LEARNING OUTCOMES

After going through the chapter student shall be able to understand:

- RAISING AND DEPLOYMENT OF FUNDS
- RISK MANAGEMENT

1. INTRODUCTION

Treasury Operations or management includes management of a company’s investments with the objective of managing the firm’s resources so that the firm’s liquidity needs is fully met and also income owing to the investment is also optimized. The function of Treasury Management involves raising of resources both at home and overseas, investment in bonds and also trading activities in bonds and currencies. Treasury Management is more prominent in commercial and investment banks, wherein investment activities are managed as part of its statutory requirement and also for trading activities either for its own proprietary needs and merchant transactions i.e., transactions for its customer behalf.

The Corporate Sector Treasury Management is done mainly from the point of view of arranging resources for business need and its cash management, management for firms’ receivable and payable in different currencies and also hedging of balance sheet financial items.

The Treasury Management function is more intensive in banking context as the function is undertaken for itself and also on behalf of its customer’s requirement. Broadly, the Treasury Management function involves operating in the Financial Markets such as Wholesale Debt Market, Stock Exchanges and also Currencies Markets, which are financial markets with large numbers of market participants. The volumes of transactions in these domestic markets are in multiple of INR in Billions and also multiple of billions in USD for FX market. Hence, these markets are actively
managed and monitored through regulators/regulatory mechanism.

Thus, the Treasury functions mostly comprise functioning in following markets:

- **Fixed Income or Money Market**: The fixed income or money market involves buying and selling interest/coupon bearing securities for investment functions or trading intention. The fixed income or money market consists of instruments such as Treasury Bills, Government Securities, Bonds issued by PSU companies and Debenture issued by private corporate. The market involves both primary or new issue market and also secondary market, where active trading of securities take place.

- **Mutual Fund Market**: Now a days Mutual Fund has also become one of the important source for deployment of fund. Since there are variety of schemes are available for investment, treasury managers can invest in these funds as per their requirements and risk profile.

- **Foreign Exchange Market**: "FX" Market that buys and sells currencies. The currency pairs, that are traded in Indian Forex Markets are USD/INR, EUR/USD, USD/JPY, EUR/SWF, JPY/INR, GBP/INR etc.

- **Capital Markets or Equities market**: It is the place where equity shares are listed and traded in the stock exchanges.

### 1.2 Organization of Treasury

The organizational structure of Treasury Operation is based on the function and role of each of the offices within Treasury Division/verticals of any organization. The normal structure of Treasury Operation involves:

1. Front Office
2. Back Office
3. Mid Office

The typical layout of an organizational structure of a Treasury is as below:
1.2.1 Front Office

The scope of Front Office involves buying, selling and trading of money market instruments, securities, Forex, equity, derivatives and precious metals. The front office set-up involves dealers/traders, chief dealer, In-charge of Front Office to execute trade on behalf of the banks/corporate. As trade transactions in a front office involve huge transactions of very high value, the conduct of front office traders is highly regulated as excessive position may lead to substantial loss to the organization.

1.2.1.1 Dealing Room

The transactions of Front Office are done in a place called the dealing room. The dealing room acts as the interface of the bank/corporate to the domestic and international financial markets, having the set up for dealers, financial information software, dealing terminals, high quality communication channels, Treasury application softwares, all integrated through IT platforms.

Thus, the critical components of any dealing room are human resources, i.e. dealers and traders and considering the risk involved in the trading or dealing activities, the dealers need to follow sound internal control and good conduct. These are generally,

(a) Code of Conduct: In India dealers are asked to follow the code of conduct as approved in the organisation and firm. The RBI (for bank traders), FEDAI (for Foreign Exchange Dealers) and FIMMDA (for Money Market Dealers) have defined the code for traders in the trading room.

(b) Adherence to Internal Limits: Each organisation having a dealing room set has an investment policy, which defines the internal limits on exposure, position taking and many other limits. Dealers are required to adhere the powers and limits as per these guidelines.

(c) Dealing Hours: Dealers should operate within the trading hours as defined by different markets.

(d) Secrecy and Confidentiality: Keys to the conduct of the dealers.

The person-in-charge of Front Office is generally a senior official of any organizational hierarchy who reports to In-Charge of Treasury. A typical structure of a front office is as below:
The dealing room structure of a typical bank is as above. Depending upon the size of the portfolio, the number of dealers can be one or more. Similarly, depending upon the size of a portfolio, a dealer can also manage multiple portfolios. The segregation of structure is more from the point of view of portfolio of type.

1.2.2 Back Office

The back office is responsible for the delivery and settlement of all transactions concluded by the back office. The role of back office includes:

(a) Delivery and settlement and consequent accounting entries for all those transactions.

(b) Internal Control and checking over treasury dealings, confirmation and settlement activities and accounting thereof.

(c) Auxiliary functions of Treasury

The key controls over market risk activities, and particularly over dealing room activities and function, exist in back office. It is critical that clear segregation of duties and reporting lines are maintained between dealing room staff and back-office staff.

1.2.3 Mid-Office

Mid-Office function as an independent risk assessment of the treasury function of any bank or
organization having Treasury Operation. The middle office is responsible for the critical functions of independent market risk monitoring, measurement, analysis and reporting for the management. An effective Middle office provides independent risk assessment which is critical to the firms’ key function of controlling and managing the market risks in accordance with the mandate established by the Board of the organization. It is a highly-specialized function and must include trained and competent staffs. The methodology of analysis and reporting will vary from organization to organization depending upon degree of sophistication and exposure to market risk.

1.3 Function of Integrated Treasury

The treasury management has been categorized from the point of Treasury functions of banks and that of corporate.

1.3.1 The Bank’s treasury function mainly involves

1. Reserve Management: The reserve management involves maintenance of Cash Reserve Ratio and Statutory Liquidity Ratio.

2. Funds Management and Liquidity Management: Funds are key to banking operation. The banking function involves large scale receipt and payment of cash. The funds management and liquidity management at Treasury involves not only arranging and managing aggregation of cash function at the branches of the bank, but also managing the CRR of the bank, thus would involve lending of money to interbank market participants/RBI and also borrowing of money from interbank participants/RBI.

3. Investment and optimizing return on bank funds: The treasury function involves investment of bank’s fund not only the investment requirement in Government securities due to SLR requirement, but also investments over and above the SLR requirement in Government Securities, Non-SLR bonds and debentures, investment in equity shares, venture funds, mutual funds etc.

4. Trading of investment products for trading profit: Trading function is key to any Treasury functions. Banks are the most active trader in the markets with an eye on trading profit, which involves same day trading or holding the investment for a longer term and then off-loading the same in market with trading profit.

5. FX Treasury Operation: The banks’ treasury function also involves trading in Foreign Exchange markets both in the capacity of proprietary trading (trading on its own behalf) or on behalf of the corporate as part of merchant activities for a margin.

6. Derivative Transactions: The treasury function also involves derivative transactions to hedge its own book or on behalf of its clients or corporate.

1.3.2 Corporate Treasury Management functions
1. **Cash management**: Cash management clearly forms part of the treasury’s core functions. In addition to dealing with payment transactions; cash management also includes planning, account organisation, cash flow monitoring, managing bank accounts, electronic banking, pooling and netting as well as the function of in-house bank.

2. **Liquidity planning and control**: Liquidity planning and control are closely linked to cash management.

3. **Management of interest, currency and commodity risks**: Although, large companies (especially banks and financial institutions) have a separate Risk Management department which are responsible overall governance of the all types of risk in the organisation. However, functions of Treasury revolves around management of interest and currency risks, commodity risks etc.. This involves control of these risks, as well as the documentation of hedging transactions. Thus, while Risk Management department may be dealing with Market Risk, Treasury Department may be least concerned with the same.

4. **Procurement of finance and financial Investments**: The core duties of the treasury also comprise the procurement of finance and financial investments, and dealing with products such as term loan, working capital finance and factoring.

5. **Corporate finance functions**: It comprise medium- and long- term financing, particularly capital market instruments, group financing, credit, leasing, and negotiating with banks and financers for terms and condition of lending, hedging etc. Corporate finance is thus dealt in Treasury, which deals in finance of the firm with the sources of funding and the capital structure of the firm and the actions that managers take to increase the value of the firm to the shareholders, as well as the tools and analysis used to allocate financial resources.

6. **Contacts with banks and rating agencies**: The corporate treasury function also involves intensive contacts with banks and institution and rating agencies for corporate rating.

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2. **RAISING AND DEPLOYMENT OF FUNDS**

### 2.1 Raising of Funds

A business entity requires funds to run the business. A business entity has no fund on its own. Every business entity runs on borrowed funds. A business entity borrows funds in the form of:

- Equity
- Debt
The strategy for borrowing in the form of debt and equity has been covered in the capital structure decisions.

Before we go into the details of different sources of funds, we have to first discuss the purpose of the fund. As we have discussed in the previous modules, business borrows funds mainly for three purposes:

1. Purchase /building up of current asset
2. Purchase/building up of non-current asset
3. Repayment of liability

Now we have to make some ground rule about how the financing of different assets would take place. These rules can change depending on the nature of borrower i.e. depending on the borrower's level of operation.

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Type of Borrowing</th>
<th>Borrower nature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non Current Asset</td>
<td>Equity; Long Term Loan</td>
<td>Start up; Small and Medium SME; Mid Corporate; Large Corporate</td>
</tr>
<tr>
<td>Current Asset</td>
<td>Equity; Long term loan; Short term loan</td>
<td>Start up; Small and Medium SME</td>
</tr>
<tr>
<td>Non Current Asset</td>
<td>Short term loan</td>
<td>Large Corporate</td>
</tr>
</tbody>
</table>

Besides, the stage of development of the business and nature of business would also decide the type of borrowing. This is explained with the help of the following table:

<table>
<thead>
<tr>
<th>Stage</th>
<th>Nature of business</th>
<th>Sources of Funds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early stage</td>
<td>High Uncertainty</td>
<td>Equity; mainly angel funds</td>
</tr>
<tr>
<td>Early stage</td>
<td>High to Moderate Uncertainty</td>
<td>Equity, Venture Capital and Debt</td>
</tr>
<tr>
<td>Growth Stage</td>
<td>Moderate to Low Uncertainty</td>
<td>Debt, Venture Capital and Private Equity</td>
</tr>
<tr>
<td>Stable Stage</td>
<td>Low Uncertainty</td>
<td>Debt</td>
</tr>
</tbody>
</table>

Almost all major traditional sources of funds have been covered in the paper of Financial Management (Intermediate Level) and some other sources have been covered in the Paper of Strategic Financial Management (Final Level) and in the chapter Nos. 5 and 10 of this Study Material.
Hence, we shall discuss one another source of funding is ‘Factoring’.

### 2.2 Factoring

Since Domestic Factoring is covered in the paper of Financial Management (Intermediate Level) under the topic of Receivable Management hence we shall discuss factoring in context of International Transactions. In international transactions, factoring of receivable is also a very important corporate banking product. In most of the international trade transactions, besides the normal credit risks, it involves additional concepts of country and therefore sovereign risks comes into play.

Sovereign risks in international business are usually of three broad categories:

- **Transaction Risk**: It is linked to a specific transaction that involves a specific amount within a specific time frame, such as an export sale on six month’s draft terms;
- **Translation Risk**: It stems from the obligation of multinational companies to translate foreign currency assets and liabilities into the parent company’s accounting currency regularly, a process that can give rise to book-keeping gains and losses.
- **Economic Risk**: In the broadest sense, it encompasses all changes in a company’s international operating environment that generate, real economic gains or losses.

Export credit is quite distinct from the domestic counterpart in several respects. The principal characteristics of export credit which distinguish it from the domestic sales are as follows:

- Longer time scales for delivery, funds transfer and credit period;
- Extra time and distance require terms which provide a security for the risks perceived;
- The expectation of local credit terms for each market
- Competition from other countries having different money costs and government policies;
- The use of international standard terminology.

This feeling of insecurity and risks involved in international transactions has, therefore, resulted in various methods of payment system, the most secure of these being the Advance Payment or Cash with Order (CWO). The other two prevalent methods of receiving payments are through the mechanism of Bills of Exchange and Documentary Credit. In both these methods, the banking system is the channel through which the transactions are normally carried out. Though advantageous to the sellers, secured to a certain extent, except the concept of clean bills of exchange (here shipping documents are not enclosed), usually in a competitive environment, debtors are not inclined to open letters of credit because of the cost and time involved. Further, the entire mechanism of operations through letter of credit is gradually going out of favour throughout
the world primarily on account of what is known as Doctrine of Strict Compliance. The seriousness of the problems is evident from a survey conducted in United Kingdom which revealed that more than 50 percent of documents failed to comply with the terms of letter of credit in first presentation to the banks.

In view of the constraints of the existing systems, open account transactions are also coming into existence in larger numbers than in the past. Under this system, there is direct arrangement between the exporter and the importer to complete the deal including the payment by a predetermined future date, usually between 60 days and 90 days from the date of invoice. The goods and the shipping documents are sent directly to the importer enabling him to take delivery of goods. The essential features of open account transaction are listed as follows:

1. Complete confidence in the credit standing not only of the debtors but also of his country so that proceeds of the goods can be realized within the agreed period.

2. An efficient sales ledger administration often in multi currencies coupled with credit control mechanism involving sound knowledge of trade practices, law and knowledge of the importer’s country.

3. Sufficient liquidity source to grant competitive credit terms to the importer.

In such a situation, export factoring can play a very important role not only in providing finance but also in providing a service package to exporters. Export factoring can broadly be defined as an agreement in which export receivables arising out of sale of goods/services are sold to the factor, as a result of which title to the goods/services represented by the said receivable passes on to the factor. Henceforth, the factor becomes responsible for all credit control, sales accounting and debt collection from the importers.

### 2.2.1 Advantages of International Factoring

The distinct advantages of a factoring transaction over other methods of finance/facilities provided to an exporter can be summarized as follows:

1. Immediate finance up to a certain percentage (say 75-80 percent) of the eligible export receivable. This pre-payment facility is available without a letter of credit – simply on the strength of the invoice(s) representing the shipment of goods.

2. Credit checking of all the prospective debtors in importing countries, through own databases of the export factor or by taking assistance from his counterpart(s) in importing countries known as import factor or established credit rating agencies.

3. Maintenance of entire sales ledger of the exporter including undertaking asset management functions. Constant liaison is maintained with the debtors in importing countries and collections
are effected in a diplomatic but efficient manner, ensuring faster payment and safeguarding of financial costs.

4. Accordingly, bad debt protection up to full extent (100 percent) on all approved sales to agreed debtors ensuring total predictability of cash flows.

5. Undertaking cover operations to minimize potential losses arising from possible exchange rate fluctuations.

6. Efficient and fast communication system through letters, telex, telephone or in person in the buyer’s language and in line with the national business practices.

7. Consultancy services in areas relating to special conditions and regulations as applicable to the importing countries.

2.2.2 Two- Factor System

The most important form of factoring is two- factor system. The transaction is based on operation of two factoring companies in two different countries involving in all, four parties: Exporter, Importer, export Factor in exporter’s country and import factor in importer’s country. The mechanics of operation in this arrangement works out as follows:

1. The exporter approaches the export factor with relevant information which, inter alia, may include
   a) Type of business,
   b) Names and addresses of the debtors in various importing countries,
   c) Annual expected export turnover to each country,
   d) Number of invoices/credit notes per country,
   e) Payment terms and
   f) Line of credit required for each debtor.

2. Based on the information furnished, the export factor would contact his counterpart (import factor) in different countries to assess the creditworthiness of the various debtors.

3. The import factor makes a preliminary assessment as to his ability to give credit cover to the principal debtors.

4. Based on the positive response of the import factor, the factoring agreement is signed between the exporter and export factor.

5. Goods are sent by the exporter to the importer along with the original invoice which includes an assignment clause stipulating that the payment must be made to the import factor.
Simultaneously, two copies of the invoice along with notifications of the debt are sent to the export factor. At this stage, prepayment up to an agreed per cent (say 75-80 percent) of the invoice(s) is made to the exporter by the export factor.

6. A copy of the invoice is sent by the export factor to his counterpart, that is the import factor. Henceforth, the responsibilities relating to book-keeping and collection of debts remain vested with the import factor.

7. Having collected the debts, the import factor remits the proceeds to his counterpart, that is the export factor. In case, payments are not received from any of the debtor(s) at the end of the previously agreed period on account of financial inability of the debtor concerned, the import factor has to pay the amount of the bill to his export counterpart from his own funds. However, this obligation will not apply in case of any dispute regarding quality, quantity, terms and conditions of supply etc. If any dispute arises, the same has to be settled between the parties concerned through the good offices of the factoring companies, otherwise legal action may have to be initiated by the import factor based on the instructions of the exporter/export factor.

8. On receipt of the proceeds of the debts realized, the retention held (say 15-20 percent) is released to the exporter. The entire factoring fee is debited to the exporter’s account and the export factor remits the mutually agreed commission to his importing counterpart.

Thus, the export factor undertakes the exporter risk whereas the importer risk is taken care of by the import factor.

The main functions of the export factor relate to:

- Assessment of the financial strength of the exporter
- Prepayment to the exporter after proper documentation and regular audit and post sanction control
- Follow-up with the import factor
- Sharing of commission with the import factor

The import factor is primarily engaged in the areas of:

- Maintaining books of exporter in respect of sales to the debtors of his country
- Collection of debts from the importers and remitting proceeds of the same to the export factor
- Providing credit protection in case of financial inability on the part of any of the debtors.

The two factor systems are by all means the best mode of providing the most effective factoring facilities to a prospective exporter. However, the system is also fraught with certain basic
disadvantages, i.e. delay in operations like credit decision, remittance of fund, etc., due to involvement of many parties.

2.3 Deployment of Funds

So far as the deployment of funds in commercial and corporate organisation is concerned same is governed by the various techniques such as capital budgeting, cost benefit analysis etc.

The deployment of funds is an important area in context of banks. Apart from lending the money in normal business banks have to lend funds on priority basis for some Government sponsored schemes such as Prime Minister’s Rozgar Yojana (PMRY), Swarna Jayanti Shahari Rozgar Yojana (SSRY) and Swarnajayanthi Grama Swarojgar Yojana (SGSY).

RBI fixes the target for these priority sector on time to time basis.

3. RISK MANAGEMENT IN TREASURY OPERATIONS

Effective risk management starts with identification and understanding of the various types of risks. It involves the establishment of risk limits, monitoring mechanisms, and the adoption of risk mitigating and other prudent practices.

3.1 Risk Management Framework

Risk Management in Treasury is very critical to any organization as excessive risk-taking and consequent losses can typically make the banks fail. The past experiences of Metallgesellschaft AG, Baring bank, plc, Workhardt Ltd, Allied Irish Bank, National Bank of Australia etc. are a few of the examples, wherein excessive risk-taking, not monitoring dealers’ position, non-adherence to risk limits such as cut losses, camouflaging losses have led to bankruptcy of these organization, which include corporate and banks, due to acts of a few individuals, endangering the interest of all other stakeholders, who are engaged in the profitable core activities of the organisation.

The act of few individuals in excessive risk-taking in treasury function of an organization has the potential to liquidate the organization/large businesses having otherwise strong business lines. Therefore, Treasury Risk Management has to be of the highest order and highest standard.

Consider Indian banking scenario. Banks here have large branch networks with thousands of branches and also thousands of employees engaged in banking activities. However, if the Treasury operation is not properly regulated, it can potentially lead to closure of the operation.

Thus, the risk management framework has to be sound and robust for Treasury. The risk management framework, includes a Prudent risk management system that helps in protecting an institution from excessive position/exposure taking leading to losses. Further, it should enhance
the organizational ability to weather shocks. An effective risk management framework should comprise, but is not limited to, the following components:

(a) A comprehensive and well documented strategy for risk identification, measurement, aggregation and monitoring across the entire institution;
(b) Effective oversight by the Board of Directors and senior management;
(c) Implementation of proper controls on risk taking and prudent setting of risk tolerances by management;
(d) Clear communication of risk management policies and controls within the institution to promote awareness and ensure compliance;
(e) Strong information systems and adequate manpower resources for effective monitoring and timely reporting;
(f) Segregation of risk management functions from risk taking and operational units;
(g) Clear assignment of responsibilities and delegation of authority for various risk management functions; and
(h) Rigorous and prudent risk assessment and approval processes for new products, services, and procedures.

3.2 Types of Risks

Market participants should be aware of various types of risks in treasury market transactions, including, but not limited to, the following:

a. **Strategic risk** – It means the risk of current or prospective impact on an institution’s earnings, capital, reputation or standing arising from changes in the environment the institution operates in and from adverse strategic decisions, improper implementation of decisions, or lack of responsiveness to industry, economic or technological changes.

b. **Market risk** – Possible losses may arise from adverse movements in market rates or prices, such as foreign exchange rates, interest rates and option prices, etc.
   
   (i) Interest rate risk – It refers to the risk to an institution’s financial conditions resulting from adverse movements in interest rates.

   (ii) Foreign exchange risk – It refers to the loss to an institution’s on the foreign currency exposure due to volatility/movement in exchange rates on currency.

c. **Credit risk** – A Counterparty to a transaction may default before the final settlement of the transaction’s cash flow. Even if counterparty does not default, an increase of its perceived credit
risk may result in a substantial increase of embedded credit default spreads, leading to substantial mark-to-market losses.

d. **Settlement risk** – It refers to the risk of loss due to the counterparty’s failure to perform its obligation after an institution has fulfilled its obligation under a contract (through either an advance of funds or securities) at the settlement date.

e. **Liquidity risk** – This is the risk that an institution may be unable to meet its obligations as they fall due. This may be caused by ‘market liquidity risk’ where an institution cannot easily unwind or offset specific exposures without lowering market prices significantly because of inadequate market depth or market disruptions. It may also be caused by ‘funding liquidity risk’ when an institution is unable to meet efficiently both expected and unexpected current and future cash flow and collateral needs without affecting its daily operations or financial condition.

f. **Operational risk** – It refers to the risk of director indirect loss resulting from inadequate or failed internal processes, systems and controls, error made by staff, management failure, or from external events.

g. **Legal risk** – This is the risk relating to the legal and regulatory aspects of treasury market transactions. Unenforceable contracts, lawsuits or adverse judgments may have a negative impact on the operations, financial conditions and/or reputation of an institution.

h. **Reputational risk** – Negative publicity regarding an institution’s products or business practices, whether true or not, may adversely affect its customer base and revenue, or lead to costly litigation.

The three major risks banks and corporate are exposed to are

1. Market Risk
2. Credit Risk
3. Operational Risk

### 3.3 Techniques for Risk Measurement

In relation to market risk, market participants generally adopt one or a combination of the following techniques for risk measurement:

**(a) Nominal measure (also known as the “notional measure”)** – Under this measure, risk exposure is assessed by the nominal value of the financial instruments being held.

**(b) Factor sensitivity measure** – It estimates the sensitivity of an instrument or portfolio to changes in the market factors that affect their value (e.g. interest rates, exchange rates, and volatilities).
(c) **Optionality measure** - It estimates the sensitivity of an option’s value to changes in the prices or volatility of the underlying instruments. Delta, vega, theta, and rho measure the expected change in an option's price for a unit change in the price, volatility, time to expiration and interest rates of the underlying instrument, respectively. Gamma measures the sensitivity of delta to a unit change in the price of the underlying instrument.

(d) **Stress testing** - It attempts to ascertain the possible value of positions or portfolios, capital adequacy and liquidity positions under exceptional conditions. For the test to yield reliable results, the assumptions used should mirror changes in market conditions as much as possible. Stress testing should be conducted on a firm-wise basis to highlight common exposures faced by different business units which could hit an institution at the same time.

(e) **Scenario simulation** – It assesses the probable market value of an instrument or portfolio under different market conditions and/or risk factors.

### 3.4 Risk management limits

An important part of risk control is to establish exposure limits to the various types of risks identified. Examples of such limits are listed in the table below:

Primarily, the management of risk management is done by fixing limits, which act as tripwire for managing the risk originating from Treasury Operation.

**Type of limits and Purposes**

1. **Exposure Limits**: Exposure limit is the limit set in for having exposure on a particular class of assets within in financial market segments such as equity, debt depending upon the risk profile of these assets. The exposure can be fixed for industry specific, exposure on capital market, exposure on real estate, exposure on portfolio etc. The exposure limits are fixed as a % of the portfolio/net worth/net owned fund etc.

2. **Cut Loss Limits**: Cut loss position allow the dealer to exit for a position (net purchase position is equity, debt, FX) at a pre determined loss due to adverse movement of the rate on the position. For example, an purchase of Bank of Baroda share at @ Rs 1000/- share and if the cut loss is 10%, then if the price goes to the level of Rs 900/-, the dealer would compulsorily cut the position and book the loss of Rs 1000/-. The cut loss position can be fixed
   - (a) Per Position/transaction
   - (b) Cumulative position dealer wise
   - (c) Cumulative fortnightly/quarterly loss for the portfolio

3. **VaR Limits**: Value at Risk is a measure of volatility and a risk measurement technique, which is defined as
(a) Estimate of potential loss
(b) Of a given position
(c) Given holding period
(d) Given level of certainty.

For example, if the 7 days’ value at Risk of Reliance stock is 7%, i.e., the maximum loss of 7% can happen to Reliance stock for a time horizon of 7 days at a confidence interval of 99.99%. Thus for risk management, VaR are generally fixed for portfolio, so that dealer/portfolio manager while building the portfolio, would not exceed the VaR limit for the portfolio.

4. **FX limits:** An open position arises, when a dealer buys and sells currency outright and does not square off by undertaking an offsetting transaction. When the dealer has bought more of a currency, it is said to be holding an overbought or long position. The risk of long position is the currency depreciating. Similarly, if the dealer sold more than what it bought of a currency, it is said to be holding an oversold or short position. The risk of short position is the currency appreciating.

The risk management in Forex, thus involves setting limits for the open positions and these are:

(a) **Day Light Limits:** Day Light position is the maximum position accumulated by a dealer/dealers at any time during the day. For example, if a dealer has cumulative position of (-) 2 million, i.e over-sold 2 million, is the day light position for the dealer. Daylight limits the maximum intra-day position, on which the dealer can take position.

(b) **Overnight Limits:** Overnight limits the open position, which the dealer can carry overnight. Suppose, the dealer is expecting a further favourable movement of currency or expecting that the loss position, which he is holding would improve the next day, he can carry the (-) 2 position overnight i.e., overnight position. Overnight limit is the maximum overnight position, which a dealer can carry forward.

(c) **Individual Gap Limit:** Individual gap limit is the aggregate position of all positions i.e. spots and forwards for each of the currency.

(d) **Aggregate Gap Limits:** The sum of all IGL of each of the currencies, expressed in a single currency, i.e., USD is the aggregate Gap Limit.

(e) **VaR Limits:** is the limit fixed for keeping open position, which can be fixed currency-wise and also portfolio-wise.

5. **Counterparty limits:** Counterparty limits are limits fixed for a counterparty, so that default risk of the counterparty is taken care.
3.5 Risk Mitigation

An institution should apply appropriate credit risk mitigating measures or credit enhancements to control its exposure to counterparties. The major common credit risk mitigating measures include netting, collateral and margining arrangements.

Written policies, procedures and controls should be put in place for the use of credit mitigation techniques. Management should also ensure that adequate systems are in place to manage such activities. This includes, among other things, regular revaluation of collateral and other mitigation instruments.

3.6 Risk Monitoring and Reporting

Effective risk monitoring requires the following practices:

(a) Physical and functional segregation of the trading room and the back office, including a segregation of reporting lines;

(b) Well-documented operating procedures to ensure, among other things,
   (i) Proper deal capture – transactions are properly captured such that risk positions can be compiled with in an accurate and timely manner for monitoring purpose;
   (ii) Timely reconciliation of differences – differences between the front-end system, risk management system, credit system, back-end system and accounting system, etc., are identified in time and followed up; and
   (iii) Prompt rectification of limit excesses;

(c) An effective and efficient reporting mechanism, which spells out, among other things, the circumstances under which exceptional reports have to be made to senior management;

(d) Independent verification of prices, rates and yield curves used for risk management and accounting purposes;

(e) Review of exceptional deviations of income from expected levels, having regard to the risk budget of the institution;