# CHAPTER – VI

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# CREDIT RISK MANAGEMENT

## Introduction:

Banks in India under the FSR have been given freedom by RBI to formulate their own policies & procedures. RBI has also implemented various international measures & practices for banks in India to follow which include adoption of comprehensive system of prudential accounting norms of assets classification, identification of NPAs and providing provisioning there against, a system of capital adequacy etc. Banks are now operating in global environment which is not only competitive but uncertain & risky too. To be able to operate in complex and competitive international environment banks in India are developing technology supported innovative and varied products & services so as to provide better and faster comprehensive service to their corporate and individual customers. Further, under the globalisation & deregulation policies banks are now faced with different business related risks & control related risks. The business related risks are linked with banks various operational activities i.e. credit risk & also dynamism of prevalent market environment which include liquidity risk, Interest rate risk, foreign exchange risk etc. On the other hand control related risk in banks arises out of absence/lack of control & supervisory systems and norms.

Due to growing complexities in banking business leading to various risks it became imperative for the banks to develop proper organisational setup, control mechanisms & systems and appropriate risk management policies indicating the tolerance limits to different business managers. In subsequent chapters we have examined various market related risks in banking business. In this chapter we focus exclusively on credit risk management in banks.

Credit risk is most simply defined as the potential that a bank borrower will fail to meet its obligations in accordance with agreed terms. The goal here therefore is to maximise a bank's risk-adjusted rate of return by maintaining credit risk exposure within acceptable parameters. Banks are increasingly facing credit risks and therefore, need to manage the credit risk inherent in the entire portfolio as well as the risk in individual credits or transactions. The loans and advances are the largest and most obvious source of credit

risk. Therefore, effective management of credit risk is essential to the long-term success of any banking organisation.

Since exposure to credit risk continues to be the leading source of problems in banking business all over, bank management and their business managers should be able to draw useful lessons from past experiences. Banks should now have a keen awareness of the need to identify, measure, monitor and control credit risk as well as to determine that they hold adequate capital against these risks and that they are adequately compensated for risks incurred. There is urgent need for standardised sound practices that specifically address the following areas:

(i) Establishing an appropriate credit risk environment ,

(ii) Operating under a sound credit granting process,

(iii) Maintaining an appropriate credit administration, measurement and monitoring processes, and, last but not the least,

(iv) Ensuring adequate controls over credit risk.

Credit risk management practices may differ from bank to bank depending upon the nature and complexity of their credit activities. However, a comprehensive credit risk management program should address the above four areas. These practices should also be applied in conjunction with sound practices related to the assessment of asset quality, the adequacy of provisions and reserves, and the disclosure of credit risk, all of which have been addressed in recent Basel Committee documents as discussed in Chapter II on Literature Survey. While the exact approach chosen by individual banks will depend on a host of factors, including on-site and off-site supervisory techniques and the degree to which external auditors are also used in the inspection and supervisory function.

Any commercial bank can manage majority of its risks by implementing sound ALM policy basically catering to its Liquidity & Interest rate risks. Even if the commercial bank is able to check these risks it would be able to enhance its profitability along with maintaining adequate liquidity. As discussed in earlier chapters, the profitability and liquidity of a commercial bank is mainly dependent on the cash flows. Any delay in cash inflows by way of default in loan repayments, etc, can lead to a chaos as all estimates regarding the interest rate risk levels and liquidity may go for a toss .Cases of default of

loans gives rise to low quality assets, leading to credit risk. This risk is inherent to any commercial bank. As said earlier credit risk has an intricate linkage with interest rate risk and liquidity risk making it all the more crucial for the commercial bank. Any error in estimating the credit risk can lead to a situation wherein a commercial bank may have to face severe liquidity crunch. Similarly, a highly volatile interest rate environment may lead to deterioration in the quality of credit .Hence management of credit risk is an essential part of ALM. In other words, the interest rate risk management and liquidity risk management policies of a commercial bank must be supplemented by a well laid down credit policy to manage the credit risk. Earlier, the credit policies of commercial banks primarily focused on timely collection of dues. However, with market deregulation, there has been an uncertainty in the operating environment of the commercial banks. Hence, the credit risk management now involves evaluating and managing the growth and diversification of loans/investments and establishing the tolerance limits for credit and investment, i.e. the ratio of loan/investment loss allowance to total loans/investments.

The basic governing principles that have been recommended by the working committee of the Group of ministers (GoM) of the G -10 countries and later endorsed by the Basel committee are mentioned below:

**Principles of the Assessment of Credit Risk**[1]

A) Establishing an appropriate credit risk environment

B) Operating under a sound credit granting process

C) Maintaining an appropriate credit administration, measurement and monitoring process

D) Ensuring adequate controls over credit risk

E) The role of bank management

**A. Establishing an appropriate credit risk environment**

**1)** The board of directors should have responsibility for approving and periodically reviewing the credit risk strategy and significant credit risk policies of the bank. The strategy should reflect the bank's tolerance for risk and the level of profitability the bank expects to achieve for incurring various credit risks.

**2)** Senior management should have responsibility for implementing the credit risk strategy approved by the board of directors and for developing policies and procedures

for identifying, measuring, monitoring and controlling credit risk. Such policies and procedures should address credit risk in all of the bank's activities and at both the individual credit and portfolio levels.

3) Banks should identify and manage credit risk inherent in all products and activities. Banks should ensure that the risks of products and activities new to them are subject to adequate procedures and controls before being introduced or undertaken, and approved in advance by the board of directors or its appropriate committee.

**B. Operating under a sound credit granting process**

1) Banks must operate under sound, well-defined credit-granting criteria. These criteria should include a thorough understanding of the borrower or counterparty, as well as the purpose and structure of the credit, and its source of repayment.

2) Banks should establish overall credit limits at the level of individual borrowers and counterparties, and groups of connected counterparties that aggregate in a comparable and meaningful manner different types of exposures, both in the banking and trading book and on and off the balance sheet.

3) Banks should have a clearly-established process in place for approving new credits as well as the extension of existing credits.

4) All extensions of credit must be made on an arm's-length basis. In particular, credits to related companies and individuals must be monitored with
particular care and other appropriate steps taken to control or mitigate the risks of connected lending.

**C. Maintaining an appropriate credit administration, measurement and monitoring process**

1) Banks should have in place a system for the ongoing administration of their various credit risk-bearing portfolios.

2) Banks must have in place a system for monitoring the condition of
individual credits, including determining the adequacy of provisions and reserves.

3) Banks should develop and utilize internal risk rating systems in managing credit risk. The rating system should be consistent with the nature, size and complexity of a bank's activities.

4) Banks must have information systems and analytical techniques that

enable management to measure the credit risk inherent in all on- and off-balance sheet activities. The management information system should provide adequate information on the composition of the credit portfolio, including identification of any concentrations of risk.

5) Banks must have in place a system for monitoring the overall composition and quality of the credit portfolio.

6) Banks should take into consideration potential future changes in economic conditions when assessing individual credits and their credit portfolios, and should assess their credit risk exposures under stressful conditions.

**D. Ensuring adequate controls over credit risk**

1) Banks should establish a system of independent, ongoing credit review and the results of such reviews should be communicated directly to the board of directors and senior management.

2) Banks must ensure that the credit-granting function is being properly managed and that credit exposures are within levels consistent with prudential standards and internal limits. Banks should establish and enforce internal controls and other practices to ensure that exceptions to policies, procedures and limits are reported in a timely manner to the appropriate level of management.

3) Banks must have a system in place for managing problem credits and various other workout situations.

**E. The role of bank management**

1) Bank Management should ensure that there is an effective system in place to identify, measure, monitor and control credit risk as part of an overall approach to risk management. They should conduct an independent evaluation of a bank's strategies, policies, practices and procedures related to the granting of credit and the ongoing management of the portfolio. Further, they should also consider setting a prudential limits to restrict bank exposures to single borrower or groups of connected counterparties.

The Credit risk management is managed at two levels. First is the micro-level and the second being macro-level. The micro-level credit risk management concentrates on each credit transaction of the bank, whereas the macro-level credit risk takes into account the total credit exposure of the bank.

**Micro-Level Approach**

Effective management of credit risk involves the following key principles:

# Evaluation of proposals

# Pricing of the financial product

// Monitoring of the credit

**Evaluation of Proposals**

Evaluation involves selection of borrowers basis their creditworthiness in the market. One more important aspect that must be considered by the bankers while evaluating a credit proposal is the willingness of the person availing the loan to repay, In India a large chunk of Non – Performing Assets (NPAs) of the commercial banks are on account of willful defaulters. Accordingly, a number of variables need to be considered while evaluating a loan proposal. Prominent among them are:

a) Operational Efficiency
b) Financial Feasibility
c) Future prospects of the Industry
d) Management Evaluation

***Operational Efficiency***

To assess the operational efficiency of the corporate client credit evaluation is conducted at the corporate level. The critical aspects that are generally evaluated are:

> Business Stability

> Increase in market share

> Accessibility to key inputs

> Economies of scale & its advantages to the concern

> Operating margins

***Financial Feasibility***

Repayment capacity of the customer is a direct variable of its financial strength. Hence, financial analysis becomes sine – qua –non for the analysis of credit risk . This includes:

> Interest/principal coverage & Debt servicing aspects

> Management of Interest rate risk

> Capacity to raise funds

> Financial leverage

> Management of working capital

> Cost of capital

> Sensitivity analysis

> Management of Exchange risk

***Future Prospects of Industry***

An industry level credit analysis needs to be performed to study the prospects of the industry

which basically includes:

> Analysis of the trade cycles prevailing in the Industry

> Analysis of consumer demand curves and their changes

> Analysis of different regulations governing the Industry

> Threat from substitute products & impact of cheap imports

**Management Evaluation**

The abovementioned factors assess the repaying ability of the customer, Management evaluation is concerned with the willingness of the customer to repay. This evaluation takes into account an in depth study on the performance of the promoters, group companies/sister concerns & the top management. Another important aspect that needs to be considered by the bank before sanctioning credit is the exposure limits. The bank should ensure that it maintains proper exposure limits for its credit sanctions. This helps in diversifying the credit risk,

It basically takes into consideration the following aspects:

# Market review of the individuals, company/group of companies and industry

# Loan Product being disbursed

# Quantum of money being lent for the different types of borrowers and for varying categories of loans;

# Geographical concentration

The existing RBI norms[2] prescribe exposure limits to individual borrowers and corporate entities. Every commercial bank should in its own interest develop a policy framework for determining such exposure limits based on its risk policy.

**Pricing**

Once the proposal is accepted based on the creditworthiness of a customer, the next step is to quantify the risk involved in funding it. It becomes essential to arrive at the required return for the identified risk level by using an appropriate pricing policy. Hence, it is a widely acceptable credit risk management policy that, the rate at which the funds are offered are in conjunction with the creditworthiness of the customer. While performing the financial appraisal for a proposal, the internal rate of return (IRR) is calculated. If the payments are made regularly by borrowers, then the expected rate of return will be equal to the contractual rate. However, there will always be some uncertainty attached to future cash flows. This uncertainty relates mainly to the amount of cash inflows and the timing of the cash flows. In such uncertain situations, the bank can arrive at the probability of repayment/default and also the extent of recovery in case of a default. While the probabilities can be assessed from past data, the recovery rate can be computed by considering the guarantees and value of collaterals attached to the loan. Using these probabilities and the recovery rates the expected return for the principal and the interest component of the loan can be assessed as follows: [3]

$$\text{Expected Return} = P_1(r) + P_2\,[P(1+r)R/P - 1] \qquad \ldots\text{Eq. (1)}$$

Where,

$P_1$ = Probability of repayment

$P_2$ = Probability of default, $(1 - P_1)$

r = Contractual rate/interest rate

P = Principal component

R = Recovery rate

In the above formula $P_1(r)$ gives the returns using the contractual rate and the probability of total repayment of the loan in the normal course of payment while the second part, i.e. $P_2\,[P(1+r)R/P - 1]$ gives the returns using the recovery rate of the interest and principal and the probability of default. The recovery rate refers to the percentage of

the outstanding balance (principal and interest) that can be recovered by measures such as enforcement securities, legal action, etc.

In case of a default, the bank may sometimes look for the recovery of the principal component only. In such a case, the expected return can be calculated as follows:

Expected Return = $P_1(r) + P_2(R - 1)$ ....Eq. (2)

In this case R, which is the recovery rate, will be the percentage of outstanding principal that can be recovered.

It can now be understood that while pricing a loan proposal, it is essential for a bank to adjust the contractual rate so that it reflects the creditworthiness of the client. The bank should, thus, build into its pricing mechanism the probabilities of default. Such an exercise will, to a certain extent, reduce the loss due to defaults. From the above equation, for a given contractual rate, the expected returns from the proposal were assessed by considering the probability of the repayment/default, and the recovery rate. Using this approach, it is, however, possible to decide the contractual rate to be offered once the required rate is determined. The required rate, which includes the cost of funds, transactions costs and the spreads, can be used as the expected rate.

Pricing sometimes also aims to tackle interest rate risk. For instance, most commercial banks include an interest clause in the loan/hire purchase/lease agreement to protect themselves against rate fluctuations. Here the impact of risk is transferred to the borrowers. This type of risk management is termed as passive risk management. However, when a bank resorts to this, it has also to realize that there is a possibility of transforming one risk into another. For instance, in the above mentioned case the interest rate clause may minimize the interest rate exposure for the bank, but at the same time if the customer is not in a position to sustain the rate fluctuations it might lead to credit risk and liquidity risk. A Commercial Bank should be guarded against such risk transformations.

***Monitoring***

Credit risk persists so long as the loan remains, which may be till the maturity period, or sometimes even beyond that if there are delays/defaults. Hence, it is necessary to have a periodic review of the credit risk involved with a disbursal. This necessitates a systematic

data collection in credit management and a regular analysis of the borrowers is done, it could improve the credit evaluation process of the commercial bank as a whole.

The above mentioned steps monitor the credit risk of the bank at the micro-level. This approach does not, however, provide a holistic picture of the bank's credit risk. To obtain this, a macro-level approach needs to be adopted.

**Macro-Level Approach:**

To have a more broader outlook on the credit risk position, a macro-level approach can be adopted using the Capital Adequacy Ratio (CAR). The capital adequacy of a bank, which is the ratio of its capital to its risk weighted assets (RWAs), highlights on the extent to which possible losses can be absorbed by the capital. Thus, the higher CAR the better it is for the bank. Mathematically, the relationship between CAR and the risk weighted assets can be expressed as follows:[4]

$$CAR = C/RWA \qquad \ldots Eq.(3)$$

Where,

C = Capital

RWAs = Risk weighted assets.

Since, the RWA is the product of the assets to its risk weights we can express Eq. (3) as follows:

$$CAR = C/A \times ARW \qquad \ldots Eq.\ (4)$$

$$= C/A = 1/ARW \qquad \ldots Eq.\ (5)$$

Where,

ARW = Average risk weight.

The inverse relation between the CAR and risk weighted assets can be observed in Equation 5. If a bank has more risky assets on its portfolio, then its capital adequacy will be lower implying greater credit risk exposure. The converse holds true when a bank adopts a more conservative approach in maintaining its asset portfolio. Along with this a regular analysis of the business environment of the customer is also essential. A commercial bank should take into account the probable affect on the customer's business in the event of certain situations, like rise in the interest rates, slowdown in industrial growth, economic or political instability.

This helps a commercial bank in understanding the impact of any change in the operating environment of the business of the customer. This information enables the bank to take a proactive approach as and when such situation arises.

**Management of the Non Performing Assets:**

Monitoring plays a significant role in controlling the level of the NPAs in the commercial banks. This helps the bank in assessing the financial position of the customer and taking a prompt action before the NPAs slip into the next category i.e. the bad assets. Sometimes, in genuine cases, a bank with its diversified experience of various industries, can work out certain revival packages relating to financial/management restructuring thereby rescuing its customer by reviving its business. In the process, the commercial bank will be able to control its NPAs. In worst cases of default one-time settlement deals can be made and, as a last resort, legal assistance may also be sought.

The CAR discussed above provides a benchmark for monitoring the risk level considering the total assets of the bank. However, this does not make any distinction between a performing asset and a non-performing asset both of which may have the same risk weight. Despite the screening, most banks will have NPAs in their asset portfolio. The bank can in fact quantify its credit risk based on the level of NPAs. Consider the following expression which quantifies the credit risk:[5]

$$ENPA = (EBT/TA) / NPAs/TA \quad \text{....Eq.(6)}$$

Where,

ENPA = Net NPA

EBT = Earnings Before Tax

TA = Total Assets

NPAs = Non-performing Assets

This expression quantifies the credit risk level of a bank. Credit risk can be quantified in terms of the ratio of the percentage of earnings before tax as a proportion of Net NPAs (ENPA). Here EBT is considered since there will be a tax exemption on the loss assets that are written-off while a similar advantage is not available to provisions (The proposal to provide tax shelter was introduced in the Union Budget 1999-2000).

The above given equation can also be expressed as follows:

ENPA = [(PAT/(1-T)]/TA / NPAs/TA ....Eq. (7)

= PAT/(1-T)TA / NPAs/TA = PAT / (1-T) NPA

Hence, it can be said that their exists an inverse relationship between ENPA & Credit risk i.e. higher the ENPA level lower is the credit risk. To achieve higher level of ENPA, a commercial bank will have to increase its profitability and reduce its NPAs levels. In fact, by assessing the ENPA for each product or region, greater insights can be obtained on the credit exposure level of the bank. Monitoring this ratio over a period of time can enable the bank to identify any trends.

Even after exercising much caution there are very high chances that NPAs may occur, under such circumstances there are two alternatives available :

1) Provisioning against possible NPAs
2) Writing them off as Loss Assets (LA)

It is always beneficial for a commercial bank to write-off those NPAs where the probability of repayments is very low. The benefit in choosing this option arises from the tax shield that is available for the loss assets that are written-off.

Apart from the credit risk that arises due to the lending activity of banks, credit risk may also arise due to the presence of other risks. For instance, due to interest rate fluctuations, the floating rate of interest changed by the bank may to a certain extent reduce its interest rate risk, but if the borrower is not in a position to bear this increased interest burden, it may transform into a credit risk for the bank. Similarly, credit risk also may result due to the presence of contingent liabilities in the bank's portfolio of liabilities.

**Contingent Risk Management:**

A Contingent liability arises when a commercial bank undertakes a liability on behalf of its customer, consequent to happening or non-happening of an event. With this promise its obligation to provide funds to a third party is contingent. Such a liability does not appear on the balance sheet until the contingency is realized. Contingent liabilities, therefore, are referred to as off-balance sheet items. These off-balance sheet items can be classified into the following different heads.

***Commitments***

The bank has committed itself to advance funds and acquires a credit exposure at some future date. These commitments include:

# Unused overdrafts and credit lines

# Revolving lines of credit

# Repurchase agreements (repos)

***Guarantees***

While issuing a bank guarantee on behalf of its customer a commercial bank underwrites an obligation to the third party and extends guarantee for payment in case its client defaults. In this case the commercial bank is exposed to risk only in the event of default by its customer which can lead to a huge loss or result in it acquiring a sub-standard asset. Examples of this type of contingent liabilities are:

Asset sales with recourse, Deferred payment guarantees, Financial guarantees Performance guarantees, Commercial letters of credit etc.

***Foreign exchange transactions***

Foreign exchange rate agreements are binding on the customer and if the customer is unable to exercise its obligation, the bank carries out its side of the contract. Examples of this type of exposures include mostly the hedging instruments.

***Investment Banking & Merchant Banking Operations:***

When a bank is into investment banking and merchant banking operations, it also generally performs the activity of underwriting securities. Here the bank offers to subscribe to the unsubscribed part of a securities issue.

Hence it can be noted that the a commercial bank indirectly enhances its exposure to a host of other risks by exposing itself to contingent risk. Even though the bank charges a penal interest on crystallized liabilities, sometimes this may actually not be sufficient to cover the losses incurred in the transaction.

**Conclusion:**

Finally, just as for any other risk, for efficient credit risk and contingent risk management the acceptable levels of risk should be clearly laid down. In the case of contingent risk management, the acceptable levels of risk will have to be fixed considering the fact that it may lead to risk transformation which may further enhance the levels of other risks. On the other hand, credit risk management will be the thrust area for the bank since inefficient risk management will deteriorate its asset quality. Thus, apart from setting acceptable levels for credit risk, an improved review of each advances proposal for credit approvals should also be generated, as sound credit risk management will always be a competitive advantage to the bank.

**References:**


1) **Basle Committee Recommendations (February 2000):** Sound practices for managing the Credit Risk in Banking Organisations.
2) For detailed Highlights of RBI guidelines on Credit Risk & its Evaluation please refer credit risk management by S.N. Bidani & others (2004): Credit Risk Management, Taxmann's, Chapter 3 & 4. Page No. 8.
3) **Fabozzi Frank J. & Astuo Konishi (1991) Asset – Liability Management,** (Probs Publishing Co.)
4) **www. riskbook.com**
5) **Potluri Rao & Roger Le Roy Miller (1981): Applied Econometrics** (Prentice – Hall of India Private Limited)