monitoring and evaluation, pricing of loans, provisioning, regulatory/legal compliances. The Credit Risk Management Department (CRMD) should be independent of the Credit Administration Department (CAD). The broad functions of the CRMD and CAD are listed below:

Functions of CRMD The functions of CRMD would, *inter alia*, include the following:

- Laying down risk assessment systems, developing the MIS, monitoring the quality of or loan, or investment portfolio, identifying problems and correcting deficiencies.
- Enforcing compliance with the risk parameters and prudential limits set up by the CRMC/ Board.
- Measuring, controlling and managing credit risk on a bank-wide basis, within the limits set up by the Board/CRMC.
- Being accountable for protecting the quality of the entire loan/investment portfolio. The department should undertake portfolio evaluations and conduct comprehensive studies on the environment.

- Undertaking loan review/audit to determine the resilience of the loan portfolio. Large banks may have a separate set-up for loan review/audit.

Functions of CAD The functions of the CAD would, *inter alia*, include the following:

- To be responsible for business development and customer relationship management.
- Transaction management, i.e., risk assessment, loan pricing, loan approvals and structuring the facilities, to be offered, documentation, loan administration, ongoing monitoring and risk measurement.
- The portfolio management phase may entail monitoring of the portfolio at a macro level and management of problem loans.

In addition, banks should have independent set-ups to perform functions like risk rating of borrowers, monitoring/review of loans and for credit risk audit. **The organisational chart recommended by the RBI is depicted in *Figure 37.1*.**

Credit Risk Rating Framework

The RBI credit risk rating framework is discussed below, with reference to (a) definition of credit risk, (b) factors causing credit risk, and (c) guidelines.

Definition Credit risk is the possibility of losses associated with a diminution in the credit quality of borrowers/counterparties. In a bank's credit portfolio, losses stem from outright default due to inability or unwillingness of a customer/counterparty to meet his commitments in relation to lending, trading, settlement and other financial transactions. Alternatively, losses result from a reduction in the portfolio value arising from actual or perceived deterioration in credit quality.

Credit risk emanates from the bank's dealings with an individual, corporate, bank, financial institution or a sovereign and may take any of the following forms:

- In the case of direct lending: the principal and/or interest amount may not be repaid;
- In the case of guarantees or letter of credits: funds may not be coming from the constituents upon crystallisation of the liability;
- In the case of treasury operations: payment(s) due from the counterparties under the respective contacts may not be forthcoming or ceases;
- In the case of security trading business: funds/securities settlement may not be effected; and
- In the case of cross-border exposure: availability and free transfer of foreign currency funds may either be frozen or restrictions imposed by the action of, or because of political/economic conditions in the country where the borrower is located.

Factors The factors which cause credit risk and have an adverse impact on the credit quality, *inter-alia*, include:

(i) Deficiencies in the appraisal of loan proposals and in the assessment of the creditworthiness/ financial strength of the borrowers;
(ii) Inadequately defined lending policies and procedures;
(iii) High prudential exposure limits for an individual and a group of borrowers;
(iv) Absence of credit concentration limits for various industries/business segments;
(v) Inadequate value of collaterals obtained by the banks to secure the loan facilities;
(vi) Overoptimistic assessment of thrust/potential areas of credit;
(vii) Liberal loan sanctioning powers for bank executives without checks and balances;
(viii) Liberal sanctioning of non-fund based limits without proper scrutiny of borrowers' activity, financial strength, cash flows and so on;

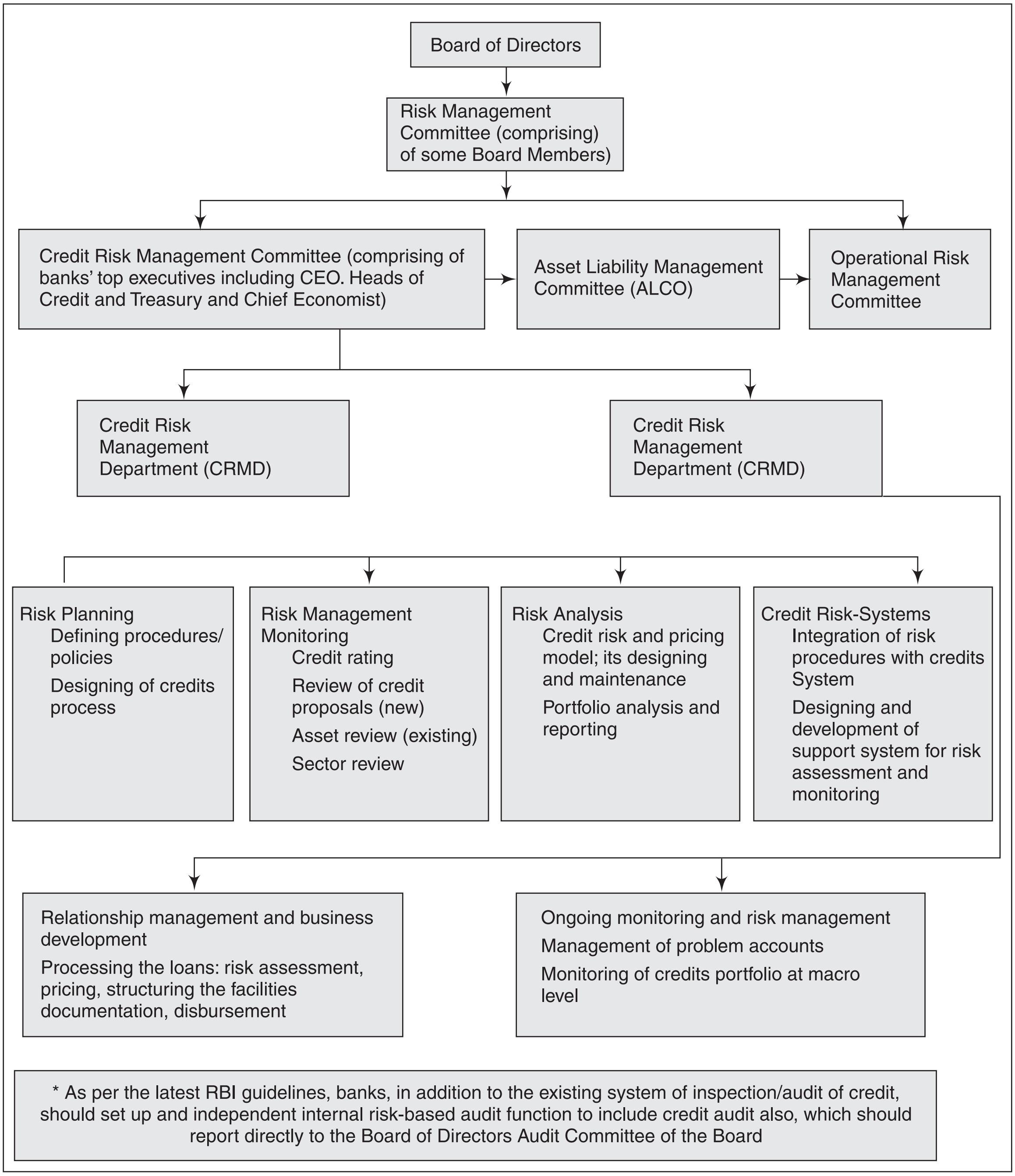

FIGURE 37.1 Organisational Structure for Credit Risk Management Function

(ix) Lack of knowledge and skills in officials processing loan proposals and subjectivity in credit decisions;
(x) Lack of effective monitoring and consistent approach towards early recognition of problem accounts for initiation of timely remedial actions;
(xi) Lack of information on the functioning of various industries and performance of economy;
(xii) Lack of proper coordination between the various departments of banks looking into credit functions;
(xiii) Lack of a well-defined organisational structure and clarity with regard to responsibilities, authorities and communication channels;
(xiv) Lack of a proper system of credit risk rating, quantifying and managing across geographical and product lines;
(xv) Lack of effectiveness of the existing credit inspection and audit system and slow progress in removal of the deficiencies as revealed during inspection/audit of branches and controlling offices;
(xvi) Lack of reliability and integrity of data being used for managing credit and risks associated with lending; and
(xvii) Too much harping on staff accountability and as a result, demotivating the staff and not looking at the credit decisions from hindsight.

The above illustrative factors which may have an adverse impact on the quality of a bank's credit portfolio, can be remedied only if the banks evolve efficient credit administration and risk management systems which may include formulation of well articulated policies/procedures, creating an effective organisational structure manned by well trained and committed personnel and so on.

Risk scoring/rating framework serves as a single point indicator of the diverse risk factors of a borrower to help in taking credit decisions in a consistent manner.

RBI Guidelines According to RBI Guidelines, banks should evolve a comprehensive **risk scoring/rating framework** that serves as a single point indicator of the diverse risk factors of a borrower/counterparty, to help in taking credit decisions in a consistent manner. The rating system should be designed to have a substantial degree of standardisation so that it helps in revealing the overall risk of lending, setting pricing and non-price terms of loans as also present meaningful information for the review and management of the loan portfolio. The risk rating should reflect the credit risk and the quality of the loan portfolio.

The risk rating framework should be drawn in a structured manner and banks may use any number of operational parameters, financial ratios and collaterals, as also qualitative aspects of management and industry characteristics that may have a bearing on the creditworthiness of borrowers. They should also examine their foreign exposures, particularly those which are unhedged, and factor these in their rating models, as such exposures can alter their risk profile. They should have a separate rating framework for large corporates, small borrowers, traders, agriculturalists and so on and may prescribe certain level of standards or critical parameters, beyond which no loan proposals should be entertained. Further, banks as a matter of prudent risk management policy, should also prescribe the minimum rating below which no exposures would be undertaken and any flexibility in the minimum standards and conditions for relaxation and authority should be articulated and documented in its loan policy.

Banks should undertake the credit risk assessment exercise normally, at quarterly intervals or at least at half-yearly intervals, to gauge the quality of their credit portfolio. Any variations in the rating of the borrowers over a period of time would indicate changes in the credit quality. In order to ensure the consistency and accuracy of ratings, the responsibility of setting and confirming such ratings should vest with the loan review function and it should be examined by an independent Loan Review Group.

The indicative parameters for credit risk rating should include: Debt-Equity Ratio, Debt-Service Coverage Ratio (DSCR), Return on Capital Employed (ROCE), Operating Profit Margin, Gross Revenue and so on. Further, the rating scale may consist of 9 levels, of which 1 to 5 may represent acceptable credit risk, while 6 to 9 would be unacceptable. Each level of rating may be allotted a suitable alphabetic prefix, which may make their individual ratings scale distinct and unique.

Structure The risk rating structure should serve the following purposes:

Taking Credit Decision This is the decision as to whether to lend to a borrower or not. A borrower with a high rating would be financed.

Pricing of Loans (fixation of interest rates). A borrower falling in a higher risk category would be priced higher.

Mitigation of Risk The extent of borrower's contribution in the form of margin and collaterals can be demanded on the basis of the borrower's risk-rating category.

Nature of Facilities Whether to sanction cash credit, term loan or demand loan to a borrower may depend upon its risk categorisation. A demand loan or a term loan for a shorter period, may be considered where the risk involved is high.

Delegation of Loaning Power Higher loaning powers may be vested to the field functionaries for sanction of loans to borrowers who are rated high, with practically no risk. For borrowers falling under high-risk categories, approval of loans should be considered at higher levels of authority.

Selective Monitoring It is difficult for banks to pay the same degree of attention to all loan accounts due to fast expansion of credit. Borrowers who fall under high risk rating categories can be kept under closer monitoring, that is, they should be monitored more frequently than the low risk borrowers.

Ensuring Quality The banks need to judge the quality of the total credit portfolio, as also under various segments, that is, industry, trade, transport, agriculture and so on (large/medium/small). They also have to identify the problem accounts and determine the risk concentration of the credit portfolio.

Migration of Credit This involves effectively monitoring the overall credit portfolio by looking at the movement and migration of the portfolio, from higher to lower risk categories and vice vesa.

Management of Credit Risk Effective management of credit risk by evolving effective and robust credit policies and procedures which are sensitive and responsive to changes needs to be undertaken by the banks.

Identification of the Thrust Areas of credit which are looking up and safe as also those which are risky, having a high default rate.

Credit Risk in Non-Fund Based Exposures Credit risk in non-fund based businesses need to be assessed in a manner similar to the assessment of a fund-based business since it has the potential to become a funded liability in case the customer is not able to meet his commitments. Financial guarantees are generally long-term in nature and assessment of these requirements should be similar to the evaluation of requests for term loans. As contracts are generally for a term of 2-3 years, banks must obtain cashflows over this time horizon, arising from the specific contract they intend to support and determine the viability of financing the contract.

For reducing the credit risk on account of non-fund based businesses/exposures, banks may adopt measures including, *inter-alia*, the following:

(i) Banks must ensure that the security, which is available to the funded limits, also covers the letter of credits limits and the guarantee facilities. On some occasions, it will be appropriate to also take a charge over the fixed assets, especially in the case of long-term guarantees.
(ii) In the case of guarantees covering contracts, banks must ensure that the clients have the requisite technical skills and experience to execute the contracts. The value of the contracts must be determined on a case by case basis, and separate limits should be set up for each contract. The physical progress of contracts and financial indicators should be monitored regularly, and any slippages should be highlighted in the credit review.
(iii) The strategy to sanction non-fund facilities with a view to increase earnings should be properly balanced *vis-à-vis* the risk involved and extended only after a thorough assessment of the credit risk has been undertaken.

Risk-based Audit System Banks should put in place a risk-based internal audit system which should play an important role in an effective 'Credit Risk Management and Control System', as also help in ensuring regulatory compliances by providing high quality counsel to the top management of banks. So far, banks' internal audit systems have been concentrating on transaction testing, ensuring accuracy and reliability of accounting records and reliability and timely submission of control returns and so on. However, in the changing scenario, particularly when the RBI is also moving towards risk-based supervision, banks should widen and redirect the scope of their internal audit so that it also helps in evaluating the adequacy and effectiveness of risk management policies and procedures and internal control systems. Further, the internal risk-based audit function should be independent and entrusted to officials who are welltrained and can perform the job objectively and impartially. Banks should determine the scope of risk-based internal audit for low, medium, high and extremely high-risk areas. They should at the minimum, cover in the audit reports, the following:

(i) Reliability of the process by which risks are identified and managed in various areas.
(ii) Gaps, if any, in the control mechanism, which might lead to frauds; identification of fraud prone areas.
(iii) Verify compliance of laid down policies/procedures and regulatory compliance with regard to sanction of loans.
(iv) Examine the effectiveness of the control system which picks up early warning signals and suggest remedial measures.
(v) Assess integrity and reliability of data and its timely preparation and submission by the offices.
(vi) Position of budgetary control and performance reviews.
(vii) Testing/verification of transactions related to assets, to the extent considered necessary.
(viii) Monitoring compliances with risk-based internal audit reports.
(ix) Review of systems in place for ensuring compliances with money laundering controls; for identifying potential inherent business risks and control risks, if any; for suggesting various corrective measures and undertaking follow-up reviews to monitor the actions taken thereon.

Risk-based audit is expected to be an aid to the ongoing risk management in banks by providing the necessary checks and balances in the system. For the effectiveness of a risk-based audit, banks should establish a proper set-up clearly, indicating the roles responsibilities and the communication channels between the risk-based internal audit staff and management, which would encourage reporting of negative and sensitive findings, which would, in turn, help in initiating corrective actions to remedy the ills.

In brief, a well designed credit risk scoring/rating framework can aid banks in identifying, quantifying, aggregating and managing risk across geographical and product lines. The rating framework can be of immense use in taking credit decisions, pricing, evolving effective credit policies/procedures, avoiding credit concentration, taking capital structure decisions and so on. For designing an effective risk rating structure and its implementation, banks should create a proper organisational set-up, manned by a staff who is not only qualified and experienced, but also has a positive outlook. The staff identified for the purpose should also be provided with intensive training, which is structured and designed after considering the best international procedures/practices that have been tried out successfully.

Credit Risk Scoring and Rating Models

To comply with the RBI guidelines on scoring/rating systems, most of the banks have developed models to classify their large/medium sized industrial borrowers under various risk categories. Though the parameters used by the banks have a lot of commonalities, their scores and number of risk categories widely vary, depending upon their own risk perception. The evaluation of the parameters also vary as some banks judge them against certain benchmarks on a stand-alone basis, while others use the moving average method and allot scores by comparing the same with those of peer units.

Parameters The parameters used in the risk scoring and rating systems can broadly be grouped under the following four main heads:

(i) Operational/functional performance of the unit,
(ii) Bank accounts and securities available,
(iii) Business/industry outlook, and
(iv) Promoters/management.

Some parameters particularly related to the evaluation of the management, are qualitative in nature.

Operational/Financial Performance of The Unit The parameters generally used by the banks under this head are listed below:

(i) Plant capacity utilisation in relation to installed capacity;
(ii) Breakeven point in relation to installed plant capacity;
(iii) Sales trend during the last 3 years;
(iv) Profit trend during the last 3 years;
(v) Achievement of sales projections;
(vi) Achievement of profit projections;
(vii) Net profit to net sales ratio;
(viii) Return on capital employed;
(ix) Ratio of current assets to current liabilities;
(x) Debt-equity ratio (DER);

(xi) Debt service coverage ratio (DSCR);
(xii) Ratio of net sales per annum to working capital;
(xiii) Ratio of net sales per annum to fixed/total assets;
(xiv) Inventory turnover ratio;
(xv) Average collection period of receivables;
(xvi) Average payment period of accounts payable; etc.

Bank Accounts and Securities Available The parameters generally included are:

(i) Conduct of fund and non-fund based accounts with banks/financial institutions: whether these are regular/irregular;
(ii) Compliance of terms/conditions stipulated by banks/financial institutions while sanctioning the loans;
(iii) Position of annual renewal/review of the loan facilities;
(iv) Position with regard to submission of balance sheet and profit/loss accounts, monitoring data and inventory statement and so on;
(v) Nature and value of securities (primary/collateral) offered to cover the loan facilities;
(vi) Validity of creation of charge on the securities;
(vii) Interest and other income being earned by the banks;
(viii) Tenability of loan documents in the court of law;
(ix) Position of contingent liabilities, if any;
(x) Transparency and disclosures in audited annual accounts;
(xi) Diversion of short-term funds for long-term users;
(xii) Unauthorised withdrawals of funds for personal use or diversion of funds for investments in allied/associate and other firms;
(xiii) Utilisation of loans sanctioned by banks/financial institutions (FIs) for purposes other than those for which these have been lent;
(xiv) Auditor's comments on the quality and valuation of current/fixed assets.

Business and Industry Outlook The relevant parameters are:

(i) Intensity of market competition faced by the industry;
(ii) Technology used and whether it is successfully implemented and chances of its obsolescence;
(iii) Market-demand and growth potential for the products;
(iv) Quality of product(s) and their market acceptability;
(v) Threats of substitutes available and likely to come in the market;
(vi) Export potential of the products;
(vii) Position with regard to availability of raw material;
(viii) Import barriers, if any, imposed by the Government;
(ix) Units' locational advantages and disadvantages;
(x) General outlook and capital market perception of the industry;
(xi) Threat of dumping products by foreign companies;
(xii) Type of product(s)—whether customised or for general use;
(xiii) Foreign exchange component (risk) in the total business, covering both exports/imports;
(xiv) Nature of product(s), their applications and shelf life;
(xv) Volatility of prices of finished goods and basic inputs/material used; and
(xvi) Fluctuations in demand/supply of products, both present and expected in the future.

Promoters/Management The important parameters are the following:

(i) Ownership pattern of the unit, that is, whether public/private limited, proprietorship and so on;
(ii) Qualifications, experience and knowledge of industry/business;
(iii) Integrity, commitment and sincereity;
(iv) Market reputation and credibility;
(v) Track record of debt repayment;
(vi) Financial strength and their capacity to raise more funds;
(vii) Pending statutory dues and litigations, if any;
(viii) Functioning of and support from other group companies;
(ix) Turnover of top management personnel;
(x) History of dividends/bonus issues declared; and
(xi) Future succession plan.

Suggested Credit Risk Scoring and Rating Model Using the parameters identified in the RBI guidelines in terms of the four broad heads, a typical scoring/rating model is illustrated below.

Operational and Financial Performance (Maximum score: 80) The operational and financial performance of the unit being rated may be judged from certain parameters such as plant capacity utilisation, achievement of sales and profit projections; financial ratios such as current, debt-equity, debt service coverage, return on capital employed, cash flow positions and so on. All these parameters, as well as these are to be evaluated, indicating the scores to be allotted thereagainst, are discussed below.

Plant Capacity Utilisation (Maximum score: 10) It is an important parameter which can tell a lot about the unit's functioning. Low plant capacity utilisation is a disturbing feature which can be due to various reasons, such as, lack of demand, imbalance in plant/machinery, frequent breakdowns due to plant being old and so on. Whatever may be the reason, it would have an adverse effect on the unit's functioning and ultimately, on its profitability. It would be desirable to compare this parameter with the average capacity utilisation of peer units engaged in similar activity and having plant/machinery more or less of the same installed capacity. In case the average capacity utilisation of a peer is X, then scores allotted for the various levels of plant capacity utilisation may be as under:

Plant capacity utilisation	*> 1.25X*	*1.10X to 1.25X*	*X to < 1.10X*	*0.9X to < X*	*0.8X to 0.9X*	*.70X to 0.80X*	*<0.70X*
Score	10	9	8	6	4	2	0

In case data about units is not available, the score may be allotted on the basis of a comparison of the actual utilisation of plant capacity with the projections accepted by the bank while sanctioning the loan:

Plant capacity utilisation (% usage of projections	*100% or more*	*95-99%*	*90-94%*	*85-89%*	*80-84%*	*75-79%*	*<75%*
Score	10	9	8	6	4	2	0

Current Ratio (Maximum score: 10) This ratio helps in measuring the liquidity and solvency of a company. A higher current ratio may be good for the creditors, but a very high ratio may have an impact on the company's profitability. The distribution of score for various levels of the current ratio is indicated below:

Current ratio	*1.50 or ore*	*1.30 < 1.50*	*1.15 to < 1.30*	*1.0 to <1.15*	*<1.0*
Score	10	8	6	3	0

Return on Capital Employed (Maximum score: 10) [Profit before interest and tax ÷ Capital Employed] The percentage of return on capital employed is a good indicator of a company's earning capacity. Any company having a return on capital employed that is lower than they cost of capital employed is undesirable. The score distribution covering various returns in percentage terms, is given below:

Return on capital employed	*>20%*	*17 to 20%*	*14 to < 17%*	*12 to < 14%*	*10 to < 12%*	*<10%*
Score	10	8	6	4	2	0

Debt Service Coverage Ratio (DSCR) (Maximum Score: 10) [Net Profit + depreciation + interest on term loan/Annual repayment of term loan + interest on term loan] This ratio measures the capacity of the company to service its debt, that is, repaying the term liabilities and interest thereon. The score to be allotted for ratios at various levels are given below:

DSCR	*>2.0*	*1.8 to 2.0*	*1.6 to < 1.8*	*1.2 to < 1.6*	*1.0 to < 1.3*	*<1.0*
Score	10	9	7	5	3	0

Debt Equity Ratio (Maximum Score: 10) [Total Debts ÷ Tangible net worth] This ratio is an indicator of the promoters'/shareholders' stake in the business, when compared to the total debts. A lower debt-equity ratio means, high or long-term stability in case the ratio is gradually coming down.

Debt equity ratio	*Upto 1.0*	*>1.0 to 1.5*	*>1.50 to 2.0*	*>2.0 to 2.50*	*>2.50 to 3.0*	*>3.0*
Score	10	9	7	5	3	0

Achievement of Net Sales Projections (Maximum Score: 10) The level of achievement of net sales when compared to projections, is an important indicator of a unit's efficient functioning.

Percentage achievement of net sales projection	*95% and more*	*90% to < 95%*	*85% to < 90%*	*80% to < 85%*	*75% to < 80%*	*Below 75%*
Score	10	9	7	5	3	0

Achievement of Net Projections (Maximum Score: 10) The level of achievement of net profit when compared to projections, is an important indicator of a unit's efficient functioning and control on its expenditure.

Percentage achievement of net profit projection	*95% and more*	*90% to < 95%*	*85% to < 90%*	*80% to < 85%*	*75% to < 80%*	*Below 75%*
Score	10	9	7	5	3	0

Future Cash Flow Position (Maximum Score: 10) Banks should obtain the cash flow statement of the borrowing companies to assess as to whether they would have enough profit generation and surplus funds to repay their term loan instalments or to meet their capital expenditures, as envisaged in the projections given by the company. The various situations and score to be allotted are given below:

Future cash flows	*Company would have enough profit and surplus generation of funds to meet its obligations including payment of interest and loan instalments*	*Company would have enough profit and surplus funds after taking into account the loans already sanctioned, to be released shortly.*	*Company would have enough profit and surplus funds after taking into account only the applied for, which are yet to be sanctioned/released.*	*Company may not have enough profit and surplus funds to meet its loan repayments obligations and may default.*
Score	10	7	4	0

Conduct of Bank Accounts and Availability of Collaterals (Maximum score: 45). The conduct of bank accounts with banks/FIs is to be evaluated in the context of regularity in accounts, which may depend on timely payments of interest and instalments of the loans. In addition, the conduct of accounts can be gauged from the compliance of terms/conditions related to the loan, timely submission of data/information to the bank and securities offered by the borrower to secure bank loans. Other aspects related to this head may include operations in non-fund based limits and diversion of funds. The parameters and scores allotted to them are given below:

Conduct of Bank Accounts (Regular/Irregular) (Maximum score: 5)

Accounts running regular and their conduct satisfactory	*Accounts remained irregular for 15 days*	*Accounts remained irregular for 16-30 days*	*Accounts remained irregular for 31-45 days*	*Accounts remained irregular for more than 45 days*
Score 10	8	6	3	0

Compliance of Terms and Conditions of Sanction (Maximum score: 10)

All conditions complied with	*Conditions related to security creation complied with while others still remain to be complied with*	*Conditions of security creation are yet to be complied with, while other conditions complied with*	*Conditions have not been complied with*
Score 5	4	2	0

Discipline in Timely Submission of Financial Data/Stock Statements (Maximum score: 5)

Timely submission	*Delayed submission upto 15 days*	*Delayed submission 16 – 30 days*	*Delayed submission 31 – 45 days*	*Delayed submission more than 45 days*
Score 5	4	3	2	0

Security Coverage (Primary and Collateral) (Maximum score: 10)

Percentage to total sanctioned limits, both fund and non fund based	*>200%*	*175 to 200%*	*150 to <175%*	*125 to <150%*	*100 to <125%*	*<100%*
Score	10	8	6	4	2	0

Operations in Non-Fund Based Loan Limits (Maximum score: 5) Non-fund based loans limits generally include the letter of guarantee and the letter of credit limits. These are called non-fund based limits as these do not involve extending any funds or money. These, however, involve commitment by banks on behalf of their customers to pay in the event of default by the customers. The various situations and scores allotted under each of the situation is given below:

Operations in non-fund based loan limits	*Borrower honours his commitment and arranges funds whenever L/G or L/C liability falls due*	*Borrower generally arranges funds whenever liabilities devolve/or takes maximum 15 days in meting his liabilities*	*Borrower generally delays in arranging the funds whenever the liabilities devolve The period of delay goes upto 30 days.*	*Borrower generally delays in arranging the funds whenever non-fund based limits devolve. The delay is generally more than 30 days.*
Score	5	4	2	0

Diversion of Funds (Maximum score: 10) Banks take a serious view whenever they observe that the borrowers are diverting funds to their allied and associated concerns, particularly when they are themselves not doing well. The diversion may affect the company's liquidity and operations. This parameter is important and the scores allotted for the various types of situations are given below:

Diversion of funds	*Company is not diverting any funds*	*Company has diverted funds, may be from short terms, to long terms, to be utilised in the company itself, to meet emergent norms.*	*Company has diverted funds to its allied associated concerns by maintaining current ratio (CR) and debt-equity ratio (DER) within bank's acceptable norms*	*Company has diverted funds to its allied/ associated concerns and for repayment of unsecured loans by affecting its CR and/or DER beyond norms acceptable to banks.*
Score	10	7	4	0

Industry/Business Outlook (Maximum score: 40) The future outlook of any unit can be gauged from certain parameters such as expected growth rate, intensity of competition from existing/new entrants in the field-as well as threat from substitutes, technology used and threat of its obsolescence, general outlook based on capital market perceptions and so on. The scores allotted for the above parameters are given below:

Growth Rate (Maximum score: 10) (Growth in terms of percentage during last two years)

>20%	*15-20%*	*10-<15%*	*5-<10%*	*<5%*	*Decline*
Score 10	8	7	5	3	0

Threat of Competition (Maximum score: 10) From existing and new entrants and substitutes.

Minimum threat	*Modest threat*	*Marginal threat*	*High threat*	*Very high threat*
Score 10	8	5	2	0

Reliability of Technology (Maximum score: 10) Used and Threat of Its Obsolescence.

Minimum threat	*Modest threat*	*Marginal threat*	*High threat*	*Very high threat*
Score 10	8	5	2	0

General Outlook of Industry Based on Market Study and Capital Market Perception (Maximum score: 10)

Bright outlook	*Good outlook*	*Average outlook*	*Below Average outlook*	*Dismal outlook*
Score 10	8	6	3	0

Promoters/Management (Maximum score: 35) Evaluating and rating of management is always difficult as most of the parameters available for this purpose are generally qualitative in nature and difficult to quantify for the purpose of assigning scores/ratings. Nevertheless, it is important to evaluate the management since the single most important reason for sickness of companies has been inefficient management and their lack of integrity and commitment. The various parameters, how these are to be evaluated and scores allotted are discussed as under:

Integrity/Commitment would be reflected in:

- Market and banker's report;
- Willingness to offer securities to bank's loan;
- Willingness to increase their stake in the business;
- Commitment towards business and taking steps for faster implementation of the project; and
- Past track record in honouring their commitments.

Financial Strength/Risk Bearing Capacity and Technical Knowledge: The parameters are:

- Financial position (net worth) of the promoter(s);
- Position with regard to availability of funds/liquid assets;
- Means of financing and their stake in the business;
- Technical/financial qualifications/experience of the promoter(s);
- Knowledge of product(s) and process of manufacture;
- Knowledge of financial/banking related aspects; and
- Support from group companies.

Organisational Structure and Succession Plan: This to be examined in relation to:

- Type of organisational structure and hierarchy;
- Qualifications/experience of persons holding key positions;
- Employee turnover in the organisation;
- Coordination between the various executives/departments;
- Position of delegation of powers and responsibilities; and
- Succession plan for 'Top Managements'.

Market Reputation and Past Track Record: This should be examined in the light of:

- Dealing in the market and their reputation;
- Price of the share and earnings per share;
- Market capitalisation and volume of stocks traded in the market; and
- History of payment of dividends/bonus issues.

The allotted scores to each of the above parameters are listed below:

Management Integrity/Commitment, Financial Strength (Maximum score: 20)

Parameter and rating	*Maximum score*	*Of high order*	*Good*	*Satisfactory*	*Marginal*	*Unsatisfactory*
Integrity/commitment	5	5	4	3	2	0
Financial strength/technical knowledge and risk bearing capacity	5	5	4	3	2	0
Organisational structure and succession plan	5	5	4	3	2	0
Market reputation and past track record	5	5	4	3	2	0

Management of Inventory and Receivables in Relation to Net Sales in Months (Maximum Score: 5) [Average Inventory + Receivables ÷ Net Sales per month] This measure indicates as to how efficiently the inventory and receivables are being managed. The shorter the period, the more efficient is the management.

Ratio value score	*Maximum*	*<3 months months*	*3 to <4 months*	*4 to <5 months*	*5 to <6 and above*	*6 month*
	5	5	4	3	2	0

Realisability of Receivables and Valuation of Inventory (Maximum score: 5)

Realisability of receivables and valuation of inventory	*Maximum score*	*Comments given by bank's inspectors/stock auditors are satisfactory*	*Comments given raised more doubts but no shortfall in value is indicated*	*Comments given indicate some shortfall in value, say, maximum upto 5%*	*Comments given are adverse, which are indicative of poor quality of receivables/inventory*
Score	5	5	4	2	0

Transparency in Account Statements (Maximum score: 5)

Transparency in accounting statements (related to disclosures by management and qualifications by auditors)	*Maximum score*	*Standard accounting practices are being followed which are consistent; management has made disclosures and there are no qualifications from the auditors*	*Standard accounting practices are being followed which are consistent; management has made disclosures and auditors have given qualifications which are not damaging*	*Accounts lack transparency as disclosures are not adequate; Auditors have given qualifications which are damaging and may erode company's net worth.*
Score	5	5	3	0

Summary of Various Parameters The various parameters and the associated scores are summarised below.

A. Operational/Financial Performance: (Maximum score)	**80**
1 Plant capacity utilisation	10
2 Current ratio	10
3 Return on capital employed	10
4 Debt equity ratio	10
5 Debt service coverage ratio	10
6 Achievement of net sales projections	10
7 Achievement of net profit projections	10
8 Future cash flows	10
B. Conduct of Bank Accounts and Availability of Securities: (Maximum Score)	**45**
1 Accounts running regular/irregular	10
2 Compliance in terms/conditions of sanction	5
3 Discipline in timely/submission of data/information	5
4 Primary and collateral securities	10
5 Operations in non-fund based loan limits	5
6 Diversion of funds	10
C. Industry/Business Outlook: (Maximum Score)	**40**
1 Expected growth rate	10
2 Threat of competition from existing and new entrants and substitutes	10
3 Technology development and threat of obsolescence	10
4 General outlook/capital market perception	10
D. Management-Rating and Evaluation: (Maximum Score)	**35**
1 Management integrity/commitment and financial strength	20
2 Management of inventory and receivables in relation to its sales	5
3 Realisability of receivables and valuation of inventory	5
4 Transparency in accounting statements	5
Grand Total (A+B+C+D):	**200**

The borrowers are to be rated on the basis of their score received out of 100 and, therefore, the score received is reduced to 50 per cent as the total score of all the parameters under A+B+C+D works out to be 200.

Risk Categorisation of Borrowers Based on the score achieved by borrowing units, out of a total score of 100, they may be allotted grades and risk categories as given below:

The risk rating of individual borrowers can also help in evaluating/rating the credit portfolio and evolving policies which can help in checking the migration of borrowers from a low risk category to a high-risk category.

Score	*Rating/Grade*	*Risk categorisation*	
• 90% or more	AAA	Practically no risk	
• 80–89%	AA	Minimal risk	
• 70–79%	A+	Modest risk	
• 60–69%	A	Marginal risk	
• 50–59%	B+	Medium risk	(Generally border line/likely NPAs)
• 40–49%	B	High risk	(Generally sub-standard category of NPAs)
• 30–39%	C	Very high risk	(Generally doubtful category of NPAs)
• Below 30%	D	Caution	(Generally loss category of NPAs)

One credit risk rating model developed by an Indian bank is given in **Appendix 37.1.**

Summary

- Risks can be categorised into business-related risks and control-related risks.
- Business-related risks are associated with the operational activities and market environment of banks and FIs. There are six types of such risks: credit risk; market risk; country risk; business environment risk; operational risk; and group risk.
- Credit risk is the possibility of losses associated with a diminution in the credit quality of borrowers/ counterparties. Losses may arise from outright default due to inability/unwillingness of borrowers/ counterparties to meet commitments, as also due to risk inherent in the nature of business activity and environment in terms of obsolescence of technology/product(s) design, competition, inadequate supply of inputs, lack of infrastructure and so on.
- Market risk is caused due to a change in the market variables having an adverse impact on the earnings/capital of a bank. The market risk comprises of interest rate risk, foreign exchange risk, equity price risk, commodity price risk and liquidity risk.
- Interest rate risk may be on account of changes in interest rates, both of assets and liabilities (basis risk), mismatch between assets and liabilities (mismatch/gap risk), depreciation in the assets portfolio due to an increase in the market interest rate (price risk). Forex risk is caused by the effect of an adverse exchange rate movement on the foreign currency exposure of banks and includes transaction exposure, translation exposure and economic exposure. Equity price risk relates to capital market exposures which arise due to an adverse movement in the equity prices. Liquidity risk is caused by a mismatch in the maturity of assets and liabilities.

- Country risk arises when a foreign country is unable to repay its debts. It includes currency transfer risk, political risk, cross-border risk and sovereign risk.
- Business environment risk arises due to lending policies relating to identification of target markets, products/customer base, formulated without prior planning.
- Operational risk is caused by deficient internal processes/systems/procedures, non-conducive work environment, demotivated/untrained/incompetent staff, obsolete/untested technology and so on.
- Group risk may arise from subsidiaries of banks engaged in merchant banking, mutual funds, insurance and so on.
- Control-related risks are associated with the weaknesses in the control systems of banks due to organisational bottlenecks in the form of inadequate/inappropriate structure.
- The credit risk is the possibility of losses associated with a diminution in the credit quality of the borrowers/counterparties. Losses may stem from outright default due to inability/unwillingness of a customer/counterparty to meet commitments in relation to lending/settlement/other financial transaction. Losses may also result from a reduction in the portfolio value arising from actual/perceived deterioration in the credit quality.
- Banks and FIs should prepare a comprehensive and well articulated/written credit policy document, highlighting the strategy, policies and procedures for effective management of credit and mitigation of credit risks. The main features of the policies/procedures, *inter alia*, should include identification of activities/industries doing well, delegation of approving/sanctioning powers, linking credit risk scoring/rating system and risk acceptance criteria with risk rating of borrowers, laying down prudential exposure limits for loans, discussion of concentration risk/loan review mechanism and renewal systems, evolution of effective systems of monitoring operational/financial performance of borrowers, laying down guidelines on pre-sanction appraisal and monitoring, discussion of forex risk, fixation of limits for inter-bank exposures, laying down guidelines on multiple credit approval/policies on exposure to high-risk sectors, evolving consistent approach towards early recognition of problem-exposures and remedial action, mechanism of loan pricing and creation of independent set up for credit risk management and audit and loan review mechanism in line with RBI guidelines.
- For the successful implementation of effective credit administration and risk management systems, a sound organisational structure should be created by each bank. The Board of Directors should have the overall responsibility for management of credit and other risks. The CRMC of the Board should be responsible for the implementation of the credit risk policy/strategy decided upon by the Board of Directors. The CRMD of the CRMC should be independent of the CAD. Banks should also have an independent setup to perform functions like risk rating of borrowers, monitoring/review of loan and for credit risk audit.
- Banks should evolve a comprehensive risk scoring/rating framework to serve as a single point indicator of diverse risk factors of borrowers/counterparties. The risk rating structure should serve the following purposes: taking credit decisions, pricing of loans, mitigation of risk, nature of facilitating delegation of loaning power, selective monitoring, ensuring quality, migration of credit, management of credit risk and identification of thrust areas.
- A well-structured credit rating framework should be developed by using a number of operational parameters, financial ratios, collaterals, qualitative aspects of management and industry characteristics. The scores allotted to each parameter may depend upon their risk predicting capacity. An illustrative list of parameters has also been given.
- The risk rating framework for larger, medium and small enterprises and traders may vary. Normally, it should have nine grades of which, the first five may represent acceptable credit while the remaining four may represent unacceptable credit. It should have some minimum cut-off score below which no credit proposal should be entertained. For any relaxation, there should be clear guidelines in the loan policy, especially indicating the authority who can permit such relaxation.
- The rating exercise should be undertaken normally, at quarterly intervals or at least on a half yearly basis, to assess the migration in the credit quality.

- Credit risk in non-fund based businesses should be assessed on the same lines as the assessment of fund-based business. Financial guarantees should be evaluated in the same manner as term loans.
- Banks should put in place a risk-based internal audit system. They should determine the scope of such audit for low, medium, high and extremely high-risk areas. The minimum coverage of the audit report should, *inter alia*, include, reliability of process of identification/management of various risk areas, gaps in control mechanism, verification of compliance of policies/procedures, examination of effectiveness of control system, assessment of integrity/reliability of data and its timely preparation, position by budgetary control/performance review, verification of asset-related transactions, monitoring compliances with risk-based internal audit reports and so on.
- The parameters used by banks in designing a scoring/rating system fall into four broad categories: operational/financial performance of the unit; bank accounts and securities available; business/industry outlook; and promoters/management.
- The important parameters generally used by banks under the head operational/financial performance include plant capacity, break-even point, sales/profit trend/projections, profit margin, ROCE, DER, DSCR, ratio of sales to working capital/assets, inventory turnover, average collection/payment period and so on.
- The important parameters relevant to bank accounts and securities available are: regularity in the conduct of accounts, compliance with the terms of sanction of loan, annual review/renewal of loan facility, submission of data, nature/volume of security, validity of charge, transparency/disclosure in accounts, diversion of funds, unauthorised withdrawal of funds, utilisation of loans, auditors' comment on quality/valuation of assets and so on.
- The business and industry outlook would be reflected in factors such as competition, technology, market demand and growth potential, quality of products, exports-potential, import barriers, foreign exchange component, volatility of prices of the product, and so on.
- The major components of promoters/management assessment are ownership pattern of the unit, qualifications, integrity/commitment/sincerity, market reputation/credibility, financial strength, functioning/support of other group companies, turnover of top management, succession plan and so on.

Review Questions

RQ. 37.1 (a) Indicate whether the following statements are true or false:

(i) Risk rating of the loans falling under high risk category need to be reviewed more frequently.

(ii) Credit risk emanates only from fund based assistance to the borrowers and not from non-fund based assistance.

(iii) Credit risk can be defined as the certainty of the losses associated with a diminution in the credit quality of the borrowers/counterparties.

(iv) RBI guidelines are not mandatory for banks in areas like maximum prudential exposure limits, financing against shares/debentures of companies, advances against gold/bullion etc.

(v) Foreign exchange risks do not affect the borrower's debt repayment capacity and hence need not be factored in while deriving a risk rating for the borrower.

(vi) Credit risk assessment of financial guarantees should be similar to the evaluation of request for term loans, as they are long term in nature.

(vii) RBI has mandated the banks to specifically use the four parameters and their respective scores for their risk rating framework for all borrowers.

(viii) Control related risks are associated with the weakness in the control systems of the banks due to organisational bottlenecks in the form of inadequate/inappropriate structure.

(ix) For sanctioning a working capital loan to a borrower the risk parameter 'average collection period of receivables' is of more importance than the risk parameter 'debt-equity ratio'.

(x) The security provided by the borrower for the fund based assistance must also cover the letter of credit limits and the guarantee facilities.

[Answers: (i) True (ii) False (iii) False (iv) False (v) False (vi) True (vii) False (viii) True (ix) True (x) True]

(b) Fill in the blanks with the correct answer (out of the choices provided).

(i) __________ (RBI/SEBI/Ministry of Finance) has prescribed a comprehensive risk management framework for banks, effective from 2001.

(ii) Credit policy lays down prudential exposure limits for loans to individuals/groups as a proportion of the bank's __________ (investments in government securities/capital funds/ savings account deposits).

(iii) When loan pricing is linked with risk categorisation, higher interest will be charged from the borrowers in __________ (higher/lower) risk category.

(iv) According to RBI guidelines banks should at least __________ (quarterly/semi-annually/ annually) undertake credit risk assessment exercise.

(v) Laying down risk assessment systems, developing MIS, monitoring the quality of loans are the functions of __________ (CRMD/ CAD).

(vi) Under the RBI guidelines __________ (Credit Analysts/Board of Directors/Risk Rating Committee) should have the overall responsibility for the management of credit risk.

(vii) 'Export potential of the company's products' falls under __________ (operational performance/ financial performance/business & industry outlook) category of the risk rating parameters.

(viii) Financial strength and the capacity to raise more funds falls under __________ (operational and financial performance/business & industry outlook/promoters & management) category of the risk rating parameters.

(ix) Banking risks can be classified broadly into business related risks and __________ (country related/ control related/environment related) risks.

(x) Banks should have __________ (same/different) parameters for judging the credit worthiness of small scale, medium scale and large scale borrowers.

[Answers: (i) RBI (ii) capital funds (iii) higher (iv) semi-annually (v) CRMD (vi) Board of Directors (vii) business & industry outlook (viii) promoters & management (ix) control related (x) different]

RQ.37.2 Briefly describe the major types of risks to which banks and FIs are exposed.

RQ.37.3 Define credit risk. Outline the factors which cause credit risk.

RQ.37.4 Write a brief note on the credit policies and procedural aspects of the RBI framework relating to credit risk management of banks in India.

RQ.37.5 Explain the organisational structure required for the implementation of effective credit administration and risk management systems of banks and FIs, within the framework of the RBI guidelines.

RQ.37.6 Outline briefly the parameters used in designing a risk scoring and rating system by banks and FIs in India.

APPENDIX 37-1

Scoring and Rating Model of Y Bank

Rating of Borrowers Based on Percentage of Score as Given Below

Score in % age terms	*Rating*
91% and above	1
86–90	2
81–85	3
71–80	4
61–70	5
51–60	6
41–50	7
40 and below	8

Scoring/Rating Parameters:

A. Financial Ratios and Operational Performance

Current ratio	Value	1.33 and above	<1.33 upto 1.0	Below 1.0	
	Score	2	1	0	
Debt equity ratio	Value	1.5 and below	>1.5 and upto 2.0	>2.0 and upto 3.0	>3.0
	Score	3	2	1	0
Total outside liabilities/Net worth	Value	2.0 and above	>2.0 and upto 3.0	>3.0 and upto 4.0	>4.0
	Score	3	2	1	0
Net profit/Net worth	Value	15% and more	>10%-15%	<10%	
	Score	2	1	0	
Contingent liabilities/Total tangible net worth	Value	3.0 & below	>3.0 and upto 4.0	More than 4.0	
	Score	2	1	0	
%age achievement of sales projections	Value	95% and above	<95% and upto 85%	< 85% & upto 75%	<75%
	Score	3	2	1	0

(*Contd.*)

(*Contd.*)

Achievement of profits projections	Value	90% and above	<0% and upto 80%	<80% upto 70%	<70%
	Score	3	2	1	0
Trends analysis of current ratio (CR)	Value	Increase in CR	No change in CR	Decrease in CR	
	Score	2	1	0	
Trend in debt equity ratio (DER)	Value	Decrease in DER	No change in DER	Increase in DER	
	Score	1	1	0	
Trend in: leverage ratio Ratio of total outside liabilities to tangible net worth	Value	Decrease in leverage ratio	No change in leverage ratio	Increase in leverage ratio	
	Score	1	1	0	
Qualification in balance sheet and profit/loss accounts audit report	Audit report not qualified		Audit report qualified/adverse comments		
		Score 1		0	

B. Industry/Business Risk

External environment – Government policies/pollution control, etc.	Value	Los risk	Medium risk	High rislk
	Score	3	2	0
Intensity of competition	Value	No competition (There are a few players)	Medium level risk of competition	Highly competitive business
	Score	2	1	0
Barriers to entry for new players	Value	High barriers due to high technology/investment/ gestation period etc.		No barriers
	Score	2	0	
Presence of substitutes	Value	No threat of substitutes to borrowers products to borrowers products	Only a few substitutes available	Many substitutes available
	Score	2	1	0

% of earnings before depreciation and tax to total tangible net worth	Value	20% and above	Above 10% and upto 20%	Below 10%
	Score	3	2	0
Cyclicity in earnings depending upon nature, technical obsolescence	Value	Business is neither cyclical nor subjected by technical obsolescence	Business is somewhat cyclical and slightly dependent on nature with chances of technical obsolescence	Business is highly cyclical and can be affected by technical obsolescence
	Score	2	1	0
Borrowers position within the industry vis-à-vis competitors	Value	Market share of business 10% and above	Market share of business ore than 5% but upto 10%	Market share of business <5%
	Score	2	1	0
Technology adopted	Value	Technology is well tested		Technology adopted is old/obsolete
	Score	1		0
Threat of dumping products by foreign companies	Value	No threat of dumping		Threat of dumping
	Score	1		0
Dependence on a few suppliers on materials	Value	Many suppliers of raw materials		Limited suppliers of raw materials
	Score	1		0
Borrowers dep endence on a few customers	Value	Wide range of customers		Dependence on a few customers
	Score	1		0
Foreign exchange component to total business (both import/export)	Value	Negligibly no foreign exchange component of total business is involved		Major foreign exchange component of total business involved
	Score	1		0
Nature of commodities which perishable	Value	Commodities are not perishable		Commodities are perishable
	Score	1		0
Volatility of raw materials/finished goods prices	Value	Prices are highly stable to some fluctuations	Prices are subjected volatile	Prices are highly
	Score	2	1	0
Fluctuations in demand/supply gap (existing/expected)	Value	Demand/supply position is generally stable – practically no fluctuation		Demand/supply position is not stable
	Score	1		0

C. Management Risk

Ownership pattern of the borrower	Value	Widely held and is a listed company with less than 35% shareholdings in the hands of the borrower	Promoters holding more than 35% and upto 60%	Ownership concentrated in a few hands with promoters shareholding more than 60%
	Score	2	1	0
Past track record and experience of the management	Value	Excellent past track record and well experienced management	Moderate past track record and experience	No past track record or experience
	Score	2	1	0
Quality of the management personnel	Value	Well qualified and professionally managed	Moderately qualified or professional managed	Management is not qualified or professionally managed
	Score	2	1	0
Payment record with bank	Value	Excellent payment record with no defaults with banks/FIs	Moderate payment record with some delays	Payment record with banks/FIs not quite satisfactory
	Score	2	1	0
Financial conservation	Value	Promoters are financially conservative	Promoters are not financially conservative	Promoters are liberal
	Score	2	1	0
Market standing and credibility	Value	Borrowers have high market standing/credibility	Borrowers have average market standing/credibility be tested	Borrowers are new to the market and credibility is yet to
	Score	2	1	0
Support from group companies	Value	Strong support from group companies group companies		No support from
	Score	2		1
Succession risk plan	Value	Borrowers have a well laid down succession plan		Borrower's succession plan is not known or not laid own
	Score	1		0

D. Collateral Security

Value of securities in terms of percentage coverage of loan amount	Value	>100%	>75% but <100%	>50% but <75%	>25 but <50%	<25%
	Score	5	4	3	2	1
Income/interest, commission, exchange as %age to total fund based limits	Value	>12%	>10% but <12%	>8% but <10%	>6% but <8%	< 6%
	Score	5	4	3	2	1

E. Conduct of Accounts

Average availment of limits during the year	Value	85% and above	<70% – upto 85%	>50% – upto 70%	<50%	
	Score	3	2	1	0	
Timely submission and stock under/or book debts statement	Value	Timely submission	Delay of more than 15 days (upto 2 occasions per annum)	Delay of more than 15 days (3-4 occasions in one year)	Delay of submission) (more than 4 occasions	
	Score	3	2	1	0	
Compliance of terms/conditions of sanction	Value	All conditions complied	Non-compliance of conditions other than security creation for reasons beyond borrower control	Non-compliance of terms/ conditions other than security creation	Non-compliance of terms/ conditions including security creation	
	Score	4	3	1	0	
Timely renewal/review of the account	Value	Timely submission	Delayed submission upto 30 days	Delayed submission upto 60 days	Delayed submission upto 90 days	Delayed submission beyond 90 days
	Score	4	3	2	1	0

Regularity/ irregularity in term loan accounts	Value	Regular in payment of principal instalments and interest	Occasional delay or default in payment /interest (not exceeding 3 occasions in a year)	Regular delay/default in payment of instalments/ interest (excee -ding 3 occas- ions in a year)	
	Score	3	2	0	
Regularity/ irregularity in working capital facilities	Value	Accounts running regular or where default may occur due to levy of interest for maximum period of 15 days	Accounts irregular for more than 15 days but upto 30 days	Accounts irregular for more than 30 days but upto 45 days. Occasional returning of cheques/ devolvement of letter of credit	Accounts irregular for more than 45 days. Frequent returning of cheques and devolvement of LC bills
	Score	4	2	1	0
Submission of QIS	Value	Timely submission 2 occasions	Delayed submission upto occasions	Delayed submission upto 3	Delayed submission upto 4 occasions
	Score	3	2	1	0
Conduct of group accounts	Value	Highly satisfactory	Satisfactory	Not satisfactory	
	Score	3	2	0	