CAIIB CAPSULE

Paper-1 ABM

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CAIIB Paper 1 (ABM) Module A: STATISTICS

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CAIIB Paper 1 (ABM) Module A Unit 1: Definition of Statistics, Importance & Limitations & Data Collection, Classification & Tabulation

Introduction

The word 'Statistics' has been derived from the

- ❑ Latin word 'statisticum',
- ❑ Italian word 'statistia'
- ❑ German word 'statistik',

- Each of which means a group of numbers or figures that represent some information of human interest.
- First used by professor Achen well in 1749 to refer to the subject-matter as a whole.
- Achen well defined statistics as the Political Science of many countries.
- In the early years statistics is to be used only by the kings to collect facts about the state, revenue of the state or the people in the state of administrative or political purpose.
- Gradually the use of statistics which means data or information has increased and widened.
- It is now used in almost in all the fields of human knowledge and skills like Business, Commerce, Economics, Social Sciences, Politics, Planning, Medicine and other sciences, physical as well as natural.
- In many practical situations in life, we come across different types of data which are needed to be understood, analysed, compared and interpreted correctly.
- For example, in a college we need to analyse the data of marks obtained, in a hospital we need to analyse the data of number of patients having different diseases, rate of mortality, Different types of data need to be analysed in Economics, Government and Private organisations, Sports and in many other fields.

Statistical analysis of data can be comprised of four distinct phases:

- **Collection of data**: In this first stage of investigation, numerical data is collected from different published or unpublished sources, primary or secondary.
- **Classification and Tabulation of data**: The raw data collected is to be represented properly for further calculations. The raw data is divided into different groups or classes and represented in a form of a table.
- **Analysis of data**: Classified and Tabulated data is analysed using different formulas and methods according to purpose of the study or investigation.
- **Interpretation of data**: At the final stage, relevant conclusions are drawn after the data is thoroughly analysed

Importance Of Statistics

Statistics is the subject that teaches how to deal with data, so statistical knowledge helps to use proper methods for collection of data, properly represent the data, use appropriate formula and methods to analyse correctly and effectively get the results and interpret the data. Applications of Statistics is

important in every sphere of field – Business and economics, Medical, Sports, Weather forecast, Stock Market, Quality Testing, Government decisions and policies, Banks, Different educational and research organisations, etc.

Business and Economics

- In Business, the decision maker takes suitable policies and strategies based on information on production, sale, profit, purchase, finance, etc.
- By using the techniques of time series analysis, the businessman can predict the effect of a large number of variables with a fair degree of accuracy.
- By using 'Bayesian Decision Theory', the businessmen can select the optimal decisions to directly evaluate the payoff for each alternative course of action.
- In Economics, Statistics is used to analyse demand, cost, price, quantity, different laws of demand like elasticity of demand and consumer's maximum satisfaction which is determined on the basis of data pertaining to income and expenditure.

Medical

- **Statistics have extensive application in clinical research and medical field**. Clinical research involves investigating proposed medical treatments, assessing the relative benefits of competing therapies, and establishing optimal treatment combinations.

Weather Forecast

- Statistical methods, like Regression techniques and Time series analysis, are used in weather forecasting.

Stock Market

- Statistical methods, like Correlation and Regression techniques, Time series analysis are used in forecasting stock prices. Return and Risk Analysis is used in calculation of Market and Personal Portfolios and Mutual Funds.

Bank

- In banking industry, credit policies are decided based on statistical analysis of profitability, demand deposits, time deposits, credit ratio, number of customers and many other ratios. The credit policies are based on the application of probability theory.

Sports

- Players use statistics to identify or rectify their mistakes. A proper understanding of the statistics determines the success of a team or a single athlete.

Function Of Statistics

- Statistics present the facts in definite form.
- Statistics simplify complex data.
- It provides a techniques of comparison.
- Statistics study the relationship between two or more variables.
- It helps in formulating policies.
- It helps in forecasting outcomes.

Limitations Or Demerits Of Statistics

- **Statistics do not deal with Individuals:** Statistical methods can't be applied for individual values of the observations as for individual observation, there is no point of comparing anything or analysing anything. Statistics is the study of mass data or a group of observations and deals with aggregates of facts.
- **Statistics does not study Qualitative Data**: Statistical methods can't be applied for qualitative or non-numerical data. Statistics is the study of only of those facts which are capable of being stated in number or quantity.
- **Statistics give Result only on an Average**: Statistical methods are not exact. Generally, when we have large number of observations, it becomes difficult to handle it. A part of the data (sample) is collected for study and draw conclusion from, as a representative for the whole. As a result, the result obtained are not exactly same, had we analysed the whole data. The results are true only on an average in the long run.
- **The results can be biased**: The data collection may sometime be biased which will make the whole investigation useless. Generally, this situation arises when data is handled by inexperienced or dishonest person.

Definitions

Population

It is the entire collection of observations (person, animal, plant or things which is actually studied by a researcher) from which we may collect data. It is the entire group we are interested in and from which we need to draw conclusions.

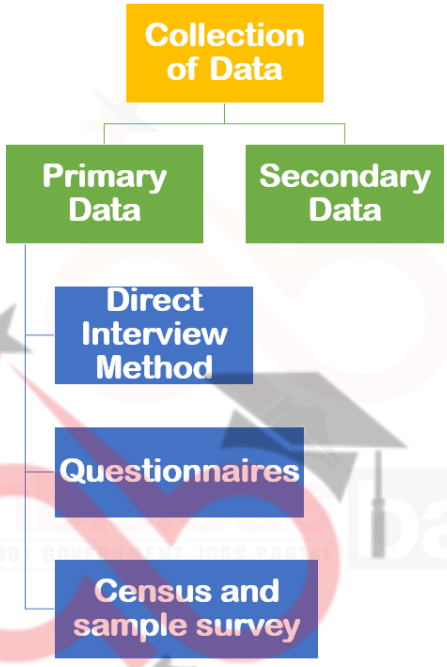
Example: If we are studying the weight of adult men in India, the population is the set of weights of all men in India.

Data can be classified into two types, based on their characteristics.

- **Variates:** A characteristic that varies from one individual to another and can be expressed in numerical terms is called variate. Example: Prices of a given commodity, wages of workers, heights and weights of students in a class, marks of students, etc.

- **Attributes:** A characteristic that varies from one individual to another but can't be expressed in numerical terms is called an attribute. Example: Colour of the ball (black, blue, green, etc.), religion of human, etc.

Collection Of Data



Researchers or investigators need to collect data from respondents. There are two types of data.

Primary Data

Primary data is the data which is collected directly or first time by the investigator or researcher from the respondents. Primary data is collected by using the following methods:

- **Direct Interview Method:** A face to face contact is made with the informants or respondents (persons from whom the information is to be obtained) under this method of collecting data. The interviewer asks them questions pertaining to the survey and collects the desired information.
- Q**uestionnaires**: Questionnaires are survey instruments containing short closed-ended questions (multiple choice) or broad open-ended questions. Questionnaires are used to collect data from a large group of subjects on a specific topic. Currently, many questionnaires are developed and administered online.

Census and sample survey

- In a census, data about all individual units (e.g., people or households) are collected in the population. In a survey, data are only collected for a sub-part of the population; this part is called a sample.

- These data are then used to estimate the characteristics of the whole population. In this case, it has to be ensured that the sample is representative of the population in question. For example, the proportion of people below the age of 18 or the proportion of women and men in the selected sample of households has to reflect the reality in the total population.

Secondary Data

- Secondary data are the Second hand information. The data which have already been collected and processed by some agency or persons and is collected for the second time are termed as secondary data.
- According to M. M. Blair, "Secondary data are those already in existence and which have been collected for some other purpose." Secondary data may be collected from existing records, different published or unpublished sources, like WHO, UNESCO, LIC, etc., various research and educational organisations, banks and financial places, magazines, internet, etc.

Distinction between primary and secondary data

- The data collected for the first time is called Primary data and data collected through some published or unpublished sources is called Secondary data.
- The primary data in the hands of one person can become secondary for all others. For example, the population census report is primary for the Registrar General of India and the information from the report is secondary for others.
- Primary data are original as they are collected first time from the respondents directly or by preparing questionnaires. So they are more accurate than the secondary data. But the collection of primary data requires more money, time and energy than the secondary data. A proper choice between the two forms of information should be made in an enquiry.

Classification and Tabulation

So, we learned about the different methods of collecting primary and secondary data. The raw data, collected in real situations are arranged randomly, haphazardly and sometimes the data size is very large. Thus, the raw data do not give any clear picture and interpreting and drawing any conclusion becomes very difficult. To make the data understandable, comparable and to locate similarities, the next step is classification of data. The method of arranging data into homogeneous group or classes according to some common characteristics present in **the data is called Classification**.

Example: The process of sorting letters in a post office, the letters are classified according to the cities and further arranged according to the streets. Classification condenses the data by removing unimportant details. It enables us to accommodate large number of observations into few classes and study the relationship between several characteristics. Classified data is presented in a more organised way so it is easier to interpret and compare them, **which is known as Tabulation**.

There are four important bases of classifications:

- **Qualitative Base**: Here the data is classified according to some quality or attribute such as sex, religion, literacy, intelligence, etc.
- **Quantitative Base**: Here the data is classified according to some quantitative characteristic like height, weight, age, income, marks, etc.
- **Geographical Base**: Here the data is classified by geographical regions or location, like states, cities, countries, etc. like population in different states of India.
- **Chronological or Temporal Base**: Here the data is classified or arranged by their time of occurrence, such as years, months, weeks, days, etc. This classification is also called Time Series data.

Example: Sales of a company for different years.

Types of Classification

- If we classify observed data for a single characteristic, it is known as One-way Classification. Ex: Population can be classified by Religion – Hindu, Muslim, Christians, etc.
- If we consider two characteristics at a time to classify the observed data, it is known as a Two-way classification. Ex: Population can be classified according to Religion and sex.
- If we consider more than two characteristics at a time in order to classify the observed data, it is known as Multi-way Classification. Ex: Population can be classified by Religion, sex and literacy.

Frequency Distribution

Frequency

- If the value of a variable (discrete or continuous) e.g., height, weight, income, etc. occurs twice or more in a given series of observations, then the number of occurrences of the value is termed as the "frequency" of that value.
- The way of representing a data in a form of a table consisting of the values of the variable with the corresponding frequencies is called **"frequency distribution".**
- So, in other words, Frequency distribution is a table used to organise the data.
- The left column (called classes or groups) includes numerical intervals on a variable under study.
- The right column contains the list of frequencies, or number of occurrences of each class/group.
- Croxton and Cowden defined frequency distribution as a statistical table which shows the sets of all distinct values of the variable arranged in order of magnitude, either individually or in groups with their corresponding frequencies side by side Intervals are normally of equal size covering the sample observations range.

Class-limits or Class Intervals

- A class is formed within the two values, class-limits or class-intervals. The lower value is called lower class limit or lower-class interval and the upper value is called upper class limit or class interval.

Class-intervals	Frequency
0–4	5
5–9	7
10–14	12
15–19	8

Class Length or Class Width

- The difference between the class'upper and lower class limit is called the length or the width of class.

Class Length = Class Width = Upper Class Interval – Lower Class Interval

Mid-Value or Class Mark

- The mid-point of the class is called mid-value or class mark.

Class Mark = (Lower class-limit + Upper Class limit)/2

Types of Class Intervals

- Exclusive type,
- Inclusive type

Exclusive type Class intervals like

- 0–10, 10–20; 500–1000, 1000–1500 are called exclusive types.
- Here the upper limits of the classes are excluded from the respective classes and put in the next class while considering the frequency of the respective class.
- For example, the value 15 is excluded from the class 10–15 and put in the class 15–20.

Inclusive type Class intervals

- 60–69, 70–79, 80–89, etc. are inclusive type.
- Here both the lower and upper class limits are included in the class-intervals while considering the frequency of the respective class,
- e.g., 60 and 69 are both included in the class 60–69.

Class Intervals	Frequency
0-4	5
5-9	7
10-14	12
15-19	8

INCLUSIVE TYPE CLASS INTERVAL

Class Intervals	Frequency
0-10	5
10-20	7
20-30	12
30-40	8

EXCLUSIVE TYPE CLASS INTERVAL

Class Boundaries

Inclusive classes can be converted to exclusive classes and the new class intervals are called class boundaries.

Example : The classes 5–9, 10–14 can be converted to exclusive type of classes using the formula → New UCI = Old UCI + (10 – 9)/2 = 9 + 0.5 = 9.5. New LCI = Old LCI – (10 – 9)/2 = 5 – 0.5 = 4.5. So the class-boundaries are 4.5–9.5, 9.5–14.5, etc.

Open-end Class Interval

In open-end class interval either the lower limit of the first class or upper limit of the last class or both are missing.

Example:

Below 10

10–20

20–30

30–40

Above 40

Relative Frequency = frequency /Total frequency

Example: Relative frequency of the class interval = 20–30 in Example 2 is 12/32 = 0.375

Percentage Frequency

Percentage Frequency = (Class frequency/Total Frequency) × 100

Example: Percentage frequency of the class interval = 20–30 in Example 2 is (12/32) 100 = 37.5.

Frequency Density

Frequency density of a class interval = Class frequency/Width of Class

Continuous Frequency Distribution:

- Variable takes values which are expressed in class intervals within certain limits.

Problem: Marks obtained by 20 students in an exam for 50 marks are given below–convert the data into continuous frequency distribution form.

18, 23, 28, 29, 44, 28, 48, 33, 32, 43, 24, 29, 32, 39, 49, 42, 27, 33, 28, 29.

Marks	Frequency
15-20	1
20-25	2
25-30	7
30-35	4
35-40	1
40-45	3
45-50	2

Problem: Following data reveals information about the number of children per family for 25 families. Prepare frequency distribution of number of children

(say variable x, taking distinct values 0, 1, 2, 3, 4).

3 2 1 1 2

4 0 1 2 3

1 2 0 4 2

2 1 2 3 2

1 3 4 0 1

Solution:

No of children	Frequency
0	3
1	7
2	8
3	4
4	3
Total	25

CAIIB Paper 1 (ABM) Module A Unit 2: Sampling Methods

Sampling

Sampling is a process used in **statistical analysis** in which a predetermined number of observations are taken **from a larger population**. The methodology used to sample from a larger population depends on the type of analysis being performed.

Types of sampling

There are two methods of selecting from populations

- Non- random or judgement sampling
- Random or probability sampling

Random Sampling

A probability sampling method is any method of sampling that utilizes some form of **random selection**. In order to have a random selection method, you must set up some process or procedure that assures that the different units in your population have equal probabilities of being chosen.

Type of Random Sampling

There are four main type of random sampling

i)Simple Random Sampling (SRS)

ii)Stratified Sampling

iii)Cluster Sampling

iv)Systematic Sampling

- **Simple Random Sampling (SRS): Simple Random Sampling selects samples by methods that allow each possible** sample to have an equal probability of being picked and each item in the entire population to have an equal chance or being included in the sample.
- **Systematic Sampling:** In systematic sampling, elements are **selected from the population at a uniform level that is measured in time, order, or space**. If we wanted to interview every twentieth student on a college campus, we would choose a random starting point in the first twenty names in the student directory and then pick every twentieth name thereafter.
- **Stratified Sampling**: To use stratified sampling, we divide the population into relatively homogenous groups, called strata. **Then we use one of two approaches**. Either we select at random from each stratum a specified number of elements corresponding to the proportion of that stratum in the population as a whole or we draw an equal number of elements from each stratum and give weight to the results according to the stratum's proportion of total population.
- **Cluster Sampling**: In cluster sampling, we divide the population into groups or clusters and then select a random sample of these clusters. We assume that these individual clusters are representative of the population as a whole. If a market Research team is attempting to determine by sampling the average number of television sets per household in a large city, they could use a city map and divide the territory into blocks and then choose a certain number of blocks (clusters) for interviewing. Every household in each of these blocks would be interviewed. A well designed cluster sampling procedure can produce a more precise sample at considerably less cost than that of simple random sampling.

Sampling distribution

Sampling Distribution is the distribution of all possible values of a statistic from all possible samples of **a particular size drawn from the population**.

Each sample we draw from a population would have its own means or measure of central tendency and standard deviation. Thus, the statistics we compute for each sample, would vary & be different for each random sample taken.

Sample Distribution Table

Boy	Height
A	160
B	162
C	164
D	170
E	156

Mean = 162.40

SAMPLES, their DATA & Mean

Samples	ABC	ABD	ABE	BCD	BCE	ACD	ACE	ADE	BDE	CDE
DATA	160 162 164	160 162 170	160 162 156	162 164 170	162 164 156	160 164 170	160 164 156	160 170 156	162 170 156	164 170 156
Mean	162	164	159.33	165.33	160.66	164.66	160	182	162.66	163.33

CONCEPT of STANDARD ERROR

- Standard deviation of the distribution of the sample means is **called the standard error of the mean.**
- Similarly standard error of the proportion is the standard deviation of the distribution of the sample proportions.
- e.g. We take the average height of college girls in India across various samples. We would calculate mean height of each sample. Obviously there is some variability in observed mean. This variability in sampling statistics results from the sampling error due to chance.
- Thus the standard deviation of the sampling distribution of means measures the extent to which the means vary because of a chance error in the sampling process. Thus the standard deviation of distribution of a sample statistic is known as the Standard error of the statistic.
- Thus, a standard error indicates not only the size of the chance error but also the accuracy we are likely to get if we use the sample statistic to estimate a population statistic.

Sampling From Normal Population

Finite Populations:

μ= 162.40

$\bar{x}$ = 162.40

This is not coincidence. The mean of the sample means is the same as the population mean, whenever we use simple random sampling.

$$\sigma_{\bar{X}} = \sigma / \sqrt{n}$$

Example -Bank calculate that its individual saving account have a mean of Rs.2000 and SD of 600. bank takes a sample of 100 account. Calculate the Standard error?

What is the probability that the sample lie between 1900 & 2050.

$\sigma_{\bar{X}} = \sigma / \sqrt{n}$

= 600 /10

=60

Probability associated with a standard normal variable

$$Z = 1/ \sigma_X [X - \mu]$$

Standard Error Of The Mean For Infinite Populations:

$$\text{Standard error of mean} = \sigma / \sqrt{n}$$

Example: Bank calculate that its individual saving account have a mean of Rs.5000 and SD of 600. bank takes a sample of 100 account. Calculate the Standard error?

What is the probability that the sample lie between 1900 & 2050.

STEP 1 : Standard deviation of error

$\sigma_{\bar{X}} = \sigma / \sqrt{n}$

= 600 /10

=60

STEP 2 : Calculate Z

$Z = \frac{\bar{X} - \mu}{\sigma X}$

For $\bar{X}$ = 1900

Z= (1900-2000)/60

= -1.67

For $\bar{X}$ = 2050

Z= (2050-2000)/60 = 0.83

STEP 3 : Probability table

-1.67 value = 0.4525

.83 = 0.2967

0.7492

If value have the same sign , we subtract value

If the value have the opposite sign, we add

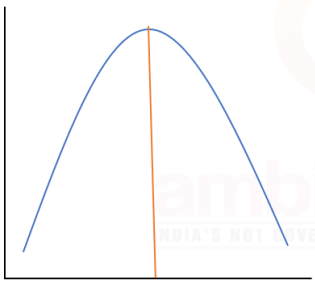
Central Limit Theorem

- The mean of the sampling distribution of the mean will equal the population mean regardless of the sample size, even if the population is not normal.
- As the sample size increases, the sampling distribution of the mean will approach normality, regardless of the shape of the population distribution.
- This relationship between the shape of the population distribution & the shape of sampling distribution of the mean is called the Central Limit Theorem.

- Actually a sample doesnot have to be very large for the sampling distribution of the mean to approach normal
- Statistician use the normal distribution as an approximation to the sampling distribution whenever the sample size is atleast 30, but the sampling distribution whenever the sample size is atleast 30.
- The significance of the CLT is that it permits us to use sample statistics to make interference about population parameters without knowing anything about the shape of the frequency distribution of that population.

Example:

Bank distribution has a mean of Rs.19000 & standard deviation of Rs.2000. If we draw a random sample of 30 tellers, What is the probability that their earning will average more than Rs.19750 annually?



Mean = 19000
Standard Deviation = 2000
Size = 30

STEP 1 : Calculate Standard error

$$\sigma\bar{X} = \sigma / \sqrt{n}$$

= 2000/ √30

= 2000/ 5.477

= 365.16

STEP 2 : Z value & Standard Normal Probability Distribution

$$Z = 1/ \sigma X [X - \mu]$$

X = 19750

= 19750-19000/365.16

= 750/ 365.16

=2.05

Finite Population Multiplier

Standard Error Of The Mean For Finite Populations

$$\sigma\bar{X} = \sigma / \sqrt{n} \sqrt{(N-n / N-1)}$$

N = size of population

N = size of the sample

Example:

We are interested in a population of 20 textile companies of the same size, all of which are experiencing excessive labour turnover. Standard deviation of the distribution of annual turnover is 75 employees. If we sample 5 of these textile companies, without replacement then compute the standard error of mean?

$\sigma X = \sigma / \sqrt{n} \left[\sqrt{(N-n / N-1)}\right]$

= 75/ √5 [√(20-5/20-1)]

= 33.54 * 0.888

= 29.8

Numerical on Sampling

Q1. A sack contains 3 pink balls and 7 green balls. What is probability to draw one pink ball and two green balls in one draw?

(a) $\frac{23}{40}$

(b) $\frac{21}{40}$

(c) $\frac{27}{40}$

(d) $\frac{9}{20}$

(e) $\frac{21}{38}$

Ans(b)

Out of (3+ 7) = 10 balls, three (one pink & two green) balls are expected to be drawn

So, required probability = $\frac{{}^{3}c_1 \times {}^{7}c_2}{{}^{10}c_3}$

$= \frac{\frac{3}{1} \times \frac{7}{2 \times 1}}{\frac{10}{3 \times 2 \times 1}}$

$= \frac{3 \times 21}{120}$

$= \frac{21}{40}$

Q2.A sack contains 4 black balls 5 red balls. What is probability to draw 1 black ball and 2 red balls in one draw?

(a) 11/19

(b) 10/21

(c)12/22

(d) 19/11

Ans: B

Solution :

Out of 9, 3 (1 black & 2 red) are expected to be drawn)

Hence sample space

n(S) = 9c3

= 9!/(6!×3!)

= 362880/4320

= 84

Now out of 4 black ball 1 is expected to be drawn hence

n(B) = 4c1

= 4

Same way out of 5 red balls 2 are expected be drawn hence

n(R) = 5c2

= 5!/(3!×2!)

= 120/12

= 10

Then P(B U R) = n(B)×n(R)/n(S)

i.e 4×10/84 = 10/21

CAIIB Paper 1 (ABM) Module A Unit 3: Measures of Central Tendency & Dispersion, Skewness, Kurtosis

Introduction To Measures Of Central Tendency

- Statistical data is first collected (primary or secondary) and then classified into different groups according to common characteristics and presented in a form of a table.
- It is easy for us to study the different characteristics of data from a tabular form.
- Further, graphs and diagrams can also be drawn to convey a better impression to the mind about the data.

- Classified and Tabulated data need to be analysed using different statistical methods and tools and then draw conclusions from it.
- Central Tendency and Dispersion are the most common and widely used statistical tool which handles large quantity of data and reduces the data to a single value used for doing comparative studies and draw conclusion with accuracy and clarity.
- According to the statistician, Professor Bowley "Measures of Central Tendency (averages) are statistical constants which enable us to comprehend in single effort the significant of the whole".

The main objectives of Measure of Central Tendency are:

- ✓ To condense data in a single value.
- ✓ To facilitate comparisons between data.

- In other words, the tendency of data to cluster around a central or mid value is called central tendency of data, central tendency is measured by averages.
- There are different types of averages, each has its own advantages and disadvantages.

Requisites of a Good Measure of Central Tendency

- ✓ It should be rigidly defined.
- ✓ It should be simple to understand and easy to calculate.
- ✓ It should be based on all the observations of the data.
- ✓ It should be capable of further mathematical treatment.
- ✓ It should be least affected by the fluctuations of the sampling.
- ✓ It should not be unduly affected by the extreme values.
- ✓ It should be easy to interpret.

Three types of averages are Mean, Median and Mode.

Mean

- Mean or average is the most commonly used single descriptive measure of Central Tendency.
- Mean is simple to compute, easy to understand and interpret.

Mean is of three types:

- ✓ Arithmetic Mean,
- ✓ Geometric Mean
- ✓ Harmonic Mean.

Arithmetic Mean

- The arithmetic mean is the simplest and most widely used measure of a mean, or average.

- It simply involves taking the sum of a group of numbers, then dividing that sum by the count of the numbers used in the series.

Arithmetic Mean of Ungrouped or Raw Data

$$A = \frac{1}{n}\sum_{i=1}^{n} a_i$$

$\bar{X} = x1 + x2 + x3 + x4 + ...xn$

$\bar{X} = \sum X/n$

n observations of x.

Example 1: Consider the marks scored by 10 students in Mathematics in a certain examination 35, 30, 18, 15, 40, 30, 52, x, 47, 10. If the arithmetic mean is 30, find the value of x.

$\bar{X}$ = 35 +30 +18 + 15 + 40 +30 +52 + x + 47 + 10/ 10

30 = 277 + x/ 10

300 = 277 + x

X= 23

Arithmetic Mean of Grouped data

- If a variate X take values x1, x2, …, xn with corresponding frequencies f 1, f 2, …, f n respectively, then the arithmetic mean of these values is

$$\bar{X} = \frac{\sum_{i=1}^{n} f_i x_i}{\sum f_i}, x_i$$

$\bar{X} = \sum fx / n$

Xi = class marks (mid point) of the class interval for grouped data

Example 2: Find the Arithmetic mean for following:

X	1	2	3	4	5	6	7	8
f	5	6	5	10	8	4	3	2

X	F	FX
1	5	5
2	6	12
3	5	15
4	10	40
5	8	40
6	4	24
7	3	21
8	2	16
Total	N= 43	Fx = 173

$\bar{X} = \sum fx / n$
$= 173/ 43$
$= 4.02$

Combined Arithmetic Mean

If $\bar{X}1$ and $\bar{X}2$are the arithmetic mean of two samples of size n1 and n2 respectively then, the Combined arithmetic mean

$$\bar{X} = \frac{n_1 \bar{X}_1 + n_2 \bar{X}_2}{n_1 + n_2}$$

Example: The average marks of a group of 100 students in Mathematics are 60 and for other group of 50 students, the average marks are 90. Find the average marks combined group of 150 students.

$$X = 100*60 + 50*90/ 100 +50$$
$$= 6000 +4500 / 150$$
$$= 70$$

Example: In private health club, there are 200 members, 100 men, 80 women and 20 children. The average weight of men, women and children are 60 kgs, 50 kgs and 35 kgs respectively. Find the average weight of the combined group.

n1 = 100, n2 = 80, n3 = 20 x1 = 60, x2 = 50, x3 = 35

Combined mean =

$\bar{X}$ = n1 x1 + n2 x2 + n3 x3/ n1 + n2 + n3

= 100*60 + 80*50 + 20*35/ 200

= 6000+ 4000 + 700 / 200

= 10700/2

= 53.5

Merits of Arithmetic Mean

- It is rigidly defined
- It is easy to calculate and simple to follow
- It is based on all the observations
- It is determined for almost every kind of data
- It is finite and indefinite
- It is readily put to algebraic treatment
- It is least affected by fluctuations of sampling.

Demerits of Arithmetic Mean

- It is highly affected by extreme values.
- It cannot average the ratios and percentages properly.
- It is not an appropriate average for highly skewed distribution.
- It cannot be computed accurately if any item is missing.
- The mean sometimes does not coincide with any of the observed value.
- Mean cannot be calculated when open-end class intervals are present in the data

Geometric Mean

The Geometric Mean (GM) is the average value or mean which measures the central tendency of the set of numbers by taking the root of the product of their values. Geometric mean takes into account the compounding effect of the data that occurs from period to period. Geometric mean is always less than Arithmetic Mean and is calculated only for positive values.

Applications

- It is used in stock indexes.
- It is used to calculate the annual return on the portfolio.
- It is used in finance to find the average growth rates which are also referred to the compounded annual growth rate.
- It is also used in studies like cell division and bacterial growth, etc.

Geometric Mean of Ungrouped or Raw Data

$$G.M. = \sqrt[n]{x_1 x_2 \ldots x_n} = (x_1 x_2 \ldots x_n)^{\frac{1}{n}} \text{ where } x_1, x_2 \ldots, x_n \text{ are n observations of } x.$$

Example: Find the G.M. of the values 10, 24, 15, and 32.

Given 10, 24, 15, 32

We know that G.M. = 4√ 10*24*15*32

= (10*24*15*32)^1/4

= 115200 ^1/4

= 18.423

Geometric Mean of Grouped or Raw Data

$$G.M. = \sqrt[n]{x_1^{f_1} x_2^{f_2} \ldots . x_n^{f_n}} = \left(x_1^{f_1} x_2^{f_2} \ldots . x_n^{f_n} \right)^{\frac{1}{n}}$$

Example: Find the G.M. for the following data

X	1	2	3	4
F	5	6	5	10

X	F	X^F
1	5	1^5 = 1
2	6	2^6 = 64
3	5	3^5 = 243
4	10	4^10 = 1048576
Total	N = 26	

=26√1*64*243*1048576
= 26√ 1630745394
= 24705

Merits of Geometric Mean

- **It is useful in the construction of index numbers.**
- **It is not much affected by the fluctuations of sampling.**
- **It is based on all the observations.**

Demerits of Geometric Mean

- **It cannot be easily understood.**
- **It is relatively difficult to compute as it requires some special knowledge of logarithms.**
- **It cannot be calculated when any item or value is zero or negative.**

Harmonic Mean

- Harmonic Mean is defined as the reciprocal of the arithmetic mean of reciprocals of the observations. Arithmetic mean is appropriate measure of central tendency when the values have the same units whereas the Harmonic mean is appropriate measure of central tendency when the values are the ratios of two variables and have different measures. So, generally Harmonic mean is used to calculate the average of ratios or rates.

Applications

- It is used in finance to find average of different rates.
- It can be used to calculate quantities such as speed. This is because speed is expressed as a ratio of two measuring units such as km/hr.

Harmonic Mean of Ungrouped or Raw data:

$$H.M. = \frac{n}{\sum_{i=1}^{n} \frac{1}{x_i}}$$ where $x_1, x_2, \ldots\ldots x$ are n observations of x.

H.M = n / (1/x1 + 1/x2 + 1/x3+ ..... 1/y)

Example: Find the HM of the values 10, 24, 15, and 32

= 4/ (1/10+1/24+1/15+1/32)

= 4 / 0.1 + 0.042 + 0.067 + 0.031

= 4/.24

= 16.667

Harmonic Mean of Ungrouped or Raw data:

$$H.M. = = \frac{n}{\sum_{i=1}^{n} \frac{f_i}{x_i}}$$

N /(F1/X1 + F2/X2 + F3/X3....)

Example: Find the H.M. for the following data

X	1	2	3	4
F	5	6	5	10

X	F
1	5
2	6
3	5
4	10
Total	N = 26

= 26/ (5/1 + 6/2 + 5/3 + 10/4)
= 26/ (5 + 3+ 1.667 + 2.5)
= 26/ 12.167
= 2.137

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Comparison between Arithmetic, Geometric and Harmonic Mean

- The arithmetic mean is appropriate if the values have the same units, whereas the geometric mean is appropriate if the values have different units and harmonic mean is appropriate if the data values are ratios of two variables with different measures, called rates.
- **Arithmetic Mean > Harmonic Mean > Geometric Mean**

- **A.M. × H.M. = (G.M.)^2**

Example: Find the Harmonic mean of two numbers a and b, if their Arithmetic mean is 16 and Geometric mean is 8.

- A.M. = 16 and G.M. = 8
- A.M. × H.M. = G.M^2
- 16 × H.M. = 8^2
- 16 × H.M. = 64
- H.M.= 64/16 = 4

Median And Quartiles

- The median is the middle value of a distribution, i.e., median of a distribution is the value of the variable which divides it into two equal parts.
- It is the value of the variable such that the number of observations above it is equal to the number of observations below it.
- Observations are arranged either in ascending order or descending order of their magnitude.
- Median is a position average whereas the arithmetic mean is a calculated average.

Median of Ungrouped or Raw data

- **The formula to calculate the median of the data is different for odd and even number of observations.**

Median of odd Number of Observations

If the total number of given observations is odd, then the formula to calculate the median for a number of n observations is:

Median = n +1/ 2 th observation

Median of even Number of Observations

If the total number of given observations is even, then the median formula to calculate the median for n number of observations is:

Median = **Median= (n/2)th observation + (n/2+1)th observation / 2**

Example: Find Median of 34, 32, 48, 38, 24, 30, 27, 21, 35.

Arranging the data in ascending order,

21, 24, 27, 30, 32, 34, 35, 38, 48.

n = 9;

Median= (n+1/2) th position

= (9+1/2) the position

= 32

Median of Grouped data:

If variable X takes values X1, X2, X3, X4…..X5 and corresponding frequencies f1, f2, f3, f4,….. Fn respectively, then the median value is given by

$$Median = l_1 + \frac{(l_2 - l_1)\left(\frac{N}{2} - cf\right)}{f}$$

Median class is the class in which the corresponding value of less than cumulative frequency just exceeds the value of N/2.

- l1 = lower limit of the median class,
- l2 = upper limit of the median class
- f = frequency of the median class,
- cf = cumulative frequency of the class preceding the median class,
- N = total frequency.

Example: Find Median for the following data.

Class Interval	20-30	30-40	40-50	50-60	60-70
Frequency	8	26	30	20	16

Class Interval	Frequency	CF
20-30	8	8
30-40	26	34
40-50	30	64
50-60	20	84
60-70	16	100
Total	100	

N/2 = 100/2 = 50
= l1 +[(l2-l1) (N/2 – CF) / f]
= 40 +[10* (50-34) / 30]
= 40 + [10 *16/30]
= 40 + 160/30
= 40 + 5.33
= 45.33

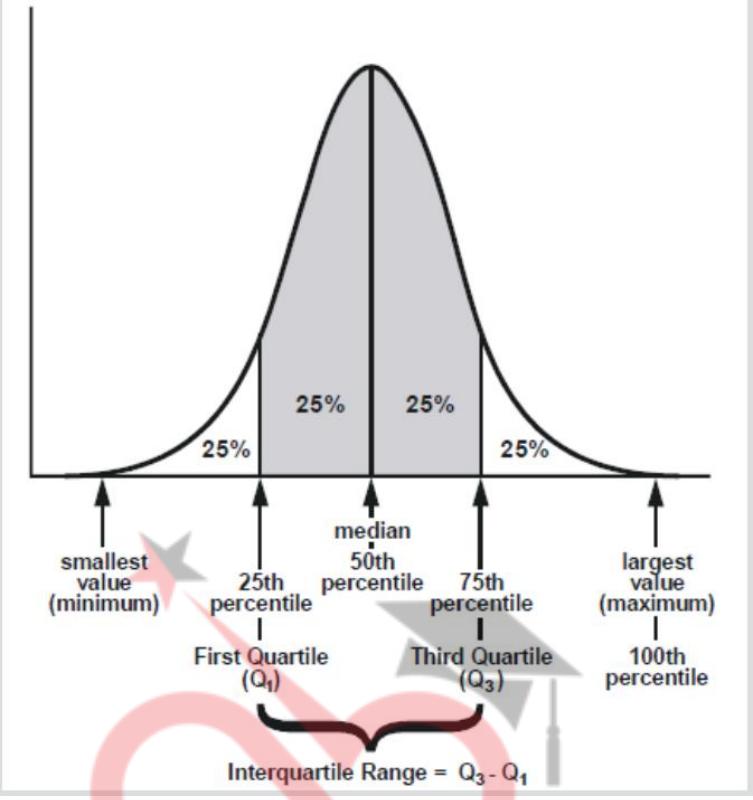
Quartiles

- A quartile represents the division of data into four equal parts.
- First, second intervals are based on the data values and third their relationship to the total set of observations.
- By dividing the distribution into four groups, the quartile calculates the range of values above and below the mean.

A quartile divides data into three points

- ✓ the lower quartile Q1,
- ✓ the median Q2, and
- ✓ the upper quartile Q3, to create four dataset groupings.

The interquartile range is a measure of variability around the median, which is calculated using the quartiles are denoted by Q1, Q2 and Q3



Calculate Q1,Q2 & Q3

Q1 = l1 + (q1-CF)/f (l2-l1) where q1 = N/4

Q2 = l1 + (q2- CF)/f (l2-l1) where q2 = 2N/4

Q3 = l1 + (q3- CF)/f (l2-l1) where q3 = 3N/4

Example: Find the quartiles for the following data

Class Interval	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55
Frequency	12	28	36	50	25	18	16	10	5

Class Interval	Frequency	CF
10-15	12	12
15-20	28	40
20-25	36	76
25-30	50	126
30-35	25	151
35-40	18	169
40-45	16	185
45-50	10	195
50-55	5	200

N/4= 200/4 = 50
Q1 = l1 + (q1-CF)/f (l2-l1)
= 20 + 50-40/36 (5)
= 20 + 10/36 *5
= 21.39

Q2 = l1 + (q2- CF)/f (l2-l1
= 25 + (100-76)/50 (30-25)
= 27.4

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Q3 = l1 + (q3- CF)/f (l2-l1)

= 30 (150-126) / 25 (35-30)

= 34.8

MODE

- The mode of a set of numbers is that number, which occurs more number of times than any other number in the set.
- It is the most frequently occurring value.
- If two or more values occur with equal or nearly equal number of times, then the distribution is said to have two or more modes.
- In case, there are three or more modes and the distribution or data set is said to be multimodal.

Mode of Ungrouped or Raw data

Example 22: Find Mode for the data: 23, 25, 20, 23, 26, 21, 27, 28, 30, 27, 23.

Value 23 occurs maximum number of times,

so Mode = 23.

Mode of Grouped data

If a variate X take values x1, x2, x3, x4 with corresponding frequencies f1, f2, f3, f4…. respectively, then the mode is

$$Mode = l_1 + \frac{(l_2 - l_1)(f_1 - f_0)}{2f_1 - f_0 - f_2}$$

Where,

l1 = lower limit of the modal class

l2= per limit of the modal class

f1 = frequency of the modal class

f0 = frequency of the class preceding the modal class

f2 = frequency of the class succeeding the modal class

Example: Find Mode for data

Class Interval	20-30	30-40	40-50	50-60	60-70
Frequency	8	26	30	20	16

Class Interval	Frequency
20-30	8
30-40	26
40-50	30
50-60	20
60-70	16
Total	

40 + [10 * 4]/ 60- 26-20
= 40 + 40/14
= 40 + 2.857
= 42.857

$$Mode = l_1 + \frac{(l_2 - l_1)(f_1 - f_0)}{2f_1 - f_0 - f_2}$$

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Merits of Mode

- It is easy to calculate and understand.
- It is not affected much by sampling fluctuations.
- It is not necessary to know all items. Only the point of maximum concentration is required.

Demerits of Mode

- It is ill defined as it is not based on all observations.
- It is not capable of further algebraic treatment.
- It is not a good representative.

Relationship among Mean, Media and Mode

- **Mode = 3 Median – 2 Mean**

Introduction to Measures Of Dispersion

- A single value that attempts to describe a set of data by identifying the central position within the set of data is **called measure of central tendency**.
- Measure of Dispersion is another property of a data which establishes the degree of variability or the spread out or scatter of the individual items and their deviation from (or the difference with) the averages or central tendencies.
- The process by which data are scattered, stretched, or spread out among a variety of categories is referred to as dispersion.
- Finding the size of the distribution values that are expected from the collection of data for the particular variable is a part of this process.
- The dispersion of data is a concept in statistics that lets one understand a dataset more simply by classifying individual pieces of data according their own unique dispersion criteria, such as the variance, the standard deviation, and the range.
- A collection of measurements known as dispersion can be used to determine the quality of the data in an objective and quantitative manner.

Various measures of dispersion are given below:

Four Absolute Measures of Dispersion

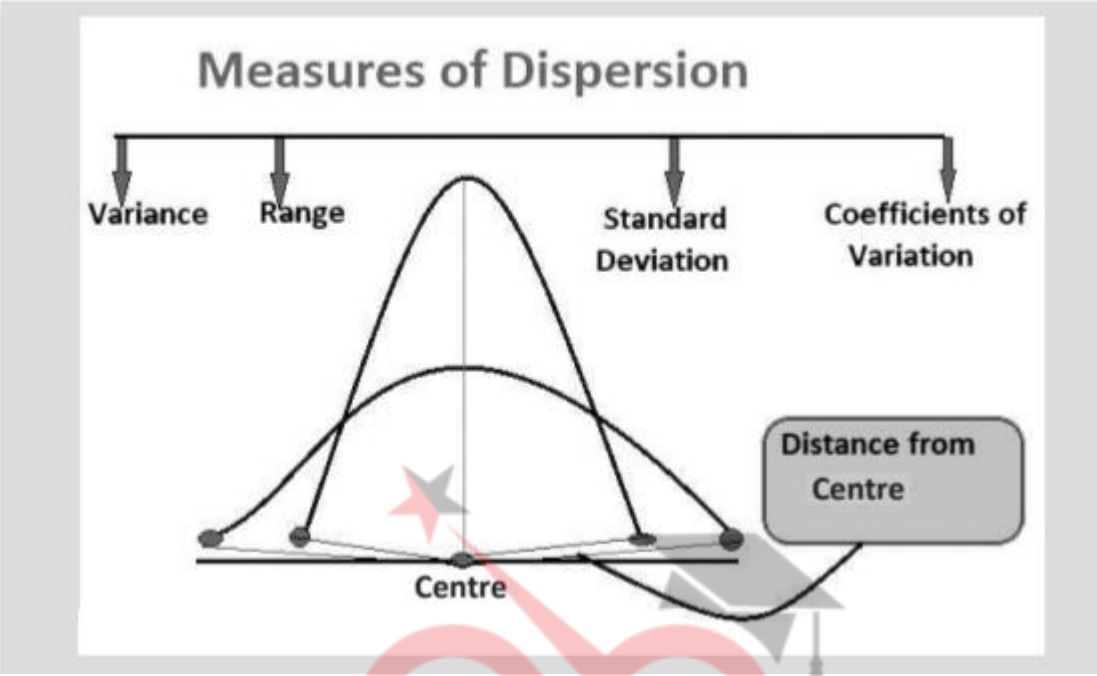
- Range
- Quartile Deviation
- Mean Deviation
- Standard Deviation

Four Relative Measures of Dispersion

- Coefficient of Range
- Coefficient of Quartile Deviation
- Coefficient of Mean Deviation
- Coefficient of Variation

Characteristics of a Good Measure of Dispersion

- It should be rigidly defined.
- It should be based on all observations.
- It should be easy to calculate and understand.
- It should be capable of further algebraic treatment.
- It should not be affected much by sampling fluctuations.



Range and Coefficient Of Range

Range

It is the simplest absolute measure of dispersion.

Range (R) = Maximum – Minimum

Coefficient of Range = (Max – Min)/(Max + Min)

Example 1 Find the range and coefficient of range of the following items: 18, 15, 20, 17, 22, 16.

- Range = Max – Min = 22 – 15 = 7.
- Coefficient of Range = (Max – Min)/(Max + Min) = 7/37 = 0.19

Note: Range and Coefficient of Range are used to measure the spread in Quality Control, Fluctuations in the Share Prices, in Weather Forecasts**:**

Merits of Range

- It is easy to understand.
- It is easy to calculate.

Demerits of Range

- It is not based on all observations.

- It does not have sampling stability. A single observation may change the value of range.
- As the amount of data increases, range becomes less satisfactory

Quartile Deviation And Coefficient Of Quartile Deviation

It is the mid-point of the range between two quartiles. Quartile Deviation is defined as QD = (Q3 – Q1)/2

Where Q1 = 1st quartile and Q 3 = 3rd quartile.

Co-efficient of QD = (Q3 – Q1)/ (Q3 + Q1)

Merits of Quartile Deviation

- It is easy to calculate and understand.
- It is not affected by extreme values.

Demerits of Quartile Deviation

- It is not based on all observations.
- It is not capable of further algebraic treatment.
- It is affected by sampling fluctuations.

Mean Deviation and Coefficient of Mean Deviation

- Mean deviation of a set of observations of a series is the arithmetic mean of all the deviations.
- It is the deviations from mean when calculated considering their absolute values and are averaged.

Mean Deviation (MD) ungrouped data

$$\text{MD (Mean)} = \left(\sum_{i=1}^{n} |x_i - \bar{x}|\right)/n$$

$$\text{Coefficient of Mean Deviation (Mean)} = \frac{\text{MD (Mean)}}{\text{Mean}}$$

MD = [(X1- $\bar{X}$) + (X2- $\bar{X}$) + (X3- $\bar{X}$) + ____ + (Xn - $\bar{X}$)] / n

Example: Find Mean Deviation and Coefficient of Mean Deviation

Class Interval	20-30	30-40	40-50	50-60	60-70
Frequency	8	26	30	20	16

Class Interval	Frequency	X	fx	X – X̄ (46)	F (X-X̄)
20-30	8	25	200	21	168
30-40	26	35	910	11	286
40-50	30	45	1350	1	30
50-60	20	55	1100	9	180
60-70	16	65	1040	19	304
Total	100		4600		968

Mean = 4600/100 = 46

- MD (Mean) = 968/100 = 9.68
- Coefficient of Mean Deviation (Mean) = MD (Mean)/ Mean

= 9.68/46 = 0.2104

Merits of Mean Deviation

- It is based on all observations.
- It is easy to understand and also easy to calculate.
- It is not affected by extreme values.

Demerits of Mean Deviation

- Mean deviation ignores algebraic signs; hence it is not capable of further algebraic treatment.
- It is not very accurate measure of dispersion.

Note: Mean deviation and its coefficient are used in studying economic problems such as distribution of income and wealth in a society.

Standard Deviation And Coefficient Of Variation

- Standard deviation is the most important and commonly used measure of dispersion.
- It measures the spread or variability of a distribution.
- A small standard deviation means a high degree of consistency in the observations as well as homogeneity of the series.

Standard Deviation ungrouped Data

$$SD = \sigma = \sqrt{\frac{\Sigma(x-\bar{x})^2}{n}} = \sqrt{\frac{\Sigma x^2}{n} - (\bar{x})^2}$$ where $\bar{x}$ is the mean of these observations

Standard Deviation (SD) grouped data

$$SD = \sigma = \sqrt{\frac{\sum f(x-\bar{x})^2}{\sum f}} = \sqrt{\frac{\Sigma fx^2}{N} - \left(\frac{\Sigma fx}{N}\right)^2} \quad \text{where } N = \sum f$$

$$\text{Coefficient of Variation} = CV = \frac{\sigma}{\bar{x}} \times 100\%$$

Example: Find Standard Deviation and Coefficient of Variation for the following data: 2, 3, 7, 8, 10.

X	X^2
2	4
3	9
7	49
8	64
10	100
Mean = 30/5=6	226

= √ 226/5 – 6^2
= √ 45.2- 36
= 3.03
Coefficient
= SD/ Mean *100
= 3.03/6 * 100
= 50.5%

$$SD = \sigma = \sqrt{\frac{\sum(x-\bar{x})^2}{n}} = \sqrt{\frac{\Sigma x^2}{n} - (\bar{x})^2}$$

Example: Find Standard Deviation?

Class Interval	25-30	30-35	35-40	40-45	45-50	50-55
Frequency	30	23	20	14	10	3

Class Interval	Frequency	X	fx	Fx^2
25-30	30	27.5	825	22687.5
30-35	23	32.5	747.5	24293.75
35-40	20	37.5	750	28125
40-45	14	42.5	595	25287.5
45-50	10	47.5	475	22562.5
50-55	3	52.5	157.5	8268.75
Total	N= 100		3550	131225

$$SD = \sigma = \sqrt{\frac{\sum f(x-\bar{x})^2}{\sum f}} = \sqrt{\frac{\Sigma fx^2}{N} - \left(\frac{\Sigma fx}{N}\right)^2}$$

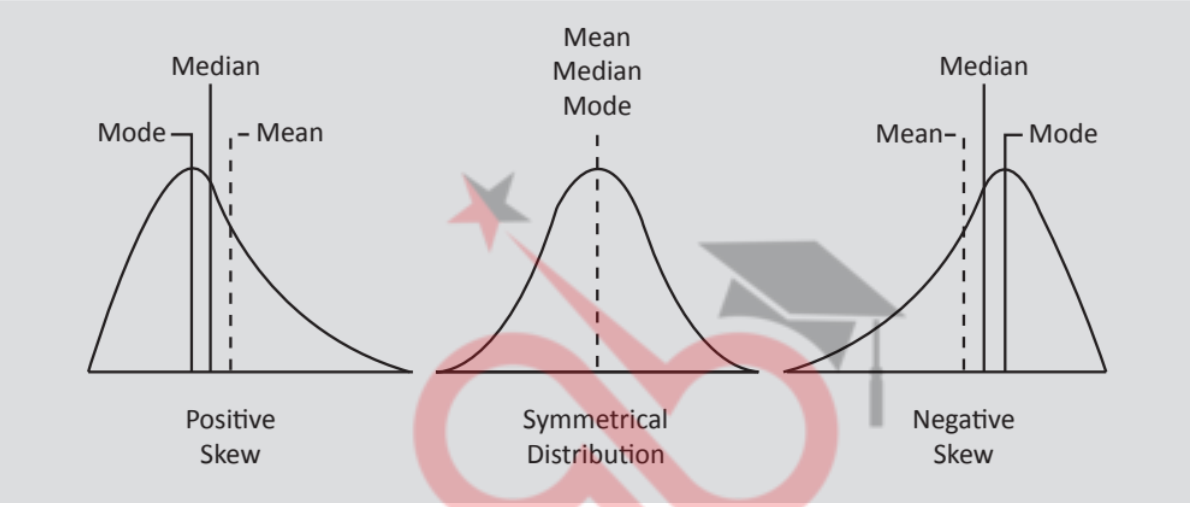
√ 131225/100 – (3550/100)^2
√ 1312.25 – 1260.25
= 7.21

Merits of Standard Deviation

- It is rigidly defined and has a definite value.
- It is based on all observations.
- It is not affected much by sampling fluctuations.

Demerits of Standard Deviation

- It is not easy to calculate.
- It is not easy to understand.
- It gives more weight to extreme items.



Skewness And Kurtosis

- Skewness is the degree of distortion from the symmetrical bell curve or the normal distribution.
- It measures the lack of symmetry in data distribution.
- **There are two types of skewness– positive and negative**.
- If bulk of observations is in the left side of mean and the positive side is longer, it is called positive skewness of the distribution.
- mean and median > mode.
- If bulk of observations is in the right side of mean and the negative side is longer, it is called negative skewness of the distribution.
- mean and median < mode.

Karl Pearson's measure of skewness is

β1=skewness: = μ3^2/ μ2^3
Where
μ3 = third central moment = ∑f(x-x̄)^ 3/ n
μ2 = second central moment = ∑f(x-x̄)^ 2/ n

- **The direction of skewness is measured by sign of β1, where the sign of β1 is the sign of μ3 .**
- **β1= 0 (symmetrical distribution),**
- **β1> 0 (positive skew),**
- **β1< 0 (negative skew).**

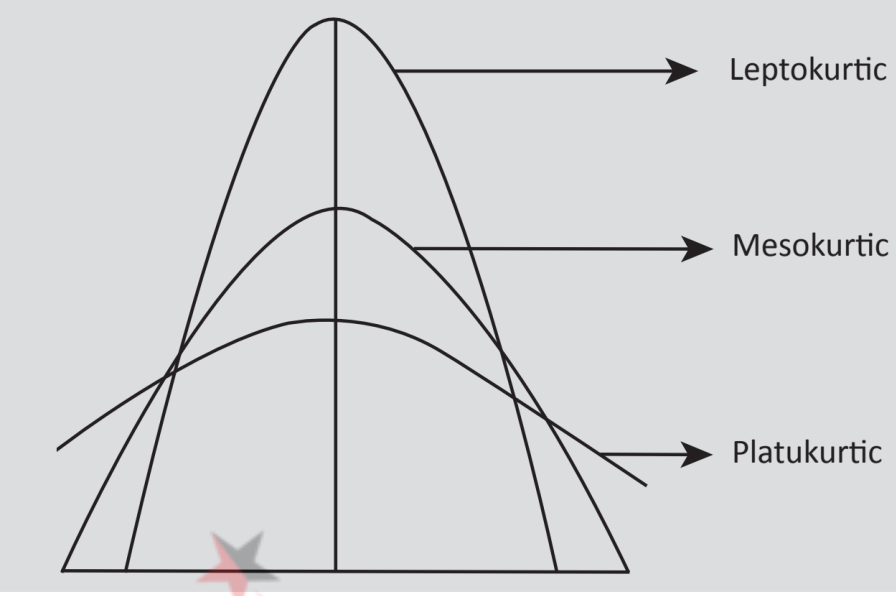
μ1 = First central moment = ∑f(x−x̄)^ 1/ n

μ2 = Second central moment = ∑f(x−x̄)^ 2/ n

μ3 = third central moment = ∑f(x−x̄)^ 3/ n

μ4 = Forth central moment = ∑f(x−x̄)^ 4/ n

- Kurtosisis all about the tails of the distribution – peakedness or flatness.
- It is used to describe the extreme values in one versus the other tail.
- It is actually the measure of outliers present in the distribution.
- The distributions whose peaks are same as of Normal distribution's peak**, are called Mesokurtic.**
- The distributions whose peaks are higher and sharper than mesokurtic, which meanstails are fatter, are called Leptokurtic distributions.
- The distributions whose peaks are lower and shorter than mesokurtic, which means tails are thinner**, are called Platykurtic distributions.**
- **Measure of Kurtosis = β2 = μ4/μ2^2**
- **μ4 = fourth central moment = ∑f(x−x̄) 4/ n**
- **μ2 = second central moment = ∑f(x−x̄) 2/ n**
- **β2 = 0 (Mesokurtic distribution),**
- **β2 > 0 (Leptokurtic distribution),**
- **β2 < 0 (Platykurtic distribution).**



CAIIB Paper 1 (ABM) Module A Unit 4: Correlation and Regression

Introduction

Correlation Analysis

- **Correlation analysis is applied in quantifying the association between two continuous variables**, for example, an dependent and independent variable or among two independent variables.

Regression Analysis

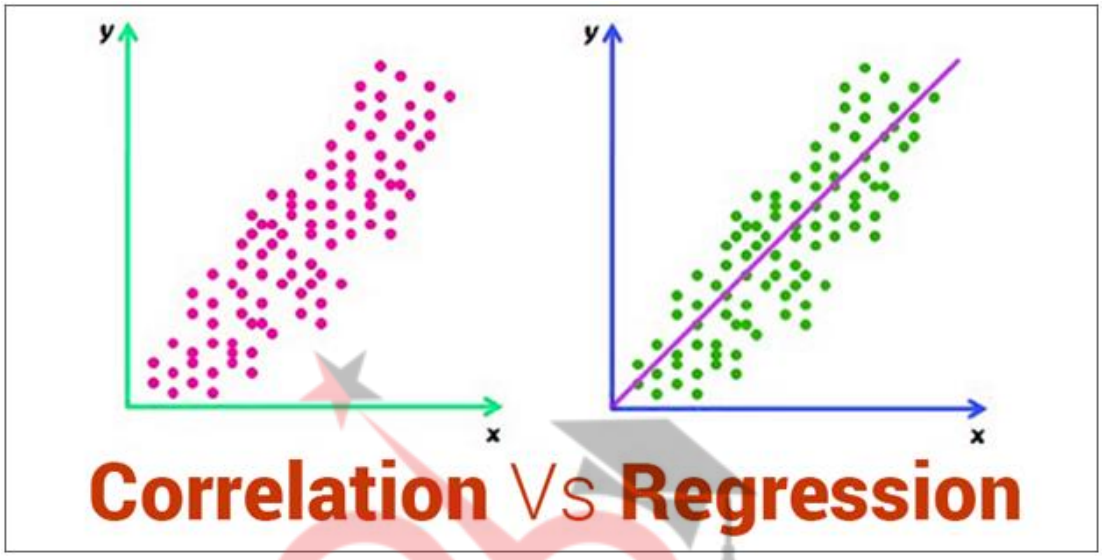
- **Regression analysis refers to assessing the relationship between the outcome variable and one or more variables**. The outcome variable is known as the dependent or response variable and the risk elements, and cofounders are known as predictors or independent variables.
- **The dependent variable is shown by "y" and independent variables are shown by "x" in regression analysis.**

Linear Regression

- Linear regression is a **linear approach to modelling the relationship between the scalar components and one or more independent variables**. If the regression has one independent variable, then it is known as a simple linear regression. If it has more than one independent variables, then it is known as multiple linear regression.
- Linear regression only focuses on the conditional probability distribution of the given values rather than the joint probability distribution. In general, all the real world regressions models

involve multiple predictors. So, the term linear regression often describes multivariate linear regression.

Correlation and Regression Differences



There are some differences between Correlation and regression.

- Correlation shows the quantity of the degree to which two variables are associated. It does not fix a line through the data points. You compute a correlation that shows how much one variable changes when the other remains constant. When r is 0.0, the relationship does not exist. When r is positive, one variable goes high as the other goes up. When r is negative, one variable goes high as the other goes down.
- Linear regression finds the best line that predicts y from x, but Correlation does not fit a line.
- Correlation is used when you measure both variables, while linear regression is mostly applied when x is a variable that is manipulated.

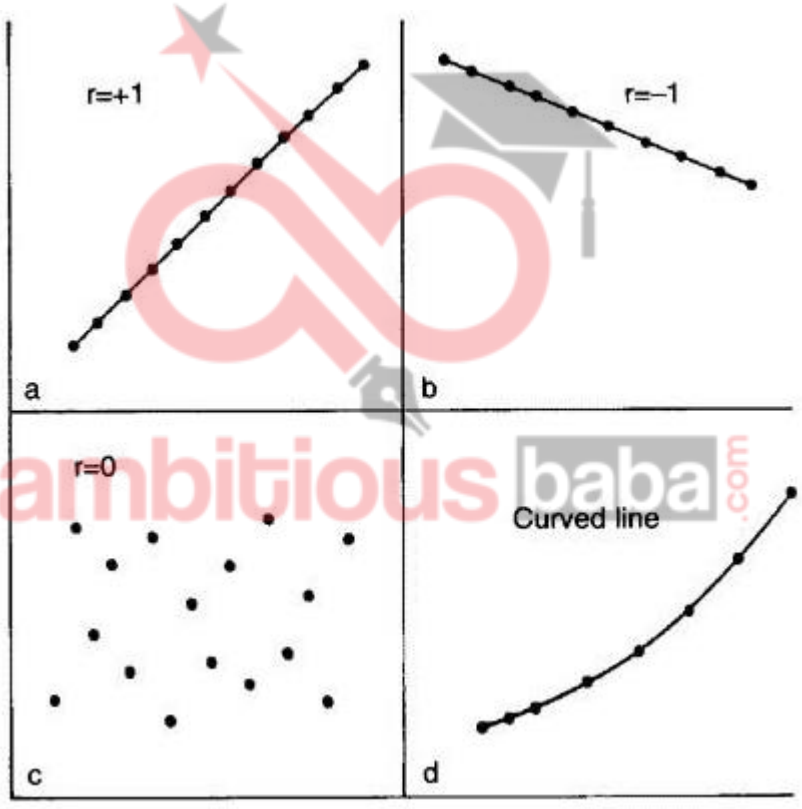
Comparison Between Correlation and Regression

Basis	Correlation	Regression
Meaning	A statistical measure that defines co-relationship or association of two variables.	Describes how an independent variable is associated with the dependent variable.
Dependent and Independent variables	No difference	Both variables are different.

Usage	To describe a linear relationship between two variables.	To fit the best line and estimate one variable based on another variable.
Objective	To find a value expressing the relationship between variables.	To estimate values of a random variable based on the values of a fixed variable.

Correlation and Regression Statistics

The degree of association is measured by "r" after its originator and a measure of linear association. Other complicated measures are used if a curved line is needed to represent the relationship.



The above graph represents the correlation.

The coefficient of correlation is measured on a scale that varies **from +1 to -1 through 0. The complete correlation among two variables is represented by either +1 or -1.** The correlation is positive when one variable increases and so does the other; while it is negative when one decreases as the other increases. The absence of correlation is described by 0.

Correlation Coefficient Formula

If X and Y are two variables, correlation coefficient 'r' is computed as below:

$$r = \frac{\text{cov}(X,Y)}{\sigma_x \sigma_y}$$

where $\text{cov}\,X,Y = \frac{1}{N}\sum(x-\bar{x})(y-\bar{y})$

cov (X, Y) is called the covariance between X and Y.

N is the total number of observations.

$\bar{x}$, $\bar{y}$ are the means and σ_x, σ_y are the standard deviations of the variables.

$$\bar{x} = \sum x/N\,;\ \bar{y} = \sum y/N$$

$$\sigma_x = \sqrt{\frac{\Sigma(x-\bar{x})^2}{N}}$$

$$\sigma_y = \sqrt{\frac{\Sigma(y-\bar{y})^2}{N}}$$

Correlation Coefficient can also be calculated using the formula:

$$r = \frac{N\Sigma xy - (\Sigma x)(\Sigma y)}{\left(\sqrt{N\Sigma x^2 - (\Sigma x)^2}\right)\left(\sqrt{N\Sigma y^2 - (\Sigma y)^2}\right)}$$

Export x	Import y	x^2	y^2	xy
42	56	1764	3136	2352
44	59	1936	3481	2596
58	53	3364	2809	3074
55	58	3025	3364	3190
89	65	7921	4225	5785
98	78	9604	6084	7644
66	58	4356	3364	3828
$\Sigma x = 452$	$\Sigma y = 427$	$\Sigma x^2 = 31940$	$\Sigma y^2 = 26463$	$\Sigma xy = 28469$

$$\bar{x} = \frac{452}{7} = 64.57;\ \bar{y} = \frac{427}{7} = 61$$

$$r = \frac{\left(\frac{28469}{7} - 64.57 * 61\right)}{\left(\sqrt{\frac{31940}{7} - 64.57^2}\right) * \left(\sqrt{\frac{26463}{7} - 61^2}\right)}$$

$$r = \frac{(4067 - 3938.77)}{\left(\sqrt{4562.86 - 4169.28}\right) * \left(\sqrt{3780.42 - 3721}\right)}$$

$$r = \frac{(128.23)}{(19.84 * 7.71)}$$

$$r = \frac{128.23}{152.97}$$

Simple Linear Regression Equation

As we know, linear regression is used to model the relationship between two variable. Thus, a simple linear regression equation can be written as:

$Y = a + bX$

Where,

Y = Dependent variable

X = Independent variable

$a = [(\sum y)(\sum x^2) - (\sum x)(\sum xy)] / [n(\sum x^2) - (\sum x)^2]$

$b = [n(\sum xy) - (\sum x)(\sum y)] / [n(\sum x^2) - (\sum x)^2]$

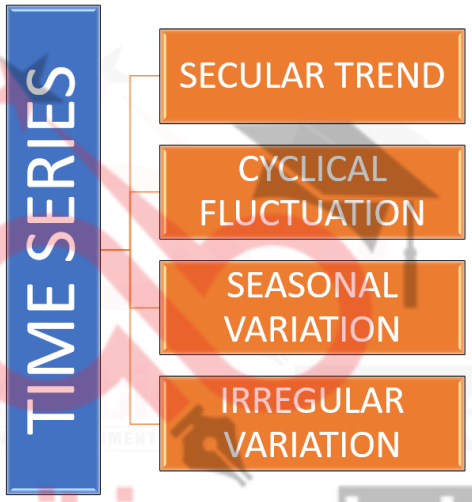
CAIIB Paper 1 (ABM) Module A Unit 5: Time Series

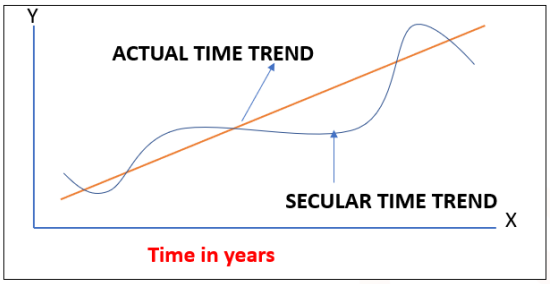
Time Series

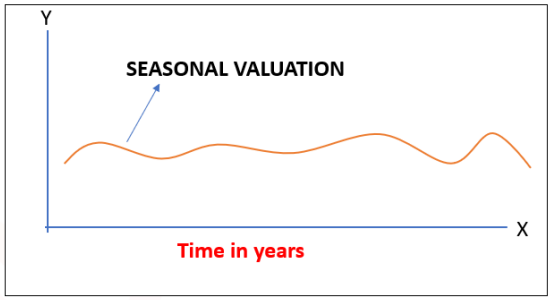
Secular trend is caused by basic inherent factors. Business cycle trends are mostly upward. The quality of forecast depends on the information provided by past data and its validity. **Data or statistical information accumulated** at regular intervals is called **TIME SERIES**.

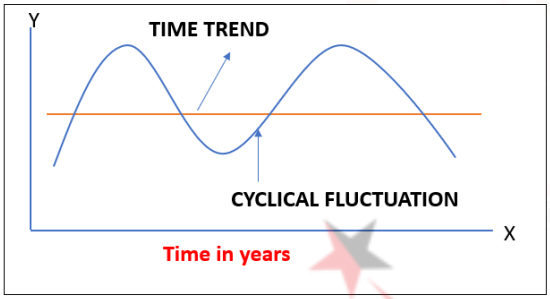
There are 4 types of variations in time series

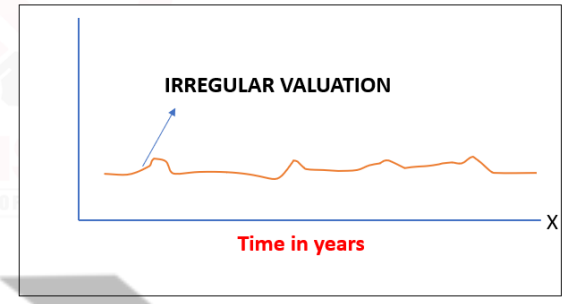
- Secular Trend
- Cyclical Fluctuation
- Seasonal Variation
- Irregular Variation.











Secular Trend

In this first type of variation the change comes over a long period of time. A steady increase in cost of living recorded by Consumer Price Index is a good example. From year to year there is a fluctuation but there is a steady increase in the trend. Let us see the series given here.
Let us try to detect patterns in the information over regular intervals of time. Then let us try to predict to cope with uncertainty.

Year	1997	1998	1999	20W	2001	2002	2003
Number	98	105	116	119	135	156	177

Observations

There is an increase over time of 7 years. But the increases are not equal.

Cyclical Fluctuation

- Most common example of a cyclical fluctuation is a business cycle. Over time, there are years when business cycle hits peak above the trend line. There are also times when business activity slumps, and hits a point below the trend line.

- Fluctuations in business activity occur many times, and they have irregular periods and vary widely in amplitude from cycle to cycle. The time between hitting peaks and lows are periods – it

can be one or many. The cyclical moves do not follow any regular pattern, they are irregular.

Seasonal Variation

- There is a pattern of change within a year. A doctor can expect the number of flu cases to increase in winter. Hill resorts can expect more tourists during summer.
- These are regular patterns and can be used for forecasting the amount of flu vaccines required during winter, the doctor's income during winter, the hotel bookings in resorts and availability of air and train bookings.

Irregular Variation

- The value of the variable is unpredictable, changing in a random manner. The effects of earthquakes, floods, wars, etc., cannot be predicted.
- As a result of flood, the agriculture output suffers. Then the prices go up at an unprecedented rate. This could not be predicted by using time series.
- Even though we described time series as exhibiting one or another variation, in most instances real time series will contain several of these components. Then the question is how to measure them.

Trend Analysis

There are three main reasons, why we should study the trends:

- We will be able to describe historical patterns, which will help us to evaluate the success of previous policies – long-term direction of the time series is given by secular trend.
- Past trends will help us to project the future – some growth rate of population, GDP.
- We will be able to separate the trend component and eliminate it from the series, to get an accurate idea of other components like seasonal fluctuations.

a= Intercept
b = regression coefficient

Equation :

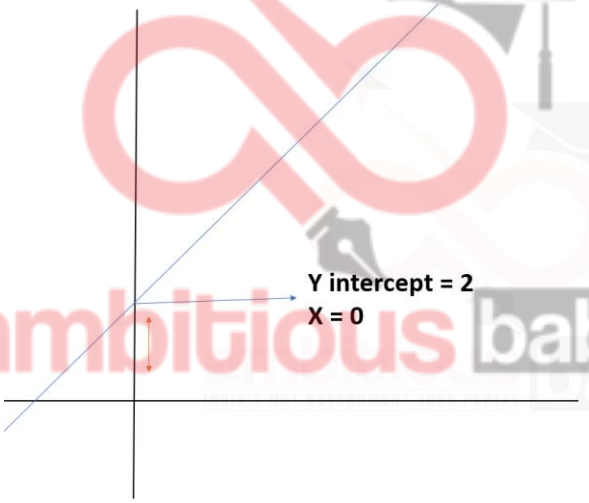
$$Ye = a + bx$$

$$b = \Sigma xy - n\bar{x}\bar{y} / \Sigma x^2 - n\bar{x}^2$$

$$b = \Sigma xy / \Sigma x^2$$

$$a = \bar{y} - b\bar{x}$$

$$a = \bar{y}$$



Year	2009	2010	2011	2012	2013	2014	2015	2016
Number	98	105	116	119	135	156	177	208

Time X	Number Y	T - M	c.Time = x	XY	X^2
2009	98	-3.5	-7	-686	49
2010	105	-2.5	-5	-525	25
2011	116	-1.5	-3	-348	9
2012	119	-0.5	-1	-119	1
2013	135	0.5	1	135	1
2014	156	1.5	3	468	9
2015	177	2.5	5	885	25
2016	208	3.5	7	1456	49
M = ΣT / n 2012.5	ΣY = 1114	ΣX = 0	ΣX= 0	Σxy = 1266	Σx^2 = 168

$\bar{y} = 1114 / 8 = 139.5$

$\bar{x} = 0$

$$b = \Sigma xy - n\bar{x}\bar{y} / \Sigma x^2 - n\bar{x}^2$$

$= 1266 / 168$

$= 7.536$

$$a = \bar{y} - b\bar{x}$$

$= 139.25$

Ye = a + bx

The General equation for annual production

Ye = 139.25 + 7.536x

Estimate the no of unit ,it may produce during 2019

'x' is coded time

= 2(2019-2012.5) = 13

= 139.25 + 7.536 813

= 237.22

= 237 Ships loaded

Parabolic Equation:

Many series may series can be best described by curves. In these cases, the linear model doesnot adequately describe the change in the change in variable as time changes. To overcome this, we use parabolic curves.

1. $\Sigma y = an + c \Sigma x^2$
2. $\Sigma x^2 y = a \Sigma x^2 + c \Sigma x^4$
3. $b = \Sigma xy / \Sigma x^2$

T = year	2012	2013	2014	2015	2016	M = 2014
Y = Watch	13	24	39	65	106	Σy = 247
X = T- m	-2	-1	0	1	2	Σx= 0
X^2	4	1	0	1	4	Ex^2 = 10
Xy	-26	-24	0	65	212	Σxy = 227
X^2y	52	24	0	65	424	Σx^2y = 565

Σx^4 = 34

1. $\Sigma y = an + c \Sigma x^2$

$247 = 5a + 10c$

2. $\Sigma x^2 y = a \Sigma x^2 + c \Sigma x^4$

$565 = 10a + 34c$

3. $b = \Sigma xy / \Sigma x^2$

$= 227/10 = 22.7$

a = 39.3
b = 22.7
c = 5.07

$Ye = a + bx + cx^2$

$= 39.3 + 22.7 * x + 5.07x^2$

Suppose want to calculate for 2021

X = 2021 – 2014 = 7

$= 30.3 + 22.7*7 + 5.07 *49$

$= 446.6$

Cyclical variation

Cyclical variation is a component of the time series, which tends to oscillate above and below the secular trend line for periods longer than a year. Seasonal variation makes a complete regular cycle within each year and does not affect one year any more than another. Once we identify the secular trend,

we can isolate the remaining cyclical and irregular components of the trend. Let us assume cyclical component explains most of the variations left unexplained by the trend analysis.

Residual Method

- **Percentage of Trend = y actual / y trend *100**
- **Relative cycle residual**

X Year	2009	2010	2011	2012	2013	2014	2015	2016
Y	75	78	82	82	84	85	87	91

Year	Y	X = T-M	X * 2	X.Y	X^2	Estimated (83 + x)	% of Trend Y/Y cap*100	RCR
2009	75	-3.5	-7	-525	49	76	98.7	-1.3
2010	78	-2.5	-5	-390	25	78	100	0
2011	82	-1.5	-3	- 246	9	80	102.5	2.5
2012	82	-0.5	-1	-82	1	82	100	0
2013	84	.05	1	84	1	84	100	0
2014	85	1.5	3	255	9	86	98.8	-1.2
2015	87	2.5	5	435	25	88	98.8	-1.2
2016	91	3.5	7	637	49	90	101.1	1.1
M = 2012.5	ΣY = 664	ΣX= 0	ΣX = 0	ΣXY = 168	ΣX^2=168			

Multiply X by 2 if n is even

Ye = a +bx

b = ΣXY/ ΣX^2

= 168/ 168 = 1

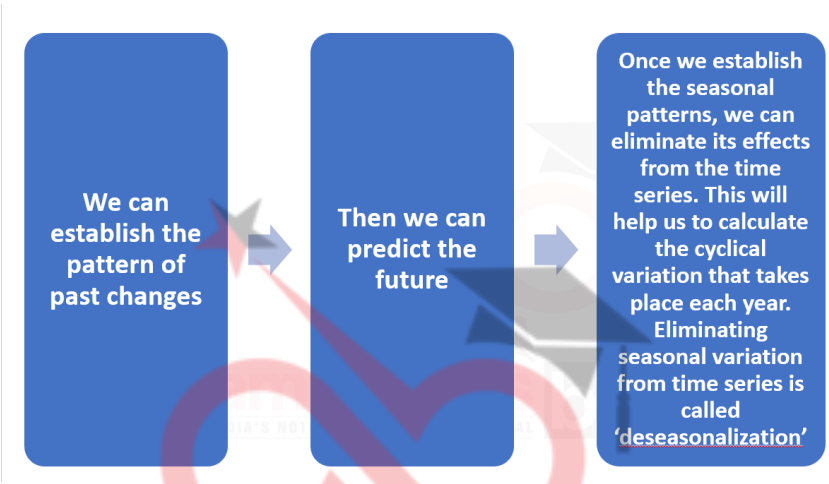
a = $\bar{y}$ - b $\bar{x}$

= 664/8 = 83

Ye= 83 + x

Seasonal Variation

Time series also includes seasonal variation. Seasonal variation is repetitive and predictable. This can be defined as movements around the trend line in one year or less. In order to measure seasonal variations, time intervals must be measured in small units, like days, weeks, etc.



Year	Spring	Summer	Fall	Winter
2012	1861	2203	2415	1908
2013	1921	2343	2514	1986
2014	1834	2154	2098	1799
2015	1837	2025	2304	1965
2016	2073	2414	2339	1967

Year	Season	Occu	Step 1	Step 2	Step 3	Step 4 = SI
2012	I	1861				
	II	2203				
	III	2415	8387	2096.75	2104.25	114.8
	IV	1908	8447	2111.75	2129.25	89.6
2013	I	1921	8587	2146.75	2159	89
	II	2343	8686	2171.50	2181.25	107.4
	III	2514	8764	2191	2180.125	115.3
	IV	1986	8677	2169	2145.625	92.6
2014	I	1834	8488	2122	2070	88.6
	II	2154	8072	2018	1994.625	108
	III	2098	7885	1971	1971.625	106.4
	IV	1799	7888	1972	1955.875	92
2015	I	1837	7759	1939.75	1965.5	93.5
	II	2025	7965	1991.25	2012	100.6
	III	2304	8131	2032.75	2062.25	111.7
	IV	1965	8367	2091.75	2140.375	91.8
2016	I	2073	8756	2189	2193.375	94.5
	II	2414	8791	2197.75	2198	109.8
	III	2339	8793	2198.25		
	IV	1967				

Step 5

Year	Spring	Summer	Fall	Winter
2012			114.8	89.6
2013	89	107.4	115.3	92.6
2014	88.6	108	106.4	92
2015	93.5	100.6	111.7	91.8
2016	94.5	109.8		
Modified mean	91.25	107.70	113.25	91.90

For modified mean : discard lowest and highest value

Total of Indices = 404.10

STEP 6:

Four quarter indices = 400

= 400/404.1 = 0.9899

Spring = 91.25 * 0.9899 = 90.3

Summer = 107.7 * .9899 = 106.6

Fall = 112.1

Winter = 91

Irregular Variation

The final component is irregular variation. After we have eliminated trend, cyclical and seasonal variations from the time series, we may still have unpredictable factor left. Irregular variations occur over **very short intervals and follow random patterns. We may not be able to isolate them mathematically,** but we may isolate the causes for the same. For example, an unusually very cold winter in a region may increase electricity consumption significantly. Wars may increase air and train travel because of the movement of troops. We may not be able to identify all causes. But over time, these random variations tend to correct themselves.

Sales per Quarter (in Rs. 10000)

Year	Spring	Summer	Fall	Winter
2012	16	21	9	18
2013	15	20	10	18
2014	17	24	13	22
2015	17	25	11	21
2016	18	26	14	25

STEP 1: First calculate Seasonal Indices

Q1 = 95.1

Q2 = 129.9

Q3 = 61.2

Q4 = 113.9

Deseasonlised

Actual * seasonal index/ 100

Year	Season	Sale	SI	Deseanalised (Sales/ SI)
2012	I	16	95.1	16.8
	II	21	129.9	16.2
	III	9	61.2	14.7
	IV	18	113.9	15.8
2013	I	15	95.1	15.8
	II	20	129.9	15.4
	III	10	61.2	16.3
	IV	18	113.9	15.8
2014	I	17	95.1	17.9
	II	24	129.9	18.5
	III	13	61.2	21.2
	IV	22	113.9	19.3
2015	I	17	95.1	17.9
	II	25	129.9	19.2
	III	11	61.2	18
	IV	21	113.9	18.4
2016	I	18	95.1	18.9
	II	26	129.9	20
	III	14	61.2	22.9
	IV	25	113.9	21.9

STEP 2: TREND LINE (Ye = a + bx)

a= y

b = xy/x^2

Year	Season	X	T- M 10.5	Coded t(x)	x^2	Y	xY
2012	I	1	-9.5	-19	361	16.8	-319.2
	II	2	-8.5	-17	289	16.2	-275.4
	III	3	-7.5	-15	225	14.7	-220.4
	IV	4	-6.5	-13	169	15.8	-205.4
2013	I	5	-5.5	-11	121	15.8	-173.8
	II	6	-4.5	-9	81	15.4	-138.6
	III	7	-3.5	-7	49	16.3	-114.1
	IV	8	-2.5	-5	25	15.8	-79
2014	I	9	-1.5	-3	9	17.9	53.7
	II	10	-.5	-1	1	18.5	-18.5
	III	11	.5	1	1	21.2	21.2
	IV	12	1.5	3	9	19.3	57.9
2015	I	13	2.5	5	25	17.9	89.5
	II	14	3.5	7	49	19.2	134.4
	III	15	4.5	9	81	18	162
	IV	16	5.5	11	121	18.4	202.4
2016	I	17	6.5	13	169	18.9	117
	II	18	7.5	15	225	20	300
	III	19	8.5	17	289	22.9	389.9
	IV	20	9.5	19	361	21.9	416.1

Σx^2 = 2660
ΣY = 360.9
Mean Y = 360.9/20
= 18
Σxy = 420.3

b = ΣXY/ ΣX^2
= 420.3/ 2660
= 0.16

a = Mean Y
= 18

Trend line =
a + bx
= 18 + 0.16x

STEP 3 : Trend Value

Percent of Trend

Year	Season	Coded t(X)	Y	a+bx = Ye 18 + 0.16x	% of Trend Y/Ye *100
2012	I	-19	16.8	14.96	112.3
	II	-17	16.2	15.28	105
	III	-15	14.7	15.50	94.2
	IV	-13	15.8	15.92	99.2
2013	I	-11	15.8	16.24	97.3
	II	-9	15.4	16.56	93
	III	-7	16.3	16.88	96.6
	IV	-5	15.8	17.20	91.9
2014	I	-3	17.9	17.52	102.2
	II	-1	18.5	17.84	103.7
	III	1	21.2	18.16	116.7
	IV	3	19.3	18.48	104.4
2015	I	5	17.9	18.80	95.2
	II	7	19.2	19.12	100.4
	III	9	18	19.44	92.6
	IV	11	18.4	19.76	93.1
2016	I	13	18.9	20.80	94.1
	II	15	20	20.40	98
	III	17	22.9	20.72	110.5
	IV	19	21.9	21.94	104.1

Suppose management wants to determine the sales value for the 3rd qt of 6th year

23- 10.5 = 12.5 (coded X value)

12.5 * 2 = 25

Ye = a +bx

= 18 + 0.16*25

= 22

Means 22000 units

CAIIB Paper 1 (ABM) Module A Unit 6: Theory of Probability

Introduction To Probability

- Probability means chance/s or possibility of happening of an event. For example, suppose we want to plan for a picnic in a weekend.
- Before planning we may check the weather forecast and see what is the chance that there will be rain at that time, accordingly we may do the planning.
- Probability gives a numerical measure of this chance or possibility.
- Suppose it says that there is a 60% chance that rain may occur in this weekend, 60% or 0.6 is called the probability of raining. To understand the concept of probability first we have to understand the concepts of Factorial, Permutations and Combinations.

Factorial:

- In mathematics, Factorial is equal to the product of all positive integers which are less than or equal to a given positive integer. The Factorial of an integer is denoted by that integer and an exclamation point.
- **Thus, factorial five is written as 5! which is equal to 1 × 2 × 3 × 4 × 5 = 120**
- **The product of the first n natural numbers is called factorial n and is denoted by n! =**

  n × (n – 1) × (n – 2) × ... × 2 × 1
- **The above formula can also be represented as n! = n × (n – 1) ... (n – r + 1) × (n – r)!**
- **Where r < n It may be noted that:**

  0! = 1, 1! = 1

Permutations and Combinations

- A permutation is the arrangement of objects in which order is the priority. The fundamental difference between permutation and combination is the order of objects, in permutation, the order of objects is very important, i.e., the arrangement must be in the stipulated order of the number of objects, taken only some or all at a time.
- The combination is the arrangement of objects in which order is irrelevant. The notation for permutation is P (n, r) or ${}^{n}P_{r}$, denoting the number of permutations of n things when r things are selected at a time.
- If there are three things a,b, and c then permutations of three things taken two at a time is denoted by P (3, 2) or ${}^{3}P_{2}$.
- It is given by (a, b), (a, c), (b, c), (b, a), (c, a), (c, b) = 6
- **In general,**

$$P(n, r) = {}^{n}P_{r} = \frac{n!}{(n-r)!}$$

P (n, r) is the number of permutations when r things are selected at a time from n items.

The notation for combination is C(n, r) or ${}^{n}C_{r}$ which is the number of combinations or selections of n things if only r things are selected. If there are three things a, b and c then combination of these three things taken two at a time is denoted by ${}^{3}C_{2}$ and is given by (a, b), (a, c), (b, c) = 3

$$^{n}C_{r} = \frac{n!}{r!(n-r)!}$$

Example: Using 5 letter of word SHYAM, how many distinct word can be formed?

N= 5

R= 5

$^{5}P_{5}$ = 5!/ (5-5)! = 5*4*3*2/0! = 5*4*3*2/1 = 120

Note: Permutation and Combination are related to each other by formula P(n,r) = r! * C(n,r).

Example: In how many ways 3 pencils can be selected from 5 pencils?

3 pens can be selected from 5 pens in $^{5}C_{3}$ ways

$^{5}C_{3}$ = 5! / 3! 2! × = 10 ways

Example: From a group of 7 boys and 6 girls, 3 boys and 4 girls is to be selected. In how many ways this can be done?

3 boys can be selected from 7 boys in $^{7}C_{3}$ ways

= $^{7}C_{3}$ = 7! /3! 4! ×

= 7* 6 *5 *4! /3*2*4! = 35

4 girls can be selected from 6 girls in $^{6}C_{4}$ ways

= 6! 4! 2! = 6 *5 *4! /4! *2 = 15

3 boys and 4 girls can be selected in $^{7}C_{3} \times {}^{6}C_{4}$ = 35 × 15 = 525 ways.

Random Experiment or Trial

An operation or experiment conducted under identical conditions and which has a number of possible outcomes is called Random Experiment or Trial.

Example: 1. Tossing a coin 2. Throwing a dice 3. Selecting a card form a pack of cards

Sample Space and Sample Points

The set of all possible outcomes of a random experiment is called sample space.

The elements of the sample space are called sample points. Sample space is denoted by S.

Example: 1. In an experiment of throwing a coin, S = {H,T]

2. In an experiment of throwing a dice, S = {1, 2, 3, 4, 5, 6}

The number of sample points in a sample space of random experiment is denoted by n (s).

For example, (1) n (S) = 2, and

example (2) n (S) = 6

Event

Any subset of the sample space S is called an event.

If S is a sample space and A is a subset of S (i.e., A⊂ S), then A is called an event.

Example: In an experiment of throwing dice where S = {1, 2, 3, 4, 5, 6}, the event of getting odd numbers is A = {1, 3, 5}

Types of Events

Certain Event

- If sample points in an event are same as sample points in sample space of that random experiment, then the event is called a certain event.
- Example: Getting any number between 1 to 6 on a dice is a certain event.

Impossible Events

- An event which never occurs or which has no favourable outcomes is called an impossible event. In other words, the event corresponding to the set φ (null set) is called an impossible event.
- Example: Getting a number 7 on a dice is an impossible event.

Mutually Exclusive Events

- Events are said to mutually exclusive if the happening of any of them restricts the happening of the others i.e., if no two or more of them can happen together or simultaneously in the same trial.
- Example: In tossing a coin event head and tail are mutually exclusive. Note: If A & B are mutually exclusive events of sample space S, then A ∩ B = φ.

Example: In tossing a coin event head and tail are mutually exclusive. Note: If A & B are mutually exclusive events of sample space S, then A ∩ B = φ.

Equally Likely Events

- Events are said to be equally likely if they have equal choice to occur. In other words, outcomes of a trial are said to be equally likely if taking into consideration all relevant evidences, there is no reason to prefer one with respect to other.
- Example: In throwing a dice all the six faces are equally likely to occur.

Exhaustive Events

- If the sample points of the events taken together
- Note: If A & B are exhaustive events of sample space S, then A U B = S.
- Example: Random Experiment:
- Throwing a dice S = {1,2,3,4,5,6},
- A= Event of odd numbers = {1, 3, 5}
- B= Event of odd numbers = {2, 4, 6},
- C= Event of multiple of 3 = {3, 6}
- Here A U B = {1, 2, 3, 4, 5, 6} = S,
- Here A and B are called exhaustive events
- But A U C = {1, 3, 5, 6} ≠ S,
- so A and C are not exhaustive events.

Complementary Event

If A is an event in sample space S, then the non-occurrence event of A is called Complementary event of A.

Two events A and B are called complementary events, if A and B exhaustive as well as mutually exclusive events.

In other words, A and B are called complementary events if

A U B = S and A ∩ B = φ.

Example: Random Experiment: Throwing a dice, S = {1, 2, 3, 4, 5, 6}, A = {1, 2}, B = {3, 4, 5, 6} As A U B = S and A ∩ B = φ, A and b are complementary events.

Complementary event of A is denoted by A^c, A/ or A·

Mathematical Definition Of Probability

If the sample space S of a random experiment consists of n equally likely, exhaustive and mutually exclusive sample points and m of them are favourable to an event A, then the probability of event A is given by

$$P(A) = \frac{m}{n} = \frac{\text{Number of Sample Point in A}}{\text{Number of Sample Point in S}} = \frac{n(A)}{n(S)}$$

$$\text{Since } 0 \le m \le n, \quad \frac{0}{n} \le \frac{m}{n} \le \frac{n}{n} \Rightarrow 0 \le P(A) \le 1$$

Number of favourable items/ Total number of outcomes

Example: Two unbiased dice are thrown. Find the probability that:

- Both the dice show same number.
- First dice shows 6.
- The total of the numbers on the dice is 8.

Solution In a random throw of two dice, the total number of cases is given below:

(1, 1),	(2, 1),	(3, 1),	(4, 1),	(5, 1),	(6, 1),
(1, 2),	(2,2)	(3,2)	(4,2)	(5,2)	(6,2)
(1,3)	(2,3)	(3,3)	(4,3)	(5,3)	(6,3)
(1,4)	(2,4)	(3,4)	(4,4)	(5,4)	(6,4)
(1,5)	(2,5)	(3,5)	(4,5)	(5,5)	(6,5)
(1,6)	(2,6)	(3,6)	(4,6)	(5,6)	(6,6)

n(S) = 36

A: Both the dice show same number

n(A)/n(S) = 6/36 = 1/6

B: First die show 6 n(B)/n(S) = 6/36 = 1/6

C: Total of the number

on the dice is 8 n(C)/n(S) = 5/36

Example: Two unbiased coins are tossed simultaneously. Find the probability of getting –

at least one tail,

majority of heads

S = {(H, H), (H, T), (T, H), (T, T)}

n (S) = 4

(i)A: At least one tail,

P (A) = n (A)/ n (S) = 3 /4

(ii)B: Majority of heads

P (B) = n (B)/ n(S) = 1/ 4

Addition Theorem

Let A and B are two events (subsets of sample space S) and are not disjoint, then the probability of the occurrence of A or B or A and B both, in other words probability of occurrence of at least one of them is given by,

P (A U B) = P (A) + P (B) – P (A∩B)

- ✓ **P (A U B) = A Or B**
- ✓ **P (A∩B) = A and B**

Example: Find the probability that a card drawn from a pack of cards will be a red or a picture card.

Probability of selecting a red card = 26 = Event A

P(A) = 26/52 = 1/2

Probability of getting picture card = 6 = Event B

P(B) = 12/52 = 3/13

There are 6 red cards which are picture cards,

P (A∩B) = 6/52

P (A U B) = P (A) + P (B) – P (A∩B)

½ + 3/13 – 6/52 = 8/13

➢ **Corollary 1:**

- If the events A and B are mutually exclusive, then
- $A \cap B = \varphi$ Ì $P(A \cap B) = 0 \Rightarrow P(A \cap B) = P(A) + P(B)$

➢ **Corollary 2:** For three non-mutually exclusive events

- A, B, C $P(AU B \cap C) = P(A) + P(B) + P(C) - P(A \cap B) - P(B \cap C) - P(A \cap C) + P(A \cap B \cap C)$

➢ **Corollary 3:** If A and B are any two events, then

$P(A) = P(A \cap B) + P(A \cap B^c)$

➢ **Corollary 4:** If A^c is complementary event of A then

$P(A^c) = 1 - P(A)$

➢ **Corollary 5:**

$P(B \cap A^c) = P(B) - P(B \cap A)$

➢ **Corollary 6:**

If $A \subset B$

$P(A) \leq P(B)$

➢ **Corollary 7:** P (Non-occurrence of events)

$P(A^c \cap B^c) = 1 - P(A \cup B)$

Conditional Probability

- The conditional probability of an event A is the probability that the event will occur given the knowledge that an event B has already occurred.

P (A/B).

- If the events A and B are such that the occurrence of A doesn't depend upon occurrence of event B, (A and B are independent event), the conditional probability of event A given event B is simply the probability of event A, that is P (A).

- Similarly, probability of event B given that event A has already occurred is denoted by P (B/A).

$$P(B/A) = P(A \cap B) / P(A)$$

Example: Consider a fair coin is tossed 3 times

S = (HHH, HHT, HTH, TTT, TTH, THT, THH, HTT) = 8

Event A = Atleast two tail appear

Event B – First coin show Head

P(A) = (TTT, TTH, THT, HTT) = 4/8 = ½

P(B) = (HHH, HHT, HTH, HTT) = 4/8 = ½

P (A ∩ B) = 1/8

P(A/B) = 1/ 8 / ½ = 1/4

Multiplication Theorem

- If A and B are two events of a sample space S associated with an experiment, then the probability of simultaneous occurrence of events A and B is given by

$$P(A \cap B) = P(A)\, P(B/A) = P(B)\, P(A/B)$$

Independent Events

Two events A and B are independent of each other if the occurrence or non-occurrence of one does not affect the occurrence of the other.

$$P(A \cap B) = P(A)\, P(B)$$

Example: Two balls are drawn from a bag one by one with 2 white and 3 black balls. What is the probability that the second ball is white?

Event W1 = first ball - White Ball

Event B1 = First Ball – Black Ball

Event W2 = Second Ball – White Ball

1st White Ball = 2/5 + ¼

2nd Black Ball = 3/5 + 2/4

P(W2) = P(W1) + P(W2/W1) + P(B1) + P(W2/B1)

2/5 + ¼ + 3/5 + 2/4= 2/5

Random Variable

- A random variable is a function that associates a real number with each element in the sample space.
- In other words, a random variable is a function **X: S → R,**
- where S is the sample space of the random experiment under consideration and R is the real number line.

Example. Consider the random experiment of tossing a coin two times and observing the result (a Head or a Tail) for each toss.

Let X denote the total number of heads obtained in the two tosses of the coin.

Example: Suppose that you play a certain lottery by buying one ticket per week. Let X be the number of weeks until you win a prize. X is a random variable.

Discrete Random Variable:

- If a random variable takes a finite number or countable infinite number of possibilities, it is called a discrete random variable.
- Example: 1. Age in years 2. Number of arrivals in a clinic 3. Number of accidents

Continuous Random Variable:

- If a random variable takes infinite number of possibilities, it is called a continuous random variable.
- Example 1. Percentage of marks 2. Weight 6.5 PROBABILITY

Binomial Distribution

- Consider a random experiment consisting of n repeated independent trials with p the probability of success at each individual trial. Let the random variable X represent the number of successes in the n repeated trials.
- Then X follows a Binomial distribution.

The definition of this distribution is:

- A random variable X has a binomial distribution,

X ~ Binomial (n, p), if the discrete density of X is given by:

$P[X=x] = f(x) = {}^{n}C_{x}\, p^{x}\, (1-p)^{n-x}$,

x = 0, 1, 2..., n = 0 otherwise

$f(x) = {}^{n}C_x\, p^x\, q^{n-x}$;

x = 0, 1, 2..., n = 0 otherwise where p + q = 1

P = the probability of success

n is the total number of trials.

Example: Toss a coin for 10 times and you wan to get head 4 times & probability of coming head is 0.5 calculate f(x)?

n = 10, x= 4 & p = 0.5

q = 1- 0.5 = 0.5

$f(x) = {}^{n}C_x\, p^x\, q^{n-x}$

$= {}^{10}C_4 * 0.5^{10}\, o.5^{10}$

Binomial Distribution Real Life Examples

Many instances of binomial distributions can be found in real life.

- If a new drug is introduced to cure a disease, it either cures the disease (it's successful) or it doesn't cure the disease (it's a failure).
- If you purchase a lottery ticket, you're either going to win money, or you aren't. Basically, anything you can think of that can only be a success or a failure can be represented by a binomial distribution.
- **Mean = np**
- **Variance = np (1 – p) = npq**
- **SD = √ variance**
- **Measure of Skewness = â1 = (1-2p)2/npq**
- **Measure of Kurtosis = â2 = 3 + [1 – 6pq /npq]**
- **Binomial Distribution is symmetric if p = q = 0.5**
- **If p < 0.5, distribution is positively skewed and**
- **if p > 0.5, distribution is negatively skewed.**

Mode

M= (n+1) p

- **If M is not an integer, mode is the integral part lying between M – 2 and M.**

- **If M is an integer, there are two modes and thus the distribution is bimodal, and two modes are M – 1 and M.**

Problem: If X follows Binomial distribution with n = 8, p = 1/2, then Find P [IX-4I ≤ 2]

Solution : P[-2<=(X-4)<=2]

P[2<= X<=6]

P[2<= X<=6] = P(X=2) + P(X=3) + P(X=4) + P(X=5) + P(X=6)

$f(x) = {}^{n}C_x\, p^x\, q^{n-x} = {}^{8}C_x\, 1/2^x\, 1/2^{8-x}$

${}^{8}C_x\, 1/2^x\, 1/2^{8-x} =$

$= {}^{8}C_2\, 1/2^2\, 1/2^{8-2} + {}^{8}C_3\, 1/2^3\, 1/2^{8-3} + {}^{8}C_4\, 1/2^4\, 1/2^{8-4} + {}^{8}C_5\, 1/2^5\, 1/2^{8-5} + {}^{8}C_6\, 1/2^6\, 1/2^{8-6}$

$= (1/2)^8\, ({}^{8}C_2 + {}^{8}C_3 + {}^{8}C_4 + {}^{8}C_5 + {}^{8}C_6)$

= 1/256 (128+ 56+ 70 +56 +28) = 119/128

Poisson Distribution

- The Poisson probability distribution was introduced by S. D. Poisson.
- A random variable X, taking on one of the values 0, 1, 2,..., is said to be a Poisson random variable with parameter λ, λ > 0, if its probability mass function is given by

$$f(x) = \frac{e^{-\lambda}\lambda^x}{x!} \quad x = 0, 1, 2,$$

- The symbol e stands for a constant approximately equal to 2.7183. It is a famous constant in mathematics, named after the Swiss Mathematician L. Euler, and it is also the base of the so-called natural logarithm

Some examples of Poisson probability are:

- The number of misprints on a page (or a group of pages) of a book.
- The number of people in a community living to 100 years of age
- The number of wrong telephone numbers that are dialed in a day.
- The number of transistors that fail on their first day of use.
- The number of customers entering a post office on a given day.
    - Mean = λ,
    - Variance = λ

- Measure of Skewness = β1 = 1 /λ
- Measure of Kurtosis β2 = 3 +1/λ
- Mode: If l is not an integer mode is the integral part lying between λ–1 and λ
- If λ s an integer, there are two modes and thus the distribution is bimodal and two modes are λ −1 , λ

Problems. Births in a hospital occur randomly at an average rate of 1.8 births per hour.

- What is the probability of observing 4 births in a given hour at the hospital?
- What about the probability of observing more than or equal to 2 births in a given hour at the hospital?

$$f(x) = \frac{e^{-\lambda}\lambda^{x}}{x!} \quad x = 0, 1, 2,$$

Let X= No. of births in a given hour = 4 with Mean rate λ = 1.8

$e^{-1.8}$ = .16529

f(x) = $e^{-1.8} * 1.8^4 /4!$

.16529 * 10.4976/ 24 = 0.0723

(ii) We want P(X ≥ 2) = P(X = 2) + P(X = 3) +..., i.e., an infinite number of probabilities to calculate

but P(X ≥ 2) = P(X = 2) + P(X = 3) +... = 1 − P(X < 2)

= 1 − (P(X = 0) + P(X = 1)

= 1 − (0.16529 + 0.29753) = 0.538

Normal Distribution

- A normal distribution is a distribution that occurs naturally in many situations where 50% of the data will fall to the left of the mean and 50% will fall to the right.
- For example, Height of the population, most of the people in a specific population are of average height. The number of people taller and shorter than the average height people is almost equal, and a very small number of people are either extremely tall or extremely short.
- Some other examples are distribution of Income in economy, distribution of marks in an exam, etc.
- A random variable X is said to follow Normal Distribution if its pdf is given by

$$f(x) = \frac{1}{\sqrt{2\pi}} e^{-\frac{\left(\frac{x-\mu}{\sigma}\right)^2}{2}} \quad -\infty < x < \infty$$

Note:

- μ and σ2 are called parameters of Normal Distribution.
- If μ = 0 and σ2 = 1, then the Normal variable is called Standard Normal Variable. Generally, it is denoted by Z.

$$f(z) = \frac{1}{\sqrt{2\pi}} e^{-\frac{z^2}{2}} \quad -\infty < z < \infty$$

- The graph of Normal Distribution is bell shaped and symmetric.
- Quartile deviation is 0.6745σ
- Mean deviation is 0.7979σ

Mean = Median = Mode = μ

Problem: Normal population of 1000 employees has mean income Rs. 800 per day and variance 400, Find no. of employees where income between [P(Z= 1) = 0.3413, P(Z= 2) = 0.4772 & P(Z= 2.5) = 0.4938 P(Z= 5) = 0.5]

P (750 < x < 820)

P (x > 700)

P (x > 760)

n= 1000 , μ= 800 & σ^2 = 400

Z = X- μ /σ

i)X = 750 = 750- 800/ 20 = 2.5 = 0.4938

X = 820 = 820-800 / 20 = 1 = 0.3413

= 0.4938 + 0.3413 = 0.8351 = 83.51%

ii)X = 700 = 700 – 800/ 20 = 5 = 0.5

0.5 + 0.5 = 1 = 1000 employees

n= 1000 , μ= 800 & σ^2 = 400

Z = X- μ /σ

iii) X = 760 = 760-800/20 = 2 = 0.4772

0.4772 + 0.5 = 0.9772

Credit Risk

- We can apply probability concept and different formulas and laws of probability in different practical field.
- One very important application is Credit Risk.
- When lenders offer mortgages, credit cards, any type of loan to different customers, there could be a risk that the customer or borrower might not repay the loan.
- Similarly, if a company extends credit to a customer, there could be a risk that the customer might not pay their invoices.
- We are interested to calculate this risk of not repaying any due payment. This is **called Credit Risk.**
- Credit risk also represents the risk that a bond issuer may fail to make a payment when requested, or an insurance company will not be able to pay a claim.
- Thus, Credit Risk is the possibility or chance or probability of a loss occurring due to a borrower's failure to repay a loan to the lender or to satisfy contractual obligations. It refers to a lender's risk of having its cash flows interrupted when a borrower does not repay the loan taken from him.

There are three types of credit risks.

Credit default Risk :

Credit default risk is the type of loss that is incurred by the lender either when the borrower is unable to repay the amount in full or when 90 days pass the due date of the loan repayment. This type of credit risk is generally observed in financial transactions that are based on credit like loans, securities, bonds or derivatives.

Concentration Risk:

Concentration risk is the type of risk that arises out of significant exposure to any individual or group because any adverse occurrence will have the potential to inflict large losses on the core operations of a bank. The concentration risk is usually associated with significant exposure to a single company or industry or individual.

Country risk

- The risk of a government or central bank being unwilling or unable to meet its contractual obligations is called Country or Sovereign Risk.
- When a bank or financial institution or any other lender has an indication that the borrower may default the loan payment, he will be interested to calculate the expected loss in advance.
- The expected loss is based on the value of the loan (i.e., the exposure at default, EAD) multiplied by the probability, that the borrower will default (i.e., probability of default, PD).
- In addition, the lender takes into account that even when the default occurs, it might still get back some part of the loan.
- Hence, PD * EAD is further multiplied by the estimation of the part of the loan which will be lost in case that a default occurs (i.e., loss given default, LGD).

Expected loss = PD * EAD * (1 – LGD)

Problem: Let a credit of Rs. 2,000,000 was extended to a company one year ago. Determine the expected loss for the exposure if the company defaults completely, where the loss given default is 50%.

Probability of default, PD = 100

Loss given default, LGD = 50%

Expected loss = 100% * Rs. 2,000,000 * (1 – 50%)

= Rs. 1,000,000

Value At Risk (VaR)

- The concept of value at risk is associated with portfolio of an individual or an organisation.
- A portfolio is a collection of different kinds of assets owned by an individual or organisation to fulfil their financial objectives.
- One can include fixed deposit or any investment where he or she can earn a fixed interest, equity shares, mutual funds, debt funds, gold, property, derivatives, and more in his portfolio.
- In any type of investment where one can earn fixed interest are not risky, but risk is associated with the investments in Equity market, Mutual Funds, Gold, etc.
- Value at risk (VaR) is a financial metric that one can use to estimate the maximum risk of an investment over a specific period.

If the portfolio value is Rs. 30,000 and if 1-month average return and standard deviation is 10% and 12% respectively, calculate daily VaR at 95% confidence level.

VAR at 95% confidence level

= [Return of the portfolio –1.65 *σ][Value of the portfolio]

= [0.1–1.65*0.12] *30000

= [0.1 –0.198] *30000 = –2940 = 9.8% of the portfolio.

CAIIB Paper 1 (ABM) Module A Unit 7: Estimates

Estimates

Estimation refers to the process by which one makes inferences about a population, based on information obtained from a sample.

We can make **two types of estimates** about a population: **a point estimate and an interval estimate.** A point estimate is a single number that is used to estimate an unknown population parameter If, while watching a cricket team on the field, you say. 'Why, I bet they will get 350 runs,' you have made a point estimate. A department head would make a point estimate if she said, 'Our current data indicate that this course will have 350 students next year.'

Estimator And Estimates

Asample statistic that is used to estimate a population parameter is called an estimator. The sample mean x can be an estimator of the population mean μ, and the sample proportion can be used as an estimator of the population proportion. We can also use the sample range to estimate the population range. When we have observed a specific numerical value of our estimator, we call that value as an estimate. In other words, an estimate is a specific value of a statistic or an estimator. We form an estimate by taking a sample and computing the value taken by our estimator in that sample. Suppose, we calculate the mean odometerreading (mileage)from a sample of used taxis and find it to be 98,000 miles. If we use this specific value to estimate the mileage for a whole fleet of used taxis, the value 98,000 miles would be an estimate.

Criteria of a Good Estimator

Some statistics are better than others. Fortunately, we can evaluate the quality of a statistic as an estimator by using four criteria:

- **Unbiased:** This is a desirable property for a good estimator to have. The term unbiased refers to the fact that a sample mean is an unbiased estimator of a population mean because the mean of the sampling distribution of sample means taken from the same population is equal to the population mean itself.
- **Efficiency:** Another desirable property of a good estimator is efficiency. Efficiency refers to the size of the standard error of the statistic. If we compare two statistics from a sample of the same size and decide which one is the more efficient estimator, we would pick the statistic with the smaller standard error or standard deviation of the sampling distribution.
- C**onsistency**: A statistic is a consistent estimator of a population parameter if, as the sample size increases, it becomes almost certain that the value of the statistic comes very close to the value of the population parameter. If an estimator is consistent, it becomes more reliable with large samples.

- **Sufficiency:** An estimator is sufficient if it makes so much use of the information in the sample that no other estimator could extract from the sample, additional information about the population parameter being estimated.

Point estimate

- **A point estimate is often insufficient, because it is either right or wrong. If you are told only that her point estimate of enrollment is wrong, you do not know how wrong it is, and you cannot be certain of the estimate's reliability**.
- If you learn that it is off by only 10 students, you would accept 350 students as a good estimate of future enrollment. But if the estimate is off by 90 students, you would reject it as an estimate of future enrollment. Therefore, a point estimate is much more useful if it is accompanied by an estimate of the error that might be involved.

Interval estimate

- **An interval estimate is a range of values used to estimate a population parameter. It indicates the error in two ways**: by the extent of its range and by the probability of the true population parameter lying within that range. In this case, the department head would say something like, 'I estimate that the enrollment in this course next year will be between 330 and 380 and that it is very likely that the exact enrollment will fall within this interval.'
- She has a better idea of the reliability of her estimate. If the course is taught in sections of about 100 students each, and if she had tentatively scheduled five sections, then on the basis of her estimate, she can now cancel one of those sections and offer an elective instead.

Estimator

A sample statistic that is used to estimate a population parameter is called an estimator.

Criteria of a Good Estimator

Some statistics are better than others. Fortunately, we can evaluate the quality of a statistic as an estimator by ***using four criteria:***

- **Unbiased**: This is a desirable property for a good estimator to have. The term unbiased refers to the fact that a sample mean is an unbiased estimator of a population mean because the mean of the sampling distribution of sample means taken from the same population is equal to the population mean itself.
- **Efficiency:** Another desirable property of a good estimator is that it be efficient. Efficiency refers to the size of the standard error of the statistic.

- **Consistency:** A statistic is a consistent estimator of a population parameter if as the sample size increases, it becomes almost certain that the value of the statistic comes very close to the value of the population parameter.
- **Sufficiency:** An estimator is sufficient if it makes so much use of the information in the sample that no other estimator could extract from the sample additional information about the population parameter being estimated.

Relationship between Confidence Level and Confidence Interval

- You may think that we should use a high confidence level, such as 99 per cent, in all estimation problems. After all, a high confidence level seems to signify a high degree of accuracy in the estimate. In practice, however, high confidence levels will produce large confidence intervals, and such large intervals are not precise; they give very fuzzy estimates.
- There is a direct relationship that exists between the confidence level and the confidence interval for any estimate. As you set a tighter and tighter confidence interval, you would get to a lower and lower confidence level.

Confidence Intervals

Statisticians use a **confidence interval** to express the precision and uncertainty associated with a particular sampling method. A confidence interval consists of three parts.

- A confidence level.
- A statistic.
- A margin of error.

The confidence level describes the uncertainty of a sampling method. The statistic and the margin of error define an interval estimate that describes the precision of the method. The interval estimate of a confidence interval is defined by the *sample statistic* ± *margin of error*.

For example, suppose we compute an interval estimate of a population parameter. We might describe this interval estimate as a 95% confidence interval. This means that if we used the same sampling method to select different samples and compute different interval estimates, the true population parameter would fall within a range defined by the *sample statistic* ± *margin of error* 95% of the time.

Confidence intervals are preferred to point estimates, because confidence intervals indicate (a) the precision of the estimate and (b) the uncertainty of the estimate.

Confidence Level

The probability part of a confidence interval is called a **confidence level**. The confidence level describes the likelihood that a particular sampling method will produce a confidence interval that includes the true population parameter.
Here is how to interpret a confidence level. Suppose we collected all possible samples from a given population, and computed confidence intervals for each sample. Some confidence intervals would include the true population parameter; others would not. A 95% confidence level means that 95% of the intervals contain the true population parameter; a 90% confidence level means that 90% of the intervals contain the population parameter; and so on.

Margin of Error

In a confidence interval, the range of values above and below the sample statistic is called the **margin of error**.

For example, suppose the local newspaper conducts an election survey and reports that the independent candidate will receive 30% of the vote. The newspaper states that the survey had a 5% margin of error and a confidence level of 95%. These findings result in the following confidence interval: We are 95% confident that the independent candidate will receive between 25% and 35% of the vote.

Note: Many public opinion surveys report interval estimates, but not confidence intervals. They provide the margin of error, but not the confidence level. To clearly interpret survey results you need to know both! We are much more likely to accept survey findings if the confidence level is high (say, 95%) than if it is low (say, 50%).

Consider the following results of 10 tosses of a coin: H, T, T, T, T, H, T, H, T, T a) Estimate the probability of head (H) for this coin. b) Estimate the standard error of your estimate.

Let X denote the toss of a single coin. Further, let X = 1 if a head results, and X = 0 if a tail results. This X is a Bernoulli (p) random variable, where p denotes the probability of head. Let $\hat{p}$ denote the estimator of p.

a) The estimated value of p is $\hat{p} = (1 + 0 + 0 + \ldots + 1 + 0 + 0)/10 = 0.3$.
b) The estimated standard error of $\hat{p}$ is $\sqrt{\hat{p}(1 - \hat{p})/n} = \sqrt{0.3(0.7)/10} = 0.14$.

Suppose the following data shows the number of the problems from the Practice Problems Set attempted in the past week by 10 randomly selected students: 2, 4, 0, 7, 1, 2, 0, 3, 2, 1.

a) Find the sample mean.
b) Find the sample variance.
c) Estimate the mean number of practice problems attempted by a student in the past week.
d) Estimate the standard error of the estimated mean.

a) $X = Pn\ i=1\ Xi/n = (2 + 4 + \ldots + 2 + 1)/10 = 2.2$

b) S^2=∑n i=1(Xi − X)^2/(n − 1) = (2 − 2.2)^2 + (4 − 2.2)^2 + . . . + (2 − 2.2)^2 + (1 − 2.2)^2/(10−1) = 4.4
c) The estimate is X = 2.2
d) Estimated standard error of X is S/√ n = √ 4.4/10 = 0.66

CAIIB Paper 1 (ABM) Module A Unit 8: Linear Programming

Introduction

Linear Programming refers to several related mathematical techniques that are used to allocate limited resources among competing demands in an optimal way. For obtaining the optimal solution the problems should be structured into a particular format. It has been found that linear programming has many useful applications to financial decisions. The type of problems should have linear constraints and the decision maker must be trying to maximise some linear objective function.

In this chapter we will discuss graphical and '**simplex' methods**.

Model

Let us assume that the selling prices, production and marketing costs are known for each of the 'n' products. The firm also has to operate under certain economic, financial and physical constraints. Some examples of resource and marketing constraints:

- Bank may stipulate certain working capital requirements.
- Market may not absorb the whole output.
- Capacity constraints.
- Labour availability.
- Raw materials availability.

These constraints can be used to formulate the problem. The question is how to attain maximum profit minimum loss or minimum cost or time in the given circumstances? Maximum or minimum value can be obtained by forming and solving Linear Programming Problem.

Thus, Linear Programming Problem is a method by which a function (profit, loss, time, cost, etc.) can be maximised or minimised (optimised) with respect to some conditions. The function which has to be maximised or minimised (optimised)) is called objective function and the conditions are called constraints. The variables related to a linear programming problem whose values are to be determined are called Decision variables.

Under what conditions a Linear Programming problem can be formulated?

- As the name implies all equations are linear – This implies proportionality. For example, if it takes 4 persons to produce one unit, then we require 12 persons to produce 3 units.

- The constraints are known and deterministic. That is, the probabilities of occurrence are presumed to be 1.0.
- Most important rule is that all these variables should have non-negative values.
- Finally, decision variables are also divisible.

Graphic Approach

Let us illustrate the graphic approach with simple numerical two-decision variables. (3 variables require 3-D graphing). This gives a quick insight into the nature of L.P.

Let firm A produce radios and television sets.

Each radio costs Rs. 500 in wages and Rs. 500 in materials.

Each television set costs Rs. 2,500 in wages and Rs. 1,500 in materials.

The firm pays the labour and material expenses in cash.

The price of a radio is Rs. 2,000 and the price of a television is Rs. 6,000.

As there is a strong consumer demand, the firm is able to sell as many units as it produces at prevailing prices.

The firm also gives one period credit to consumers. The firm has 10 hours of machine time and 4 hours of assembly time per day.

The production of radio requires 3 hours of machine time and 1 hour of assembly time. The production of television requires 1 hour of machine time and 1 hour of assembly time.

The firm has Rs. 12,000 as cash balance (liquidity to pay for labour and materials). Now, given the financial and capacity constraints, how many radios and televisions should the firm produce in period 1, to maximise its profits?

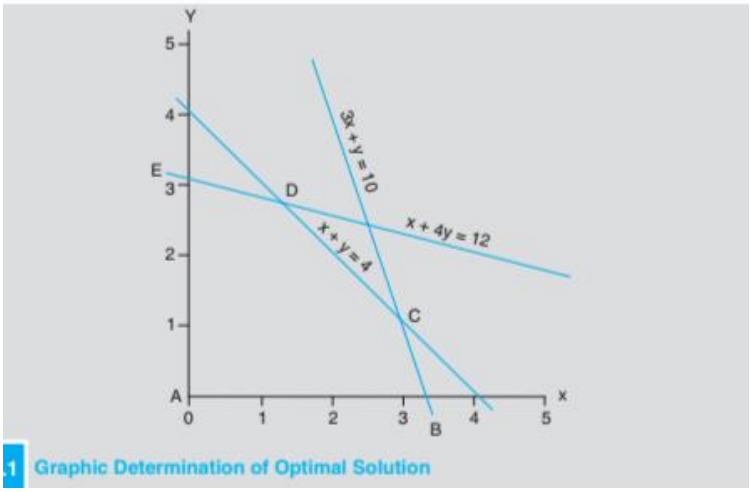
Let x and y be respectively, the units of radios and television sets produced in period 1. Then the constraints are:

(a) (capacity constraint machine time) 3x + y £ 10

(b) (capacity constraint assembly time) x + y £ 4

(c) (financial constraint) 1000x + 4000y £ 12,000 ® same as x + 4y £ 12

(d) (non-negativity) x ³ 0; y ³ 0;



1 Graphic Determination of Optimal Solution

(e) Objective function: Maximise Profit = 1,000x + 2,000y Now, let us draw the graph.

Line 1	$x + y = 4$				
Data	x	0	2	4	
	y	4	2	0	
Line 2	$3x + y = 10$				
Data	x	3	2	1	0
	y	1	4	7	10
Line 3	$x + 4y = 12$				
Data	x	0	4	8	12
	y	3	2	1	0

We have plotted the above three constraints in the graph. Find all the combinations of x and y, which satisfy the constraint and plot the points for all 3 lines. The graph is in the 1st quadrant. This satisfies the non-negativity condition.

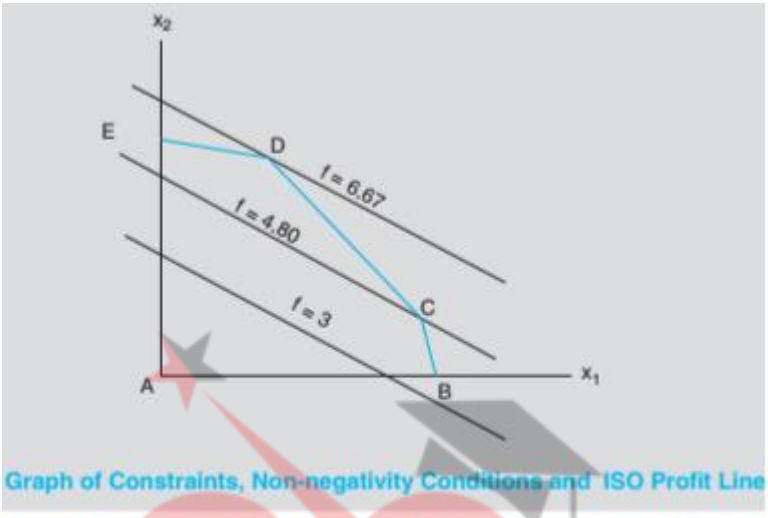
- All points on or below (inside) the line satisfy, x + y £ 4.
- All points on or below the line 3x + y £ 10, satisfy the machine time constraint.
- All points on or below the line x + 4y £ 12, satisfy financial constraint.

Even though all constraints are listed separately, they should be satisfied simultaneously. When these restrictions are placed one on top of the other, we obtain a common area, which in this case is shaped like a pentagon. (say ABCDE). Every point in this pentagon satisfies the constraints. This area is referred to as a set of feasible solutions.

Now, our objective is not to pick any feasible solution.

Although x = y = 0 is also a feasible solution, the profit will be zero.

This means no production of either radio or television. We are not seeking such a solution. So, our objective is to pick that feasible solution (that particular combination of x and y), from the set of feasible solutions, which maximises profit.



Graph of Constraints, Non-negativity Conditions and ISO Profit Line

Simplex Method

Another method of solving linear programming is Simplex Method. This method is a standard technique in linear programming for solving an optimisation (maximisation or minimisation) problem, typically one involving an objective function and several constraints expressed as inequalities. With computer programmes, spread sheets available, it is possible to use this method effectively and solve equations with as many as 10–12 variables.

Let us take the following problem to use Simplex Method.

Problem

A company manufactures cricket bats and chess sets. Each cricket bat gives a profit of Rs. 2 and chess set gives a profit of Rs. 4.

	Workshop 1 (hr)	Workshop 2 (hr)	Workshop 3 (hr)
Availability (Per day)	120	72	10
Cricket Bat	4	2	0
Chess Set	6	6	1

If the company wants to maximise the profit, how many cricket bats and chess sets should be produced per day?

Step 1 Solution: Formulate the problem.

Let the production be 'B' bats and 'C' chess sets.

(a) Objective function: Maximise Z = 2B + 4C

(b) 4B + 6C £ 120 (Workshop 1)

(c) 2B + 6C £ 72 (Workshop 2)

(d) 1C £ 10

(e) B, C ³ 0

We now change this to standard LP format.

In the standard LP form, all the constraints are converted into equations with the help of slack variables. Also make sure that these equations have non-negative right hand side. For example, 4B + 6C £ 120 is changed to 4B + 6C + m = 120 Here m is called a slack variable. It takes non-negative values. In fact all the variables in these equations take non-negative values.

The standard LP format is as follows:

(a) Objective function Maximise Z = 2B + 4C + 0 m + 0 n + 0 p

(b) 4B + 6C + 1m = 120 (Workshop 1)

(c) 2B + 6C +1n = 72 (Workshop 2)

(d) 1C + 1p = 10

(e) B, C ³ 0; m, n, p ³ 0 where m, n, p are the slack variables.

Z equation is also written as Z – 2B – 4C – 0 m – 0 n – 0 p = 0. Now, make a tableau as follows

Basic variables	Z	B	C	m	n	p	Solution
Z	1	–2	–4	0	0	0	0
m	0	4	6	1	0	0	120
n	0	2	6	0	1	0	72
p	0	0	1	0	0	1	10

This tableau gives the coefficients of the variables Z, B, C, m, n, p in the four equations written in the standard LP format, starting with the Z-equation. This tableau is a convenient way of setting up the information. This gives,

1. The variables which are in the solution at that point. (Z, m, n, p)
2. Profit associated with the solution. (0 when $B = 0$, $C = 0$)
3. The variable that will add most to profit, if brought into the solution. This is indicated by the variable which has most negative coefficient in the Z-row.

Here the most negative coefficient is –4 for C. So C is called the entering variable. Next, we need to rewrite the tableau by replacing one of the basic slack variables by C.

To decide which current basic variable is to be replaced by C, we concentrate on the C-column and the solutions column. Take the ratio of the corresponding entries in w these columns. Look at the following table:

C	Solution	Ratio
–4	0	
6	130	120/6 = 20
6	72	72/6 =12
1	10	10/1 = 10

Then we choose the smallest positive value in the ratio column, which is 10. The slack variable corresponding to this is p.

Thus we decide to replace p by C. Look at the tableau below which is a reproduction of the previous one. We have highlighted the column under C, and the p-row, which is called the pivot row. The intersection of the highlighted row and column is called the pivot entry, which is 1 here.

Basic variables	Z	B	C	m	n	P	Solution
Z	1	–2	–4	0	0	0	0
m	0	4	6	1	0	0	120
n	0	2	6	0	1	0	72
p	0	0	1	0	0	1	10

Now we form a new tableau where

(i) new pivot row = (current pivot row)/(pivot entry)

(ii) all other rows = current row – (pivot entry)*(new pivot entry)

Basic variables	Z	B	C	m	n	P	Solution
Z	1	–2	0	0	0	4	40
m	0	4	0	1	0	–6	60
n	0	2	0	0	1	–6	12
p	0	0	1	0	0	1	10

So we have completed one iteration of the problem.

Simulation

Simulation is appropriate to situations where size and/or complexity of the problem make the use of other techniques difficult or impossible. For example, queuing problems have been extensively studied through simulation. Some types of inventory problems, layout and maintenance problems also can be studied through simulation. Simulation can be used with traditional statistical and management techniques.

Simulation is useful in training managers and workers in how the real system operates, in demonstrating the effects of changes in system variables and real-time control. Simulation is extensively used in driving lessons. The person who learns driving is made to face the real road situations (traffic jams and other problems) during learning, so that serious accidents can be avoided. Simulation is commonly used in financial world such forex, investment and risk management areas.

Application of simulation methods:

- Air Traffic control queuing
- Aircraft maintenance scheduling
- Assembly line scheduling
- Inventory reorder design
- Railroad operations
- Facility layout
- Risk modeling in finance area.
- Foreign exchange market
- Stock market

Example:

The owner of an outlet wishes to evaluate his daily ordering policy. His current rule is order the demand of the previous day. But he has started thinking recently that he should follow better methods to decide the quantum of order.

He purchases milk at Rs 12 and sells at Rs 16. He orders his requirement at the end of the day and gets the milk in the morning. From past experience, the vendor assessed that his demand is between 30 and 80 liters per day.

He also kept a record of relative frequency of the quantity demanded during the last 10 days. Now he thinks of a new ordering rule — mean of quantity sold in the last 10 days.

He maintained the sales in a tabular form. The table has two columns. The first column shows the Demand and the second one shows the Relative frequency, that is, in the selected period of 10 days, how many times such demand occurred.

Demand per day in Litres	Relative Frequency
35	1/ 10, that is, only one day, out of ten days, demand of 35 litres occured
45	3/10, that is, only three days, out of ten days, demand of 45 litres occured
55	2 /10, that is, only two days, out of ten days, demand of 55 litres occured
65	3/10, that is, only three days, out of ten days, demand of 65 litres occured
75	1/10, that is, only one day, out of ten days, demand of 75 litres occured

He settles for the ordering rule

[(35 × 0.1) + (45 × 0.3) + (55 × 0.2) + (65 × 0.3) + (75 × 0.1)] = 55 litres.

So we have 2 rules: Old rule and New rule. Representing mathematically,

Old rule = quantity demanded on previous day is equal to D (n - 1).

New rule = Mean of the past 10 days is equal to 55

Now let us compare these orders in terms of profits.

Profit 'P' is equal to (Sold Quantity × selling price (p)) - (Ordered quantity × cost price (c)).

Assume that the unsold milk packets are thrown away as they are perishable. Now to prepare for simulation, we have to develop a method for demand generation. Let us use the probability distribution of demand and random numbers to generate a demand for the next 20 days.

Now arrange the chance process to generate occurrences in the system.

Demand Per Day	Relative Frequency	Probability	Random Number Interval
35	1/ 10	0.1	00 to 09
45	3/10	0.3	10 to 39
55	2/10	0.2	40 to 59
65	3/ 10	0.3	60 to 89
75	1/ 10	0.1	90 to 99

With the above table and random numbers, we develop the demand for 20 days.

Step 1: Choose a random number.

Step 2: Find the random number interval associated with the random number.

Step 3: Read the daily demand corresponding to the random number interval.

Step 4: Assume D = 55 litres for day 0

Step 5: Calculate the quantity sold. Quantity sold will be lesser of the demand D or Quantity ordered Q1 (or Q2)

Step 6: Profit = (Sold quantity × selling price) - (Ordered quantity × cost price).

Selling Price is Rs 16 per litre and cost price is Rs 12 per litre

Step 7: Do all steps for 20 days to simulate.

Day	RN (random number	D (demand related to respective random number interval)	Q1 (quantity ordered based on demand of previous day)	S1 (quantity sold under old method) (lesser of D and Q1)	PR-1 (rupees) profit under old method (16 into S1)- (12 into Q1)	Q2 (quantity ordered) (mean of quantity sold in last ten days)	S2 (quantity sold under new method) (lesser of D and Q2)	PR-2 (rupees) profit under old method (16 into S1)- (12 into Q1)
0		55						
1	6	35	55	35	–100	55	35	–100
2	39	45	35	35	140	55	45	60
3	89	65	45	45	180	55	55	220
4	61	65	65	65	260	55	55	220
5	99	75	65	65	260	55	55	220
6	95	75	75	75	300	55	55	220
7	55	55	75	55	-20	55	55	220
8	35	45	55	45	60	55	45	60
9	57	55	45	45	180	55	55	220

10	59	55	55	55	220	55	55	220
11	30	45	55	45	60	55	45	60
12	81	65	45	45	180	55	55	220
13	2	35	65	35	-220	55	35	-100
14	18	45	35	35	140	55	45	60
15	87	65	45	45	180	55	55	220
16	68	65	65	65	260	55	55	220
17	28	45	65	45	-60	55	45	60
18	44	55	45	45	180	55	55	220
19	80	65	55	55	220	55	55	220
20	84	65	65	65	260	55	55	220
Total		1120	1110	1000	2680	1100	1010	2960
Average		56	55.5	50	134	55	50.5	148

We now see that the average demand according to simulation is 56 litres, Average sales is 50 litres, according to old method; and 50.5 litre according to new method. Average order is 55.50 litres under old method, whereas 55 hires under new method.

Thus you would find that profitability improves under the new method.

Simulation Methodology

START	Key factors
DEFINE PROBLEM	Define objectives and variables
CONSTRUCT THE SIMULATION MODEL	Specification of variables, parameters, decision rules, probability distribution and time incrementing procedure — (fixed or variable)
SPECIFY VALUES OF PARAMETERS & VARIABLES RUN THE SIMULATION	Determine starting conditions and run length
EVALUATE RESULTS	Determine statistical tests
PROPOSE NEW EXPERIMENT	Compare with other information
Stop	

Advantages

Simulation is desirable when experiments on the real system

- Would disrupt ongoing activities;
- Would be too costly to undertake;
- Require many observations over an extended period of time;
- Do not permit exact replication of events; and
- Do not permit control over key variables.

Simulation is preferable when a mathematical model

- is not available to handle the problem;
- is too complex and arduous to solve;
- is beyond the capability of available personnel; and
- is not robust enough to provide information on all factors of interest.

Disadvantages

- Time consuming.
- Requires computer experience and expertise on the part of the user.
- Impossibility of quantifying and difficulty of casting complex problems in a format may cause difficulties; but simulations can be made to run under any type of assumption and these flaws can be overlooked.
- In spite of widespread applications, there are very few principles to guide the user in making decisions on what to include in the model and the length and number of simulation runs. This will be more like an art than science. The user has to use his intuitive judgments.

CAIIB Paper 1 (ABM) Module B: Human Resource Management

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CAIIB Paper 1 (ABM) Module B Unit 1: Fundamentals of Human Resources Management

The Perspective

An appropriate beginning to understand the fundamentals of people management would be to **appreciate the foundations of an organization**. An organization is primarily a ramification of the fact that there is an interdependency implied in the

satisfaction of needs of individuals alongside with the achievement of organizational objectives. An organization is coming together of individuals in order to attain a common goal/purpose.

- **Robert Owen (1771-1858):** Advocate of better working conditions for 'vital machines'
- **Charles Babbage (1792-1871):** Division of labour
- **Frederick Taylor (1856-1915):** Scientific Management Approach famous for his **'division of labour'** concept and **'time and motion'** studies and further substantiated by Gantt and Gilberths. Some of the major assumptions in this approach could be summarized as:

✓ The tasks can be broken down to simple units for people to understand and perform
✓ People will do a given activity in return for money
✓ People will have to do what is defined by the organization and in turn by technology.

Elton Mayo: Howthorne Studies 1924-33

Pointed to various dimensions of human behaviour that were not considered to be of any significance in the restricted approach taken earlier

- Followed by Human relations movement that replaced 'rational-economic man' by 'social man' perspective
- Later researchers like Chris Argyris, Abraham Maslow, Douglas McGregor and Frederick Herzberg pointed out that individuals are motivated by other than monetary factors too
- Line managers are the delivery points

Development of People Management Functions

The history of management of people as a distinct managerial function goes back to the end of the nineteenth and the beginning of the twentieth century. With a significant increase in the number and size of organizational units as a sequel to the Industrial **Revolution, there was a need to have special departments like finance, accounting, production, etc.**

Few Organisations had the post of welfare secretary(also referred to as social secretaries)

- Experiment on group behaviour by Prof A K Rice in Ahmedabad Rice Mills in 1952
- The term personnel officer was perhaps first used in the chemical and pharmaceutical industries in 1960s
- The concern for human element did not occur until the socio-psychological upheavels in the late 1920s and early 1930s

Two major traditions or trends:

- Hard headed, profit minded approach to utilisation of human resources
- Social welfare viewpoint

Relationship between HRM & HRD and Their Structures and Functions

HRM is an essential branch of management that deals with making the optimum usage of organizational human resources by nurturing better work conditions for all concerned. On the other hand, **HRD is a branch of HRM that focuses on the growth and development of the workforce in any organization.**

Basis of Differentiation	HRM	HRD
Definition and full form	The full form of HRM is Human Resource Management. It refers to how the principles of management can be applied to manage the employees working in an organization effectively.	The full form of HRD is Human Resource Development. It refers to continuous development functions that are implemented for improving the performance of those working in an organization.
Nature	HRM is a management function.	HRD is a sub-function of HRM.
Function	The functions of HRM are reactive and are usually applied to gaining holistic organizational goals.	The functions of HRD are proactive and have to be applied consistently to enhance the productivity of employees.
Goal	The objective of HRM is related to improving the overall performance of employees.	HRD goals are usually connected with skill development, knowledge enhancement, and increasing the competency of employees.
Process	Most HRM processes are routine and have to be carried out as and when the need arises.	HRD processes are ongoing and not occasional.
Dependency	HRM is an independent entity in itself. It comprises of different sections inclusive of recruitment and retention, HRD, compensation, performance, appraisal management, etc.	HRD is a subsystem of HRM and draws many functions, attributes, and processes from HRM.
Concerned with	HRM deals with and has concerns for people only. It handles recruitment, rewards, etc.	HRD is concerned with the development of all aspects and people within an organization and manages its skill development processes.

Levels of formality	HRM functions are generally formal and are applied via classroom/laboratory training, etc.	HRD functions may be informal as in mentorships, employees receive coaching from superiors, usually managers.

Role of HR Professionals

- **Supportive Role:** This relates to the strengthening of the operating and executive levels and consolidating the strengths in an organization.
- **Role of System Development and Research**: This pertains to developing systems that deal with people, their problems and organizational dynamics. This was already present in the traditional role.
- **Managerial role:** This relates to performing managerial functions like planning future manpower, recruiting, utilizing by placement, returning, motivating-integrating people and their role, performance and potential assessment, planning the growth of individuals, etc.
- **Role of Developing Competence:** This refers to developing technical, managerial, and processing competence among the human resource. The new perspective also includes helping and coping competence.
- **Process Role:** An effective organization needs to respond to the changing environment for which it has to develop coping skills. Creating necessary culture and values in the organization, diagnosing the problem at organizational level and taking corrective steps are the related responsibilities of the HR functionaries.

Technical

- Knowledge of performance appraisal systems and their functioning in various organizations
- Knowledge of potential appraisal and mechanism of developing a system
- Knowledge of various tests and measurements of behaviour
- Ability to design and coordinate training programmes at worker, supervisor and managerial levels.
- Professional knowledge of personnel and management
- Knowledge of behavioural sciences
- Understanding of overall organizational culture
- Knowledge of career planning, processes and practices
- Knowledge and skills in counselling

- Knowledge of techniques in behavioural research

Managerial

- Organizing ability
- Systems development skills

Personality

- Initiative
- Faith in human beings and their capabilities
- Positive attitude to others
- Imagination and creativity
- Concern for excellence
- Concern for people and their development
- Friendly, sociable and affable
- Attitude for research and development work
- Interest in learning new things
- Ability to work as a team member

Strategic HRM

- In simple terms, the 'Strategic HRM' is a process by which an organisation the knowledge, skills and abilities of its employees in formulation and execution of its business strategy.
- In its wider connotation, the 'Strategic HRM' is the process of linking HRM with strategic role and objectives in order to improve business performance, to develop organisational cultures and also to foster innovation and flexibility.
- In the context of new facets of organisations more so of service-oriented like Banks, pursuing Strategic HRM is paramount in as much as the employees, being partners in the progress, have larger stakes in the organisations and as such if they are involved in formulating the business strategies, they will exhibit more commitment to its successful implementation. In short, it is a proactive HRM where HR policies and practices get pulled up to meet the challenges emerging from the internal and external environment.

The following chart depicts the conceptual understanding of HR's value contribution to the Business as an impetus to 'SHRM':

HR's CHANGING ROLE AS A STRATEGIC BUSINESS PARTNER

Strategic Role in the Future

- To become a partner with senior and line managers in strategy execution, helping to move planning from conference room to the market place.
- To become an expert in the way work is organized and executed, delivering administrative efficiency to ensure that costs are reduced while quality is maintained.
- To become a champion for employees, vigorously representing their concerns to senior management and at the same time, working to increase employee contribution.
- To become an agent of continuous transformation, shaping processes and a culture that together improve an organisation's capacity for change.

Development of HR functions in India

- During the British raj, the ripples of whatever happened were felt in India
- Labour Welfare Officers under the Factories Act
- By 1950s the provisions of the Industrial Disputes Act, 1947 began to percolate down
- By 1960s demand for personnel professionals with specific knowledge about people management systems and laws rose
- Institutes were setup
- Indian Institute of Personnel Management (IIPM), 1947
- National Institute of Labour Management
- National Institute of personnel Management (NIPM), 1982: Formed upon merger of the above two institutes

- Indian Society for Training and Development , 1970
- MNCs gave more attention to personnel issues based on home country experience
- In India TISCO took proactive measures in the field
- Govt. enacted legislations related to employment and employee welfare:
- Article 16(1) of the Indian Constitution: Equal opportunity for employment
- Apprentices Act, 1961: Training linked to employment
- Child Labour Act, 1986
- Bonded Labour System Act, 1976
- Interstate Migrant Workmen Act, 1979
- Next major transformation in 1980s with the onset of the HRD era Establishment of National HRD network in 1985

JAIIB Paper 1 (ABM) Module B Unit 2: Development of Human Resources

HRD

HRD and its subsystems

- Performance Appraisal
- Potential Appraisal
- Career Planning
- Training
- Organisational Development
- Rewards
- Counselling
- Quality Circle
- Role Analysis, and others.

Goals of HRD are to develop

- Capabilities of each employee as an individual
- Capabilities of each individual in relation to his or her present role

- Capabilities of each employee in relation to his or her expected future role(s)
- Dyadic relationship between each employee and his/her supervisor
- Team spirit and functioning in every organisational unit (department, group etc)
- Collaboration among different units of the organization
- Organisation's overall health and self-renewing capabilities, which, in turn increase the enabling capabilities of individuals, dyad teams, and the entire organization

The typical systems developed to enhance achievement of these HRD goals include:

- Training and Development
- Performance Appraisal, Feedback and Counselling
- Potential Appraisal, Career Planning and Counselling
- Organizational Development
- Human Resource Information System

Job/Role Analysis

- **Job Description:** This simply records each and every component of the job which an individual has to perform in a given set-up.
- **Job Specifications:** On the basis of the job description a list of requirements is prepared in terms of educational qualification, age, work experience, specific knowledge, skills, expertise, temperament, etc.
- **Job evaluation**: This is primarily used to compare similarity between jobs within an organization or between organizations or even in an industry.
- **Task:** This is a basic element of a job and as such requires a person to achieve a specific product. In the process the individual is isolated from others.
- **Job:** This is a complex system of tasks requiring an individual to achieve an overall product and still making the relationship irrelevant.
- **Position:** Puts an individual in a hierarchical pattern, expecting those below to report or surrender to higher positions and conform to their expectations while those higher up may be led to exploit the relationship and demand conformity.
- **Role:** Emphasizes on the pattern of (mutual) expectations.
- **Work:** Involves a more complex pattern as it goes a step further to encompass socio- psychological relationship.

Training and Development – Role and Impact of Training

Training and Development system as part of the HRD efforts and this involves:

- Identification of Training Need
- Designing the Training
- Conducting the training
- Evaluation of Training
- Selection and development of trainers

Purpose of Training and Development

- **Training i**s for learning related to present job;
- **Education i**s for learning to prepare the individual for a different but identified job; and
- **Development is learning** for growth of the individual not related to a specific present or future job.

Imperatives of Adult Learning

- It is interesting to note that though most of the people think that Adult Education is a recent phenomenon, but it is not so. In ancient times great teachers like Confucius, Lao Tse, Hebrew Prophets, Jesus, Socrates, Plato, Aristotle - were 'teachers of adults'. To these teachers 'learning was a process of active inquiry on the part of the learners'; they invented 'techniques for involving the learners in active inquiry.'

Learning Theories

- **Mechanistic or Behaviourist Theories:** These theories hold that the learner is passive in the process of learning. If one introduces an input (stimulus) into a human being, you will get a predetermined response. In other words, learning occurs only when a learner is conditioned to give the 'right' response to a given stimulus.
- **Cognitive Theories:** These theories equate man with his brain, based on the proposition that one thing that distinguishes human beings from other living things is that they possess brains that are capable of critical thinking and problem solving. The purpose of learning therefore is to teach the brain to engage in such critical thinking and problem solving.
- **Organismic or Humanistic Theories:** These theories hold that learning occurs only when learners have the 'freedom to learn' what is particularly relevant to their personal life situation. The purpose of learning is to encourage each individual to develop his or her full, unique potential.

There are theories related to the variables associated with the actual Teaching-Learning situation. Decenzo and Robbins (1995) list some as:

- **Learning is enhanced when the learner is motivated:** This means that the learning experience must be so organized that it should create desire to learn.
- **Learning requires feedback:** Knowledge of results is necessary for learner to improve upon his mistakes. The feedback also tends to act as motivator when the learner knows that he is proceeding in the right direction.
- **Reinforcement increases the likelihood that a learned behavior will be repeated:** Behavior that is positively reinforced are encouraged and therefore sustained.
- **Practice increases a learner's performance**: Learners need to practice what they learn.
- **Learning must be transferable to the job:** Learning a skill just for the sake of it will not work; it must be possible to apply what is learnt.

Systematic Approach to Training (SAT)

- Will the training to be done internally or externally? Does the organization have or intend to develop an in-house training centre?
- How much and what kind of training will be done externally and is this also an essential part?
- Who are the functionaries responsible for administering the training system?

SAT: The process

- **Step 1:** Training Need Analysis (TNA) and Identification of Training Needs
- **Step 2:** Preparation of a Training Plan;
- **Step 3:** Conduct of the training which includes designing the programme in terms of the time, duration, target group, sequence of inputs and methodology;
- **Step 4:** Evaluation of the Training Programmes and the Plan;
- **Step 5:** Selection and Development of Trainers.

Support systems for Training and Development

- Performance Appraisal System
- Human Resource Information System
- Organisational Culture

Attitude Development

The term **'attitude' is frequently used to describe people** in terms of their behaviour and its impact on behaviour. More precisely, an attitude can be defined as a persistent tendency to feel and behave in a particular way towards some object.

Components of Attitudes

Attitude can be broken down into three **basic components**, viz., **emotional, informational and behavioural.**

- **The emotional componen**t involves the person's feelings or their affect—positive, neutral or negative—about an object. Emotions play a very important role in organizational behaviour of employees. The expression of emotions, either positive or negative, is also important to work behaviour.
- **The information component consists** of beliefs and the information that an individual has about that object. Generally, the beliefs or the information are founded on insufficient observations or opinions which may not be empirically correct.
- **The behavioural component** consists of a person's tendency to behave in a particular way towards the object.

Attitudes serve four important functions in the process. These are:

- The Adjustment Function,
- The Ego-Defensive Function,
- The Value-Expression Function
- The Knowledge Function.

Changing Attitudes

Barriers to attitude change:

- Prior commitment to a particular thing
- Insufficient information

Overcoming the Barriers to attitude change:

- Use of Fear
- Provide New Information
- Resolving discrepancies between attitude and behaviour
- Influence of peers, friends and opinion leaders Co-Opting – Getting the dissatisfied people involved in improvement process

Career Path Planning

It is relevant therefore, to examine the underlying concepts in the generic observation that:

- Individuals desire and expect change at certain stages in life:
- There is a (predictable) pattern in these changes; and
- There is a feeling of frustration if things do not happen as desired or expected.

Erikson the first stage in life adulthood is:

- **Adolescence**: In this stage individual's development is to achieve an ego identity. Individual is involved in reconciliation process of what he perceives himself to be, what he thinks others perceive him to be and make an adjusted assessment to form his identity.
- **Young Adulthood:** It is the next stage where he/she starts developing relationships with individuals, group or occupation. This could be establishing a close relationship, developing an interest group or a work group.
- **Adulthood:** The stage is that of guiding the next generation and during this stage one is passing on the knowledge, values or sponsoring the younger colleagues and in the Maturity: A stage when person attempts to achieve ego integrity by examining whether life has been meaningful or satisfying.

Career Roles given by Dalton

- **Apprentice**: This is the beginning of the career. An individual does routine work under the supervision of the mentor, who helps to learn. At this stage the individual needs to accommodate himself to a certain degree of dependency.
- **Colleague:** This is the beginning of making an independent contribution though still in a subordinate role. There is less dependence on superiors for advice and direction.
- **Mentors:** This stage signifies the beginning of complex functions. The individual develops ideas, manages others, and must learn to assume responsibility for his subordinates' work.
- **Sponsors:** At this stage the individual needs to broaden his perspective and think long- term as he is now a part of the top management. He is required to define the direction in which the entire organization or at least a major segment of it would develop.

Career Concepts

- **Linear Career Concept:** Plan for upward movement within the same profession using organisational hierarchy
- **Steady State Career**: Individuals choose a profession, acquire higher skills, but do not choose to go higher up in the hierarchy
- **Transitory Pattern:** Individuals shift from one job to another not necessarily related to the previous one

- **Spiral Career:** Individuals take on a new job, work hard, perform well, move up in the status and rank, then move on to another type of work and follow the same pattern of development and performance
- **Plateau Career:** Reaching a level higher than where one started but then continuing on the same level

Career Anchors

This has three components:

- Self-perception of talents and abilities based on one's performance;
- Self-perceived motives and needs based on self-diagnosis and feedback; and
- Self-perceived attitudes and values based on interactions with the norms and values implicit in the organization.

Schein's Career Anchors

- **Technical or Functional Competence:** Some individuals 'fall in love' with a particular field or function. They desire to be outstanding in the field; their self-concept is associated with their skills in that area.
- **Managerial Competence**: Some individuals like to manage. Their early career experiences indicate to them that they will be able to rise in the management hierarchy.
- **Security:** Some individuals seek a secure work environment and career by tying themselves to a particular organization or geographical location.
- **Creativity:** There are some individuals who want to create something new. They like to start something and make it a success.
- **Autonomy:** Another group of individuals finds organizational life unpleasant or difficult. They prefer to maintain their freedom.

Career Path Planning System

Main responsibilities of the organisation while developing and implementing a career plan are:

- The policy of career planning is made explicit. It lays down the benchmarks for performance at critical stages which the employees must attain
- It is made clear that the career path is a facility for growth and not a right for advancement
- The career path – a sequence of job assignments, training requirements and promotion to higher level – is made known to the employees from the time of entry. Performance feedback is a part of the career path

- The career path is followed uniformly for all employees without any bias/prejudices
- It should be flexible to accommodate variations which may be needed to deal with the given circumstances

Self Development

Self can be categorized into **two parts, namely, the 'patent self' and the 'inner self'.**

- The **patent self** can also be called the external self which normally comprise individual's identity and physical features.
- On the other hand the **'inner self'** signifies the behaviour patterns, values and other.

The self-development essentially refers to developing a mature personality who can handle different tasks and situations with comparative ease. and in this direction seeking self improvement becomes an ongoing process. It is the process of discovering and utilizing the tremendous potential within one's individual personality.

The context of our discussion on self- development in relation to the organization, the following aspects will be discussed.

At Individual level	• Motivational Pattern • Locus of Control • Power Bases
At Interpersonal level	• Interpersonal Needs • Transactional Analysis
At Group level	• Being effective member in the Work Group

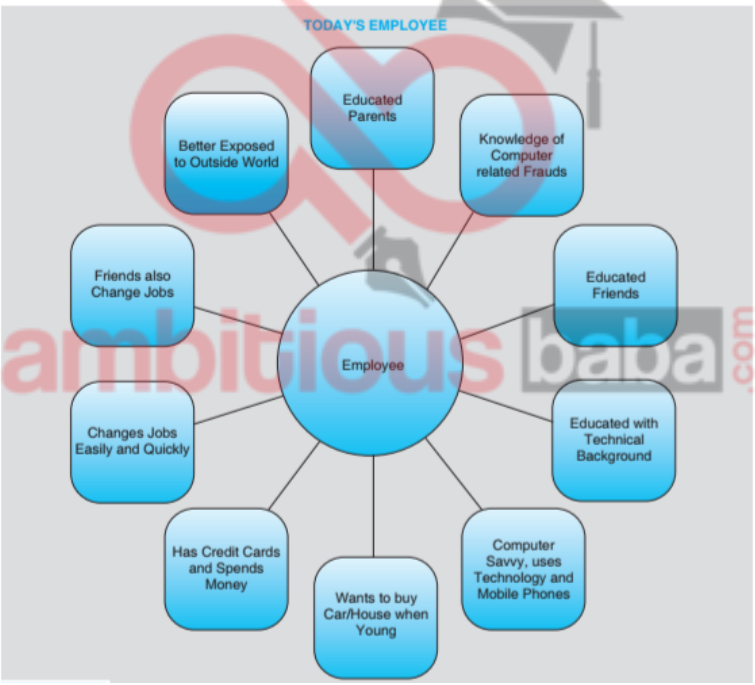
Individual level

- **Motivational Pattern**: An individual has to make conscious efforts to be aware of what his life goals are. Awareness of one's own need bases can enhance an individual's acceptance of self- concept.
- **Locus of Control**: Personal efficacy is also related to an individual's ability to take the initiative which closely relates to his belief that he can change things. **The concept of locus of control given by Leftcourt (1969) and Levenson (1972)** explains that individuals have beliefs about who is responsible for what happens in life. Some believe that events are determined by external forces like other influential persons in society, luck,destiny and so on. Whereas some others believe that the individuals can determine events. Thus, we have individuals with more external locus of control and some with more internal locus of control. These beliefs definitely have impact on the action orientation of individuals.
- **Power Bases**: Another important concept related to influencing others **is Power, Kotter (1979) has defined power as 'a measure of person's** potential to get others to do what he or she wants them to do, as well as avoid being forced to do what he or she does not want to do.' Distinction is also made in terms of fear or

love being used as base of exercising this power. Flanders (1970), Hersey and Blanchard (1982) and Pareek (1997) have contributed to the present understanding that coercive bases include organizational **position, punishment, charisma, personal relationship, (emotional power),** closeness to a source of power and withholding information on resources.

Motivational Pattern

- An individual has to make conscious efforts to be aware of what his/her life goals are. Awareness of one's own need bases can enhance an individual's acceptance of self-concept. How the individual attempts to balance self-concept with what he feels others think of him.
- Many a time, at a superficial level an individual may feel he/she is aware of what he/she wants but that may not be the reality. Individuals have to be actively helped with some questionnaires and discussions to assess their orientation; to develop a more reliable and meaningful understanding.
- Individuals could become aware about what motivates them, whether it is individual achievements or contribution to the group activities or in exerting influence. Such analysis can reveal that for job satisfaction one can look for those opportunities



Interpersonal interactions: Dyadic relationship

Two individuals maintaining a sociologically significant relationship - Interpersonal relationship.

Interpersonal Needs

The interpersonal need to control is to **establish and maintain satisfactory relationship including:**

(a) a psychological comfortable relationship in controlling all behaviour of other people,

(b) eliciting behaviour from them which controls one's own behaviour.

Transactional Analysis:

A transaction is a combination of a **stimulus and its response in an interpersonal interaction**. The personality of an individual comprises collection of behaviour patterns developed over a period of time.

These life positions are described in terms of Okayness.

Thus the individuals are either OK or NOT OK. Four life positions can be described as:

- I am OK you are OK (both have value)
- I am OK you are NOT OK (I have value but you don't have value)
- I am NOT OK you are OK (You have value but I don't have value)
- I am NOT OK you are NOT OK (neither person have value)

Working in Teams

The term 'Group Dynamics' was coined in **1930s by Kurt Lewin** It refers to the:

- Internal nature of groups
- How they form
- Their structure and processes
- How they function and affect individuals and organization

Stages in Group Formation and Behaviour

- Forming (Awareness) Members with varied awareness get acquainted, understand the team's goal and its role
- Storming (Conflict) Conflict among the members helps the team in defining itself
- Norming (Cooperation) How the task will be accomplished? Rules and regulations of the team?
- Conforming (Adjustment) Adjusting one with the team expectations and norms
- Performing (Productivity) Members behave in mature fashion and focus on accomplishing their goal. Full energy dedicated to work.

Self-awareness

Understanding self helps in **self-development and using one's potential better**. It is always useful to do the **SWOT analysis of self to understand the Strength, Weaknesses, Opportunities and Threats.** This may help in better use of strengths, overcoming weaknesses, capitalizing the opportunities and safeguarding against threats. **Refer to the concept of Johari Window given by Loft and Ingham (1973).**

The closed window is also referred as Private, being private to self.

	KNOWN TO SELF	NOT KNOWN TO SELF
KNOWN TO OTHERS	ARENA	BLIND
NOT KNOWN TO OTHERS	CLOSED	DARK

Emotional Intelligence

'Emotional Intelligence abilities such as being able to motivate oneself and persist in the face of frustration; to control impulse and delay gratification; to regulate one's moods and keep away distress from swamping the ability to think; to empathize and to hope'.

- **Self Awareness:** Ability to recognize, understand one's mood, emotions and drives, as well as their effects on others.
- **Sell Regulation:** Ability to control or redirect disruptive impulses and moods and propensity to suspend judgment – to think before acting.
- **Self Motivation**: Passion to work for reasons that go beyond money or status and propensity to pursue goals with energy and persistence.
- **Empathy:** Ability to understand the emotional make-up of others and skill to treat people according to their emotional reactions.
- **Social skills:** Proficiency in managing relationships and building networks and ability to find common ground and build rapport.

Morale

Morale is an important mental state and the spirit of a person or group which is dependent on a number of intangible factors within the organization. High morale of an individual or a group contributes significantly to the achievement of organizational goals. Morale is generally exhibited by confidence, cheerfulness, discipline, and willingness to perform assigned tasks.

Employee Morale Booster

- **Welcome Ideas:** Employee morale improves when staff feels they are valued. Share and implement their innovations and ideas.
- **Keep Score**: Mount a large score board in the office to recognize top performers and to motivate those on the bottom of the list.
- **Inspect:** The old management adage, inspect what you expect is true. Companies with a lack of focus can confuse staff and lead to less morale.
- **Thank You Note**: Send a special 'thank you' letter to your staff's family or spouse, praising their good work and efforts.
- **Huddle:** Have a daily morning huddle to highlight tasks for the day and to cheer yesterday's wins.
- **Open Up:** Provide an open forum or one-on-one time to allow employees to express their concerns and feelings can be an easy means to boost morale.
- **Have Fun**: Special events and outside work activities can take the pressure off the day- to-day grind in the office.
- **Show Charity:** Get your staff involved in a bigger cause to help them see there is more to life than work.

- **Add Perks:** Use low cost perks such as a Foosball table in the lunch room.
- **Fire Staff:** Sometimes the root cause of low employee morale can be a staff member whose negativity brings down the group. Even a top performer can bring down staff behind your back.
- **Measure It:** Keep tabs on the levels of morale in your business by regularly measuring employee satisfaction.

Talent Management

- There is a growing gap today between the demand of skilled human resources and supply of the same. Every organisation is facing a challenge of acquiring and retaining the best talent available. As a result of this crunch, acquiring the right talent for the right position has become an exceedingly difficult task for the organisations.
- In simple parlance, 'Talent' is the visible face of Human Resource and a dynamic and strategic activity of the Human Capital Management. At academic level, 'Talent' is all about three Cs i.e., Competence which deals with the head/mind (being able to do), Commitment which deals with hands and feet (action) and Contribution which deals with the heart (doing it well).
- A better understanding on the dynamics of the term 'Talent' would help the Banks manage it better, arrest the rising human capital shortfalls and finally to build effective and progressive Human Capital. Given this background, the PSBs which can integrate the above three Cs in a most effective way, will be on the course to compete with the best Banks.

The elaborative key elements of talent management include:

- Attracting the right talent
- Onboarding
- Creating a Talent pool
- Designing Talent Career path
- Retaining Talent

Succession Planning

- Another area of concern these days, is the changing demographics within the organisation. On the one hand, it has made the alignment of business and skill difficult, on the other, it has created a big problem in the area of succession planning. Succession planning happens to be a particularly important part of the Talent management process for almost all the organisations.
- Actively pursuing succession planning ensuresthat employees are constantly developed to fill each needed role in an organisation. As an organisation expands, it loses key employees, provides promotional job opportunities and increases sales, its succession planning guarantees that it has talented and experienced employees ready and waiting to fill the new roles.
- Succession planning is a process of identifying and developing new leaders who can replace old leaders when they leave, retire or die. The term succession

planning refers to a business strategy companies use to pass leadership roles down to another employee or group of employees.

These objectives tend to be core to many or most companies that have well-established practices:

- Identify those with the potential to assume greater responsibility in the organisation
- Provide critical development experiences to those that can move into key roles
- Engage the leadership in supporting the development of high-potential leaders
- Build a data base that can be used to make better staffing decisions for key jobs

The following objectives are achieved through succession planning/career planning:

- Improve employee commitment and retention
- Meet the career development expectations of existing employees
- Counter the increasing difficulty and costs of recruiting employees externally

CAIIB Paper 1 (ABM) Module B Unit 3: Human Implications of Organisations

Human Behaviour and Individual Differences

The behaviour of an individual is influenced by several factors. **These can be grouped under the following heads:**

- **Environmental Factors:** (a) Economic, (b) Social (norms and cultural values), and (c) Political;
- **Personal Factors**: (a) Age, (b) Sex, (c) Education, (d) Abilities, (e) Marital Status, (f) No. of dependants;
- **Organizational Factors**: (a) Physical Facilities, (b) Organization Structure and Design, (c) Leadership, (d) Compensation and Reward System; and
- **Psychological Factors**: (a) Personality, (b) Perception, (c) Attitudes, (d) Values. (e) Learning.

Employees Behaviour At Work

There are some basic assumptions about human behaviour at work:

- There are differences between individuals.
- Concept of a whole person.
- Behaviour of an individual is caused.
- An individual has dignity.
- Organizations are social systems.
- There is mutuality of interest among organizational members.
- Organization behaviour is holistic.

While the first four concepts centred around people, the next two are concerned with organizations. The last one is a combination of the first six assumptions.

Persons differ and again, there are certain 'commonalities' in the persons. Every person is, in certain respects,

- like all other persons,
- like some other persons, and
- like no other person.

This position indicates that an individual possesses some common characteristics of most of the people. He may have some features of some other people. He may also have some characteristics which other persons do not have, i.e. the features unique to an individual.

There are several theories to explain the concept of personality.

One dimension of personality which is getting attention both from organizational as well as medical researchers is the Type A and Type B behaviour profiles.

A person exhibiting Type A behaviour is generally restless, impatient with a desire for quick achievement and perfectionism.

Type 'B' personality people are much more easy going, relaxed about time pressure, less competitive and more philosophical in nature.

Friedman, Meyer and Ray Roseman have mentioned the following characteristics of Type W personality:

1.Restless by nature, so that he always moves, walks and eats rapidly.

2.Is impatient with the pace of things, dislikes waiting and is impatient with those who are not impatient.

3.Multitasker – does several things at once.

4.Tries to schedule more and more in less and less time, irrespective of whether everything is done or not.

5.Usually does not complete one thing before starting on another.

6.Often displays nervous gestures such as clenched fist and banging on a table.

7.Does not have time to relax and enjoy life.

Type B personality exhibits just the opposite characteristics and is more relaxed, sociable and has a balanced outlook on life.

Erikson has identified eight developmental stages in explaining the personality. These stages which are based on a person's state of mind at a given point of time are mentioned below:

- **Stage 1:** Trust versus Mistrust

- **Stage 2**: Autonomy versus Shame and Doubt
- **Stage 3:** Initiative versus Guilt
- **Stale 4**: lndustry versus Inferiority
- **Stage 5:** Identity versus Role Diffusion
- **Stage 6:** Intimacy versus Isolation
- **Stage 7:** Growth versus Stagnation
- **Stage 8:** Integrity versus Despair

Important Theory

Psycho-analytical Theory (PT):

- P**T is based primarily on the Freudian concept of unconscious, subconscious and conscious nature of personalit**y. Freud noted that his patient's behaviour could not always be explained. This led to him believe that the personality structure is primarily founded on unconscious framework and that **human behaviour and motivation are the outcome of psychoanalytic elements, namely, id, the ego, and the super ego.**

Trait Theory:

- **Trait theory believes that the traits of a person which determine his personality and behaviour** are basically inherent to a person, that is, more of a heredity impact than the environment . Trait theory explains personality as a demonstration of certain traits of the individual.
- While there are many traits common to most people, there are many other traits that are unique to a person and are not shared by other individuals. On the basis of Trait theory, **people can be described as aggressive, loyal, pleasant, flexible, humorous, sentimental, impulsive, cool and so on.**

Self-Concept Theory

- **This theory believes that personality and behaviour are to a great extent determined by the individual himself.** We have an image of our own and our actions would be consistent with that image. Carl Rogers is closely associated with this theory.
- According to him, the best vantage point for understanding behaviour is from the internal frame of reference of the individual himself. An individual himself is the centre of experience. **His self-image is an integral of how he views himself and his perception of how others view him.**

Social Learning Theory:

- **This theory believes that personality development is more a result of social variables than biological factors**. Much of human behaviour is either learnt or modified by learning. Through **learning, one acquires knowledge, attitudes, values skills, etc.**

Personality and Brain (Left and Right Brain)

An important biological factor which influences personality is the role of brain of an individual. Two types of contribution can be found in this area: **Electrical stimulation of the brain (ESB) and split brain psychology.**

Left Hemisphere Controls Right side of body	Right Hemisphere Controls Left side of body
Speech and Verbal	Spatial and musical
Logical and Mathematical	Holistic
Linear and Detailed	Artistic and symbolic
Sequential	Simultaneous
Controlled	Emotional
Intellectual	Intuitive, creative
Dominant	Minor (quiet)
Active	Spiritual
Analytic	Synthetic, gesalt-oriented
Reading, writing, naming	Facial recognition
Sequential ordering	Simultaneous
Perception of significant order	perception of abstract
Complex motor sequence patterns	Recognition of complex figures

Note: Adapted from Freed Luthans, Organizational Behaviour, 6th Ed.

The Left and Right hemispheres of the brain are attributed with some specific dimensions and characteristics as shown in this table. These areas are, however, still open for further research.

Holland's Typology of' Personality and Congruent Occupations

Type	Personality Characteristics	Congruent Occupation
1. Realistic: Prefers physical activities that require skill, strength and	1. Shy, genuine, persistent, stable, conforming, practical.	1. Mechanic, drill press operator, assembly-line worker, farmer.

coordination.		
2. Investigative: Prefers activities that involve thinking, organizing and understanding.	2. Analytical, original, curious, independent.	2. Biologist, economist, mathematician, news reporter.
3. Social: Prefers activities that involve helping and developing others	3. Sociable, friendly, cooperative, understanding	3. Social worker, teacher, counseller, clinical psychologist.
4. Conventional: Prefers rule-regulated, orderly,	4. Conforming, efficient, practical, unimaginative,	4. Accountant, corporate manager.
and unambiguous activities, flexible file clerk	bank teller.	
5. Enterprising: Prefers verbal activities where there are opportunities to influence others and attain power.	5. Self-confident, ambitious, energetic, domineering.	5. Lawyer, real-estate agent, public relations specialist, small business manager.
6. Artistic: Prefers ambiguous and unsystematic activities that allow creative expression.	6. Imaginative, disorderly, idealistic, emotional, impractical.	6. Painter, musician, writer, interior-decorator

Theories of Motivation and Their Practical Implications

What is Motivation?

- **Motivation in an organizational context is referred as 'the extent of willingness of an employee to respond to the organizational requirements'.**

Motivation is generally directed, consciously or unconsciously, towards satisfaction of needs (motives). Motivation as a behavioural concept is of great interest to the executives and managers in organizations today.

Theories of Motivation

The various theories of motivation are:

- Scientific Management or Rational Economic View
- Human Relations Model
- Abraham Maslow's Need Hierarchy Theory
- Frederick Herzberg's Two-Factor Theory
- Clayton Alderfer's ERG Theory
- Achievement Motivation Theory
- Victor H Vroom's Expectancy Model
- James Stacy Adams' Equity Theory
- Lyman W. Porter and Edward E Lawler - Performance Satisfaction Model.
- Reinforcement Theory

Herzberg's Two-Factor or Motivation-Hygiene Theory

Frederick Herzberg (1959) extended the work of Maslow and developed a specific content theory of work motivation. He conducted a widely reported study on about 200 accountants and engineers from eleven industries in Pittsburg, USA. He used the critical incident method of obtaining data for analysis.

Herzberg's theory is based on a two-factor hypothesis, that is, factors leading to job satisfaction and the factors leading to job dissatisfaction. The factors so identified were classified by him into two categories:

- Motivational Factors; and
- Hygiene or Maintenance Factors

Motivational Factors

These factors are related directly to the job itself. The presence of such factors creates a highly motivating situation, but their absence does not cause dissatisfaction. People tend to respond positively to the presence of such factors. **Herzberg mentioned six such factors**:

- Recognition
- Advancement
- Responsibility
- Achievement
- Possibility of Growth
- Work itself

Factors like achievement and responsibility are related to job itself and others emanate from it. This set of factors has been designated as motivators or satisfiers and are related to job contents.

Hygiene or Maintenance Factors

This set of factors is such that their presence does not significantly motivate the employees but their absence cause serious dissatisfaction. The non-availability of such factors is likely to affect motivation and bring down the level of performance.

Maintenance factors mostly are related to environment, outside the job. Herzberg named ten such factors:

- Company policy and administration
- Technical supervision
- Interpersonal relations with subordinates
- Salary
- Job security
- Personal life
- Working conditions
- Status
- Interpersonal relations with supervisors
- Interpersonal relations with peers and colleagues

Motivation and Behaviour

- **Behaviour of an individual is generally motivated by a desire to achieve some goal. Behaviour is either an 'activity' or, 'a series of activities'.** Each activity is supported by motivation. Individuals differ not only in their ability to do but also in their will to do, or motivation.
- Motives are sometimes defined as needs, wants, drives, or impulses within the individual. These are directed towards goals, which may be conscious or subconscious. Goals are outside an individual. Goals are sometimes referred to as 'hoped for' rewards towards which motives are directed.

Motivation to Work

- Manager should also know specific ways and techniques to motivate employees in the work situation. Most of these techniques are practical in nature and can be adopted by him in the normal course. Some of the frequently used common incentives in organizations are:
- Money, appreciation, job enlargement, job enrichment, job rotation, participative management, and quality of work.

Factors contribute to the quality of work life:

- Adequate and fair compensation.
- A safe and healthy environment.
- Jobs aimed at developing and using employee's skills and abilities.

- Growth and security; jobs aimed at expanding employees' capabilities rather than leading to their obsolescence.
- An environment in which employees develop self-esteem and a sense of identity.
- Protection and respect for employee's rights to privacy, dissent, equity. etc.
- A sensible integration of job career and family life and leisure time.

Role Set Conflicts

The role set consists of important persons who have different expectations from the role
that an individual occupies. The conflicts arise due to incompatibility among the expectations of significant others and the individual himself. **These role set conflicts take the following forms:**

- Role ambiguity
- Role Expectation Conflict
- Role Overload
- Role Erosion
- Resource Inadequacy
- Personal Inadequacy
- Role Isolation

CAIIB Paper 1 (ABM) Module B Unit 4: Employee Feedback and Reward System

Employees' Feedback

- **Satisfaction of employees at workplace is considered an important parameter for achieving organizational objectives**. Progressive organizations always try to get the regular feedback from the employees on various human **resource management aspects, and new initiatives taken in this regard through some satisfaction or climate surveys**.
- The information is gathered both formally and informally about the attitude and satisfaction of employees. This information is used for refining and fine tuning the policy initiatives from time to time. At formal level the information and feedback is gathered through well designed **questionnaires, psychological instruments, Suggestion schemes, etc.**

Feedback through Climate Surveys

Organizations used to measuring employees' perceptions of the prevailing climate in an organization are called climate surveys. **The coverage of a typical survey can be as follows:**

- **Structure**: The feeling that employees have about the constraints on the groups, rules, regulations, procedures, communications channels (layers in decision making), delegation and authority, etc.

- **Responsibility**: The feeling of being your own boss, clarity of role and responsibility vis-a-vis superior, subordinates and peers, etc.
- **Reward:** The feeling of being rewarded for a job done well, perception about reward and punishment system, perception about pay and promotion, etc.
- **Risk**: The sense of riskiness and challenge in the job and in the organization, and any emphasis on taking calculated risk (risk taking is encouraged and bona fide errors are protected) or playing safe is encouraged and accepted.
- **Warmth**: The general feeling of fellowship that prevails in the workgroup atmosphere, the prevalence of informal supporting culture and social groups.
- **Support:** The perception about helpfulness of managers and other employees in the group, emphasis on mutual support from above and below in the heirarchy.
- **Standards:** The perceived importance of implicit and explicit goals and performance standards, the emphasis on doing a good job, the challenge represented in personal and group goals.
- **Conflict:** The feeling that the managers and other workers want to hear different opinions, the process of conflict resolution, opportunity to express the views, etc.
- **Identity:** The feeling of belonging to the organization and perceived value in the organization and work group, etc.

Reward and Compensation System

The wages in the form of compensation is viewed as the main attraction to join or change a job. The compensation should not be so meager that employees do not feel motivated to put in their best**. the compensation should be such that it continually attracts talent, it is a major source of retention** of the existing manpower and has an edge which motivates them to give their best.

'Total Rewards'

- "Total Rewards" is described as the full combination of monetary and non-monetary investments, they make in their workforce to attract, retain and engage the people they need to operate its business successfully. The total rewards framework shows us that there are three primary categories of rewards that influence our decisions to join, perform in, and stay with an organisation. These three categories are Pay, Benefits, and Intangible Rewards. Total Rewards, which consists of the foundational rewards, performance-based, and career and environmental rewards.
- Foundational rewards include the base salary, healthcare, retirement and insurance; performance-based rewards add up as short-term and long-term incentives, any profit sharing plans and recognition, and finally career & environmental rewardsinclude career development programs, mentoring programs, talent mobility opportunities, well-being programs and flexibility in working arrangements. Generally, there are five pillars of a comprehensive

rewards system: compensations, benefits, flexibility, performance recognition and career development.

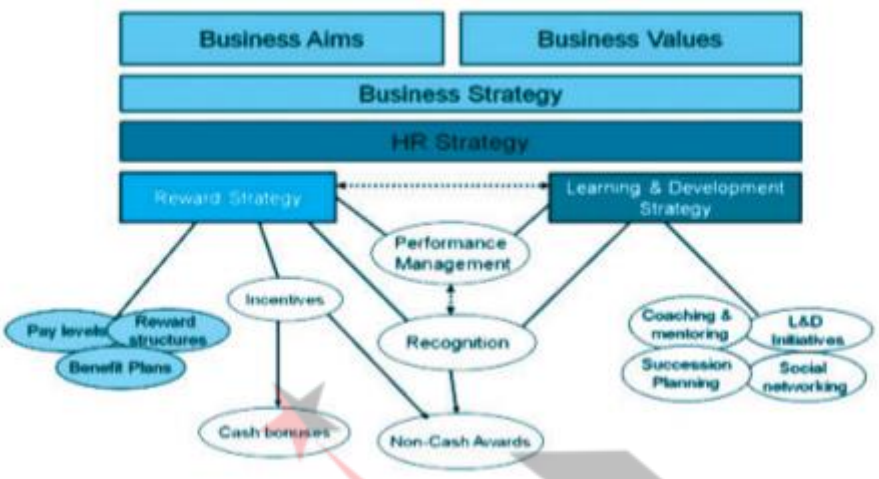
The six elements of total rewards that collectively define an organisation's strategy to attract, motivate, retain and engage employees are:

- C**ompensation**: Pay provided by an employer to its employees for services rendered (i.e., time, effort, skill). This includes both fixed and variable pay tied to performance levels.
- **Benefits:** Programs an employer uses to supplement the cash compensation employees receive. These health, income protection, savings and retirement programs provide security for employees and their families.
- **Work-Life Effectiveness**: A specific set of organisational practices, policies and programs, plus a philosophy that actively supports efforts to help employees achieve success at both work and home.
- **Recognition:** Either formal or informal programs that acknowledge or give special attention to employee actions, efforts, behavior or performance and support business strategy by reinforcing behaviors (e.g., extraordinary accomplishments) that contribute to organisational success.
- **Performance Management**: The alignment of organisational, team and individual efforts toward the achievement of business goals and organisational success. Performance management includes establishing expectations, skill demonstration, assessment, feedback and continuous improvement.
- **Talent Development**: Provides the opportunity and tools for employees to advance their skills and competencies in both their short- and long-term careers.

Reward Strategy

Armstrong & Murlis (Reward Management, 5th edition, 2007) described the importance of direction as an element in a reward strategy:

"Reward strategy determines the direction in which reward management innovations and developments should go to support the business strategy, how they should be integrated, the priority that should be given to initiatives and the pace at which they should be implemented."



Types of Compensations

Compensation is expressed in terms of money. It would thus include: wages or salary, bonus, cash allowances and benefits such as accident, health insurance cover, employer's contribution to the retirement funds, provision of accommodation, etc. The jobs are broadly classified in four groups and the compensation for them is commonly referred to as shown below:

- Managerial (top, middle, junior) ... remuneration
- Supervisory ... salary
- Clerical or Administrative ... salary
- Unskilled, semi-skilled, skilled and highly skilled ... wages

Compensation Base

Compensation policy is an important element in personnel management. What is the basis or factors on which compensation gets decided? It could be:

- Company objectives
- Market situation or prevailing market rate
- Internal and external pressures.

Compensation Theories

Let us now consider conceptual and theoretical aspects of compensation. A good compensation package should cover factors like **adequacy, societal considerations,**

supply and demand position, fairness, equal pay for equal work and job evaluation. These concepts are explained briefly:

Adequacy of Wages

The Committee on Fair Wages pronounced certain wage concepts such as:

- Minimum wages
- Living wages
- Fair wages
- Need-based minimum wages

Alignment of Corporate Strategy, HR Strategy and Compensation system

Strategy	HR Program	Compensation System
Innovator	Committed to agile , risk taking, innovative People	Reward innovation in products Market based pay Flexible
Cost Cutter	Efficiency Operational Excellence	Focus on competitors labour cost increase variable pay Emphasize productivity Focus on system control and work Specifications
Customer Focused	Delight Customer Exceed Expectations	Customer Satisfaction Incentives Value of Job and Skills based on Customer contact

Societal Consideration and Legal Framework

The level of compensation in any industry, theoretically, gets decided by the socio-economic considerations. Skewed distribution of wages will make the flow of supply shift and with the application of basic principle of demand and supply the equilibrium will be attained. This means that the compensation levels will, more or less, tend to be at par for the comparable work. In practice, however, this happens very rarely. In the free economy the Government does not control the aspect of wage administration and normally the market forces determine the compensation level. However, the administration is bound to protect the workforce from irrationally low wages. **Taking this as the prime objective the Indian Government has enacted:**

- The Payment of Wages Act, 1936,

- The Minimum Wages Act, 1948
- The Payment of Bonus Act, 1965, and
- The Equal Remuneration Act, 1976.

Job Evaluation

This is one important measure to determine the level of compensation package. A scientific job evaluation will ensure parity of compensation levels for similar or equal jobs. It also helps in distinguishing jobs in the level of **complexity, skills required, the risk involved and link compensations accordingly.** Job evaluation is a method of appraising the value or worth of one job in comparison to other jobs in the organization. **The objectives are:**

- To determine the compensation rates
- To link pay with the requirement of the job
- To provide for pay differentials taking into account skills, efforts, hazards required in each job
- To establish a compensation structure.

Job Evaluation Techniques

Non-quantitative Methods:

- Ranking or Job Comparison
- Grading or Job Classification

Quantitative Methods:

- Point Rating
- Factor Comparison

Designing Compensation Structure

- **Step1:** Create a complete job Description for Jobs
- **Step 2**: Calculate the Job evaluation point for the Job, provide a rationale for assigning specific degree to the various Jobs.
- **Step 3:** Outliers to be considered, (assume no extreme data points exits in the dataset)
- **Step 4**: Conduct a simple regression in Excel to create a market pay line by entering the job evaluation point (on the X axis) and the respective weighted average market base pay (on the Y axis) for each benchmark job.
- **Step5:** Finding out R squared (Variance explained)? Is it sufficient to proceed?
- **Step 6:** Calculate the predicated base pay for each benchmark job.
- **Step 7:** Assuming company wants to lend in base pay by 3%, adjust the predicated pay rates to determine the base pay rate you will offer for each benchmark job.
- **Step 8:** Create pay grades by combining any benchmark jobs that are substantially comparable for pay purpose.

- **Step 9:** Determine the pay range (Minimum & Maximum) for each pay grade.
- **Step 10:** Given the pay structure you have generated.

CAIIB Paper 1 (ABM) Module B Unit 5: Performance Management

Introduction

Heyel defines performance appraisal as **'a process of evaluating the performance and qualifications of the employees in terms of requirements of the job for which they are employed**, for the purposes of administration including placement, selection for promotions, providing financial rewards and other actions which require differential treatment among the members of a group as distinguished from actions affecting all members equally.'

Appraisal Systems

Performance appraisal is an organizational necessity. Various appraisal systems have evolved over a period of time. These systems vary from simple to complex, from vague to objective, from unstructured to structured and from confidential to open.

An organization has the option to device its own system or can adopt, with certain modifications, some other's system. What system one should choose will depend on whether it fulfills the objectives the organization wants the system to serve.

Objectives of Performance Appraisal System

- **Judgemental** - for salary increases, transfers and promotions;
- **Developmental** - telling an employee how is he doing and suggesting changes in his skills, attitudes, behaviour;
- **Counseling by superior** - for giving feedback and understanding problems for poor performance.

Uses of Performance Appraisal

- It rates all the employees in a unified manner by using the same rating scales and thus making them comparable on a common footing.
- It provides information which could be critical while deciding on promotion, pay increases, transfers, training, etc.
- It provides information about the areas of weaknesses of the employee to enable initiation of corrective steps.
- It improves the quality of supervision as the supervisor becomes a keen observer.
- The system, if implemented with openness and trust, ensures better interpersonal relations between the employee and his supervisor.

Performance Appraisal Process

There are following steps in the evaluation process:

- The process begins with the organization setting the **'performance standards'** in advance. These standards should be clear, realistic and measurable. It is advisable to involve the line managers in the exercise as they understand the nuances and nitty- gritty of the job.
- The performance standards then are required to be communicated to the employees.
- The next stage is to measure the performance. It can be done through the data available with the **department, personal observations, and feedback from the appraises.**
- Performance level of the employee is then compared with the benchmark or standard already established. Deviations are discussed and the reasons for deviations are noted.
- The outcome is discussed with the employee, emphasising the strong points and counselling him on the weak points.
- The last step is to initiate corrective measures and act on the positive performance by deciding on various incentives **like increments, promotions, training needed, etc.**

Performance Appraisal Methods

Traditional Methods

- Free Form Essay Method
- Straight Ranking Method
- Comparison Method
- Grading Method
- Graphic or Linear Rating Scales
- Forced Choice Description Method
- Forced Distribution Method
- Group Appraisal Method

Modern Methods

- Assessment Centre Workshops
- Management by Objectives
- Human Asset Accounting Method
- Behaviourally Anchored Rating Scales
- 360 Degree Appraisal Method

Management By Objectives (MBO):

This method attempts to minimise external controls and emphasises on the motivation levels of the employees. This is sought to be achieved through joint goal setting and the employee participation in the decisions that directly affect him. The objective of the MBO is to change the behaviour and attitude in respect of getting the results. It is a result-oriented system. The system emphasises on goal achievement rather than the method involved.

MBO Process

- The organisational goals are first set and are clearly stated in measurable targets. These goals have to be realistic and achievable, although challenging.
- The goal setting process is a joint process. The short-term performance goals are set jointly by the employees and their superiors.
- There are frequent reviews of performance through one to one meetings.
- Sharing of feedback in such meetings helps in altering the course of action, if required. It acts as a motivating factor as one gets to know where he stands through the feedback session.

Advantages of MBO

- It involves participative approach in goal-setting.
- It enhances the motivational levels of the employees.
- It creates an atmosphere of competition within the organisation for enhanced performance.
- It provides objective appraisal method.
- Problems can be identified in the early stages through reviews and feedback sessions.
- It is an effective tool for identifying the training and development needs.

Disadvantages of MBO

- It is a system which concentrates on results and not on the process.
- It may lead to unhealthy competition amongst the employees.
- It may create a conflicting situation when it comes to goal-setting.
- Sometimes, very soft targets are set to show higher performance achievement.

Performance Appraisal versus Confidential Report

In a large number of organizations the **annual performance appraisal** exercise is carried out as a confidential activity. In fact, the **form in which the performance of the employee is evaluated and reported is called confidential report.**

Merits and Demerits of performance appraisal system

Advantage

- It reveals a concern for performance and creates an atmosphere of openness and trust in the organization.
- Gives feedback to the employee and ensures that corrective steps are taken in time.
- It raises the general motivation level of the employees if implemented properly.

Disadvantage

- **The halo effect** — a tendency to allow one trait or characteristic of an employee to influence the assessment. The halo is to rate an employee consistently high or low.

- The leniency or strictness tendency of the superior interferes with the appraisal and accordingly the assessment gets influenced. The superior is unable to come out of these tendencies.
- The central tendency problem refers to assigning average ratings to all the employees without properly evaluating each aspect of appraisal carefully and fearlessly.
- Similar error is the tendency of comparing the employee with oneself on various traits and parameters. Those who show the similar characteristics are normally rated high.

Characteristics of a Good Performance Appraisal System

A good performance appraisal system should essentially possess the following characteristics:

- Objective
- Transparent
- Provide timely feedback
- Provide opportunity for self-appraisal
- Identify the potential and needs of employees
- Discriminate between high and low performers
- Perceived as an effective tool for enhancing employees' potential
- Identify impediments for low performance

Common Errors in Performance Appraisals

- Halo Effect
- Horn Effect
- Central Tendency
- Strict Rating
- Lenient Rating
- Status Effect
- Spillover Effect
- Initial Impression
- Latest Impression (Recency Effect)
- Same as Me
- Different from Me
- Performance Factor Order
- Sympathy Effect

Giving Feedback

Giving a feedback without hurting a person's feelings is an art. **The points covered above in respect of appraisal interview are also relevant for giving feedback to the employee**. To give feedback, it is necessary to arrange the meeting in a congenial environment. After carefully listening to the employee, the appraiser should take command of the situation and give an honest feedback to the employee with an objective to help his development. **The following points are crucial for giving feedback:**

- The feedback should be objective and should help employee in reaching appropriate level of performance in future.
- The feedback should be suggestive in nature rather than Judgemental and should focus on the training and developmental needs of the employee.
- The superior should adopt a problem-solving approach and not fault-finding approach. The trust of the employee will be reinforced if a sincere attempt is made in giving feedback with an intention to help him.
- The superior should never lose sight that his aim is to improve the performance of the appraisee and not to criticize him.

Do's and Don'ts

Based on what has been discussed above, the DO's and DON'Ts of the appraisal interview and giving of feedback can be easily summarized:

Do's

- allow the employee to do the maximum talking,
- encourage him to describe his success and failure,
- create an atmosphere where he will open up.
- praise him for his achievements.
- tell him honestly what you think where he could have done well,
- ask him what kind of help he expects from you.
- extend to him all that you can do for him.

Don'ts

- arrange a meeting when you are unable to devote time undisturbed.
- allow any kind of disturbance once the meeting starts,
- adopt judgmental role,
- criticize him for his failures.

Counselling

The prime purpose of counselling is to communicate to employee the feedback of the performance and expectations and, **help the employee to understand the areas of concern with the sole objective of improvement of his performance.** If the feedback system is effective, the employee not performing up to the mark gets to know clearly where he stands against the set benchmarks.

The following could be considered as counselling skills:

- It is essential to follow the stages mentioned earlier in respect of appraisal interview and feedback session. It helps in creating conducive atmosphere. The appraiser should realize that it is a common human tendency to react negatively to the feedback process, and particularly to the counselling process.
- The process should start by communicating the purpose of the counselling.
- The appraiser should be specific and descriptive when he is evaluating the performance.

- Appraiser should avoid commenting on the person and centre his discussion on the issues related to performance.
- His intention should be to assist the employee to overcome his problems. With this prime objective, even when he is criticizing the behaviour (and not the person) he should do it carefully. Criticizing without crippling should be the motto.
- He should listen to the employee and try to help him.
- He should offer workable solutions and act where the appraises can initiate improvement.
- Appraiser should not have any prejudice about the employee and try to evaluate the employee's version objectively.
- Successful counselling is effective listening.

Competency Mapping And Assessment Of Competencies

Every employee in an organisation has to be competent and to perform in order to retain his job and expect to grow in the organisational hierarchy. In a dynamic environment with the explosion of new knowledge and technology, one has to acquire knowledge and skills on an on-going basis to remain competent and competitive.

The past performance does not guarantee future success. In simple words, Competency is a knowledge, skill or attitude (KSA). You could have multiple derivatives from this definition as well. Competency is a set of demonstrable characteristics and skills that enable, and improve the efficiency of, performance of a job.

Some of the useful definitions of the competency are as follows:

- Competency is an underlying characteristic of an individual that is related to effective and/or superior performance in a job situation. (Spencer and Spencer 1993)
- A cluster of related knowledge, skills and attitude that affect a major part of effective and/or superior performance in a correlates with performance on the job, can be measured against well-accepted standards, and that can be improved via training and development. (Lucia and Lepsinger 1999)
- Competency is underlying characteristics required to perform a given task, activity or role. Competency has the following forms correlates with performance on the job, can be measured. (Gomes 2007)
- Competencies as the key components of performance related to "clusters of life outcomes". They can be interpreted as broad as any kind of psychological or behavioural characteristics related to success in a person's life. (McClelland 1973)
- Competencies are a set of interrelated knowledge, skills and attitudes that represents a key component of a person's job role and responsibility, that associates with performance in a job, that can be measured against well-established standards, and that can be reinforced through training and development. (Parry 1996)

'Competence' vs 'Competency'

- A review of literature suggests that 'competency' and 'competence' are two distinct 'approaches' in the context of HRM. The first one i.e., 'Competency'is person-oriented behavioural approach. This approach commonly uses the term 'competencies' to refer to the behaviours or personal attributes supporting an area of work.
- The second one i.e., 'Competence'is task-oriented functional approach. This approach, on the other hand, uses the term 'competence' more frequently for describing an area of work tasks or job outputs. However, it is argued that both 'competency' and 'competence' complement each other.'Being competent' as achieving the job demands or roles while 'having competencies' as demonstrating the essential behaviours for effective work performance.

The broad differences between 'Competence'and 'Competency' are:

S.No.	Competence	Competency
1.	It focuses on the results or outcomes.	It focuses on the person's behaviour and attitudes.
2.	It describes the features of work and tasks as also the job outputs or performance.	It describes the traits and attributes of the person concerned.
3.	It constitutes the various skills, knowledge and attitudes that are required for performing a particular job.	It constitutes the underlying attributes of the concerned person for superior work performance.
4.	It is not transferable in as much as each skill and/or knowledge level is more specific to perform a particular job.	It is easily transferable from one person to another.
5.	It is assessed by performance on a particular job.	It is assessed in terms of behaviours and attitudes.
6.	It is task-oriented.	It is people-oriented.

Competency Levels

Acommon competency may be required at different level for different job. Organisationstypically define in their competency profiles the levels of performance (proficiency) to be attained for each competency. These are often driven by the use to be made of the competency profiles. For example:

- **At Entry Level**: It is the standard expected of employees on entry into a role. This is often used when the new entrant must learn or be trained to be able to perform to the standards required within the role of a new employee
- **Fully Effective Level**: It is the level required of experienced employees who are performing at the expected standard for their role
- **Stretch/Mastery Level**: It is typically displayed by employees who have mastered their role. These employees are often sought out by other employees and supervisors to provide advice or assistance

Assessment Centres

- The origin of the Assessment Centre (AC) goes back to its use by the Office of Strategic Services (OSS) during the Second World War of work simulations to identify potential agents. However, the use of multiple exercises and simulations

and the assessment of performance by multiple observers have its origin in pre-war German military effortsto identify leadership potential.

- The British War Office Selection Board used this method during Second World War for military usage conducted by the Army, Navy and Air Force It was also used by British public sector selection procedures and the police.

Process of Designing an Assessment Centre

The Task Force on Development of AC Standards (1979) set up to establish good practice in this area lays down the following seven conditions that needs to be met if an Assessment Technique wishes to be regarded as an Assessment Centre. (Technique is the standardised evaluation of behaviour.) – **Seven Essential Elements of Assessment Centre:**

- **Multiple Assessment** Technique There should be multiple assessment techniques out of which atleast one must be a simulation exercise designed to elicit behaviours related to dimensions of performance on the job and must be parallel or resemble stimuli in the work situation, e.g., In-basket exercise, Group Discussions, Fact finding exercise, etc.
- **Multiple Assessors** The number of observers/assessors must be proportionate to the participants, 3-4 participants per assessor. Each participant must be assessed by more than one assessor for every activity to reduce the bias of assessment. The assessors must be experts in the assessment techniques and should receive training, briefing prior to participating in the Assessment/Development Centre.
- **Pooling of information** Judgments resulting in an outcome or feedback must be based on pooled information from the assessors. Wide variations in the evaluation must be sorted out through discussion between the assessors. Each assessor is required to record the critical incidences while assessing the candidates. These notes help in resolving the assessment disparities between the assessors.
- **Time of Observation** An overall assessment of behaviour must be made by the assessors at a separate time from the observation of behavior after compiling the entire data received from all the sources.
- **Design of Exercises** The exercises for assessing various competencies should be designed carefully by ensuring their reliability and validity to assess those competencies. The help of experts should be sought to ensure their relevance and effective use. The readymade tools available off the shelf should be thoroughly validated and customised to meet the requirement of assessment centre purpose. the simulation exercise like in-basket exercise, business games, etc., are designed/developed to tap a variety of pre- determined behaviour.
- The dimensions, attributes, characteristics or qualities evaluated by the Assessment Centre are determined by the thorough analysis of relevant job behaviours.
- Techniques used are designed to provide information which is used in evaluating the dimensions, attributes or qualities previously determined.

Tools used in Assessment Centres

A number of exercises/tools or simulations are designed to replicate the tasks and demands of the job for which a candidate is being assessed. These exercises are individual as well as group exercises and the candidates are observed by assessors while they are doing the exercise.

T*he main exercises done in Assessment Centres are*

- Leaderless Group Discussion'
- 'Psychometric Tests',
- In Basket or In Tray' exercise,
- Case Study/Analysis'
- 'Role Play' exercises,
- Business Games, Presentations, etc.

Behavioural Event Interview (BEI)

- Behavioural Event Interview (BEI) is a structured interview technique that is used to collect information about past behavior. It is a technique based on the premise that the best predictor of future behaviour is the past behavior. It attempts to ask open-ended questions that require the interviewee to describe in detail past experiences which demonstrate his ability to perform a job. Each question helps the interviewer learn about interviewee to describe in detail past experiences which demonstrate purpose.
- The Behavioural Event Interview is the heart of the Job Competency Assessment process. BEI data are the richest source of data about competencies that predict superior or effective job performance. The basic principle why it is used for competency assessment is that what people think or say about their motives or skills is not credible. Only what they actually do. The purpose of the BEI method is to get behind what people say they do to find out what they really do. his is accomplished by asking people to describe how they actually behaved in specific incidents.

Limitations of BEI

- Since the interview method relies on the recall of the respondent, only information that the respondent happens or chooses to remember is presented in the interview.
- This can result in self-serving, biased information. A second limitation arises from the fact that the interviewer asks for decisions, actions, thoughts, and feelings, but not for knowledge or specific information that was the basis for decisions, thoughts, or actions. Therefore, the interviews are not considered adequate sources for determining the specialised knowledge needed by managers to perform their functions.
- Finally, the interpretation and pattern finding from the answers solely reside on the interviewer who may or may not be an expert in Behavioural

interview. This may lead to guess work and personal judgment of the interviewer.

CAIIB Paper 1 (ABM) Module B Unit 6: Conflict Management and Negotiation

"Conflict': Concept & Definition

- **'Conflict'** may appear to be a sense of anxiety for most of the people but truly speaking, it is a normal part of any healthy relationship.
- It is part of the human experience.
- Conflict occurs when individuals or groups are not obtaining what they need or want and are seeking their own self-interest.
- Conflict is nothing more than a sharp disagreement or opposition of interests or ideas.
- Whenever two individuals opine in different ways, a conflict arises.
- In a layman's language conflict is nothing but a fight either between two individuals or among group members.
- No two individuals can think alike and there is definitely a difference in their thought process as well as their understanding.
- Disagreements among individuals lead to conflicts and fights.
- Conflict arises whenever individuals have different values, opinions, needs, interests and are unable to find a middle way.
- As per the Oxford Learners Dictionary, Conflict is a situation in which people, groups or countries disagree strongly or are involved in a serious argument.
- McLean (2005) defines Conflict as the physical or psychological struggle associated with the perception of opposing incompatible goals, desires, demands, wants or needs.
- Conflict is defined as a clash between individuals arising out of a difference in thought process, attitudes, understanding, interests, requirements and even sometimes perceptions.
- A conflict results in heated arguments, physical abuses and definitely loss of peace and harmony.
- A conflict can actually change relationships.
- Friends can become foes as a result of conflict
- Conflicts are natural for a person or a group of individuals.
- They can happen within the family or with the friends for any person. Conflicts are also possible at the workplace.
- After all, two people can't be expected to agree on everything, all the time.
- The key is not to fear or try to avoid conflict but to learn how to resolve it in a healthy way.
- When relationships pass through some conflict, good collaboration is required.

- The way, we handle the Conflict influences, reinforces or destroys the relationship.

Conflicts at the Workplace

- At any workplace, where a number of people are working together, Conflict is a normal and natural occurrence.
- Workplace conflict tends to lower the team morale and increase absenteeism, which normally results in the decrease in productivity.
- Conflict also leads to disruption of desirable state of harmony and stability in an organisation.
- In simple words, Conflict at the workplace, is the struggle that happens when people feel they have incompatible goals, wants, demands or needs.
- It causes a massive degree of frustration, pain, discomfort, sadness as well as anger.
- It has been **estimated that Managers spend at least 25 per cent** of their time resolving workplace conflicts.
- The most common response to any situation of conflict is the flight-or-fight response; some prefer run away or avoid the situation at all costs and others prefer to battle it out.
- In either case, people feel uncomfortable and dissatisfied with the outcome because no resolution is achieved.
- Conflict is inevitable at the workplace, but it can be managed by handling of disagreements, misunderstandings and struggles.
- An open mind and a positive approach, definitely makes it easier to manage any Conflict, when it occurs.
- Conflicts lead to disrespect and unnecessary tensions in organisations.
- Individuals talk ill about others and spoil the environment;
- You might be an excellent performer, a diligent worker, but if you keep on fighting with your fellow workers, you would definitely earn a bad name.
- You will be in the limelight but for all the wrong reasons.
- It is always wise to do your work sincerely, pack your bags, go home and come fresh the next day.
- Nobody loves to carry unnecessary tensions; thus it is always advised not to fight at workplaces.

Characteristics Of 'Conflict'

Hocker and Wilmot (1991) have offered several principles on Conflict which are good indicators of the characteristics of Conflict. Such principles are:

- Conflict is universal.
- Conflict is associated with incompatible goals.
- Conflict is associated with scarce resources.
- Conflict is associated with interference.
- Conflict is not a sign of a poor relationship.

- Conflict cannot be avoided.
- Conflict cannot always be resolved.
- Conflict is not always bad.

However, the main characteristics of Conflict can be summarised as under:

Conflict involves opposition

- Conflict is a normal part of any healthy relationship. After all, any person or a group of people cannot be expected to agree on everything, all the time. When an individual or a group of individuals is in disagreement with the other, it leads to Conflict. Thus, conflict takes its course only when opposition is there.

A conflict is more than just a disagreement

- Conflict is not only a disagreement but it is a situation in which one or both the parties perceive a threat. The threat is may be real or just an imagination.

Response to Conflicts is based on perceptions

- Normally, the response to Conflicts is not an objective review of the facts. It is based on the perceptions of the situation, which are influenced by the life-experiences, cultures, values and beliefs of the concerned person or the group.

Conflict is inevitable

- Conflicts are part of all relationships between individuals who work together. Conflict is internal discord that occurs because of a difference in ideas, values or perceptions or in the interpretation of a situation. (Marquid, cited by Kelley, 2006).
- In the world of today, organisations hire employees from diverse geographical locations with dissimilar cultural and intellectual backgrounds, as well as various viewpoints. People of various backgrounds and different work styles are brought together to work for a shared business purpose. In such a working environment where people have disparate outlooks toward the same problems, disagreements are bound to happen and workplace conflict is inevitable.

Conflict will always remain among humans

- Conflict is an inevitable and unavoidable element of our personal and professional lives and one should not try to avoid it. There is a proverb that says, 'if you always see two friends smiling all the time, it shows that they haven't been telling each other the truth.' Since there will always be differences between human due to the compatibility factor, Conflict will continue to stay in life for everyone.

Conflict cannot be avoided

- Two or more people or groups are different in educational level, family background, organisational training, etc., so conflicts cannot be avoided. Sometimes the end goal can make parties evolve stronger and better.

Conflicts are an opportunity for growth

- Conflicts, once resolved, help to build trust among one-another. They give confidence and strength to believe that relationship can survive challenges and disagreements. Many times, Conflict can also be called a process because it begins with one party perceiving the other to oppose or negatively affect its interests and ends with competing, collaborating, compromising or avoiding.

Are Conflicts Bad and/or Undesirable?

There are three viewpoints:

- Traditionalists believe that Conflict is bad and should be avoided.
- Human relations experts feel that Conflict is natural. It provides an avenue to know the opinions and also, an opportunity for creativity and persuasion. Thus, it calls for an open approach to Conflict.
- Integrationists view Conflict as inevitable and helpful. Conflict is viewed as a positive force except that when it is misdiagnosed, mismanaged or improperly avoided.

Types Of 'Conflicts'

Organisational conflict is disagreement between groups or employees regarding work-related issues. **The three main types of conflict that we find in the workplace are related to task, relationship and values**.

Task Conflict

- Task conflict involves differences based on work details and goals. Task conflict isrelated to the concrete issues related to employees' duties and expectations at work.
- It also includes assignments given to employees and also disputes about sharing of resources, differences of opinion on procedures and policies and in some cases, even interpretation of facts.

Relationship Conflict

- Relationship conflict is a type of personal conflict that develops over disagreements and differences between individuals or groups. This type of conflict is over personal issues and not work-related.
- Due to its peculiar nature, this type of conflict can be the most difficult to diffuse and resolve in an organisation. Relationship conflicts can be long lasting and hurt overall employee job commitment, productivity, trust and work performance.

Value Conflict

Value conflict arises from fundamental differences in the life experiences, cultures, identities, values and beliefs. This can include even differences in politics, religion, ethics, norms, etc. Disputes about values can also arise in the context of work decisions and policies also.

Intra-individual/Intra-personal Conflict

Conflicts can also arise intra-personal, where an individual's objective and vision differ from his/her company's overall vision. This refers to a conflict within an individual. Conflict can be Intra-individual conflict arises from frustration, numerousoles that demand equal attention but is riot always possible to devote, and goals having both negative and positive aspects. In sum, there can be three types of Intra-individual/Intra-personal Conflict which are:

- Goal conflict
- Conflict from frustration
- Role Conflict

Reasons For Conflict

Misunderstandings, lack of communication, disagreement, etc., are an integral part of the work culture but the problem is that when it escalates, it leads to conflict that often hampers the efficiency and productivity level of a company and its employees.

- **Resistance to change**: In this fast-changing working environment, there is a fear of the unknown amongst the employees. It is a fact that the workforce is afraid of the management and does not see their ability to manage a change.
- **Work habit**s: A few work habits of the employees can be a cause of conflict in the workplace. Habits like being extra diligent in work and keep on rechecking the file may also become a cause for conflict.
- **Poor communication**: Different communication styles can lead to misunderstandings between employees and supervisors or managers. Lack of communication with team members and managers drives conflict underground.
- **Personality clashes**: All work environments are made up of differing personalities. Team members and managers should understand and accept each other's approach to work and problem-solving. In the absence of such understanding, conflict may occur.
- **Poor performance**: When one or more employees within an organisation are not performing well or are not meeting their potential and the issue is not addressed, conflict is inevitable.
- **Poor supervision**: Sometimes, the managers or supervisors are incompetent at their job and are not smart enough to manage. They play a biased role and listen to only one side of the conversation.
- **Other reasons**: Conflicts may also be caused by any one or more of the following reasons:
  - ✓ Economics: Insufficient remuneration to employees. Stress from working conditions such as functional situations.

- ✓ Weak Leadership: When the leader/manager is less qualified and/or having less experience than the team members/employees.
- ✓ Poor Organisational Structure and Lack of Teamwork.
- ✓ Status: When senior position is needed for status and a "wrong" person is promoted.
- ✓ Power struggle: When everyone wants to be a leader and nobody wants to be a follower.
- ✓ Incongruence: An employee is required to do something that is beyond his/her liking or interests. Lack of transparency at the management level

Different Phases Of 'Conflict'

Basically, a Conflict can have five phases, which are as under:

- **Prelude Phase**: It involves all the factors which possibly cause a conflict among individuals. Lack of coordination, differences in interests, dissimilarity in cultural, religion, educational background, etc., are vital aspects in arousing a conflict.
- **Triggering Phase**: No conflict can arise on its own. There has to be an event which triggers the conflict. To illustrate, Ram and Rahim never got along well with each other. They were from different cultural backgrounds, a very strong factor for possibility of a conflict. Rahim was in the midst of a presentation when Ram stood up and criticised him for the lack of relevant content in his presentation, thus triggering the conflict between them.
- **Initiation Phase**: Initiation phase is actually the phase when the conflict has already begun. Heated arguments, abuses, verbal disagreements are all warning alarms which indicate that the fight is already on.
- **Differentiation Phase**: It is the phase when the individuals voice out their differences against each other. The reasons for the conflict are raised in the differentiation phase.
- **Resolution Phase:** A Conflict leads to nowhere and as such, individuals must try to reconcile and compromise to some extent and resolve the conflict soon. The resolution phase explores the various options to resolve the conflict.

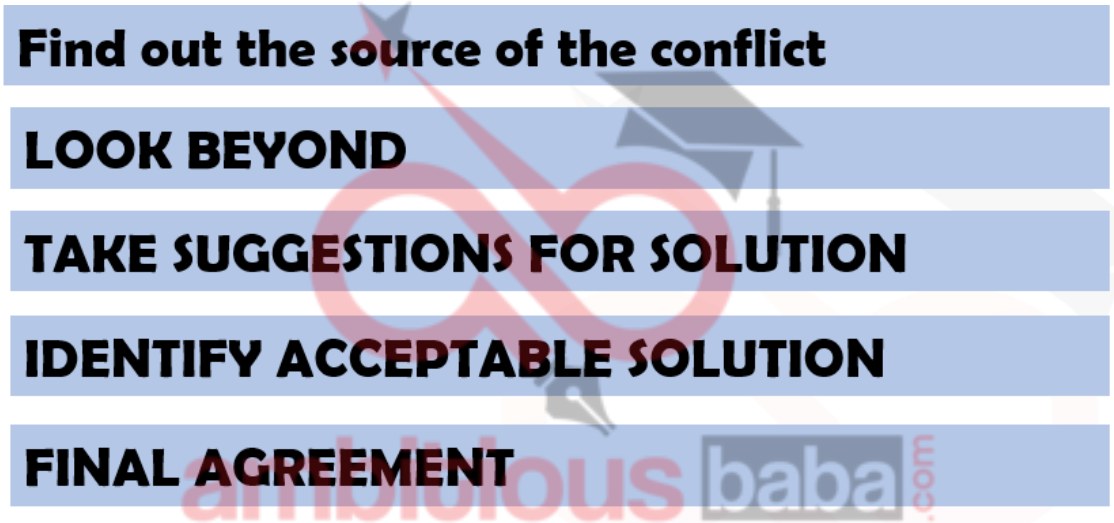
Conflict Resolution

- Conflict triggers strong emotions and can lead to hurt feelings, disappointment and discomfort.
- When handled in an unhealthy manner, it can cause irreparable rifts, resentments and disputes.
- But when conflict is resolved in a healthy way, it increases the understanding of the other person, builds trust, strengthens relationships and thus, helps to increase productivity.
- Key to manage conflict is not to fear or try to avoid conflict but to learn how to resolve it in a healthy way.

- It is the duty of the management to resolve the same.
- Resolution of conflict is not an easy job.
- Resolving conflict in a positive manner is a skill that can be developed and practiced.
- By resolving conflict constructively, an organisation can turn a potentially destructive situation into an opportunity for growth, creativity and enhanced performance.
- Now the question is – what style or method should be followed to resolve a conflict? **Well, the easiest three step formula is:**

✓ Listen
✓ Talk
✓ Resolve

The conflict resolution process in five steps can be framed as under:



Conflict Management

- In most conflicts, neither party is right or wrong; instead, different perceptions collide to create disagreement.
- Conflict is natural and it's up to the organisation to respond to conflict situations quickly and professionally.
- Conflict can be very positive, if one deals with it openly.
- Thus, he/she can strengthen the organisation by correcting problems.
- Conflicting views give a chance to learn more about the people, explore views of others and develop productive relationships.
- Managing conflict is an area of human skills that is necessary because human beings constitute and manage an organisation.
- This may sometimes require training in different skills that can be adopted in different situations of life.

- Such training can be helpful in minimising unnecessary issues that lead to conflict.
- Conflict management is a fundamental requirement for an organisation as it not only helps in resolving the conflict but also enables them to take preventive measures to reduce conflict in the organisation.
- Hence, every organisation is required to establish a conflict management process.
- Studies are going on for a long time to find suitable means and ways to manage conflicts.
- Many styles of conflict management behaviours have been developed.

- **Mary Parker Follett described them as domination, compromise and integration.**
- **This style involves openness, exchanging information, looking for alternatives and examining differences to solve the problem in a manner that is acceptable to both parties.**

- **Robert R. Blake and Jane S. Mouton have presented five styles:**
- ✓ **forcing, withdrawing, smoothing, compromising and problem solving.**
- **However, no such conflict management behaviour has been found to be perfectly applicable in all situations.**

How to Minimise Conflicts?

- No manager should avoid a conflict, hoping it will go away.
- It would be better to ask the participants to describe specific actions they want the other party to take.
- It would be beneficial to have a third party (meaning a non-direct superior with access to the situation) involved.
- Finally, it is advisable not to meet separately with people in conflict. A manager should take following actions to minimise conflicts:

A manager should take following actions to minimise conflicts:

- **Regular Review of Job Descriptions** With the pace of change, the job description must also change. But this will be possible only when the job descriptions are regularly reviewed.
- **Establish Rapport and build Relationship with all your Subordinates** For stablishing rapport, meet them at regular intervals; ask them about their achievements, problems, and challenges.
- **Regular Reports** A manager must get progress report about his subordinates regularly, indicating achievements, current needs and future scenario.
- **Training** Every manager needs to be provided training in interpersonal communication, conflict management and delegation of authority.
- **Mutual Development of Procedures** For routine tasks, the procedures should be developed keeping in mind the inputs received from employees. If possible, encourage them to share their views in writing. Such written procedures should

be distributed to all concerned. If need be, concerned employees be trained in those procedures.

- **Holding Regular Meetings** The managers need to hold regular management meetings to inform subordinates about new initiatives to be taken and the progress of current programmes.
- **Suggestion Box Consider** such a box in which employees can provide suggestions.

Negotiation Skills For Resolution Of Conflicts

- Negotiation is useful when two individuals have a similar objective in mind but both of them conflict on how the objective is reached.
- Conflict resolution is a way to quell these conflicts and ensure the objective is met.
- Hence, conflict resolution in its many forms is an imperative tool in having productive negotiation periods that ensure an objective will be met.
- Conflict can involve issues of power and authority.
- Adults may resort to threats and punishments to solve problems with children.
- Labour unions may strike and management may respond by laying off workers.
- These are examples of using power to control, intimidate and force solutions on other people.
- These forced outcomes only add to the grounds for future conflict.
- Conflictre solution is the process of resolving a dispute or a conflict by meeting at least some of each side's needs and addressing their interests.
- Conflict resolution sometimes requires both a power-based and an interest-based approach, such as the use of legal power and attempts to reconcile each party's interests through negotiation.
- Negotiation holds the key to getting ahead in the workplace, resolving conflicts and creating value in contracts.
- Especially in the resolution of conflict, negotiation can play an important role.
- It is really easy to resolve conflict through the art of negotiation.
- Nonetheless, it is possible to turn tense conflicts into productive negotiations and maintain strong relationships between the two parties.
- The importance of negotiation skills in these instances is paramount.
- The right approach to negotiation can improve the situation of multiple parties.
- Conflict negotiation is communication focused on finding an agreement that addresses the concerns of parties who want different outcomes. Common situations that involve handling conflicts in negotiation include:

Conflicts between employees

- Employees may sometimes encounter conflict about responsibilities or work quality.
- Resolving the conflict and addressing these concerns through negotiation is a primary duty of supervisors and managers.

Compensation

- Whether finalising salary for a new employee or entering a contract with a vendor, finding a mutually acceptable rate often requires negotiating between differing ideas of fair pay.

Disputes between a business and the public

- Businesses that serve the public, sometimes need to respond to a dissatisfied customer or group of concerned individuals.
- For example, a restaurant manager could enter conflict negotiation with a dissatisfied customer to resolve an issue with a meal.

Disagreements during collaboration

- Project teams could encounter conflict on factors like how to use limited resources or approach a client request

CAIIB Paper 1 (ABM) Module B Unit 7: HRM and Information Technology

Introduction

- Using **technology** to continuously **improve the quality of the work**. Technology can improve the information available to HR, facilitating HR processes, and making them faster and more effective. One of the biggest allies in **HRM, HRIS is adopted to make organizations more accurate and effective.**
- The banking sector has absorbed maximum technology for their operations. IT has offered a variety of delivery channels to support customers' needs in an efficient and effective manner.

Role Of Information Technology In HRM

As **such its first responsibility would be to adopt the IT orientation within the department. There is tremendous scope to use IT in a whole range of HRM functions**. viz. recruitment, training, placement, appraisal and reward systems, organizational development initiatives, etc. **The need for use of IT can be seen through the following observations:**

- **Certain basic information about an employee is used by number of functionaries within and outside the HR department**. For instance, if the organization has a geographical spread, the information about an employee is floated at field units, maintained and processed at field administrative units as well as at the corporate (control) office.
- The database related to an employee is becoming broad-based as various dimensions are getting added. e.g. along with the **traditional data regarding salary, allowances, increments, leave, etc.**
- Updating the data could be done partially by **different individuals from different locations.**

- **The decisions related to HR – day-to-day or policy reviews** – need to be embedded in databases to achieve objectivity and consistency in decisions. Such objectivity is imperative and can be achieved as IT enhances transparency.
- Human Resources being one of the significant **components of internal environment, policy review** must be undertaken to respond to the changes.
- To ensure adherence to statutory **requirements, maintaining of such database is needed.**

Human Resource Information System (HRIS)

Human Resource Information System (HRIS) has become an organizational necessity. The need for HRIS is an offshoot of the requirement to take **frequent strategic decisions concerning employees**. Decisions taken on the basis of information, whether it is **concerning, posting, training, compensation, job rotation, promotion, etc**.

Need for HRIS in Organisations

HRIS provide human resource professionals with opportunities to enhance their contribution towards the strategic direction of their organisation. First, by automating and devolving many routine human resource task to the line management, HRIS provides human resource professionals with the time needed to direct their attention towards more business critical and strategic level tasks, such as leadership development and talent management. ***Other advantages of HRIS implementation are***:

- For effective and realistic evolving of HR policies, programmes and schemes, etc.
- Facilitating timely and accurate decision making in areas like promotion, transfer, nomination, setting employees provident funds, retirement, gratuity, leave travel concession and earned leave compensation.
- Supplying data and submitting returns to government and other statutory agencies with ease and comfort.
- Collecting appropriate data and converting them to information and knowledge for improved timeless and quality of decision making.
- Generating a greater number of accurate and real time human resource related reports.
- Increase competitiveness by Re-engineering human resource processes and functions.
- Improving employee satisfaction by delivering human resource services more quickly and accurately.
- Provides a comprehensive information picture as a single, integrated data base; this enables organisations to provide structural connectivity across units and activities and to increase the speed of information transactions.

Maintenance of Database, Access Control and Use for Decision Making

It is evident from the contents of **HRIS database mentioned above that all data do not need updating frequently.** Some of the static data required to be entered only once in master file, viz., **name, date of birth, date of joining, etc. Data on placement, training, etc.,**

HR Research

- Research in HRM can be undertaken to understand: trends of existing systems like **recruitment, promotion, training, appraisal system** etc. to understand the workforce in terms of **motivation, commitment, expectation, frustration** etc. to remain sensitive to internal environment, regular opinion surveys, benchmarking, climate studies etc. can be conducted.

Human Resource Management System (HRMS)

As stated above, HR work is more complex and involved today than it ever has been. There's so much that goes into the management of employee information, which is used for everything from recruiting and hiring to training, evaluations, and so much more. The importance and manpower behind these tasks make it critical for human resources professionals to have HR management software for more efficient management of HR information.

This is why many companies are now using a HRMS (Human Resource Management System) – a combination of systems and processes that connect human resource management and information technology through HR software. A HRMS can be used in candidate recruiting, payroll management, leave approval, succession planning, attendance tracking, career progression, performance reviews, and the overall maintenance of employee information within an organisation. The automation of repetitive and time consuming tasks associated with human resources management

frees up some of the companies most valuable employees and allows the focus to shift to culture, retention, and other highly impactful areas.

Common Functions of HRMS Systems

- The function of the human resources department involves tracking employee histories, skills, abilities, salaries, and accomplishments. Replacing certain processes with various levels of HRMS systems can distribute information management responsibilities so that the bulk of information gathering is not delegated strictly to HR.
- By allowing employees to update personal information and perform other tasks, information is kept more accurate and HR professionals are not bogged down. Each module performs a separate function within the HRMS that helps with information gathering or tracking. For example, hiring would be carried out through the recruitment and on boarding module, employee performance is carried out through the performance evaluation and management module, and so on.

These HRMS modules can assist with:

- Managing payroll
- Recruitment and onboarding
- Gathering, storing, and accessing employee information
- Keeping attendance records and tracking absenteeism
- Performance evaluation
- Benefits administration
- Learning management
- Employee self-service
- Employee scheduling
- Analytics and informed decision making

Difference between HRMS and HRIS

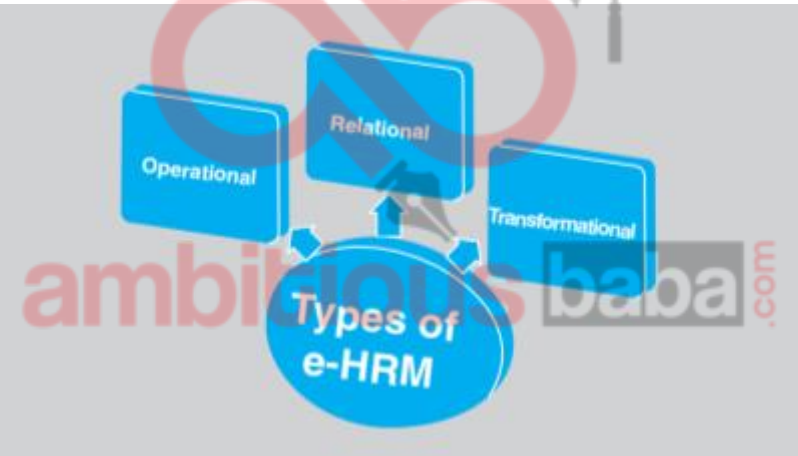
- The term HRMS is sometimes used synonymously with HRIS (Human Resource Information System), but a HRIS is really a type of HRMS. Functionally, however, there is no real difference in the type of systems offered going by one title or the other. At one time, a HRMS was a more complete automated solution to human resources management than software labeled as HRIS or even HCM, but re-branding by many companies has worked to make the different software titles generally indistinguishable. The notable differences are mentioned below.
- Today, a HRIS is designed to track numerical data and employee information, such as an employee's schedule or SSN. A HRIS also helps HR departments manage their policies, procedures, and people in general. Tasks at the heart of a HRIS include reporting, training, recruiting, compensation, benefits administration, data tracking, workflow automation, and accounting functions.
- On the other hand, a HRMS is more robust and is comprised of both IT and HR management technology. It deals with all the same information as a HRIS and a HCM in addition to non-quantitative information surrounding employees and

applicants. Some unique HRMS features include on boarding, employee satisfaction, job performance, analytics, profitability, and more.

e-HRM

- In simple words, e-HRM can be defined as the planning, implementation and application of information technology for both networking and supporting the HR activities. It is the integration of all HR systems and activities using the web based technologies.
- Simply, when HR uses the Internet or related technologies to support their activities, procedures, processes, then it becomes an e-HRM. Through e-HRM, the HR manager can get all the data compiled at one place and can make the analysis and decisions on the personnel effectively.
- **As per Strohmeier. S (2007),** "e-HRM is the planning, implementation and application of information technology for both networking and supporting at least two individual or collective actors in their shared performing of HR activities." E-HRM, in essence, is the devolution of HR operations to management and employees. They access these operations typically through intranet or other web-technology channels.

Various Types of e-HRM On the basis of functionalities, we can divide e-HRM into three different levels or tiers:



- **Operational e-HRM**: It relates with the managerial elements of HR division. It is more about administrative functions like payroll and employee personal data.
- **Relational e-HRM**: It is also known as Social e-HRM. It is concerned with the supporting business processes, viz., Training, recruitment, selection, etc. It relates to sharing of data with the managers and other concerned employees and making virtual relationship among them so they can remain constantly associated.
- **Transformational e-HRM**: It is about strategic HR exercises such as knowledge management and strategic re-orientation. It is concerned with the HR strategies and its activities such as knowledge management, strategic orientation.

e-HRM has the potential to develop services to HR department internal and external clients, i.e., both employees and management, develop efficiency and cost

effectiveness within the HR department and permit HR to become a strategic partner in achieving organisational goals.

e-HRM Activities Through e-HRM, the main activities that could be performed online are Recruitment, Selection, Training, Performance Management, Compensation.

HR Research

- One of the primary orientations of the future organisations is to develop a problem-solving perspective. As such a research orientation is a necessity in all functions – all the more in HRM.
- For instance some problems related to business parameters would get such attention through the usual activities of market share analysis, surveys, etc., as they are reflected obviously in the tangible dimensions of the business performance. But for HRM, a conscious effort to identify the issues is required.

Types of Applied Research

Following are the types of applied research:

- **Statistical approach**: The researchers generate statistical standards from the existing records to evaluate the activities and programs. With this approach the team can discover the smallest of errors easily.
- **Comparative approach:** The research team of the organisation directly compares its organisation with another organisation to figure out the areas of poor performance. This helps in identifying the areas that need improvement in the organisation.
- **Outside authority approach**: Here the research team counts on the expertise of the consultant or published researched records as the standards of activity or performance evaluation. The outside help may result in correcting the cause of problem.
- **Compliance approach:** With the help of samples from the human resource information system, the researchers look for the deviation from the laws and company policies. The compliance helps us to know whether the organisation is complying with the company policies and legal regulations or not.

Knowledge Management (KM)

- KM refers to process of **(a) creating, (b) storing (c) distributing and (d) pooling the knowledge (as per Wilcox-1997).**The people in a system are the sources of creating knowledge while storing and distributing the information is the responsibility of the information technology machinery of the organization.
- Hence management of 'knowledge worker' is very critical issue and cannot be done by traditional, bureaucratic process. Knowledge management has gained prominence in the light of the uncertainty that the employee who has created the knowledge, will continue with the organization or not, particularly where the attritions le77els are higher.

Technology in training

The technology offers an opportunity in designing training interventions to suit the individual learners. **Important features are:**

- Mass learning user friendly material can be produces at low cost.
- Trainers and trainees can be physically separated.
- Trainee has the option to choose time and date and place and convenience form for learning.
- Technology based training methods help in distance learning.

Advantages of E-Learning:

- Enables learner to study at his convenient time and place and can have privacy
- Enables him to study at his own pace
- Can offer high level inter-action with immediate feedback and provide opportunity to check his understanding
- Can be simulated to real life situation
- Can be cost effective depending upon its use

Disadvantages of E-Learning

- Relatively inflexible depending on a pre-produced programme
- Requires greater self-discipline and commitment by the learner
- May induce a sense of isolation
- Does not permit personal reinforcement, therefore, the motivational effects are forgone
- Can prove costly as expensive H1W and S/W are required

CAIIB Paper 1 (ABM) Module C: Credit Management

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No. of Unit	Module Name
Unit 1	Overview of Credit Management
Unit 2	Analysis of Financial Statements
Unit 3	Working Capital Finance
Unit 4	Term Loans

Unit 5	Credit Delivery and Straight Through Processing
Unit 6	Credit Control and Monitoring
Unit 7	Risk Management and Credit Rating
Unit 8	Restructuring/Rehabilitation and Recovery
Unit 9	Resolution of Stressed Assets under Insolvency and Bankruptcy Code 2016

CAIIB Paper 1 (ABM) Module C Unit 1: Overview of Credit Management

Credit

Credit is the trust which allows one party to provide money or resources to another party wherein the second party does not reimburse the first party immediately, but promises either to repay or return those resources at a later date.

Principles of Credit

Over a period of time, bankers have evolved certain basic principles for their lending operations. Bank's loan policies, and other aspects of credit management, are influenced to a great extent by these unwritten principles, **which are as under**:

- Safety of funds
- Purpose
- Profitability
- liquidity
- Security
- Risk spread

Types of Borrowers

A borrower can be:

- An individual
- Sole proprietary firm
- Partnership firm and joint ventures
- Hindu undivided family
- Companies
- Statutory corporations
- Trusts and co-operative Societies

Types of Credit

- **Fund Based:** In fund-based credit, there is actual transfer of money from the bank to the borrower.
- **Non-Fund Based:** In non fund based credit, there is no transfer of money, but the commitment by the bank on behalf of the client, may result in future transfer of money to the beneficiary of such a commitment. **Example** of this is a bank guarantee issued in favour of government departments (or any other beneficiary) on behalf of a contractor, who is bank's customer.
- **Credit can also be classified based on purpose**, like working capital finance, project finance, export finance, crop loan, etc. Banks often classify their credit portfolio based on the type of the customers like, Corporate, retail, agriculture, international, institutional credit, etc.

The laws applicable to all these different kinds of borrowers are different.

Type of Borrower	Applicable Law
Individuals	Indian Contract Act
Partnership firms	Indian Partnership Act
Hindu undivided family	Customary laws pertaining to Hindus
Companies	Companies Act
Statutory corporations	Acts that created them
Trusts	Indian Trusts Act, Public Trusts Act, Religious and Charitable Endowments Act, Wakf Act
Co-operative Societies	Co-operative Societies Act or Societies Registration Act.

Components of Credit Management

- Loan Policy of the Bank
- Appraisal
- Delivery
- Control and Monitoring
- Rehabilitation and Recovery
- Credit Risk Management
- Refinance

Role of RBI's Guidelines In Bank's Credit Management

End Use of the Funds:

- It is the primary responsibility of banks to ensure proper end use of bank funds/monitor the funds flow. It is, therefore, necessary for banks to evolve such arrangements as may be considered necessary to ensure that drawals from cash credit/overdraft accounts are strictly for the purpose for which the credit limits are sanctioned by them.

Priority Sector:

The main sectors, included in the priority sector are as follows:

- Agricultural finance
- Finance to micro and small enterprises
- Loans to individuals up **to ₹35 lakh** in metropolitan centres (with population of ten lakh and above) and up to **₹25 lakh** in other centres for purchase/construction of a dwelling unit per family provided the overall cost of the dwelling unit in the metropolitan centre and at other centres does not exceed ₹45 lakh and ₹30 lakh respectively.
- Educational loans(up to **Rs 10 lakh for studies in India and Rs 20 lakh** for studies abroad)
- **Export credit**: export credit by domestic banks is not treated as finance to priority sector for the purpose of priority sector target. But, export credit by foreign banks is treated as finance to priority sector.
- **Micro-credit provided by banks either directly or through any intermediary**: Loans to self help groups (SHGs) [Non Governmental Organizations (NGOs) for on-lending to SHGs
- Retail trade
- Khadi and Village Industries Sector (KVI); All loans to units in the KVI sector will be eligible for classification under the sub-target **of 7.5 percent** prescribed for Micro Enterprises under priority sector.

Targets for Priority Sector Lending

The targets and sub-targets set under priority sector lending for domestic and foreign banks operating in India are furnished here: (Figures are given as per cent of Adjusted Net Bank Credit (ANBC) or credit equivalent amount of Off-Balance Sheet Exposure, whichever is higher)

Categories	Domestic commercial banks (excl. RRBs & SFBs) & foreign banks with 20 branches and above	Foreign banks with less than 20 branches	Regional Rural Banks	Small Finance Banks
Total Priority Sector	40 per cent of ANBC as computed in para	40 per cent of ANBC as computed	75 per cent of ANBC as computed in para	75 per cent of ANBC as computed in para 6

	6 below or CEOBE whichever is higher	in para 6 below or CEOBE whichever is higher; out of which up to 32% can be in the form of lending to Exports and not less than 8% can be to any other priority sector	6 below or CEOBE whichever is higher; However, lending to Medium Enterprises, Social Infrastructure and Renewable Energy shall be reckoned for priority sector achievement only up to 15 per cent of ANBC.	below or CEOBE whichever is higher.
Agriculture	18 per cent of ANBC or CEOBE, whichever is higher; out of which a target of 10 percent# is prescribed for Small and Marginal Farmers (SMFs)	Not applicable	18 per cent ANBC or CEOBE, whichever is higher; out of which a target of 10 percent# is prescribed for SMFs	18 per cent of ANBC or CEOBE, whichever is higher; out of which a target of 10 percent# is prescribed for SMFs
Micro Enterprises	7.5 per cent of ANBC or CEOBE, whichever is higher	Not applicable	7.5 per cent of ANBC or CEOBE, whichever is higher	7.5 per cent of ANBC or CEOBE, whichever is higher
Advances to Weaker Sections	12 percent# of ANBC or CEOBE, whichever is higher	Not applicable	15 per cent of ANBC or CEOBE, whichever is higher	12 percent# of ANBC or CEOBE, whichever is higher

Total Priority Sector	40 per cent of ANBC or CEOBE, whichever is higher, which shall stand increased to 75 per cent of ANBC or CEOBE, whichever is higher, with effect from March 31, 2024. UCBs shall comply with the stipulated target as per the following milestones:

March 31, 2022	March 31, 2023	March 31, 2024
50%	60%	75%

Micro Enterprises	7.5 per cent of ANBC or Credit Equivalent Amount of Off-Balance Sheet Exposure, whichever is higher
Advances to Weaker Sections	12 per cent# of ANBC or credit equivalent amount of Off-Balance Sheet Exposure, whichever is higher.

The weaker sections under priority sector include the following:

- Small and Marginal Farmers.
- Artisans, village and cottage industries where individual credit limits do not exceed `1 lakh.
- Beneficiaries under Government Sponsored Schemes such as National Rural Livelihood Mission (NRLM), National Urban Livelihood Mission (NULM) and Self Employment Scheme for Rehabilitation of Manual Scavengers (SRMS).
- Scheduled Castes and Scheduled Tribes.
- Beneficiaries of Differential Rate of Interest (DRI) scheme.
- Self Help Groups.
- Distressed farmers indebted to non-institutional lenders.
- Distressed persons other than farmers, with loan amount not exceeding `1 lakh per borrower to prepay their debt to non-institutional lenders.

- Individual women beneficiaries up to `1 lakh per borrower.
- Persons with disabilities.
- Overdraft availed by PMJDY account holders as per limits and conditions prescribed by Department of Financial Services, Ministry of Finance from time to time.
- Minority communities as may be notified by Government of India from time to time.

MSMED Act 2006

Composite Criteria : Investment And Annual Turnover			
Classification	**Micro**	**Small**	**Medium**
Manufacturing & Services	**Investment< Rs. 1 cr. and Turnover < Rs.5 cr.**	**Investment< Rs. 10 cr. and Turnover < Rs.50 cr.**	**Investment< Rs. 20 cr. and Turnover < Rs. 250 cr.**

Common guidelines for priority sector loans

Banks should comply with the following common guidelines for all categories of advances under the priority sector.

- **Rate of interest**: The rates of interest on bank loans will be as per directives issued by Department of Regulation (DoR), RBI from time to time.
- **Service charges**: No loan related and ad hoc service charges/inspection charges should be levied on priority sector loans up to ₹25,000. In the case of eligible priority sector loans to SHGs/ JLGs, this limit will be applicable per member and not to the group as a whole.
- **Receipt Sanction/Rejection/Disbursement Register**: A register/ electronic record should be maintained by the bank wherein the date of receipt, sanction/rejection/disbursement with reasons thereof, etc. should be recorded. The register/electronic record should be made available to all inspecting agencies.
- **Issue of acknowledgement of loan applications**: Banks should provide acknowledgement for loan applications received under priority sector loans. Bank Boards should prescribe a time limit within which the bank communicates its decision in writing to the applicants.

The following credit restrictions have been placed on the banks:

(Details as per RBI circular No. Dir. BC. 13113.03.00/2009-10 dated 1, July 2009)

- Advances against Bank's own shares: In terms of Section 20(1) of the Banking Regulation Act, 1949, a bank cannot grant any loans and advances on the security of its own shares.
- Restrictions on granting loans and advances to relatives of Directors
- Restrictions on Grant of Loans & Advances to Officers and Relatives of Senior Officers of Banks

- Restrictions on Grant of Financial Assistance to Industries Producing or Consuming Ozone Depicting Substances (ODS)
- Restrictions on Advances against Sensitive Commodities under Selective Credit Control (SCC)
- Advances against Fixed Deposit Receipts (FDRs) Issued by Other Banks
- Loans against Certificate of Deposits (CDs)
- Restrictions on Credit to Companies for Buy-back of their Securities

Asset Classification

In terms of Reserve Bank of India guidelines, all advances are required to be reviewed and classified into two principal categories at regular intervals as follows:

(a) Performing Assets or Standard Assets, i.e., where the advances are earning interest income on an actual realisation basis. This includes regular and temporarily irregular accounts, as specified from time to time by the RBI.

(b) Non-Performing Assets (NPA), i.e., where advances are not earning interest on an actual realisation basis. An asset, including a leased asset, is considered as non-performing when it ceases to generate income for the bank. This includes irregular accounts and sticky accounts with deep-seated irregularities. A loan or an advance accounts will be considered as NPA where:

- Interest and/or installment of principal remain overdue for a period of more than 90 days in respect of a term loan.
- The account remains 'out of order' in respect of an Overdraft/Cash Credit (OD/CC).
- The bill remains overdue for a period **of more than 90 days** in the case of bills purchased and discounted,
- The installment of principal or interest thereon remains overdue for two crop seasons for short duration crops in respect of agriculture loan and advances,
- The installment of principal or interest thereon remains overdue for one crop season for long duration crops in respect of agriculture loan and advances,
- In respect of derivative transactions, the overdue receivables representing positive mark-to market value of a derivative contract, **if these remain unpaid for a period of 90 days from the specified due date for payment**.
- In case of interest payments, banks should, classify an account as NPA only if the interest due and charged during any quarter is not serviced fully within 90 days from the end of the quarter.

Categories of NPAs

Banks are required to classify non performing assets further into the following three categories based on the period for which the asset has remained non performing and the reliability of the dues:

- **Substandard Assets**: A substandard asset would be one, which has remained NPA for a period less than or equal to 12 months. Such an asset will have well defined credit weaknesses that jeopardise the liquidation of the debt and are characterised by the distinct possibility that the banks will sustain some loss, if deficiencies are not corrected.
- **Doubtful Assets**: An asset would be classified as doubtful if it has remained in the substandard **category for a period of 12 months**. A loan classified as doubtful has all the weaknesses inherent in assets that were classified as sub-standard, with the added characteristic that the weaknesses make collection or liquidation in full, on the basis of currently known facts, conditions and values, highly questionable and improbable. When the realizable value of the security is less than 50 per cent of the value assessed by the bank or accepted by RBI at the time of last inspection, as the case may be, such NPAs may be straightaway classified under doubtful category.
- **Loss Assets**: A loss asset is one where loss has been identified by the bank or internal or external auditors or the RBI inspection, but the amount has not been written off wholly. In other words, such an asset is considered uncollectible and of such little value that its continuance as a bankable asset is not warranted although there may be some salvage or recovery value. If the realizable value of the security, as assessed by the bank/approved valuers/**RBI is less than 10 per cent** of the outstanding in the borrowal accounts, the existence of security should be ignored and the asset should be straightaway classified as loss asset.

Provisioning Norms

The Banks are required to make certain amount of provision on standard assets on fund based outstanding as follows:

- Farm credit for Agriculture Activities: 0.25%
- Advances to Small and Micro Enterprises: 0.25%
- Advances to Commercial Real Estate (CRE) Sector: 1%
- Advances to Commercial Real Estate-Residential Housing Sector (CRE-RH): 0.75
- All other loans and advances not included above including advances to Medium Enterprises: 0.40% The normal provisioning requirement, and the accelerated provisioning in respect of NPA accounts are as follows:

Asset Classification	Period of NPA	Normal provisioning (%)	Accelerated provisioning (%)
Sub-Standard (Secured)	Up to 6 months	15	15
	6 months to 1 year	15	25
Sub-Standard (Unsecured ab initio)	Up to 6 months	25 (Other than infra loans)	25
		20 (Infrastructure Loans)	
	Above 6 months	25 (Other than infra Loan)	40
		20 (Infrastructure Loans)	
Doubtful I	2nd Year	25 (secured portion)	40 (secured portion)
		100 (unsecured portion)	100 (unsecured portion)
Doubtful II	3rd & 4th Year	40 (secured portion)	100 both secured and unsecured portion
		100 (unsecured portion)	
Doubtful III	5th year onwards	100	100
Loss Assets	Ab Initio	100	100

Modification in Extent of Guarantee Cover

In order to enhance the effectiveness of the Credit Guarantee Scheme for Financial inclusion programme and create greater support to underserved/weaker segments, the extent of guarantee cover for credit facility has been increased to 85% for ZED certified MSEs, units under Aspirational District, Women & SC/ST Entrepreneur.

The trust shall provide guarantee coverage as under:

Category (including trading activity	Maximum extent of Guarantee Coverage		
	Where credit facility is		
	Up to ₹ 5 Lakhs	Above ₹ 5 Lakhs & Up to ₹ 50 Lakhs	Above ₹ 50 Lakhs & Up to ₹ 200 Lakhs
Micro Enterprises	85%	75%	75%
MSEs located in North East Region (incl. Sikkim)	80%		
Women Entrepreneurs	85%		
MSEs situated in Aspirational District	85%		
ZED certified MSEs	85%		
SC/ST Entrepreneurs	85%		
All other category of borrowers	75%		

Aligning Guarantee for Retail/Wholesale Trade with Other Segments

Retail/Wholesale Trade is an eligible activity under Credit Guarantee Scheme with an exposure limit up to 100 Lakhs. In view of growing credit needs of MSEs under trading activity, it has been decided to align trading activity (MSE Retail Trade & Wholesale Trade) with other activities of CGS-I in respect of the following parameters:

- Ceiling of credit guarantee cover increased from ` 100 Lakhs to ` 200 Lakhs.
- Extent of Guarantee Coverage at par with other activities.
- Rate of Annual Guarantee Fee at par with other activities. The revised extent of guarantee coverage shall not be applicable in case of enhancement of existing working capital accounts already covered under Guarantee scheme and shall remain 50%.

CAIIB Paper 1 (ABM) Module C Unit 2: Analysis of Financial Statements

Financial Statements

There are basically two financial statements which every business enterprise is required to prepare. These are:

- Balance sheet
- Profit & Loss account (Income & Expenditure statement in case of non-profit organizations)

Apart from these, **the auditors' report, explanatory schedules and notes on accounts, if applicable,** provide useful information to the bankers.

A funds flow statement also provides useful information but, this is only a mathematical analysis of changes in the structure of two consecutive balance sheets and can be easily prepared by the banker/ analyst himself if the basic statements, i.e. the balance sheets, are available. Accounting Standard-3 makes it mandatory for some enterprises to prepare Cash Flow statement for the accounting period (these enterprises are those whose equity or debt is listed or is in the process of being listed on a recognized stock exchange and also all other commercial, industrial and business enterprises whose turnover for the accounting period exceeds Rs.50 crore. These enterprises are also required to do segment-wise reporting as per A S -1 7.

Users of Financial Statements

Apart from bankers, the other users of financial statements are:

- Other creditors and lenders
- Investors
- Government agencies
- Rating agencies
- Customers
- Employees

- General public
- Analysts

Basic Concepts Used in Preparation of Financial Statements

The important concepts are as under:

- Entity Concept
- Money Measurement Concept
- Stable Monetary Unit Concept
- Going Concern Concept
- Cost Concept
- Conservatism Concept
- Dual Aspect Concept
- Accounting Period Concept
- Accrual Concept
- Realization Concept
- Matching Concept

The format of balance sheet can be either Vertical or Horizontal as illustrated below (activities like banking, insurance, electricity generation etc, which are governed by acts other than Companies Act, need not follow these formats)

Horizontal Form: Horizontal form is maintained in two columns. The first column shows the Liabilities and the second one shows the Assets.

The items shown in the first column against Liabilities are:

- Share Capital Reserves
- Surplus Secured loans
- Unsecured loans
- Current liabilities
- Provisions

The items shown in the second column against Assets are:

- Fixed assets
- Investments
- Current assets
- Loans and advances
- Miscellaneous expenditure

Vertical Form: In the Vertical Form, the different items are shown one below the other.

(A)Sources of funds

1. Shareholders' funds

(a)Share capital

(b)Reserves and surplus

2. Loan funds

(a)Secured loans

(b)Unsecured loans

(B)Application of funds

1.Fixed assets

2.Investments

3.Current assets, loans and advances

Less: Current liabilities and provisions Net current assets

4.Miscellaneous expenditures

I. Equity and Liabilities

Shareholder's funds

- Share capital
- Reserve and Surplus
- Money received against share warrants

Share application money pending allotment

Non-current liabilities

- Long-term borrowings
- Deferred tax liabilities (Net)
- Other long term liabilities
- Long term provisions

Current liabilities

- Short-term borrowings
- Trade payables
- Other current liabilities
- Short-term provisions

Total-

II. Assets

Non-current assets

- Fixed assets

(i)Tangible assets

(ii)Intangible assets

(iii)Capital work-in-progress

(iv)Intangible assets under development

- Non-current investments
- Deferred tax assets (net)
- Long-term loans and advances
- Other non-current assets

Current Assets

- Current investments
- Inventories
- Trade receivables
- Cash and cash equivalents
- Short-term loans and advances
- Other current assets

Total-

Accounting

As per Income Tax rules, April to March is considered as the financial year for tax purposes. However, as per Companies Act, this can be different. Only restriction, as per Companies Act, is that the maximum duration of the financial year can be 15 months, and can be extended up to 18 months with the permission of Registrar of Companies (ROC).

Profit And Loss Account

It is a statement of income and expenditure of an entity for the accounting period. Every P and L account must indicate the accounting period for which it is prepared The items of a P & L account are:

- Gross and Net sale
- Cost of goods sold
- Gross profit
- Operating expenses
- Operating profit
- Non-operating surplus/deficit
- Profit before interest and tax
- Interest
- Profit before tax
- Tax
- Profit after tax (Net Profit)

Cash Flow Statement

- It is critical to evaluate the ability of an enterprise to generate cash and cash equivalents along with the timing and certainty of their generation. It is in this

context that a need has been felt to reiterate the insights which can be derived from proper analysis of Cash Flow Statement (CFS) in understanding the financial capability of an enterprise.

- It states the movement of cash and cash equivalents, into or out of, a business during a given period of time. It narrates the travelogue of opening cash balance at the beginning of the period in its journey to reach the closing cash balance at the end. Cash comprises cash on hand and demand deposits with the Banks, while cash equivalents are short-term and highly liquid instruments readily convertible into cash at any time, without any significant erosion in value.

The following are the components of cash flow:

- **Operating Cash Flows**: Cash received or expended for conducting business operations including expenses therefor. On netting the expenses from receipts, the resultant figure should be positive for the company to remain solvent.
- **Investment Cash Flows**: Cash receipts and expenses, other than for or from operations, in the nature of long term. But this does not include transactions relating to capital and debt.
- **Financing Cash flows**: Cash transactions relating to capital and debt. This is the story of financing the company.

Use of Cash Flow Statement (CFS)

- CFS speaks about the alignment between profitability and net cash flow.
- CFS speaks about the deepness of the pocket the business has.
- CFS speaks about the accuracy of past assessment of future cash flows in terms of the amount, timing and certainty of future cash flows and, thereby, provides insights into operational efficiency of the business during given period against the corresponding past period;
- CFS speaks about the acceptability of income accounted as per accrual concept.
- CFS speaks about the ability of the business to meet in time a specific and sure cash out flows like repayment of an ad-hoc loan or retirement of a usance LC, etc.

Funds Flow Statement

- Each item in the balance sheet represents either source of funds or use of funds. All items on the liabilities side represent the funds provided to the enterprise and all items on the assets side (except cash) represent use of these funds.
- Cash in the balance sheet represents the unutilised portion of funds, available to the enterprise. If cash is also perceived as a use of funds then all the uses of funds are equal to all the sources of funds.
- This perception of available cash, as a use of funds, is what causes the wide spread confusion about difference in a Funds flow statement and a Cash flow statement. When we compare two balance sheets of different dates, change in each item (or introduction of a new item) in the balance sheet of later date, as compared to that item in the balance sheet of earlier date, will represent either addition of funds or additional use of funds in the intervening period.
- Any increase in any item on the liabilities side means additional funds available.

Projected Financial Statements

- Actual financial statements are for the past period and analysis of these gives very useful financial information to the banker. But for assessing the need for bank credit and to examine the viability of the activity, it is necessary to anticipate the financial position of the enterprise in future.
- For example, for assessing the working capital needs, the statement of assets and liabilities of the last year will not be adequate. We will have to anticipate the level of operations during the current year and accordingly project the level of assets and liabilities to arrive at the need for bank's loan.
- Of course, the financial statements for the past period serve as the most important guide for this estimate. Also, in case of a new enterprise, where no financial statements are available, it becomes necessary to decide on a level of activity and accordingly prepare the projected financial statements.
- Generally, in case of smaller enterprises, where adequate financial expertise may not be available, the projected financial statements for the next year are prepared by the bank by interviewing the concerned person.
- In case of term loans for new projects/ expansion, the projected financial statements are normally prepared for the entire duration of bank loan to establish the viability of operations as also to determine the disbursal and repayment schedule.
- Whenever the projected financial statements are submitted by the borrower, these are critically examined for their reasonability and if projections are considered to be unreasonable, the matter is discussed with the borrower and suitable consensus arrived at.

Purpose Of Analysis Of Financial Statements By Bankers

- Assessment of Performance and Financial Position
- Projection of Future Performance
- Detecting Danger Signals
- Assessment of Credit Requirements
- Cross Checking

Rearranging The Financial Statements For Analysis

In keeping with the above objectives, a banker rearranges the figures in the financial statements under distinct groups for a meaningful analysis.

Balance Sheet

The assets and liabilities are normally regrouped as follows:

Liabilities	Assets
Tangible net worth (shareholders' funds)	Fixed assets
Long-term Liabilities	Current assets,
Current liabilities and provisions	Non-current assets

A Balance Sheet, when analysed by a credit officer would look like as follows:

<table>
<tr><th colspan="2"></th><th>Liabilities</th><th>Assets</th><th></th></tr>
<tr><td rowspan="2">Short-term Sources [Current Liabilities]</td><td></td><td>WC finance availed [BF]</td><td rowspan="2">Total Current Assets [TCA]</td><td rowspan="2">Short-term Uses</td></tr>
<tr><td></td><td>Other Current Liabilities [OCL]</td></tr>
<tr><td rowspan="3">Long-term Sources</td><td rowspan="2">TL</td><td rowspan="2">Term Liabilities</td><td>NWC</td><td rowspan="3">Long-term Uses</td></tr>
<tr><td rowspan="2">Fixed Assets</td></tr>
<tr><td>Net Worth</td><td>Reserves and Surpluses</td></tr>
<tr><td colspan="2"></td><td>Paid Up Capital</td><td>Other Non-Current Assets</td><td></td></tr>
</table>

P&L Account

The format prescribed under erstwhile Credit Monitoring Arrangement (CMA), under which banks used to report sanction of large credit proposals to RBI, still serves as a useful guide for rearranging the items in P&L account. The important groups of items are as follows:

	Last year	This year
1. Gross sales		
2. Less GST/VAT/Duty components		
3. Net Sales		
4. cost of sales		
i. Raw materials		
ii. Power and fuel		
iii. Direct labour		
iv. Other manufacturing expenses		
v. Depreciation		
vi. sub total		
vii. Add opening stocks		
viii. Less closing stocks		
ix. Total cost of sales		
5. Selling, general and administrative expenses		
6. Operating profit		
7. Interest		
8. Operating profit after interest		
9. add non operating income		
10. less non operating expenditure		
11. Profit Before Tax (PBT)		
12. Tax		
13. Profit After Tax (PAT		

Important Points for Rearranging Financial Statements

While rearranging the financial statements, the following points should be examined by the banker and suitable changes made in different items:

- Instalment of term loans due within one year
- Advance tax/provision of tax
- Deferred tax assets and liabilities
- Non moving inventory
- Receivables more than 6 months old
- Revaluation of assets and Intangible assets
- Investments and that in and loans/advances to associates and subsidiaries
- Bills purchased/discounted
- Contingent liabilities
- Provisioning
- Depreciation method
- Inventory valuation
- Expenses relating to earlier years
- Important events after account period.

Techniques Used In Analysis Of Financial Statements

Bankers mostly use three methods for analysis of financial statements

- Funds Flow Analysis
- Trend Analysis
- Ratio Analysis

Funds Flow Analysis

- Funds Flow statement is not part of Financial Statements nor a return certified by auditor. It is a requirement of the lenders to trace diversions, if any. However, while submitting the estimates for current year and projections for next year, most companies use the model of CMA format, which contains Funds Flow statement also.
- If the borrower has not submitted the funds flow statement, bank prepares the same from the last two balance sheets. The total sources of funds are categorised as '**Long term' and 'Short term'.** Similarly, the total uses are also categorised as '**Long term' and 'Short term'**. If the short-term sources are more than the short-term uses, (correspondingly long-term uses are more than long-term sources), it indicates diversion of working capital funds and needs to be probed further.

Trend Analysis

Under trend analysis, bankers adopt the following methodology:

- The items, for which trend is required to be seen, are arranged in vertical form, with actual figures of past two years, ensuing year's estimates and next year's projections on the right side of it. The percentage increase (decrease) from the previous year's figure is indicated below it. Generally, this is used to see the trends of sales, operating profit, PBT, PAT, etc. from P&L account. Similarly, the

balance sheet items, arranged in vertical order give the trends of increase or decrease of various items.

- Common Size Statements are prepared to express the relationship of various items to one item in percentage terms. For example, consumption of raw materials is expressed as a percentage of sales for different years and comparison of these figures gives indication of trend of operating efficiency.

Ratio Analysis

- This is the most favourite method of bankers for analysis of financial statements. A ratio is comparison of two figures and can be expressed as a percentage (e.g., profitability is 23.7 per cent), as a number (e.g., current ratio is 1.33) or simply as a proportion (e.g., debt equity is 1:2).
- Both the figures, used in calculation of a ratio, can be from either P&L account, or balance sheet or one can be from P&L account and the other from balance sheet. Ratios help in comparison of the financial performance and financial position of an entity with other entities, as also for comparison with its own status over the years. While different users of financial statements are interested in different ratios, the ratios which interest a banker most, are the following:

Liquidity Ratios

- Current Ratio is the indicator of liquidity, that is the ability to meet commitments in time. It is expressed as simple ratio by dividing Total Current Assets by Total Current Liabilities and is benchmarked normally to 1.33: 1, where the 0.33 over 1 is the surplus of Long Term Sources over Long Term Uses, technically called the Net Working Capital [NWC]
- NWC Ratio gives the long term support available to build-up on current assets, indicating margin available over CL to finance current assets. Expressed in per cent, the formula is NWC/TCA × 100.

Profitability Ratios

1. Raw Material Consumption to Cost of Production Ratio gives the sensitivity of Raw Material Price (the most price-sensitive input of production) on the Cost of Production. The formula is $\frac{\text{Value of RM Consumed}}{\text{Cost of Production}} \times 100$.
2. PBT Ratio gives the share of Profit Before Tax in the sales revenue and is arrived at by formula $\frac{\text{Profit Before Tax}}{\text{Net Sales}} \times 100$. This gauges profitability efficiency of the unit.
3. PAT Ratio gives the share of owner's earnings in sales revenue by using formula $\frac{\text{Profit Before Tax}}{\text{Net Sales}} \times 100$
4. EBIDTA Margin Ratio is an important financial performance indicator and measure of unit's operating performance. The ratio is arrived at by using formula: $\frac{\text{EBIDTA, ie., PAT + Interest + Depreciation + Tax + Amortisation}}{\text{Net Sales}} \times 100$
5. Return on Capital Employed or ROCE, used to measure operating performance in relation to the total capital employed in business, is calculated by a formula $\frac{\text{EBIDTA}}{\text{Total of Asset Side of Balance Sheet}} \times 100$.

   [Different formulae are given by different academicians for calculating ROCE. However, the most accepted one is above, where the EBIDTA, the operating result plus other income is tested against total amount employed in different assets to generate that EBIDTA].
6. Operating Profit Ratio is calculated by $\frac{\text{Operating Profit}}{\text{Net Sales}} \times 100$. Here, non-operative income and non-operative expenses are weeded out to arrive at the true profitability of the business without them, which need not repeat every year.

Leverage Ratio or Solvency Ratio or Gearing Ratios

1. The ratio of owner's funds to borrowed funds is calculated by different schools in different way. Most accepted one is $\frac{\text{Total Outside Liability}}{\text{Tangible Net Worth}}$ where TOL is sum of Term Liabilities and Current Liabilities and 'TNW' is Net Worth *minus* Intangible Assets. It is expressed as number of times. More conservative approach is to eliminate from the TNW the loans, advances and investments to or in Group/Associate/Subsidiary Companies as those monies have gone out of the system while some of the risk elements across the entities are common. The formula is $\frac{\text{Total Outside Liability}}{\text{Adj.Tangible Net Worth}}$ where 'Adjusted Tangible Net Worth' is TNW *minus* loans, advances and investments in Group/Associate/Subsidiary Companies.
2. Debt Equity Ratio has two connotations. One is that the ratio between debt and margin for a project. It is arrived by is $\frac{\text{Debt Component in Means of Finance}}{\text{Margin Component of Means of Project}}$ and is expressed as plain vanilla ratio of numerator : denominator. Long Term Debt/Net worth is the ratio widely used as an indicator of solvency of an existing company. DE Ratio is also used to assess the solvency of a company as a whole, especially by financial analysts and media analysts. For them, the formula is $\frac{\text{Total Outside Liability}}{\text{Net Worth}}$ and again expressed as a plain ratio.

Coverage Ratios

Debt Service Coverage Ratio: It is measurement of a unit's ability to service payment obligation of term debts out of its future earnings. There are two variants, vis, Net DSCR and Gross DSCR, of which the former assesses ability to service instalments while the latter assesses ability to service instalments plus interest. The formula to calculate Net DSCR is:

$$\frac{\text{Cash Accrual, that means Net Profit plus Non-Cash Expenses}}{\text{ETL Instalments of all TLs due during corresponding period}}$$

and the formula for Gross DSCR calculation is:

$$\frac{\text{Cash Accrual + Interest on all term loans}}{\text{ETL Instalments on all TLs due during corresponding period + Interest on all term loans}}$$

As we need to assess the capacity to service interest as well, it needs to be in the denominator. Also, the Net Profit on the numerator is arrived at after reckoning interest, which we are testing for repayment ability. Therefore, it needs to be added back on the numerator also, to neutralise the effect, that is, $\frac{\text{Interest on all TL}}{\text{Interest on all TL}} = 1$.

Vanquish Ratio: Term debts are to be discharged over a period of time by earnings of the same period. EBIDTA is used to service long term debt and as such, at any point of time, we can assess the number of years by which, at the present level of EBIDTA, the entire long term debt can be wiped off, or can vanquish, using formula: $\frac{\text{Long Term Debt}}{\text{EBIDTA}}$.

Interest Coverage Ratio is to know the relation between earnings and interest pay outs by using formula $\frac{\text{EBIDTA}}{\text{Interest on all borrowings}}$.

Fixed Asset Coverage Ratio is arrived at to know the value of security as number of times of debt. The formula used is $\frac{\text{Written Down Value of Fixed Assets Under Charge}}{\text{Outstanding in Tl the Fa secure}}$. This is a perspective from debt side to assess how many times it is secured by fixed assets.

Security Margin Coverage Ratio is also arrived using the same variables used to calculate FACR. But the difference is that the perspective is from security side and what is assessed is cushion of security available by formula's $\frac{\text{WDV of FA–TL outstanding}}{\text{WDV of FA}} \times 100$.

Holding Ratios or Turnover Ratios:

These are basically used to assess the length of the operating cycle and amount of Working Capital Gap, that is TCA–OCL. These ratios are used to estimate the amount of TCA required and OCL available.

RM Holding Ratio = $\frac{\text{Raw Material Average Stock}}{\text{Raw Material Consumed in the Period}} \times 365$ This will give us an idea as to how many days' consumption of raw material needs to be stored as per past data. *[Instead of 365, if the multiplication is done by 12, we get the same in terms of number of months instead of days].*

SIP Holding Ratio = $\frac{\text{Stock in process Average Stock}}{\text{Cost of production in the period}} \times 365$. This will give us an idea as to how many days' production is held up in the form of stock in process. Production process is the time during which the direct cost is input and therefore, it needs to be related to Cost of Production.

FG Holding Ratio = $\frac{\text{Finished goods Average Stock}}{\text{Cost of sales of the period}} \times 365$. Finished goods are valued at Cost of Sales and hence the linkage. The ratio will tell us, as per past data, how many days' production had to remain with us before its sale.

Receivable Holding Ratio = $\frac{\text{Average level of S.Drs}}{\text{Gross sales of the period}} \times 365$. When we deduct GST or VAT, etc., from gross sale value, we get Net Sales value, which is taken for almost all other assessments, as in the matter of tax, we do only post office job of collecting from customers and paying to government. It is not unit's income. But in the case of Debtors, their debt to us includes tax element also. Therefore, we need to take Gross Sales and the ratio tells us how many days' sales are always remaining with the debtors unpaid to us.

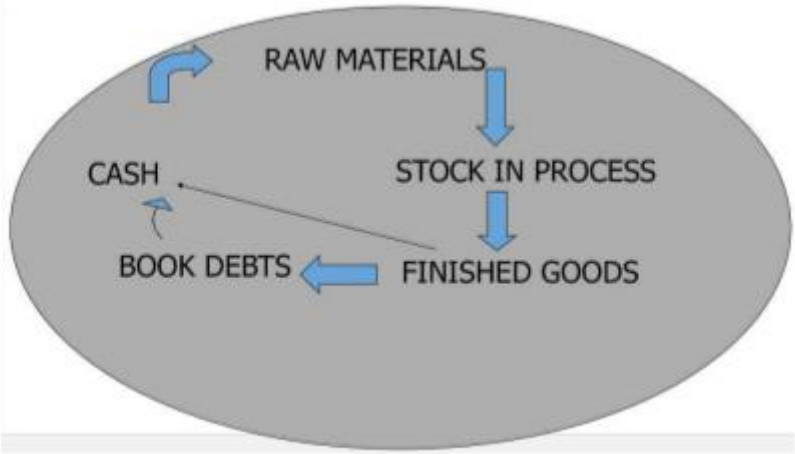
CAIIB Paper 1 (ABM) Module C Unit 3: Working Capital Finance

Working Capital

Whenever a **business enterprise is started, some fixed assets like office, furniture, machines/computers etc**, depending upon the **need, are acquired**. But this alone may **not be sufficient for running the business of that enterprise, except for a few activities like broking/commission agent,** etc. Most of the business enterprises, in the course of their business, have to carry some current assets like raw materials, finished goods, receivables etc. The money blocked in these current assets is **called working capital.**

Working Capital Cycle

The **normal operations of a business enterprise consist of some or all of the actions like, purchase of raw materials, processing and conversion of raw materials** into finished **goods, selling these goods on cash/ credit basis**, receive cash on sale or end of credit period and again purchase raw materials. This is called **working capital cycle**. **The length of this cycle depends on:**



Operating Cycle or Working Capital Cycle

- The stocks of raw materials required to be held
- The work in process, which in turn depends on the process involved in manufacturing and processing the raw materials
- The credit required to be provided to the purchasers

Importance of Liquidity Ratios

- **For a banker, providing working capital finance**, the liquidity ratios, specially the current ratio, play a very important role in assessment, sanctioning decision, and monitoring.
- The assessment involves stipulation of a minimum Net Working Capital (N W C) to be brought in by the enterprise from its long term sources. This results in a minimum current ratio (more than one) which the bank wants the enterprise to maintain at all the times. This is, normally, mentioned in the terms and conditions of sanction and becomes an important tool for the bank to monitor the use of funds by the enterprise.

Method of Assessment of Bank Finance

Deciding on the level of Turnover of the Enterprise: This is a very important step in any method of assessment of **working capital limits**. In case of existing enterprises, the past performance is used as a guide to make an assessment of this. In case of new enterprises, this is based on the production capacity, proposed market share, availability of raw materials, industry norm etc.

Assessment of Gross or Total Working Capital: This is the sum total of the assessment of various components of the working capital.

- Inventory
- Receivables and Bills
- Other Current Assets

Sources for Meeting Working Capital Requirement:

- Own Sources (N W C)
- Suppliers' Credit
- Other Current Liabilities like salaries payable, advances from customers, etc.
- Bank Finance

Calculation of Bank Finance

Though **banks are now free to formulate their own policies, the methods of lending**, mentioned there, still find place in the calculations followed by the banks. **The methods are**;

- **First Method of Lending**: Under this, the enterprise was required to bring in at least 25 per cent of the working capital gap (total current assets minus total current liabilities excluding bank finance).
- **Second Method of Lending:** Under this, the enterprise was required to bring in at least 25 per cent of the total current assets.
- **Third Method of Lending:** Under this, the enterprise was required to bring in 100 per cent of those current assets which are considered 'core assets' and at least 25 per cent of the remaining current assets.

Cash Budget Method of Assessment

Any **economic activity, however small it may be, involves outflows (expenditure) of money for procurement of inputs and inflows of money (income)** from the sale of output The nature, amount and periodicity of outflows and inflows is peculiar to the type of activity, level of operations, market conditions and the policies adopted by the owners/managers etc.

A normal statement / budget, will look as under:

Inflows

1. Opening balance
2. Term loan from Bank
3. Sales (Total sales-credit sales + realization for ealier sales)
4. Other cash inflows

Total inflows

Outflows

1. Capital expenditure
2. R. M. Purchase
3. Labor

4. Power and fuel
5. Payment of Interest
6. Repayment of Term loan installment
7. Other cash outflows

Total outflows

Cash surplus or (deficit)

- Bank finance needed
- Closing balance

Bills / Receivables Finance by the Banks

Receivables are part of the current assets of a business enterprise. These arise due to sales on credit basis to the customers. The bank provides finance against these in a fashion similar to that for inventory.

Another method of sales is through Bills of exchange drawn by the seller on the purchaser in the following manner;

- If no credit is to be provided to the customer, a demand bill is drawn.
- If the credit is to be provided on the sales, a bill of exchange, called usance bill, mentioning the period of payment, is drawn on the purchaser and is accepted by him The outstanding amount is shown in the accounts as 'bills receivables'.

The **terms used in bills finance are purchase, discount and negotiation.** Normally, 'purchase' is used in case of demand bills, **'discount' in case of usance bills and 'negotiation'** in case of bills which are drawn under letters of credit opened by the purchaser's bank.

Non-Fund-Based Working Capital Limits

- Guarantees
- Co-acceptance of Bills
- Letters of Credit
- Commercial Paper (CP)
- Unsecured money market instrument
- Issued in the form of a promissory note
- Introduced in India in
- Cost of borrowing through CP is normally lower compared to other sources of short term finances

Guidelines of RBI for Discounting / Rediscounting of Bills by Banks

- Banks may sanction working capital limits, as also bills limit, to borrowers after proper appraisal of their credit needs and in accordance with the loan policy as approved by their Board of Directors.
- Banks should open letters of credit (L Cs) and purchase / discount / negotiate bills under L Cs only in respect of genuine commercial and trade transactions of their borrower constituents who have been sanctioned regular credit facilities by the banks.
- If a beneficiary of the LC wants to discount the bills with the LC issuing bank itself, banks may discount bills drawn by beneficiary only if the bank has sanctioned regular fund-based credit facilities to the beneficiary.
- Bills purchased/discounted/negotiated under LC will be treated as an exposure on the LC issuing bank and not on the borrower.
- While purchasing / discounting / negotiating bills under LCs or otherwise, banks should establish genuineness of underlying transactions/documents.
- The practice of drawing bills of exchange claused 'without recourse' and issuing letters of credit bearing the legend 'without recourse' should be discouraged because such notations deprive the negotiating bank of the right of recourse it has against the drawer under the NI Act.
- Accommodation bills should not be purchased/discounted/negotiated by banks.
- Banks should be circumspect while discounting bills drawn by front finance companies set up by large industrial groups on other group companies.
- Bills rediscounts should be restricted to usance bills held by other banks.
- Banks may exercise their commercial judgment in discounting of bills of the services sector.

Letters of Credit

The genesis a letter of credit lies in the fact that a seller of good is worried about receipt of money from the buyer if she supplies the goods first, and the buyer is worried about non receipt of contracted goods if she makes the payment first. The bank acts as an intermediary between the two by using its credibility, as it is acceptable to both buyer and the seller. Letter of Credit (LC) is an undertaking by the bank, at the request of the buyer (applicant, who is customer of the bank), to the seller, to pay her the contracted amount if she supplies the goods as per the terms specified and submits the required documents, including the documents of the title of the goods. The conduct of LC business is governed by the publication no. 600 of the International Chamber of Commerce (ICC), commonly known as UCPDC 600.

Appraisal of LC Limit

An LC is used for purchase of goods either through imports or local purchase. ***For assessing the LC requirement of an enterprise, we have to know the following:***

- Average Amount of Each LC: This is dependent on the monthly consumption of goods and the economic order quantity. Economic order quantity (EOQ) is estimated by examining the sources of supply, means of transport, discount, etc. In case of imports, the EOQ is often larger in comparison to indigenous purchases.
- Frequency of LC Opening: Once EOQ is estimated, the number of LCs to be opened in a year can be calculated by dividing annual consumption by EOQ. Frequency of opening LCs will be 12 divided by the number of LCs to be opened in a year.
- How many LCs will be outstanding at a particular time: The time taken for one LC to remain in force depends upon the lead time (time taken from the date of opening LC to shipment of goods), the transit time and the usance available to purchaser from the date of receipt of goods. If the frequency of opening LC is less than this, bank will have more than one LC outstanding at any point of time.

Other Issues Related To Working Capital Finance

Commercial Paper

- Commercial Paper (CP), an unsecured money market instrument issued in the form of a promissory note, was introduced in India in 1990 with a view to enabling highly rated corporate borrowers to diversify their sources of short-term borrowings. Subsequently, primary dealers (PDs) and all-India financial institutions (FIs) were also permitted to issue CP to enable them to meet their short-term funding requirements.
- A company would be eligible to issue CP provided its tangible net worth is not less than Rs. 4 crores, it has been sanctioned working capital limit by bank/s or FIs; and the account is classified as a Standard Asset by the financing bank/institution.
- The minimum credit rating for issuance of CP is 'A3' as per rating symbol and definition prescribed by **SEBI CP shall be issued for maturities between a minimum of 7 days and a maximum** of up **to one year** from the date of issue. The maturity date of the CP shall not go beyond the date up to which the credit rating of the issuer is valid.

Factoring

- Method of financing the receivables of a **business enterprise.**
- The financier is called **'Factor'** and can be a financial institution.
- Banks are not permitted to do this business themselves but they can promote subsidiaries to do this. **Under factoring, the factor not only purchases the book debts/receivables of the client,** but may also control the credit given to the buyers and administer the sales ledger.

- The purchase of book debts/receivables can be with recourse or without recourse to the client.
- If without recourse, the client is not liable to pay to the factor in case of failure of the buyer to pay.

Forfaiting

- This is similar to factoring but is used only in case of exports and where the sale is supported by **bills of exchange/promissory notes.**
- **The financier discounts the bills and collects the amount of the bill from the buyer on due dates**. Forfaiting is always without recourse to the client. Therefore, the exporter does not carry the risk of default by the buyer.

CAIIB Paper 1 (ABM) Module C Unit 4: Term Loans

Important Points about Term Loans

- **Working capital loans are normally sanctioned** for **one year** but are payable on demand. Term loans are payable as per the agreed repayment schedule, which is stipulated in the terms of the sanction. Therefore, for **the purpose of matching assets and liabilities of the bank, term loans are considered long term assets** while working capital **loans are considered as short term assets.**
- **Banks provide term loans normally for acquiring the fixed assets like land, building, plant and machinery, infrastructure etc.,** (personal loans, consumption loans, educational loans etc. being exceptions)
- **As a term loan is expected to be repaid out of the future cash flows of the borrower, the D S C R assumes great importance while considering term loans**, while for working capital loans, the liquidity ratios assume greater importance.
- In exceptional cases, banks provide term loans for current assets This is called **Working Capital Term Loan (WCTL)**
- There is no uniform repayment schedule for all term loans. Each term loan has its **own peculiar repayment schedule depending upon the cash surplus of the borrower.**

Deferred Payment Guarantees (DPGs)

- **When the purchaser of a fixed asset does not pay to the supplier immediately, but pays according to an agreed repayment schedule**, and the **bank guarantees this repayment**, the guarantee is **called DPG.** This is a Non-fund based method for financing purchase of fixed assets.

Difference Between Term Loan Appraisal And Project Appraisal

The differences can be summarized as under:

- In project finance all the financial needs of the enterprise, including working capital requirements, are appraised. This is because the total requirement of long term funds includes margin money for working capital. After assessing the total requirement of long term funds, the banks decide upon the amount of term loan to be sanctioned and the contribution of the promoters.
- If an existing enterprise wants to purchase a few machineries, which are not going to have a major impact on the volume or composition of the business, it will serve little purpose to have a detailed examination of techno- economic feasibility, managerial competence, I R R etc. It may be enough for the bank to examine the projections for next 2 to 3 years to find out that D S C R is at satisfactory level. In case of loans to individuals also, like housing loans, educational loans etc., it may be enough to examine the projected D S C R to judge

the viability. However, the basic principles of appraisal of a project or a standalone term loan are not different and if one is clear about project appraisal, the appraisal of a standalone term loan proposal is even simpler.

Project appraisal

Project appraisal can be broadly taken in the following steps:

- Appraisal of Managerial Aspects
- Technical Appraisal
- Economic Appraisal

Appraisal of Managerial Aspects: The appraisal of managerial aspects involves seeking the answer to the following questions:

- What are the credentials of the promoters'?
- What is the financial stake of promoters in the project? Can they bring additional funds in case of contingencies arising out of delay in project implementation and changes in market conditions?
- What is the form of business organization? Who are the key persons to be appointed to run the business?

Technical Appraisal: The technical feasibility of a project involves the following aspects:

- Location
- products to be manufactured, production process
- availability of infrastructure
- provider of technology
- details of proposed construction
- contractor for project execution
- waste-disposal and pollution control
- availability of raw materials
- marketing arrangements

Economic Appraisal: The economic or financial feasibility of a project involves the following aspects:

- **Return on Investment**: The usual methods used are the NPV, IRR, payback period, cost benefit ratio, accounting rate of return etc.
- **Break-even Analysis:** A project with a high break-even point is considered more risky compared to the one with lower break-even point.

- **Sensitivity Analysis:** As market conditions are uncertain, a small change in the prices of raw materials or finished goods may have a drastic impact on the viability of a project. Sensitivity analysis examines such impact.

Appraisal and Financial of Infrastructure projects

- Transport
- Energy
- Water & Sanitation
- Communication
- Social and Commercial Infrastructure

Types of Financing by Banks

- Take-out Financing
- Inter-institutional
- Financing Promoter's Equity

Appraisal

- **In respect of financing of infrastructure projects undertaken by Government owned entities, banks or Financial Institutions** should undertake due diligence on the viability of the projects. Banks should ensure that the individual components of financing and returns on the project are well defined and assessed. State government guarantees may not be taken as a substitute for satisfactory credit appraisal and such appraisal requirements should not be diluted on the basis of any reported arrangement with the Reserve Bank of India or any bank for regular standing instructions or periodic payment instructions for servicing the loans or bonds.
- **Infrastructure projects** are often financed through Special Purpose Vehicles. Financing of these projects would, therefore, call for special appraisal skills on the part of lending agencies. Identification of various project risks, evaluation of risk mitigation through appraisal of project contracts and evaluation of creditworthiness of the contracting entities and their abilities to fulfill contractual obligations will be an integral part of the appraisal exercise.
- **In this connection, banks or Financial Institutions** may consider constituting appropriate screening committees or special cells for appraisal of credit proposals and monitoring the progress or performance of the projects.

Prudential Requirements

- Prudential Credit Exposure Limits
- Assignment of Risk Weight for Capital Adequacy Purposes

- Asset Liability Management
- Administrative arrangements

Take-out Financing or Liquidity Support

- Take-out Financing or Liquidity Support
- Liquidity support from IDFC

CAIIB Paper 1 (ABM) Module C Unit 5: Credit Delivery

Credit Delivery

Documentation

- The documents should be **properly stamped**
- The date of execution of documents should never be earlier than the date of stamping. **Date and place** of execution should be **properly mentioned in the documents.**
- It should be ensured that the parties executing the documents have the necessary authority and the capacity to enter into a contract and executed the documents in that capacity. **For example,** a partner should sign on behalf of the firm and not in his individual capacity.
- It should be ensured that the person signing the **documents is doing so with his free will**
- The documents should be filled in before these are signed.
- **In case of companies**, the charge should be registered with ROC. Within 30 days from the date of execution of the documents.
- **If any document is required** to be registered with the Sub-registrar, it should be done within the prescribed time limit.

Third Party Guarantees

- While the **enterprise or individual, who has taken the loan from the bank is legally bound to repay the principal and the interest**, in some cases, banks stipulate guarantees of third parties, as an additional safety against default.
- **These third parties can be individuals or any other legal entity**. In case of finance to firms, the personal guarantee of proprietor or partners is not stipulated as they have unlimited liability and their personal assets can be attached for recovery of bank loans.

Charge Over Securities

- Mortgage
- Hypothecation Pledge
- Lien
- Assignment

- Pledge

Disbursal of Loans

Working Capital Loans

In case of sole banking, the bank providing working capital limits opens a cash credit account of the borrower and all his financial transactions should be routed through this account. Without bank's permission, no account can be opened with any other bank. Banks give permission to open current account with other bank only if they are convinced about its necessity. In such cases, periodic statements of that account are obtained to keep a tab on the transactions.

With this, if the borrower wants to draw very little amount or no amount, there will be debit in the loan account (fixed amount) while the cash credit account may have credit balance. **RBI guidelines in this respect are as follows**:

- In the case of borrowers enjoying working capital credit limits of **Rs 10 crore and above** from the banking system, the loan component should normally **be 80 percent. Banks**, however, have the freedom to change the composition of working capital by increasing the cash credit component **beyond 20 percent or to increase the 'Loan Component' beyond 80 percent, as the case may be, if they so desire.** Banks are expected to appropriately price each of the two components of working capital finance, taking into account the impact of such decisions on their cash and liquidity management.
- In the case of borrowers enjoying working capital **credit limit of less than Rs. 10 crone, banks may persuade them to go in for the 'Loan System'** by offering an incentive in the form of lower rate of interest on the loan component, as compared to the cash credit component. The actual percentage of 'loan component' in these cases may be settled by the bank with its borrower clients.
- In respect of certain business activities, which are cyclical and seasonal in nature or have inherent volatility, the strict application of loan system may create difficulties for the borrowers. Banks may, with the approval of their respective Boards, identify such business activities, which may be exempted from the loan system of delivery.

Term loans

RBI guidelines in respect of disbursement of project loans are as under:

'At the time of financing projects banks generally adopt one of the following methodologies as far as determining the level of promoters' equity is concerned.

- Promoters bring their entire contribution upfront before the bank starts disbursing its commitment.
- Promoters bring certain percentage of their equity **(40% — 50%)** upfront and balance is brought in stages.
- Promoters agree, ab initio, that they will bring in equity funds proportionately as the banks finance the debt portion.

Syndication of Loans

- The term '**Syndication**' is normally used for sharing a long-term loan to a borrower by two or more banks. This is a way of sharing the risk, associated with lending to that borrower, by the banks and is generally used for large loans. The borrower, intending to avail the desired amount of loan, gives a mandate to **one bank (called Lead bank)** to arrange for sanctions for the total amount, on its behalf.
- **The lead bank approaches various banks** with the details These banks appraise the proposal as per their policies and risk appetite and take the decision. The lead bank does the liaison work and common terms and conditions of sanction may be agreed in a meeting of participating banks, arranged by the lead bank. Normally, the lead bank charges **'Syndication fee'** from the borrower.

CAIIB Paper 1 (ABM) Module C Unit 6: Credit Control and Monitoring

Important and Purpose

Credit control and monitoring, often referred as Loan Review Mechanism (L R M), plays an important role in the following aspects:

- To ensure that the funds provided by the bank are put to the intended use and continue to be used properly.
- To ascertain that the business continues to run on the projected lines.
- If the deterioration of the business continues despite appropriate action, the bank should decide if any harsh action like, recalling the advance or seizing the security, etc. is necessary.

Available Tools for Credit Monitoring / LRM

- Conduct of the Accounts with the Bank
- Periodic Information Submitted as per the Terms of the Advance
- Audit of Stocks and Receivables Conducted by the Bank
- Financial Statements of the Business, Auditors' Report
- Periodic Visits and Inspection
- Interaction
- Periodic Scrutiny
- Market Reports about the, Borrower and the Business Segment
- Appointing Bank's Nominee on Company's Board
- Credit Audit
- Document Audit of title documents in respect of large value loan accounts (RBI circular dated June 7, 2013)

CAIIB Paper 1 (ABM) Module C Unit 7: Risk Management and Credit Rating

Credit Risk Monitoring

The risks faced by the business of banking can be classified into three broad categories;

- **Operational Risks:** The examples of such risks are losses due to frauds, disruption of business due to natural calamities like floods etc.
- **Market Risks**: These are the risks resulting from adverse market movements of interest rates, exchange rate etc.

- **Credit Risks:** The credit risk can be defined as the unwillingness or inability of a customer or counterparty (e.g. the L C opening bank in a bills negotiation transaction under that L C) to meet his commitment relating to a financial transaction with the bank.

Factors Affecting Credit Risk

- **External Factors**: These factors affect the business of a customer and reduce his capability to honor the terms of financial transaction with the bank. The main external factors affecting the overall quality of the credit portfolio of a bank are exchange rate and interest rate fluctuations, Government policies, protectionist policies of other countries, political risks, etc.
- **Internal Factors:** These mainly relate to overexposure (concentration) of credit to a particular segment or geographical region, excessive lending to cyclical industries, ignoring purpose of loan, faulty loan and repayment structuring, deficiencies in the loan policy of the bank, low quality of credit appraisal and monitoring, and lack of an efficient recovery machinery.

The whole credit risk factors can be summarised as follows:

Steps Taken To Mitigate Credit Risks

The major objective of credit risk management is to limit the risk within acceptable level and thus maximize the risk adjusted rate of return on the credit portfolio. **Following are the main steps taken by any bank in this direction;**

- **Macro Level:** The **risks to the overall credit portfolio of the bank are mitigated through frequent reviews of norms and fixing internal limits for aggregate commitments** to specific sectors of the industry or business so that the exposures are evenly spread over various sectors and the likely loss is retained within tolerable limits. Bank also periodically reviews the loan policies relating to exposure norms to single and group borrowers as also the structure of discretionary powers vested with various functionaries.
- **Micro Level:** This pertains to policies of the **bank regarding appraisal standards, sanctioning and delivering process, monitoring and review of individual proposals/categories of proposals,** obtention of collateral security etc.

Credit Ratings

The level of credit risk involved in each loan proposal depends on the unique features of that proposal. Two similar projects, with different promoters, may be appraised by a bank as having different credit risks. Similarly, two different projects, with same promoters, may also be appraised by the bank as having different credit risks. While appraising a credit proposal, the risk involved is also **measured and often quantified by way of a rating with the following objectives;**

- To decide about accepting, rejecting or accepting with modifications/ special covenants
- To determine the pricing, i.e. the rate of interest to be charged
- To help in the macro evaluation of the total credit portfolio by classifying it on the ratings allotted to individual accounts. This is used for assessing the provisioning requirements, as also a decision making tool, by the management of the bank, for reviewing the loan policy of the bank.

Internal and External

- **Most of the banks in India have set up their own credit rating models as till recent past**, the rating agencies were not equipped well enough to provide the ratings, so reliable as to banks depending on these for credit decisions. However, with experience gained in last few years, these rating agencies have gained confidence of the banks.

The following are the CRAs accredited by

Type	*ECRA*
Domestic	1. CARE Limited; 2. CRISIL Limited; 3. India Ratings and Research Private Limited (India Ratings) 4. ICRA Limited. 5. Brickwork Ratings India Pvt. Ltd. (Brickwork) 6. Acuite Ratings and Research Limited (earlier SMERA) 7. Infomerics valuation and Rating Pvt. Ltd
International	(a) FITCH (b) Moody's (c) Standard & Poor's

Methodology of Credit Rating

Based on its loan policies and risk perceptions, each bank has its own rating model. Common feature in all the risk models is that a score is given for different perceived risks by allotting different weightages. The sum of all these scores forms the basis for deciding on risk rating of a proposal. ***Normally, the broad categories of risk areas which are scored, are:***

- Promoters/Management aspects and the securities available
- Financial aspects based on analysis of financial statements

- Business/project risks

Use of Credit Derivatives For Risk Management

Credit derivatives are used to hedge the risks inherent in any credit asset without transferring the asset itself. The hedging is comparable to insurance and comes at a cost. Therefore, if the anticipated risk does not materialise, the return from the asset will be less than what it would have been without the hedging.

While simple techniques for transferring credit-risk, such as financial guarantees, collateral security and credit insurance have been prevalent in the Indian banking industry for long, the recent innovative instruments in credit risk transfer (CRT) such as collateralised debt obligations (CDO), etc.,

- **Credit Default Swaps (CDSs):** This is a bilateral contract in which the risk seller (lending bank) pays a premium to the buyer for protection against credit default or any other specified credit event. Normally, CDS is a standardized instrument of ISDA (International Swaps and Derivatives Association).
- **Credit Linked Notes (CLN):** In this, the risk seller gets risk protection by paying regular premium to the risk buyer, which is normally a SPV which issued notes linked to the underlying credit. These notes are purchased by the general investors and the money received from them is used by the SPV to buy high quality securities.

Credit Information System

Credit Information Companies (CIC's)

- **CIC or Credit Information Company is an independent third party institution that collects financial data regarding loans, credit cards and more about individuals and shares it with its members.** Banks, Non-Banking Financial institutions are usually the customers of Credit Information Companies.
- The Credit Card Company collects financial information about all these individuals and forms a credit report based on their financial history. This credit report plays a very important role as it helps banks and other financial institutions determine the creditworthiness of an individual applying for a loan or credit card with them.

Credit Information Companies Regulation Act (CIC Act)

- **Credit Information Companies in India are licensed by the Reserve Bank of India** and governed by the Credit Information **Companies Regulation Act, 2005** and various other rules and regulations issued by the Reserve Bank of India.
- The CIC Act, 2005 is a legislation that is enacted by the Government of India, in order to regulate the actions of the Credit Card Companies in India. Following the **CIC Act, 2005, the RBI and the Government of India enacted the CIC Act, 2006.**

List of Credit Information Companies In India

There are exactly four well known CICs in India as of now. Given below is a list of CICs in India:

- CIBIL
- Equifax
- Experian

Rules and regulations for CIC's

The actions of Credit Information Companies is regulated by the **Credit Information Companies Regulation Act, 2005**, enacted by the Government of India. Following the CIC Act of 2005, the RBI and the Government of India followed up with the Credit Information Companies, **Regulations and Rules Act, 2006.**

According to the Act, only certain entities are allowed to be members of the Credit Information Companies. Given below is a list of entities that can be members of CICs.

- Credit Institutions under **Section 2(f) of CIC Act.**
- Credit information companies under **section 2(e) of the CIC Act.**

A CIC, a credit institution or any authorised individual can request for a credit report anytime. A CIC will adapt to a format approved by RBI during such instances and furnish the requested information within a given time.

If there is any dispute between the CIC and its member related to credit information, the dispute shall be settled by conciliation under the as provided in the **Arbitration and Conciliation Act, 1996.**

CAIIB Paper (ABM) Module C Unit 8: Rehabilitation/ Rehabilitation and Recovery

Credit Default/Stressed Assets/NPAs

Credit default means the inability or the unwillingness of a customer or counterparty to meet commitments in relation to lending, trading, or any financial transactions. ***This may take the following forms;***

- **In the case of direct lending:** principal and/or interest amount may not be repaid as per the terms of repayment.
- **In the case of guarantees or letters of credit**: funds may not be forthcoming from the constituents upon crystallization of the liability;
- **In the case of treasury operations**: the payment or series of payments due from the counter parties under the respective contracts may not be forthcoming or ceases;
- **In the case of securities trading businesses**: funds/securities settlement may not be effected;

- **In the case of cross-border exposure**: the availability and free transfer of foreign currency funds may either cease or restrictions may be imposed by the sovereign.

Non Performing Assets (NPAs)

As per RBI directives, banks in India have to classify their assets into Performing or Standard assets or Non performing assets (NPAs). NPAs are further classified into **(a) Sub-standard, (b) doubtful and (c) loss assets.**

The classification is based on the period of default as also the availability of security. The amount of provision required to be made on the asset portfolio of a bank depends on its classification into the four categories of standard, sub standard, doubtful and loss.

Willful Defaulters

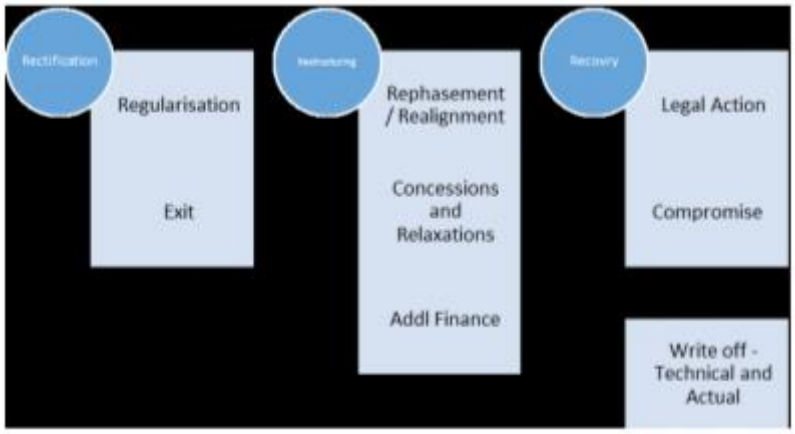
The default in payment as per agreed terms could be intentional or due to the reasons beyond the control of the borrower. **The intentional default is referred to as willful default. As per RBI guidelines**, a **'willful default'** would be deemed to have occurred if any of the following events is noted:

- The **unit has defaulted in meeting** its payment or repayment obligations to the lender even when it has the capacity to honour the said obligations.
- The unit has defaulted in meeting its **payment or repayment obligations to the lender and has not utilized the finance**, borrowed for the specific purposes for which the finance was availed of but has diverted the funds for other purposes.
- **The unit has defaulted in meeting its payment or repayment obligations to the lender and has siphoned off the funds so that the funds have not been** utilized for the specific purpose for which finance was availed of, nor are the funds available with the unit in the form of other assets.
- **The unit has defaulted in meeting its payment or repayment obligations to the lender and has also disposed off or removed the movable fixed assets** or immovable property given by him or it for the purpose of securing a term loan without the knowledge of the bank or lender.

Options Available To Banks for Stressed Assets

Every credit default does not necessarily result in loss to the bank. In many cases, bank may be able to **recover its dues fully**. In other cases, the recovery may be with some loss or, in the worst scenario there may be no recovery at all.

The timely action and an appropriate strategy play very important role in achieving the best recovery for any stressed asset. While formulating the strategy, the bank has to keep in mind the legal system as also the social aspects prevailing in the country. Normally, a bank follows the **following steps in case of a stressed asset:**



- Exit from the account
- Rescheduling or Restructuring
- Rehabilitation
- Compromise
- Legal action
- Write off

Legal Action: In cases where even the compromise does not materialize, banks have to initiate recovery proceedings. The forums available to the banks are as under;

- Government Machinery
- Civil Courts
- Lok Adalats
- Debt Recovery Tribunals (DRTs)
- SARFAESI Act, 2002

Corporate Debt Restructuring (CDR)

Mechanism

The **CDR Mechanism has been designed to facilitate restructuring of advances of borrowers enjoying credit facilities from more than one bank/Financial Institution (FI)** in a coordinated manner. The CDR Mechanism is an organizational framework institutionalized for speedy disposal of restructuring proposals of large borrowers availing finance from more than one bank/Fl. This mechanism will be available to all borrowers engaged in any type of activity **subject to the following conditions:**

i)The borrowers enjoy credit facilities from more than one bank or F l under multiple banking or syndication or consortium system of lending.

ii)The total outstanding (fund-based and non-fund based) exposure is **Rupees 10 crores or above. C D R system in the country will have a three tier structure**

- **C D R Standing Forum**: The C D R Standing Forum would be the representative general body of all financial institutions and banks participating in C D R system. All financial institutions and banks should participate in the system in their own interest. C D R Standing Forum will be a self-empowered body, which will lay down policies and guidelines, and monitor the progress of corporate debt restructuring.
- **CDR Empowered Group:** The individual cases of corporate debt restructuring shall be decided by the CDR Empowered Group, consisting of E D level representatives of Industrial Development Bank of India Ltd., ICICI Bank Ltd. and State Bank of India as standing members, in addition to E D level representatives of financial institutions and banks who have an exposure to the concerned company.
- **CDR Cell**: The CDR Standing Forum and the CDR Empowered Group will be assisted by a CDR Cell in all their functions. The CDR Cell will make the initial scrutiny of the proposals received from borrowers/creditors, by calling for proposed rehabilitation plan and other information and put up the matter before the CDR Empowered Group, within one month to decide whether rehabilitation is prima facie feasible.

Available Frameworks For Restructuring Of Assets

Framework for Restructuring/Revival and Rehabilitation of MSMEs RBI has, vide circular dated 17-03-2016, designed a framework in order to provide a simpler and faster mechanism to address the stress in MSME accounts and to facilitate promotion and development of MSMEs. This framework has been adopted and brought into effect by the Bank. The main features of the framework are as below:

- Framework shall be applicable to all stressed MSME accounts having exposure up to Rs. 25 crores, including accounts under Consortium or Multiple Banking Arrangement (MBA).
- For resolution, a committee headed by regional or zonal head of the convener bank, will be formed. The other members of the committee are:
  - ✓ Officer-in-charge of MSME of the convener bank at the regional or zonal office level
  - ✓ An independent expert in MSME,
  - ✓ A representative from the concerned State Government and
  - ✓ Member(s) from the Consortium/MBA, in case of consortium/MBA advances. In the absence of State Government nomination, bank can induct an independent expert in the Committee, namely a retired executive of another bank of the rank of AGM and above.
- While decisions of the committee will be by simple majority of members, the Chairperson shall have the casting vote, in case of a tie.
- Based on the extant guidelines on Early Warning Signals/SMAs, the branch or Credit Processing Cell (CPC) maintaining the account shall forward the stressed accounts with **aggregate loan limits above Rs. 10 lakh** to the designated committee for a suitable Resolution Plan (RP) within 5 working days.

- Recovery option under RP by Branch/CPC is to be approved by the designated Committee.
- The cases under Consortium/MBA are to be referred to the Committee of the bank which is having the largest exposure to the borrower.
- The Committee shall decide on appropriate Resolution Plan (RP). In case of restructuring, TEV study is to be got conducted mandatorily by the Committee for accounts with aggregate exposure of certain level and above as per bank's policy.
- The committee shall make suitable provisions for payment of tax or any other statutory dues in the RP and the enterprise shall take necessary steps to submit such plan to the concerned taxation or statutory authority and obtain approval for such payment plan.
- During operation period of RP, the unit shall be allowed to avail both secured and unsecured credit for its business operations as envisaged under the terms of RP.
- The options under RP by the Committee may include:
  - ✓ Rectification
  - ✓ Restructuring and
  - ✓ Recovery
- In cases of consortium/multiple banking arrangement would be considered as the basis for proceeding with restructuring of the account by the designated committee, and will be binding on all lenders.
- In case of recovery option, the minimum criteria for binding decision, if any, under any relevant laws or Acts shall be applicable.
- Provision of additional financial resources to restructure or revive, can be worked out.
- If the promoters are not in a position to bring in additional funds, the Committee may allow the unit to raise secured or unsecured loans.
- In case of failure of 'Rectification' or 'Restructuring' options, Committee shall initiate recovery option.
- Wilful defaulters shall not be eligible for restructuring. However, the Committee may review the reasons for classification of the borrower as a wilful defaulter and satisfy itself that the borrower is in a position to rectify the wilful default. The decision to restructure such cases shall have the approval of appropriate specific authority as per bank's scheme of delegation of powers.
- Cases of fraud and malfeasance are not eligible for structuring. However, in such cases where the existing promoters are replaced by new promoters, the proposal shall be put up to appropriate authority.
- In case the Committee decides for recovery action, the enterprise can seek a review of the decision and it will be examined and decided by the Committee.
- Where an application is filed by a bank and admitted by the Committee, the Committee will notify the concerned borrower about such application within 5 working days. **Within 15 working days of** receipt of such notice, borrower is required to respond or make a representation before the Committee. Borrower is also required to disclose the details of all its liabilities, including the liabilities owed to the State or Central Government and unsecured creditors, if any. If the

borrower does not respond within the above period, the Committee may proceed ex-parte (with respect to or in the interests of one side only).

- On receipt of information relating to the liabilities of the borrower, the Committee may send notice to such statutory creditors as disclosed by the borrower as it may deem fit, informing them about the application under the framework and permit them to make a representation regarding their claims before the Committee **within 15 working days** of receipt of such notice. It is clarified here that these information are required for determining the total liability of the unit in order to arrive at a suitable RP and not for payments of the same by the lender.
- **Within 30 days of convening its** first meeting for a specific borrower, the Committee will take a decision on the option to be adopted under the RP and notify the borrower about such a decision within 5 working days from the date of such decision.
- If the RP decided by the Committee envisages restructuring of the debt of the enterprise, the Committee will arrange for Techno-Economic Viability (TEV) study and finalise the terms of the restructuring in accordance with the extant prudential norms. Timelines for completion the same has to be as per individual bank's instructions from time to time.
- Upon finalisation of the terms of the RP, implementation of that plan has to be completed by the **bank within 30 days from the date of decision** (if the RP is Rectification) and **within 90 days from the date of decision** (if the RP is restructuring). In case recovery is considered as RP, the recovery measures should be initiated at the earliest but **not later than 30 days from the date of decision.**

Sale Of Financial Assets

(RBI Circular titled Framework for Revitalising Distressed Assets in the Economy – Refinancing of Project Loans, Sale of NPAs and Other Regulatory Measures dated 26-02-2014) A financial asset may be sold to the Securitisation company (SC)/Reconstruction company (RC) by any bank/FI where the asset is:

- A NPA, including a non-performing bond/debenture, and
- A Standard Asset where:
  - ✓ The asset is under consortium/multiple banking arrangements,
  - ✓ At least 75% by value of the asset is classified as non-performing asset in the books of other banks/FIs, and
  - ✓ At least 75% (by value) of the banks/FIs who are under the consortium/multiple banking arrangements agree to the sale of the asset to SC/RC.
- Where the financial asset is reported as SMA-2 by the bank/FI to Central Repository for Information on Large Credit (CRILC). However, if restructuring has been decided as the Resolution Plan, then banks will not be permitted to sell such assets to SCs/RCs, without arranging their share of additional finance to be provided by a new or existing creditor.

CAIIB Paper 1 (ABM) Module C Unit 9: Resolution of Stressed Assets under Insolvency and 25 Bankruptcy Code 2016

Definition Of Insolvency And Bankruptcy

Insolvency is a situation where liabilities of an individual or an entity exceed its assets and is unable to pay debt obligations. Bankruptcy is the legal recognition of the insolvency as beyond resolution. A bankrupt person or entity is a debtor who has been adjudged as bankrupt by a due Adjudicating Authority by passing a bankruptcy order. The court appoints a trustee who is responsible for selling the property and discharge obligations to the creditors. Under IBC, such trustee is the resolution professional.

To Whom The Code Is Applicable

Part-II of the Code is applicable to:

- Companies and LLPs (termed as Corporate Debtor)
- Personal Guarantors to Corporate Debtors
- Any other body incorporated under any Law for the time being in force, as the Central Government may specify by notification.

Part-III of the Code applies to:

- Partnership and Proprietorship Concerns
- Individuals

Legal Elements Of The Code

Insolvency & Bankruptcy Board of India (IBBI, the Regulator)

- Insolvency Professional Agencies
- Insolvency Professionals (Interim Resolution Professionals, Resolution Professionals)
- Information Utilities
- The Creditors
  - ✓ Financial Creditors (FC)
  - ✓ Operational Creditors (OC)
- Committee of Creditors
- The Corporate Debtor (CD)
- The Judiciary

✓ National Company Law Tribunal (NCLT – Adjudicating Authority for Corporate)

✓ National Company Law Appellate Tribunal (NCLAT – Appellate Authority for Corporate)

✓ Debt Recovery Tribunals (Adjudicating Authority for individuals and partnerships)

- ✓ Debt Recovery Appellate Tribunals (Appellate Authority for individuals and partnerships)
- ✓ Supreme Court (Supreme Authority)

Regulatory Authority (IBBI)

- The Insolvency and Bankruptcy Board of India is entrusted with the task of regulating both the profession and process of IBC. Insolvency Professionals, Insolvency Professional Agencies, Insolvency Professional Entities and Information Utilities are under the regulatory supervision of IBBI.
- Apart from these four, IBBI is the 'Authority' under the Companies (Registered Valuers and Valuation) Rules, 2017 for regulation and development of the profession of valuers in the country.

Insolvency Professionals (IP)

- Insolvency Professionals (IPs) are the frontline warriors implementing IBC. They are professionals licensed/registered by IBBI to undertake the role of the Interim Resolution Professional (IRP), Resolution Professional (RP), liquidator and/or bankruptcy trustee under any resolution process initiated under the Code. The IP does the end-to-end job, depending upon her role, of IBC

Insolvency Professional Agencies (IPA)

- IPAs are bodies or entities registered with IBBI and are responsible for promoting the best professional standards among Insolvency Professionals (IP). Every IP must be a member of an IPA before seeking registration with IBBI.
- As of now there are three IPAs, namely, a) Institute of Company Secretaries of India, b) Institute of Chartered Accountants of India and c) Institute of Cost Accountants of India

Insolvency Professional Entities (IPEs)

- IPEs are registered firm (Partnership or LLP or Company) of IPs. It is not a mandatory set up but internal between those IPs, who are members, to provide infrastructural support service to IPs themselves.

Information Utilities (IUs)

- IUs are reservoirs of financial information of all entities under the Code. It is a pooling centre of information from entities like banks, FIs, NBFCs, ARCs, Corporates, firms, individuals, utilities on any financial or other credit transaction with them. The information is then authenticated by IU with the counterparties before documenting.
- The information available with the IUs are accessible through a Central Application Programming Interface (CAPI). When a person or entity intends to initiate a CIRP against a Corporate Debtor, it must attach a copy of certificate of default issued by IU with the CIRP application filed with the Adjudicating Authority.

Creditors and Committee of Creditors (CoC)

- Financial Creditors are those who have lent money to the Corporate Debtor (CD), meant for paying back, without any trade transaction. Operational creditors are those who have supplied goods or services on credit or those who have made advance payment of money to the CD in consideration of receiving back goods or service.
- The Committee of Creditors is a committee of, normally, only financial creditors and is formed by the Interim Resolution Professional based on the claims received from the creditors. Each financial creditor will have a voting power proportionate to the exposure to the corporate debtor. Operational creditors have only observatory role in CoC except where there are no financial creditors. Quorum of CoC is 33% by value.
- Critical matters are passed by the CoC with 66% majority and routine matters with a 51% majority. Withdrawal of Application for Resolution under section 12A requires 90% majority of the Committee (all by value).

Adjudicating Authority

- The National Company Law Tribunal (NCLT) is the adjudicating authority for insolvency resolution process of corporate entities, namely, Companies, LLPs or other corporate entities incorporated under any law in force.
- The Debt Recovery Tribunal (DRT) is the adjudicating authority for non Corporate entities (Individuals, Proprietors, Partners of a Partnership). Appellate authorities are National Company Law Appellate Tribunal (NCLAT) and Debt Recovery Appellate Tribunal (DRAT) for orders of NCLT and DRT respectively.

Paradigm Shift

- IBC made leaning of the law from **"Debtors in Possession" to "Creditors in Control"** as, on appointment of IRP, she takes over as CEO of the CD and on formation, CoC supersedes the Board of Directors of the CD.
- The original promoters or their related parties are barred from bidding for a resolution of the corporate entity at default, which, effectively takes away the ownership, control and management of the corporate entity from the hands of the existing promoters.

Corporate Insolvency Resolution Process

Initiation of Corporate Insolvency Resolution Process

- Insolvency and bankruptcy resolution process can be initiated when a Corporate Debtor commits a default of Rs. one crore or more. Initiation can be by the Financial Creditors, Operational Creditor or the Corporate Debtor itself, by filing an application before NCLT.
- 'Default' means non-payment of dues either in full or in part to any of the creditors. Therefore, CIRP can be initiated by any third party for dues to her even when the accounts with bank(s) are standard assets.

Interim Resolution Professional/Resolution Professional (IRP/RP)

- The applicant (FC or CD as the case may be) shall propose name of an IP to act as Interim Resolution Professional. In the case of application by OC, proposition of IRP is optional.
- Why 'interim' is because only CoC, when formed later, can decide who is regular Resolution Professional. Once appointed, all powers of the CEO and Board of Directors of CD will vest with the IRP and it is her responsibility to run the CD as a going concern.

Moratorium

- The NCLT will declare moratorium from the date of commencement of insolvency till the completion of the same against institution of suits, transfer of assets, foreclosure, recovery or enforcement under SARFAESI, recovery by owner of property or assets in possession of CD.

Resolution Plan

- A resolution plan must provide for payment of insolvency resolution process costs, pay liquidation value to operational creditor in priority in payment over financial creditors, management of the affairs of the borrower after the plan is approved and implementation and supervision of the approved plan.

Time Norms

- The following Table presents a model timeline of corporate insolvency resolution process on the assumption that the interim resolution professional is appointed on the date of commencement of the process and the time available is hundred and eighty days:

Section/ Regulation	Description of Activity	Norm	Latest Timeline
Section 16(1)	Commencement of CIRP and appointment of IRP	....	T
Regulation 6(1)	Public announcement inviting claims	Within 3 Days of Appointment of IRP	T+3
Section 15(1)(c)/ Regulations 6(2)(c) and 12 (1)	Submission of claims	For 14 Days from Appointment of IRP	T+14
Regulation 12(2)	Submission of claims	Up to 90thday of commencement	T+90
Regulation 13(1)	Verification of claims received under regulation 12(1)	Within 7 days from the receipt of the claim	T+21
	Verification of claims received under regulation 12(2)		T+97
Section 21(6A)(b)/Regulation 16A	Application for appointment of AR	Within 2 days from verification of claims received under regulation 12(1)	T+23
Regulation 17(1)	Report certifying constitution of CoC		T+23
Section 22(1)/ Regulation 19(2)	1st meeting of the CoC	Within 7 days of filing of the report certifying constitution of the CoC, but with five days' notice.	T+30
Section 22(2)	Resolution to appoint RP by the CoC	In the first meeting of the CoC	T+30
Section 16(5)	Appointment of RP	On approval by the AA	.....
Regulation 17(3)	IRP performs the functions of RP till the RP is appointed.	If RP is not appointed by 40th day of commencement	T+40
Regulation 27	Appointment of valuer	Within 7 days of appointment of RP, but not later than 47th day of commencement.	T+47
Section 12(A)/ Regulation 30A	Submission of application for withdrawal of application admitted	Before issue of EoI	W
	CoC to dispose of the application	Within 7 days of its receipt or 7 days of constitution of CoC, whichever is later.	W+7
	Filing application of withdrawal, if approved by CoC with 90% majority voting,by RP to AA	Within 3 days of approval by CoC	W+10
Regulation 35A	RP to form an opinion on preferential and other transactions	Within 75 days of the commencement	T+75
	RP to make a determination on preferential and other transactions	Within 115 days of commencement	T+115
	RP to file applications to AA for appropriate relief	Within 135 days of commencement	T+135

Regulation 36 (1)	Submission of IM to CoC	Within 2 weeks of appointment of RP, but not later than 54th day of commencement	T+54
Regulation 36A	Publish Form G Invitation of EoI	Within 75 days of commencement	T+75
	Submission of EoI	At least 15 days from issue of EoI (Assume 15 days)	T+90
	Provisional List of RAs by RP	Within 10 days from the last day of receipt of EoI	T+100
	Submission of objections to provisional list	For 5 days from the date of provisional list	T+105
	Final List of RAs by RP	Within 10 days of the receipt of objections	T+115
Regulation 36B	Issue of RFRP, including Evaluation Matrix and IM	Within 5 days of the issue of the provisional list	T+105
	Receipt of Resolution Plans	At least 30 days from issue of RFRP (Assume 30 days)	T+135
Regulation 39(4)	Submission of CoC approved Resolution Plan to AA	As soon as approved by the CoC	T+165
Section 31(1)	Approval of resolution plan by AA		T=180

Appointment of Interim Resolution Professional (IRP)

- As proposed by the CIRP Applicant, the NCLT, while admitting the CIRP, by virtue of the same order, also appoints an Interim Resolution Professional (IRP), provided there is no ongoing investigation or disciplinary action against the IP.
- As it is not mandatory for Operational Creditor to propose any IP for appointment as IRP, in the absence of such proposed names, in consultation with IBBI, NCLT appoints **an IRP within 14 days of admission of CIRP**.
- Immediately on her appointment, the IRP takes control of the entire assets and affairs of the corporate debtor as an on-going concern. The powers of the board of directors shall stand suspended from the date of initiation of CIRP.

Public announcement

- Within three days of appointment, the IRP, has to make a Public Announcement of commencement of CIRP, published on the websites of IBBI as well as CD and also in two newspapers including one in regional language to invite all creditors for submission of claims and **proof of claims (PoC) within 11 days from the date of the announcement.**

Constitution of Committee of Creditors (COC)

- Based on the claims received from Financial Creditors, the IRP shall constitute a Committee of Creditors (CoC) consisting of all those financial creditors (who are not a related party to the Corporate Debtor).
- The CoC has to meet within seven days of its constitution. In case there are no financial creditors (other than related parties) at all, the CoC shall consist of only operational creditors with

✓ 18 largest such creditors by value,

- ✓ One representative elected by all workmen other than workmen included in top 18 operational creditors and
- ✓ One representative elected by all employees other than employees included in the top 18 operational creditors
- The CoC, in its first meeting, will decide on either continuation of IRP as RP or nomination of another IP as RP by a majority of 66% vote in favour. In case CoC decides to replace IRP, the IRP will immediately fil the CoC resolution for appointment of RP together with consent letter from the proposed RP with NCLT.
- The RP, within 7 days of her appointment, must appoint two valuers, who are registered with IBBI, to determine the fair value and liquidation value of the CD. The valuation received from the valuers must be kept by RP in strict confidence and it can be disclosed even to the members of CoC only against a Non-Disclosure Agreement (NDA) individually from each member.
- Each CoC member has voting power proportionate to her share in the financial debt of the Corporate Debtor (immaterial whether debt secured or unsecured, as, both are treated as equal for voting).

Withdrawal of CIRP

- The Adjudicating Authority can allow the withdrawal of CIRP on an application made by the applicant with the approval of 90% voting share of the CoC, but before publication of expression of interest for submitting the resolution plan.

Information Memorandum (IM)

Information memorandum is a compilation of the entire information on the of the CD. It is prepared by the Resolution Professional incorporating following information:

- Assets and liabilities as on insolvency commencement date
- Latest annual financial statements
- Audited financial statements for last two financial years
- A list of creditors, amount claimed, claims admitted, and details of security interest held by them in respect of such claims
- Particulars of debt due from or to Corporate Debtor with respect to related parties.
- Details of Guarantees that has been given in relation to debt of CD by other persons, specifying which of the Guarantors is a related party
- Names of addressed of members or partners holding at least 1% stake in CD with total holding
- The number of workers and employees and liabilities of CD towards them.
- Any Other information, which RP deems relevant to CoC/Potential investors

Liquidation Process

Initiation of Liquidation process A liquidation process is automatically initiated under the Code where,

- The CIRP fails as no resolution plan is received or is not approved by the CoC;

- Any of the stakeholder's defaults or deviates from terms of approved Resolution Plan;
- Creditors representing 66% of the outstanding financial debt resolve to liquidate the corporate debtor at any time before the preparation of the information memorandum.
- The corporate debtor contravenes the CIRP and anyone prejudicially affected applies for liquidation.

If otherwise not ineligible, the RP himself can be appointed as liquidator.

Public Announcement

- The Liquidator, on her appointment, makes a public announcement in minimum one each of English and regional language newspapers stating that the CD is in liquidation, with intimation to Registrar of Companies with whom the CD is registered.
- In the public announcement, liquidator also invites proof of claims from stakeholders **of the CD within 5 days of her appointment**.

Stakeholder List

The liquidator shall prepare a list of stakeholders, category-wise, on the basis of proofs of claims submitted and accepted, with

- The amounts of claim admitted, if applicable,
- The extent to which the debts or dues are secured or unsecured, if applicable,
- The details of the stakeholders, and
- The proofs admitted or rejected in part, and the proofs wholly rejected.

The list of stakeholders is to be filed with the Adjudicating Authority within forty-five days from the last date for receipt of the claims and, as modified from time to time, shall be

- Available for inspection by the persons who submitted proofs of claim;
- Available for inspection by members, partners, directors and guarantors of the corporate debtor;
- Displayed on the website, if any, of the corporate debtor.
- Filed on the electronic platform of the Board for dissemination on its website:

Stakeholders' consultation committee

The liquidator has to constitute a consultation committee within sixty days from the liquidation commencement date, based on the list of stakeholders prepared, to advise her on matters relating to

- Appointment of professionals and their remuneration;
- Sale, including manner of sale, pre-bid qualifications, reserve price, amount of earnest money deposit, and marketing strategy:

The decision(s), if any, taken by the liquidator prior to the constitution of consultation committee shall be placed before the consultation committee for information in its first meeting. The composition of the consultation committee shall be as

Class of Stakeholders	Description	Number of Representatives
Secured financial creditors, who have relinquished their security interests under section 52	Where claims of such creditors admitted during the liquidation process is less than 50% of liquidation value	Number of creditors in the category, subject to a maximum of 2
	Where claims of such creditors admitted during the liquidation process is at least 50% of liquidation value	Number of creditors in the category, subject to a maximum of 4
Unsecured financial creditors	Where claims of such creditors admitted during the liquidation process is less than 25% of liquidation value	Number of creditors in the category, subject to a maximum of 1
	Where claims of such creditors admitted during the liquidation process is at least 25% of liquidation value	Number of creditors in the category, subject to a maximum of 2
Workmen and employees	1	1
Governments	1	1

Class of Stakeholders	Description	Number of Representatives
Operational creditors other than Workmen, employees and Governments	Where claims of such creditors admitted during the liquidation process is less than 25% of liquidation value	Number of creditors in the category, subject to a maximum of 1
	Where claims of such creditors admitted during the liquidation process is at least 25% of liquidation value	Number of creditors in the category, subject to a maximum of 2
Shareholders or partners, if any	--	1

Formation of Liquidation Estate

- For the purposes of liquidation, the liquidator shall form an estate of the assets, which will be called the liquidation estate in relation to the CD and she shall hold the liquidation estate as a fiduciary for the benefit of all the creditors.
- Liquidation estate shall comprise of all assets that may or may not be in possession of the corporate debtor, whether tangible or intangible, whether moveable or immovable; but shall exclude assets owned by a third party which are in possession of the corporate debtor, assets in security collateral held by financial services providers and are subject to netting and set-off in multi-lateral trading or clearing transactions, personal assets of any shareholder or partner of a corporate debtor as the case may be provided such assets are not held on account of avoidance transactions, assets of any Indian or foreign subsidiary of the corporate debtor; or any other assets as may be specified by the Board,

including assets which could be subject to set-off on account of mutual dealings between the corporate debtor and any creditor.

The Powers and Duties of the Liquidator

- To collect and verify the claims of all the creditors
- To acquire custody and control over the assets, properties, effects and actionable claims of the CD
- To evaluate of the assets and properties of the CD and preparation of a report thereof
- To protect and preserve the assets and properties of the CD
- To conduct the business of the CD for its beneficial liquidation
- To sell the immovable and movable properties and actionable claims of the CD in liquidation by public action or private contract along with the power to transfer such property to any person or body corporate.
- To draw, accept, make and Endorse any negotiable instrument
- To obtain professional assistance from any person or appointment of professional in discharge of her duties, obligations and responsibilities
- To invite and settle claims of creditors and distribute proceeds as per the provisions of the Code
- To institute legal proceedings and suits (civil or criminal) in the name or on behalf of the CD
- To investigate the financial affairs of the CD to determine undervalued, fraudulent or preferential transactions
- To execute documents and deeds on behalf of the CD as may be necessary for liquidation, distribution of assets and in discharge of her duties and obligations and functions as liquidator;
- To apply to the Adjudicating Authority for such orders or directions as maybe necessary for the liquidation of the corporate debtor and to report the progress of the liquidation process in a manner as may be specified by the Board.
- To access information system for the purpose of admission or proof of claims and identification of the liquidation estate of CD from any Information Utility or any agency of Central, State Govt. or local Govt. including any registration authority
- To provide information about the CD **when required by creditors within 7 days of such request.**

Reports by Liquidator

The liquidator shall prepare and submit to the NCLT:

- A preliminary report;
- An asset memorandum;
- Progress report(s);
- Sale report(s);
- Minutes of consultation with stakeholders; and
- The final report prior to dissolution

Pre-Packaged Insolvency Resolution Process For Stressed MSMEs

Pre-packaged Insolvency Resolution Process for stressed micro, small and medium enterprises (MSMEs) will allow the stressed debtor, ie, the MSMEs, and its creditors to quickly work out a plan to turn around the MSME corporate entity without a bankruptcy process, which would then be sanctioned by the Adjudicating Authority.

Applicability

- The pre-pack framework is applicable to MSMEs default value up to Rs. 1 crore, beyond which, IBC or other resolution mechanisms can continue to be used. PIRP can be contemplated only after a **period of three years** from the date of previous PIRP or CIRP, if anything of that kind was done earlier.
- However, if any CIRP has been recently filed, then, if PIRP **is filed within 14 days**, PIRP will prevail. **If 14 days have past**, CIRP will be proceeded with.

Initiation/Trigger

- While the CIRP under IBC is creditor-in-control model, that is, the creditors take over the management and find out course of resolution, the PIRP is on a reverse framework of debtor-in-possession model, where the debtor has to approach creditors for resolution with a base resolution plan in place.
- In case of a default by an MSME and if a minimum of 66 per cent creditors vote in favour, the financial creditors can initiate the PIRP and file an application with the adjudicating authority for the same. In case a corporate debtor does not have any financial creditors, it may approve the application filing through a special resolution with a 75 per cent majority and move the court to initiate PIRP. Then the court will appoint an insolvency resolution professional as approved by creditors.

Timelines

- **120 days from the date** of commencement is the time frame given for completion of the entire PIR process.
- Also, within **90 days of date of commencement**, the Resolution Personal has to submit the resolution plan to the adjudicating authority after the same is approved by the committee of creditors. The PIRP will stand terminated in case the plan is not approved by the committee of creditors (CoC) within the time.

Resolution Plan

- Under PIRP also, the **applicability of section 29A of IBC**, which prohibits defaulting promoters or wilful defaulters from participating in the resolution process, has been extended.
- The MSME defaulter, who is under PIRP has to, within two days of PIRP commencement, submit a base resolution plan to the resolution professional.

Any changes thereon have to be done before its approval by the CoC. Nevertheless, if the resolution plan does not envisage payment to the operational creditors in full or in case the resolution plan is not approved by creditors, new bids can be invited.

Comparison of PIRP with CIRP

Criteria	PIRP for MSME	CIRP
Eligibility	Only MSMEs	All corporate debtors
Default threshold	Up to Rs. 1 crore	Over Rs. 1 crore
Initiation by	Only Corporate Debtor (CD), post-approval by shareholders & unrelated Fin Creditors	Financial Creditor/Operational Creditor/Corporate Debtor
Timeline	90 days to submit resolution plan to adjudicating authority, 120 days for entire process. No extension	180 days extendable up to max 330 days
Management control	Corporate Debtor-in-Possession with Creditor-in-Control	Creditor in control
Resolution plan	CD to submit Base Resolution Plan. If CoC rejects, or if Operational Creditors not paid in full, competing bids can be invited.	EOIs invited from all prospective resolution applicants.
Section 29A applicability	Section 29A applicable	Section 29A applicable
Consequence of failure	Termination of PIRP, or liquidation or initiation of CIPR	Liquidation
Moratorium	Moratorium protection from date of commencement	Moratorium protection from date of filing of plea
Termination	Can terminate process with min 66% CoC votes	Section 12A to withdraw from CIRP with 90% vote of CoC
Other terms	(a) If promoters not diluting equity as part of resolution, CoC needs to record reasons for it	No such conditions.
	(b) PIRP cannot run in parallel to CIRP	
	(c) 3-year cool-off period from any other PIRP, CIRP	

CAIIB Paper 1 (ABM) Module D: Compliance In Banks & Corporate Governance

No. of Unit	Module Name
Unit 1	Compliance Function in Banks
Unit 2	Compliance Audit
Unit 3	Compliance Governance Structure
Unit 4	Framework for Identification of Compliance Issues and Compliance Risks
Unit 5	Compliance Culture and GRC Framework
Unit 6	Compliance Function and Role of Chief Compliance Officer in NBFCs
Unit 7	Fraud and Vigilance in Banks

CAIIB Paper 1 (ABM) Module D Unit 1: Compliance Function in Banks

Introduction

- Compliance is an independent function that identifies, assesses, monitors and reports on compliance risk to the Bank's board.

Compliance Risk involves

- ✓ The risk of legal or
- ✓ Regulatory sanctions,
- ✓ Material financial loss, or

- ✓ Loss of reputation,
- A Bank may suffer as a result of its failure to comply with the laws, rules and regulations related self-regulatory organisation standards and code of conduct applicable to its banking activities.
- The Compliance Function has to ensure strict observance of all statutory provisions contained in various legislations such as Banking Regulation Act, Reserve Bank of India Act, Foreign Exchange Management Act, Prevention of Money Laundering act, etc., as well as to ensure observance of other regulatory guidelines issued from time to time;
- Standards and codes prescribed by BCSBI, IBA, FEDAI, FIMDA, etc., and each bank's internal policies and fair practices code.
- Compliance laws, rules and standards generally cover matters pertaining to observance of laid down rules and standards of market conduct, managing conflict of interest, treating customer fairly and ensuring suitability of the customer advice.

They typically include specific areas such as

- The prevention of money laundering act,
- KYC norms,
- terrorist financing, and
- Extend to tax laws relevant to the structuring of banking products
- Advisories to customers.
- Compliance laws, rules and standards originate from various sources, like primary legislation, rules, standards issued by legislators and regulators/supervisors, market conventions, and code of conduct applicable to staff members of the bank, etc.
- Each bank formulates a Policy of Compliance Function for their stakeholders.
- It shall be the responsibility of the Compliance Officer of the bank to assist the top management in managing effectively the compliance risk faced by the bank.
- The banking landscape of India is changing rapidly.
- With the evolution of technology, the entire industry has undergone a massive transformation that has changed the way financial procedures are carried out, and the way financial institutions now operate.

Compliance Risk, Significance Of Compliance Function

Compliance risk in banks arises due to non-adherence to a set of laws, rules, regulations, practices, selfregulatory organisation standards, code of conduct, etc. These can be

grouped into internal compliance (applicable to all employees); Regulatory and legal compliance (applicable to bank as a whole).

Significance of compliance function

- ✓ Promotes orderly behaviour and uniformity in conduct of the stakeholders especially the employees
- ✓ Reduces systemic vulnerability and resultant chaos in the system
- ✓ Minimises deviations and aberrations
- ✓ Identification of violations for prompt corrective action through systemic process
- ✓ Improves the corporate governance in banks

The BCBS paper on Compliance and the Compliance Function in Banks(April 2005) defines Compliance risk asthe "the Risk of legal or regulatory sanction, material financial loss, or lossto reputation a bank may suffer as a result of itsfailure to comply with laws, regulations, rules, related self-regulatory organisation standards, and codes of conduct applicable to its banking services" …

Compliance risk arises due to

- ✓ legal or regulatory sanctions
- ✓ Material financial loss
- ✓ Loss of reputation as a result of failure to an organisation comply

Banks to identify, evaluate and address legal and reputational risks and enhance control processes

- ✓ Penalties imposed by Regulators/Supervisors for non-compliance and the "name & shame" these penalties bring. The risk of RBI Penalties arises due to non-compliance of Prudential and Regulatory Compliance
- ✓ Integrity and Market Conduct
- ✓ Legal compliance
- ✓ Internal compliance

As per Sections 46(4)(i) and 51(1) of the Banking Regulation Act, 1949 – RBI can impose penalty based on the deficiencies in regulatory compliance and is not intended to pronounce upon the validity of any transaction or agreement entered into by the banks with their customers.

Compliance Risk vis-a-vis Other Risks

It can be seen that the compliance Risk is closely interrelated with following risks in banks:

Regulatory Risk:

Regulatory risk refers to the potential consequences to the general public and the bank on account of non-compliance with the regulations. Factors under this risk include financial harm to the consumers; legal, reputation and financial harm to a bank, etc., and the burden of corrective action including potential civil and financial liability/ies. Compliance failure can lead to regulatory enforcement and other actions.

- ✓ **Operational Risk**: The risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events. Compliance Risk is "Operational Risk come Alive"
- ✓ **Legal Risk**: Legal Risk is "the possibility that lawsuits, adverse judgements or contracts that turn out to be unenforceable can disrupt or adversely affect the operations or conditions of a bank. In other words, legal Risk is the risk of loss resulting from failure to comply with laws as well as prudent ethical standards and contractual obligations. It also includes exposure to litigation from all aspects of an institution's activities. Compliance failures can lead to regulatory enforcement and other actions.
- ✓ **Reputational Risk**: Reputational Risk is a risk that gives negative publicity regarding Bank's business practices, health, and soundness of operations which may lead to lack of confidence with the Bank resulting in loss of business, revenue or may involve the Bank in litigation. Compliance **failure can severely damage reputation, brand and market value leading to liquidity risk and associate effect on running of the organisation.** Reputational Risk is the current or prospective risk to earnings and capital arising from adverse perception of the image of the financial institution on the part of the customers, counterparties, shareholders, investors or regulators.
- ✓ **Annihilation Risk**: Arising from possibility of regulatory action of closing down business.

Non-Financial Risks

- ✓ **Business Risk**: A business risk is a factor that may have a negative impact on the operation or profitability of a given organisation. Business risk may arise due to the internal conditions as well as some external factors. Change in demand for goods and services produced by a company is an external factor.
- ✓ **Strategic Risk**: It is the current and prospective impact on earnings or capital arising from adverse business decision, improper implementation of decision, or lack of responsiveness to industry changes.

Compliance Risk relating to Cybersecurity

On a specific note, in technology driven banking, compliance with cybersecurity guidelines is gaining importance. Generally, cyber resilience frameworks aim to address three broad issues –

- ✓ Confidentiality breach (confidential data being stolen),
- ✓ Availability breach (systems are intact, but services are made unavailable),
- ✓ Integrity breach (corruption of data or systems affecting the integrity of information and processing methods). Compliance risk relating to these breaches is gaining significance and needs to be addressed on a priority.

Compliance Policy

Compliance function is one of the key elements in Banks' corporate governance structure. The compliance function in the bank has to be adequately enabled and made

sufficiently independent in accordance with the perception of **the Basel Committee on Banking Supervision (BCBS), April 2005.**

- The compliance policy must speak of certain principles, standards and procedures relating to compliance function consistent with the RBI directions. The policy also must intend to articulate that the compliance function is an integral part of governance along with the internal control and risk management process.
- Reserve Bank of India had vide their Circular No RBI/2006-2007/335 REF. DBS.CO.PP.BC 6/11.01.005/2006-07 dated 20.04.2007 advised all banks to formulate and implement Compliance Function Policy for the **Bank within 6 months** from the date of the circular on the basis of the framework evolved by them. It was also advised that they would subject the implementation of compliance function in the bank to a comprehensive review during the Annual Financial Inspection.
  - ✓ The Compliance policy was required to include the following key elements: Compliance Objective,
  - ✓ Scope of Compliance Function,
  - ✓ Compliance Function at Office/Zonal Office/Branches/Subsidiaries/Foreign Centres,
  - ✓ Role & Responsibilities of Chief Compliance Officer
- A bank must have a board approved Compliance Policy. The Policy should clearly spell out – its Compliance Philosophy, Expectations on Compliance Culture (covering Tone from the Top, Accountability, Incentive Structure and Effective Communication and Challenges thereof), Structure and Role of the Compliance Function, Role of CCO, and Processes for identifying, assessing, monitoring, managing and reporting on Compliance Risk throughout the bank.
- The Policy shall adequately reflect the size, complexity and compliance risk profile of the bank, expectations on ensuring compliance to all applicable statutory provisions, rules and regulations, various codes of conduct (including the voluntary ones) and the bank's own internal rules, policies and procedures, and creating a disincentive structure for compliance breaches.
- The bank shall also develop and maintain a quality assurance and improvement program covering all aspects of the compliance function. The quality assurance and improvement program shall be subject to independent external review periodically (at least once in three years).
- The policy should lay special thrust on building up compliance culture; vetting of the quality of supervisory/regulatory compliance reports to RBI by the top executives, non-executive Chairman/ Chairman and ACB of the bank.
- The policy should be reviewed at least once a year.

Compliance Principles, Process And Procedures

- The Compliance department at the Head office should play the central role in the area of identifying the level of compliance risk in each business line, products and processes and issue instructions to operational functionaries/formulate

proposals for mitigation of such risk. It should periodically circulate the instances of compliance failures among staff along with instructions for prevention in future.

- Inspection/audit findings should serve as a feedback mechanism for the Compliance department for assessing the areas of compliance breaches/failures.
- **The compliance function should incorporate a robust mechanism** to: (i) ensure that regulatory guidelines/instructions are promptly issued/disseminated within the organisation. (ii) monitor compliance with the regulatory guidelines/instructions.
- The Compliance department should serve as a reference point for the bank's staff from operational departments for seeking clarifications/interpretations of various regulatory and statutory guidelines.
- The Compliance function should on a proactive basis identify, document, assess the compliance risks associated with banks' business activities and products. The compliance risks in all new products and processes should be thoroughly analyzed and appropriate risk mitigants by way of necessary checks and balances should be put in place before launching. The Chief Compliance officer should be a member of the 'new product' committee/s to ensure that the new products/processes have clearance from all perspectives including compliance. All new products should be subjected to intensive monitoring for the first six months of introduction to ensure that the indicative parameters of compliance risk are adequately monitored.
- Banks should develop function-wise Compliance manuals in co-ordination with compliance department, if their operating manuals do not already contain specific sections or chapters on compliance and make available these to the staff associated with the respective functions.
- The Compliance department should, at frequent intervals, interact with legal department, operational Risk management department, Taxation department and audit/Inspection department of the bank to take stock of the latest developments.
- Compliance officers should have access to all information they require and have the right to conduct investigation and report the findings to the Chief Compliance Officer. **The CCO shall necessarily be a participant in the informal discussions held with RBI.** The compliance functionary should be looked at as a friend, philosopher and guide by the business units. There should be close co-ordination and partnership between Compliance and Business operations functions. The interaction may be formalised by making the Chief Compliance Officer a member of the various interdepartmental committees in the bank, in the capacity as invitee.
- The compliance function should monitor and test compliance by performing sufficient and representative compliance testing and the results of such compliance testing should be reported to the senior management.
- It should also consider ways to measure compliance risk (e.g., by using performance indicators) and use such measurements to enhance compliance risk assessment.

- Compliance staff should be empowered to conduct compliance reviews/investigations whenever required. The authority to use external experts for the purpose of investigation, if required, should be left to the discretion of the Chief Compliance Officer.
- The compliance function should be free to report to senior management on any irregularities without fear of disfavour from management or other staff members. Although its normal reporting line should be to senior management, the compliance function should also have the right of direct access to the board of directors or to the audit committee of the board by-passing normal reporting lines. RBI has advised that CCO should meet the Audit Committee of Board at least annually, to apprise them to assess the extent to which the bank is managing its compliance risk effectively.
- An annual Report on compliance function including failures/breaches should be compiled and placed before the Board/ACB/Board Committee. Non-compliance with any regulatory guidelines and administrative actions initiated against the bank and or corrective steps taken to avoid recurrence of the lapses should be disclosed in the annual report of the banks.
- The code of conduct for employees should envisage working towards earning the trust of the society by dealing with customers in a fair manner and conducting business operations consistent with rules and regulations. Due weightage could be given to record of compliance during performance appraisal of staff at various levels. Staff accountability should be examined for all compliance failures.

Compliance Programme

- The responsibilities of the compliance function should be carried out under a compliance programme that sets out its planned activities. The compliance programme should be risk-based and subject to oversight by the head of compliance to ensure appropriate coverage across businesses and co-ordination among risk management. In view of the increased focus on compliance review in the supervisory process of RBI, a comprehensive compliance plans replete with compliance testing and review structures needs to be implemented.
- The compliance function may have specific statutory responsibilities (e.g., fulfilling the role of anti-money laundering officer). Banks should carry out an annual compliance risk assessment in order to identify and assess major compliance risks faced by them and prepare a plan to manage the risks. The annual review should broadly cover the following aspects.
- Compliance failures, if any during the preceding year and consequential losses and regulatory action as also steps taken to avoid recurrence of the same.
- list of all major regulatory guidelines issued during the preceding year and steps taken by the bank to ensure compliance.
- Independence of compliance function.
- Scope of compliance procedures and processes.
- System of internal control to minimise compliance risk.
- Compliance with fair practices codes and adherence to standards set by self-regulatory bodies and accounting standards.

- Progress in rectification of significant deficiencies pointed out in the internal audit, statutory audit and RBI inspection reports and position of implementation of recommendations made therein.
- Strategy for the next year including restructuring of compliance department, if necessary, by posting/transfer/training of staff.
- Adherence and compliance with Monitorable Action Plan/Risk Mitigation Plan (MAP/RMP) prescribed pursuant to the annual Financial Inspection/Risk Based Supervision processes is very important. Compliance units may specifically devise a time bound strategy to ensure that compliance on all specified points is achieved within the time frame.
- Apart from the exhaustive annual review, a monthly report on the position of compliance risk may be put up to the senior management/CEO by the Chief Compliance officer. A brief report on the Compliance position may also be placed before the Board/ACB/Board Committee, as the case may be on a quarterly basis.
- Instances of all material compliance failures which may attract significant risk of legal or regulatory sanctions, financial loss or loss of reputation should be reported to the Board/ACB/Board Committee promptly.
- The activities of the compliance function should be subject to annual review by the internal audit mechanism. Compliance risk shall be included in the risk assessment methodology of the internal audit function and the audit programme shall cover the adequacy and effectiveness of the bank's compliance function including testing of controls commensurate with the perceived level of risk.
- **Guidance and Education**: The compliance function should advise and assist the senior management on compliance laws, rules and standards, including keeping them informed on developments by establishing written guidance to staff on the appropriate implementation of compliance laws, rules and standards through policies and procedures and other documents such as compliance manuals, internal codes of conduct and practice guidelines.
- **Cross-Border Issues**: Banks may choose to carry on business in various juris dictions for a variety of legitimate reasons. In such cases, Banks carrying on business in different jurisdictions should ensure to comply with applicable laws and regulations and that the organisation and structure of the compliance function and its responsibilities are consistent with local legal and regulatory requirements.

Scope Of Compliance Function

The Laws, rules and standards applicable to banking generally cover matters such as observing proper standards of market conduct, managing conflicts of interest, settling Government taxes, treating customers fairly and ensuring the suitability of customer advice. ***Scope of Compliance function includes the following***:

- Statutory Compliance to Banking Regulation Act, Reserve bank of India Act, Foreign Exchange Management act, Prevention of Money Laundering Act, etc.
- Regulatory Compliance to guidelines issued by the Regulators such as RBI, SEBI, IRDA, etc.

- Code of Conduct to be abided based on the guidelines issued by organisations like IBA, BCSBI, FEDAI/FIMDDA, etc.
- Accounting standards to be abided as framed by ICAI as applicable to the bank.
- Listing Agreement In case of bank wishing to list its securities on a stock exchange, it has to sign an agreement prescribed by Securities and Exchange Board of India (SEBI) called listing agreement. The Bank going Public with its share capital, has to list its shares at NSE/BSE and as such the bank shall comply with the requirement of Listing Agreement with Stock Exchange
- Internal Compliances/Process Compliances/Policy Compliances as codified in bank's instruction manual/Circular/Policies.

Role & Responsibilities Of Chief Compliance Officer (CCO)

RBI, in recent past has modified/issued guidelines about role and responsibility of Chief Compliance Officer in the Banks. These include appointment, tenor, eligibility, skills, selection process, reporting lines, responsibilities, etc. These guidelines have been issued for the sake of uniformity of the overall compliance function in all Banks. These are reproduced hereunder, from the notification RBI/2020-21/35 (ref DoS.CO.PPG./SEC.02/11.01.005/2020-21 dated 11.09.2020)

- **Tenor for appointment of CCO**: The CCO shall be appointed for a minimum fixed tenure of not less than 3 years. The Audit Committee of the Board (ACB)/Managing Director (MD) & CEO should factor this requirement while appointing CCO;
- **Transfer/Removal of CCO**: The CCO may be transferred/removed before completion of the tenure only in exceptional circumstances with the explicit prior approval of the Board after following a well-defined and transparent internal administrative procedure;
- **Eligibility Criteria for appointment as CCO –**
- **Rank:** The CCO shall be a senior executive of the bank, preferably in the rank of a
- General Manager or an equivalent position (not below two levels from the CEO). The CCO could also be recruited from market;
- **Age:** Not more than 55 years;
- **Experience:** The CCO shall have an overall experience of at least 15 years in the banking or financial services, out of **which minimum 5 years** shall be in the Audit/Finance/Compliance/Legal/ Risk Management functions;
- **Skills**: The CCO shall have good understanding of industry and risk management, knowledge of regulations, legal framework and sensitivity to supervisors' expectations;
- **Stature**: The CCO shall have the ability to independently exercise judgement. He should have the freedom and sufficient authority to interact with regulators/supervisors directly and ensure compliance;
- **Others**: No vigilance case or adverse observation from RBI, shall be pending against the candidate identified for appointment as the CCO.
- **Selection Process**: Selection of the candidate for the post of the CCO shall be done on the basis of a well-defined selection process and recommendations

made by the senior executive level selection committee constituted by the Board for the purpose. The selection committee shall recommend the names of candidates suitable for the post of the CCO as per the rank in order of merit and Board shall take final decision in the appointment of CCO;

- **Reporting Requirements**: A prior intimation to the Department of Supervision, Reserve Bank of India, Central Office, Mumbai, shall be provided before appointment, premature transfer/removal of the CCO. Such information should be supported by a detailed profile of the candidate along with the fit and proper certification by the MD & CEO of the bank, confirming that the person meets the above supervisory requirements, and detailed rationale for changes, if any;
- **Reporting Line**: The CCO shall have direct reporting lines to the MD & CEO and/or Board/Board Committee (ACB) of the bank. In case the CCO reports to the MD & CEO, the Audit Committee of the Board shall meet the CCO quarterly on one-to-one basis, without the presence of the senior management including MD & CEO. The CCO shall not have any reporting relationship with the business verticals of the bank and shall not be given any business targets. Further, the performance appraisal of the CCO shall be reviewed by the Board/ACB;
- **Authority**: The CCO and compliance function shall have the authority to communicate with any staff member and have access to all records or files that are necessary to enable him/her to carry out entrusted responsibilities in respect of compliance issues. This authority should flow from the compliance policy of the bank;

The duties and responsibilities of the CCO as Head of Compliance Function – These shall include at least the following activities:

- ✓ To apprise the Board and senior management on regulations, rules and standards and any further developments.
- ✓ To provide clarification on any compliance related issues.
- ✓ To conduct assessment of the compliance risk (at least once a year) and to develop a risk oriented activity plan for compliance assessment. The activity plan should be submitted to the ACB for approval and be made available to the internal audit.
- ✓ To report promptly to the Board/ACB/MD & CEO about any major changes/observations relating to the compliance risk.
- ✓ To periodically report on compliance failures/breaches to the Board/ACB and circulating to the concerned functional heads.
- ✓ To monitor and periodically test compliance by performing sufficient and representative compliance testing. The results of the compliance testing should be placed to Board/ACB/MD & CEO.
- ✓ To examine sustenance of compliance as an integral part of compliance testing and annual compliance assessment exercise.
- ✓ To ensure compliance of Supervisory observations made by RBI and/or any other directions in both letter and spirit in a time bound and sustainable manner.

Other Important Responsibilities/Functions

Ensure formulation/updation of compliance rules (CRs) in co-ordination with principal functional departments for all banking functions and their operational implementation in terms of statutory guidelines covering especially pertaining to:

- ✓ KYC–AML–CFT guidelines,
- ✓ Deposits and Services,
- ✓ Advances and
- ✓ FEMA Guidelines.

CAIIB Paper 1 (ABM) Module D Unit 2 - Compliance Audit

Introduction

- The users of the financial statements need information about the financial position and performance of the bank in making economic decisions.
- They are interested in its liquidity and solvency and the risks related to the assets and liabilities recognized on its balance sheet and to its off balance sheet items.
- In the interest of full and complete disclosure, some very useful information is better provided, or can only be provided, by notes to the financial statements.
- The use of notes and supplementary information acts as means to explain and document certain items which are either presented in the financial statements or otherwise affect the financial position and performance of the reporting enterprise.
- Recently, a lot of attention has been paid to the issue of market discipline in the banking sector.
- Market discipline, however, works only if market participants have access to timely and reliable information, which enables them to assess banks' activities and the risks inherent in these activities.
- Enabling market discipline may have several benefits.
- Market discipline has been given due importance under Basel II framework on capital adequacy by recognizing it as one of its three pillars.
- Several Banks are listed in stock exchanges and shares of such banks' shares are freely tradable in the stock market.
- The protection of investors' interest in such listed banks is very important and calls for more transparency in the matter of disclosures in the accounts of the banks
- Stockholders + Depositors = Stakeholders.
- This equality says it all.

- Before the enactment of the Banking Regulation Act, the provisions relating to banking companies were administered **through Part XA of the Indian Companies Act, 1956.**
- The statement of objects and reasons for forming a separate Act, inter alia, provides that while the primary objective of the company law is to safeguard the interest of the stockholder, that of banking legislation should be the protection of the interest of the depositor.

The current disclosure requirements for banks are spelt out mainly in the following statutes/regulations/standards:

- The Banking Regulation Act
- The Companies Act, 2013
- The Companies Rules, 2014
- Indian Accounting Standards
- RBI Guidelines for Disclosures in Financial Statements
- RBI Guidelines for Basel III Requirements.

For the sake of uniformity in the financial statements of banks, RBI has advised that a summary of '**Significant Account Policies' - Schedule 17**

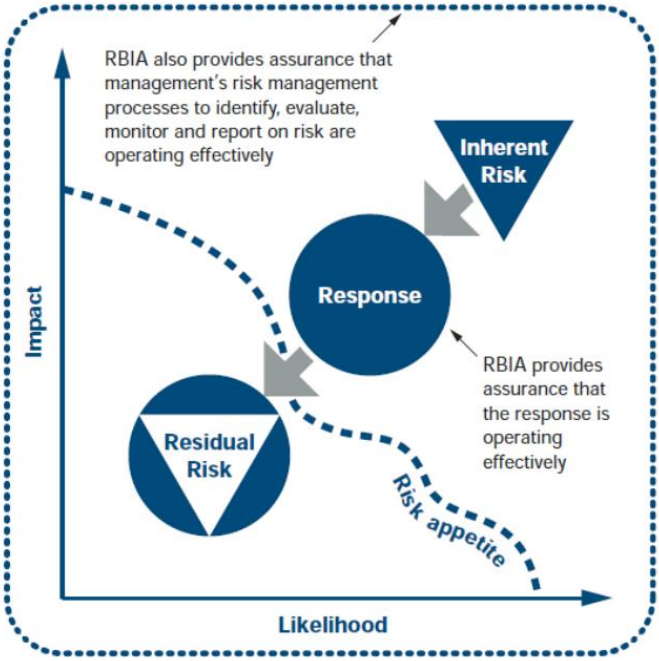
'Notes to Accounts' should be shown - Schedule 18

Role Of Risk Based Internal Audit (RBIA) And Inspection

- Definition –The Institute of Internal Auditors defines risk based internal auditing (RBIA) as a methodology that links internal auditing to an organisation's overall risk management framework.
- RBIA allows internal audit to provide assurance to the board that risk management processes are managing risks effectively, in relation to the risks appetite.
- RBIA is not about auditing risks but about auditing the management of risk.

l Its focus is on the processes applied by the management team:

- ✓ The responses to individual risks, and
- ✓ The processes used to assess risks, to decide on the responses to them, to monitor the responses and to report to the board



All banks shall adopt the Risk based Internal Audit approach in line with the RBI requirements for conduct of audit.

The objective of internal audit at the Bank is to examine the Bank's internal control environment including systems, procedures, governance, etc., and provide an assurance that these are adequate to mitigate risks.

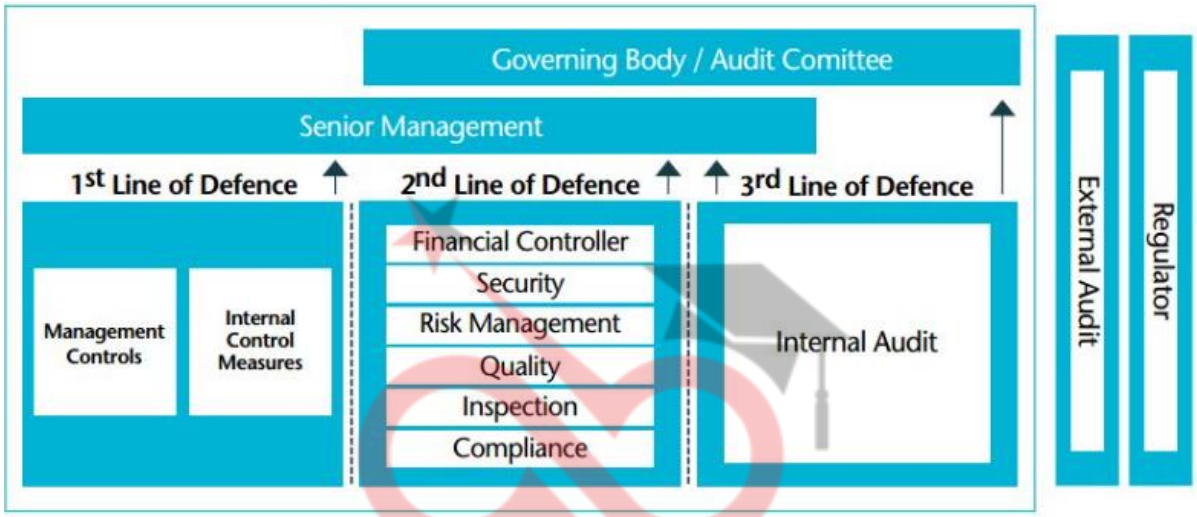
Objective:

- ✓ Review potential inherent risks processes and controls instituted by the first and second line of defence to mitigate them.
- ✓ Review the systems to ensure compliance with legal and regulatory requirements.
- ✓ Identify deficiencies in control environment and monitor closure of action items
- ✓ Provide assurance to the Board and top management about the adequacy and effectiveness of the risk management and control framework in the Bank's operations.
- ✓ To strengthen controls and checks to enhance efficiency in the Bank's operations;
- ✓ To ensure that the instructions and various internal policy guidelines from time to time are adhered to;
- ✓ To verify whether there is any dereliction of duty on the part of any of the employees;
- ✓ To verify whether there is any transgression of power at various operational levels;
- ✓ To examine the working of the branch/access points from the point of view of vulnerability and susceptibility to frauds and suggest measures to prevent the same;

- ✓ To help in adhering to prescribed systems and procedures, prevention or timely detection and rectification of lapses/irregularities;

Line Of Defence Risk:

- The Board of Directors and Senior Management of financial entities have the primary responsibility to approve a suitable business strategy and ensure prudent risk management in accordance with the risk bearing capacity.
- The governance & assurance functions have to act as strong internal lines of defense.
- RBI has focused on strengthening these internal defenses by uploading the supervisory instructions.



Principles Relevant to the Internal Audit Function Principle

- **Principle 1:** An effective internal audit function provides independent assurance to the board of directors/ its committee and senior management on the quality and effectiveness of a bank's internal control, risk management and governance systems and processes, thereby helping the board and senior management to protect their organisation and its reputation.
- **Principle 2:** The bank's internal audit function must be independent of the audited activities, which requires the internal audit function to have sufficient standing and authority within the bank, thereby enabling internal auditors to carry out their assignments with objectivity.
- **Principle 3:** Professional competence, including the knowledge and experience of each internal auditor and of internal auditors collectively, is essential to the effectiveness of the bank's internal audit function.
- **Principle 4:** Internal auditors must act with integrity.
- **Principle 5:** Banks should have an internal audit policy that articulates the purpose, standing and authority of the internal audit function within the bank in a manner that promotes an effective internal audit function.

- **Principle 6:** Every activity (including outsourced activities) and every entity of the banking group should fall within the overall scope of the internal audit function.
- **Principle 7:** The scope of the internal audit function's activities should ensure adequate coverage of matters of regulatory interest within the audit plan
- **Principle 8:** Banks should have a permanent internal audit function. While some audit assignments may be performed using external experts, responsibility still lies with the internal audit function.
- **Principle 9:** The Audit Committee of the Board should oversee the bank's internal audit function.
- **Principle 10:** The Board and/or Audit Committee should oversee the internal audit function on all matters related to the performance of its mandate as described in the internal audit policy.
- **Principle 11:** The Head of Internal Audit is responsible for ensuring that the internal audit function complies with sound internal auditing standards and with a relevant code of ethics (integrity, objectivity, confidentiality and competency).
- **Principle 12:** The internal audit function should independently assess the effectiveness and efficiency of the internal control, risk management and governance systems and processes created by the business units and support functions and provide assurance on these systems and processes.
- **Principle 13:** The bank's board of directors has the ultimate responsibility for ensuring that senior management establishes and maintains an adequate, effective and efficient internal control system and, accordingly, the board should support the internal audit function in discharging its duties effectively.
- **Principle 14:** Regardless of whether experts are hired on contractual basis for internal audit purpose, the board of directors remains ultimately responsible for the internal audit function.
- **Principle 15**: To facilitate a consistent approach to internal audit across all the banks within a banking organisation, the board of directors of each bank within a banking group or holding company structure should ensure that either:
  - ✓ Every banks has its own internal audit function, which should be accountable to the bank's board and should report to the banking group or holding company's head of internal audit; or
  - ✓ the banking group or holding company's internal audit function performs internal audit activities of sufficient scope at the bank to enable the board to satisfy its fiduciary and legal responsibilities.
- **Principle 16**: The bank should develop and maintain a quality assurance and improvement program that covers all aspects of the internal audit activity.

Assurance over Fraud Risk Controls

Every year crores of rupees are lost to frauds. Often fraud occurs because of poorly designed controls and weak governance undermining the organisation's processes.

- Organisations should have robust internal control procedures to limit the risk of fraud, and internal audit's role is to assess the controls.
- The risk of fraud should be included in the audit plan and each audit assignment to evaluate the adequacy of anti-fraud controls.
- The Head Internal Audit should consider how the risk of fraud is managed across the organisation and assess the fraud risk exposure periodically.

Operationally, internal audit should have sufficient knowledge of fraud to:

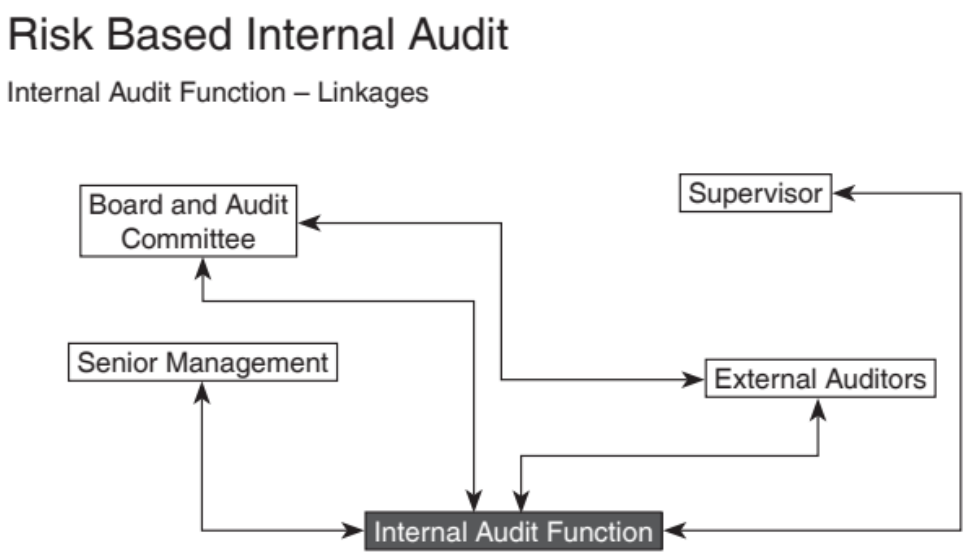
- Identify red flags indicating fraud may have been committed
- Understand the characteristics of fraud and the techniques used to commit fraud, and the various fraud schemes and scenarios.
- Evaluate the indicators of fraud and decide whether further action is necessary or whether an investigation should be recommended.
- Evaluate the effectiveness of controls to prevent or detect fraud.

Internal auditors should not investigate fraud:

- Unless they have the specific experience and expertise required to do so.
- Conflict of interest should also be avoided, as internal audit is also tasked with evaluation of fraud control framework.

Formulate and document appropriate plans for each assignment, including the assignment's objectives, scope, timing, and resource allocation.

- The overall approach of the audit should be risk based (Risk Based Internal Audit – RBIA)
- The conduct of the internal audit should be supervised by the HIA to ensure that objectives are achieved, quality is assured, and staff is developed
- Compliance should be monitored, and sustenance of compliance should be an integral part of reporting to the Board/ACB.
- All pending and high risk and medium risk should be reported to the Board/ACB in order to highlight key areas in which risk mitigation has not been undertaken despite risk identification
- If the internal audit reveals that bank management has accepted a level of risk that may be unacceptable to the bank, the HIA should discuss the matter with senior management. If the issue is not resolved, it may be escalated to Board/Committee.



Roles and Responsibilities

Board of Directors:

- The Board of Directors of the Bank shall have overall responsibility to ensure internal audit function is properly positioned, staffed and resourced so that it can carry out the assigned duty independently, objectively and effectively.
- It should respect and promote the independence of the internal audit function by ensuring that internal audit reports are provided to the board or its audit committee without management filtering and that the internal auditors have direct access to the board or the board's Audit Committee.
- The Board shall delegate its powers for the conduct of internal audits, implementation of an internal audit framework and review of policies/processes/systems/controls and the review of the effectiveness of implementation of an internal audit framework to the Audit Committee of the Board.

Audit Committee of the Board:

- The Audit Committee of the Board shall
- Be chaired by a person who is independent and is not the chair of the board.
- Include members who have experience in audit practices, financial reporting and accounting. Be responsible for framing policy on internal audit and financial reporting, among other things;
- Oversee the financial reporting process; provide oversight of and interact with the bank's internal and external auditors;
- Formulate and recommend to the board for their approval, the appointment, remuneration and dismissal of external auditors;
- Review and approve the audit scope and frequency;
- Receive key audit reports and ensure that senior management at Corporate Office and the Officials working in Branches & other related Offices are taking

necessary corrective actions in a timely manner to address control weaknesses, non-compliance with policies, laws and regulations, and other problems identified by auditors and other control functions;
- Oversee the establishment of accounting policies and practices by the bank;
- Review the design and effectiveness of the overall risk governance framework and internal control system.
- Review the annual financial statement of the Bank along with Management Letter which is the letter to the shareholders before it is approved by the Board of Directors;

The role of the audit committee shall also include the following:

- It should provide direction and oversee the operations of the total audit function in the bank and maintain quality of internal audit and inspection.
- Follow up on the statutory audit of the bank and inspection of the Reserve Bank
- Strengthening housekeeping.
- Fixing accountability of inspecting/auditing officials for failure to detect serious irregularities.
- Periodical review of the accounting policies/internal control systems in the bank with a view to ensuring greater transparency in the bank's accounts.
- Sensitizing the Board about risk prone areas.
- **Review of Risk management measures to mitigate the risk.**
- The audit Committee should have discussions with the auditors periodically about internal control systems, the scope of audit including the observations of the auditors and review the half-yearly and annual financial statements before submission to the Board and also ensure compliance of internal control systems.
- The audit Committee shall have authority to investigate into any matter in relation to the items specified in this section or referred to it by the Board and for this purpose, shall have full access to information contained in the records of the company and external professional advice, if necessary

Head Internal Audit (HIA)

- **To bring uniformity in approach followed by the banks, as also to align the expectations on Interna Audit Function with the best practices, RBI advised all banks on January 07, 2021 as under:**

Authority, Stature and Independence:

- The internal audit function must have sufficient authority, stature, independence and resources within the bank, thereby enabling internal auditors to carry out their assignments with objectivity.
- Accordingly, the Head of Internal Audit (HIA) shall be a senior executive of the bank who shall have the ability to exercise independent judgement.
- The HIA as well as the internal audit function shall have the authority to communicate with any staff member and have access to all records or files that are necessary to carry out the entrusted responsibilities.

Competence:

- Requisite professional competence, knowledge and experience of each internal auditor is essential for the effectiveness of the bank's internal audit function.
- The desired areas of knowledge and experience may include banking operations, accounting, information technology, data analytics and forensic investigation, among others.
- Banks should ensure that internal audit function has the requisite skills to audit all areas of the bank.

Staff Rotation

- Except for the entities where the internal audit function is a specialised function and managed by career internal auditors, the Board should prescribe a minimum period of service for staff in the Internal Audit function.
-
- The Board may also examine the feasibility of prescribing at least one stint of service in the internal audit function for those staff possessing specialised knowledge useful for the audit function, but who are posted in other departments, so as to have adequate skills for the staff in the Internal Audit function.

Tenor for appointment of Head of Internal Audit:

- Except for the entities where the internal audit function is a specialised function and managed by career internal auditors, the HIA shall be appointed for a reasonably long period, preferably for a minimum of 3 years.

Reporting Line:

- The HIA shall directly report to either the Audit Committee of the Board (ACB)/ MD & CEO or Whole Time Director (WTD).
- Should the Board of Directors decide to allow the MD & CEO or a WTD to be the 'reporting authority' of the HIA,
  - ✓ Then the 'reviewing authority' shall be with the ACB
  - ✓ 'Accepting authority' shall be with the Board in matters of performance appraisal of the HIA.
- Further, in such cases, the ACB shall meet the HIA at least once in a quarter, without the presence of the senior management, including the MD & CEO/WTD.
- The HIA shall not have any reporting relationship with the business verticals of the bank and shall not be given any business targets.
- In foreign banks operating in India as branches, the HIA shall report to the internal audit function in the controlling office/head office.

Remuneration:

- The independence and objectivity of the internal audit function could be undermined if the remuneration of internal audit staff is linked to the financial performance of the business lines for which they exercise audit responsibilities.

- Thus, the remuneration policies should be structured in a way that it avoids creating conflict of interest and compromising audit's independence and objectivity.

Offsite Audit

- Offsite Audit vertical within the Internal Audit Department for offsite monitoring of certain transactions/ activities at branches/offices/BUs.
- The tasks for offsite monitoring team can be added/modified based on new issues arising and based on feedback from field auditors
- For carrying out these tasks the Team will be provided with read-only access to the MIS databases and other systems to enable them to query the required data using tools like SQL, etc.
- The Offsite Audit Team will support on-field branch banking auditors and Banking Unit auditors with the necessary reports/inputs that may be required.

Information System (IS) Audit within the Internal Audit Department

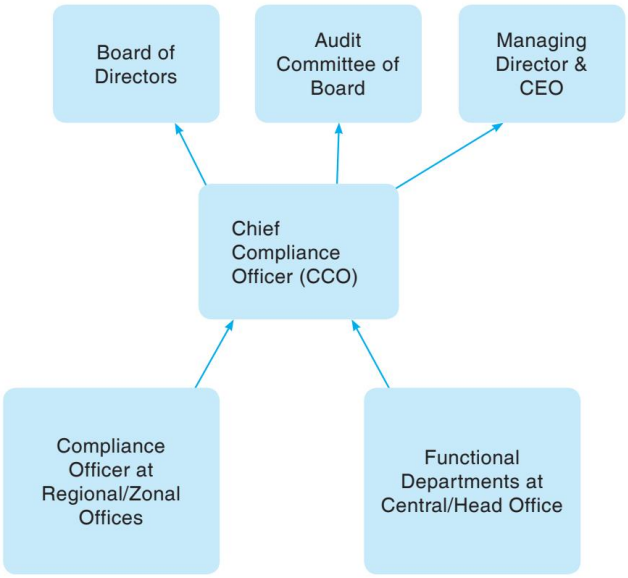
- The scope of IS Audit covers all information systems used by the bank in related activities, viz.,system planning, organisation, acquisition, implementation, delivery and support to end-users.
- The scope also covers monitoring of implementation in terms of its process effectiveness, input/output controls and accomplishments of system goals.
- The IS Audit scope includes testing on the processes for planning and organizing the information systems activities and the processes for monitoring those activities
- The Concurrent Audit, is responsible for satisfactory implementation of the Concurrent Audit system of the Bank, including review and reporting of observations noted during the audit and their timely compliance.

CAIIB Paper 1 (ABM) Module D Unit 3: Compliance Governance Structure

Organisational Structure

The organisational structure of Compliance function could be as under.

- Board of directors
- Audit Committee of Board (ACB)
- Managing/executive director
- Independent Compliance department headed by Chief Compliance officer
- Compliance Function at verticals in Corporate Office.
- Compliance Function at Field offices – Field General Managers offices (wherever exist) – Regional Offices, Zonal Offices – Branches



Responsibility Of The Board And Senior Management

- **Compliance starts at the top**
- It will be most effective in a corporate culture that emphasises standards of honesty and integrity and one in which the board of directors and senior management lead by example.
- Board/Audit Committee of Board/Managing Director & CEO shall overview the compliance function in terms of business needs and volume applicable to the Bank and the reporting lines of CCO to the Top management in this review process shall be properly documented in the Compliance Policy of the Bank.
- The Compliance policy shall be approved by the Board.
- Accordingly, the CCO shall report to the Board/ Audit Committee of Board/MD & CEO.
- If as per policy CCO reports to MD & CEO, CCO shall also report to **ACB/Board independently as per frequency vide Compliance Policy.**

Responsibility of the Board of Directors

The Board of directors shall:

- Ensure an appropriate compliance policy is in place in the bank to manage compliance function and also overseeing its implementation.
- Ensure compliance issues are resolved effectively and expeditiously by senior management with the assistance of CCO & compliance staff.
- Ensure there is no potential for any conflict of interest & that the activities of the compliance function are subject to independent review **at least once in 3 years a**nd the compliance function & the audit function of the bank are necessarily being kept separately.
- Review compliance functions on a quarterly basis and an annual review of status in implementation of compliance functions to be carried out.
- If necessary, the Board may delegate these tasks to the audit Committee of the Board (ACB).

- Besides, periodical review on status of audit Functions & performance thereon, Board issues directions for improvement in adherence to Systems & procedures & its auditing System, as such this job may also be assigned to Audit Committee of the Board.
- The Companies act, 2013 casts the responsibility on the directors to devise proper systems to ensure compliance with the provisions of all applicable laws, and also to ensure that these are adequate and operate effectively.

Responsibility of senior management

- Selection of the candidate for the post of the CCO shall be done on the basis of a well-defined selection process and recommendations made by the senior executive level selection committee constituted by the Board for the purpose.
- The selection committee shall recommend the names of candidates suitable for the post of the CCO as per the rank in order of merit and Board shall take final decision in the appointment of CCO;
- A prior intimation to the Department of Supervision, Reserve Bank of India, Central Office, Mumbai, shall be provided before appointment, premature transfer/removal of the CCO.
- Such information should be supported by a detailed profile of the candidate along with the 'fit and proper' certification by the MD & CEO of the bank, confirming that the person meets the above supervisory requirements, and detailed rationale for changes, if any;

The bank's senior management with the assistance of the Compliance department shall ensure the following activities:

- ✓ To apprise the Board and senior management on regulations, rules and standards and any further developments
- ✓ To provide clarification on any compliance related issues.
- ✓ To conduct assessment of the compliance risk (at least once a year) and to develop a risk-oriented activity plan for compliance assessment. The activity plan should be submitted to the ACB for approval and be made available to the internal audit.
- ✓ To report promptly to the Board/ACB/MD & CEO about any major changes/observations relating to the compliance risk.
- ✓ To periodically report on compliance failures/breaches to the
- ✓ Board/ACB and circulating to the concerned functional heads.
- ✓ To monitor and periodically test compliance by performing sufficient and representative compliance testing. The results of the compliance testing should be placed to Board/ACB/MD & CEO.
- ✓ To ensure compliance of Supervisory observations made by RBI and/or any other directions in both letter and spirit in a time bound and sustainable manner.
- ✓ At least once a year, to identify and assess the main compliance risk facing by the bank and formulate the plans to manage them.

Compliance Structure At The Corporate Office

Compliance department having formal status

- Should be set up at the Central office/Corporate Office/Head office.
- It shall have a senior executive of the bank, preferably in the rank of a General Manager or an equivalent position (not below two levels from the CEO) designated as Chief Compliance officer with overall responsibility for coordinating with the assistance of the functional departments.
- It enables the identification of Compliance issues in the banks and management of the bank's compliance risk and supervising the activities of compliance function assigned to the staff.
- The CCO could also be recruited from market.

Following shall be the basis for identification of Compliance requirements:

- ❑ Master Circulars/master directions of RBI consolidated and updated
- ❑ RBI guidelines issued from time to time
- ❑ Various laws/statutes applicable to banks
- ❑ Bank's internal guidelines and policies

Following shall be the basis for assessment of Compliance Risk:

- ✓ **Regulatory Focus**
- ✓ **Nature of activity – whether inherently high risk in nature**
- ✓ **Bank's exposure to it – materiality**
- ✓ **Any breaches reported in the past – history**

The Chief Compliance officer shall be the nodal point of contact between the bank and the Regulator (RBI).

- However, in cases where activities of the bank are not limited to the banking sector, the directions are also received from other regulators such as IRDA, SEBI, etc.
- These directions shall also be a part of compliance functions of the bank.
- Compliance officers for IRDA, SEBI or other regulators shall continue to remain separate.
- In case of discomfort conveyed to the bank on any issue by other regulators, it shall be the duty of the concerned Compliance officer to bring it to the notice of the RBI through Chief Compliance officer of the bank.

Compliance Department shall Place the following MIS

- Monthly report through EDs/CMD to the Board on status of Important RBI/MOF communications with the steps taken by functional departments on this communication.
- Quarterly report to ACB on status of Compliance Function.

- Summarised quarterly report to ACB on status of compliance of RBI/MOF communications. – To enable the Compliance department to submit the said report functional departments shall ensure that all RBI/MOF communications and communications received from self-regulatory bodies like IBA/ FEDAI/FIMMDA are attended to and feedback on its compliance is given to Compliance department, **Central office within a period of 7 days**.
- Yearly report to the Board on assessment of Compliance Function/Risk.
- Report to the Board, whenever exceptions are noticed, i.e., all material compliance failures which may attract significant risk of legal or regulatory sanctions, financial loss or loss of reputation (Compliance reporting is to be made on an exception basis.)
- Report to ED/CMD on the results/findings of the test checking of certain key compliance issues on random sample basis.

Chief Compliance Officer Participation in Committees

- The CCO shall not be member of any committee which brings his/her role in conflict with responsibility as member of the committee, including any committee dealing with purchases/sanctions.
- In case the CCO is member of a committee, he/she may have only advisory role.

The Chief Compliance Officer may be a member of or invitee to the following committees:

- Audit Committee of Board (ACB)/Audit Committee of Executives (ACE).
- Credit Risk Management Committee (CRMC).
- Committee for Operational Risk Management (CORM).
- The Product Group Committee.
- The Managing Director & CEO/Executive Directors may decide upon the Chief Compliance Officer's participation in any other committees.

Functional Departments

- The functional departments at Head Office will put in place systems for meticulous compliance of statutory, regulatory and internal guidelines by all the concerned under their control while carrying out the business operations.
- Any breaches/failures of compliance noticed by them in their area of operations should be promptly reported to the Compliance Department.
- The Compliance Department will scrutinise such breaches/failures of compliance and guide the functional departments with measures for rectification and prevention.
- All the Functional Heads at Central office shall designate a senior officer in the department **minimum in scale iv or v to act as Compliance** officer for identifying and assessing compliance risk pertaining to their functional area and the same should be discussed with the functional head, accordingly, a mitigation plan shall be prepared in coordination with compliance department for onward submission to the Compliance department.

- The designated compliance office shall be responsible for all types of reporting within a time bound manner.

Key functions of the designated compliance officer for the department for their Functional area with appropriate oversight of the functional head are, as under:

- To identify compliance functions/issues pertaining to their Functional department based on regulatory/ statutory guidelines issued and send consolidated list of compliance functions/issues so prepared to Compliance department.
- To act on compliance issues identified by Compliance department and respond to them
- To monitor compliance of all regulatory and statutory guidelines as well as internal policy guidelines and report to Chief Compliance officer, Compliance department at Central office as per stipulated frequency and any breaches/non-compliances observed.
- To maintain proper registers for returns covering regulatory/statutory and internal guidelines and monitor and follow up with the originating units regarding its timely submission.
- To ensure timely submission of regulatory returns as per the calendar of returns.
- To ensure that stipulated agendas/review notes are placed before the Board, audit Committee of the Board (ACB), Supervisory Committee on Risk management as per the calendar of reviews.
- To interact with Compliance department, Central office in case of any clarification.
- To extend necessary cooperation in the process of compliance testing.
- To share their views/suggestions arising out of their experience and knowledge of Compliance Function in their functional area.

Role of Functional Departments

- ❑ The functional department at HO should lay special thrust on building up compliance culture; vetting of the quality and integrity of information pertaining to supervisory/regulator compliance data/ information/ reports before its submission to RBI by the top executives, non-executive Chairman/ Chairman and ACB of the bank, as the case may be.

- ❑ The concerned functional departments would hold the prime responsibility for their respective areas for monitoring compliance with the regulations, internal policies and procedures and reporting to Management, while compliance department would ensure overall oversight.

- ❑ If serious gaps are observed in such compliances, the compliance function should take necessary corrective action in coordination with **functional departments and with the Chief Compliance Officer.**

Compliance Structure At Field Levels

- The Branch manager and staff at the branches play a crucial role in compliance function as the products of the Bank are delivered and serviced through them.

Conflict of interest of managing the compliance risk and business development cannot be avoided at this level.

- However, it shall be ensured that the potential conflict of interest is not allowed to come in the way of compliance function.
- Therefore, the Branch manager, accountant and other officers are primarily responsible for compliance of rules and regulations.
- Branch manager will also function as Compliance officer for his branch.

Compliance Officers should be designated in FGM/Zonal Offices/ Regional Offices and will perform the compliance function under close coordination of Compliance department at Corporate office/ Head office.

- These Compliance Officer shall be directly reporting to Chief compliance officer of the Bank.
- The departmental heads in FGMO/ZO/RO are equally responsible for managing the compliance function pertaining to their functional area.

The Compliance Officers in in FGMO/ZO/RO are also required to apprise the FGM/ZM/Regional Head about the level of compliance and breaches observed, if any, so that prompt corrective action is taken.

The Compliance Function at RO/ZO/FGMO shall Undertake Following Actions:

- ✓ To report to Compliance department at Central office.
- ✓ Status of compliance pertaining to their command area including all branches and functional departments shall be submitted on quarterly basis to Compliance department HO in the format devised for the purpose.
- ✓ Breaches observed (immediately after breaches are noticed through audit reports or through visit reports of the Branches) to be reported/escalated and necessary corrective action measures to be taken.
- ✓ The structure and role of the FGM/Zonal Offices/Regional offices was unveiled recently to mirror the organisation, Structure of Corporate office which among other things states that: "Compliance to laid down systems and procedures, rules and guidelines are integral to an efficient Zonal/Regional Management System.

The newly created Internal Control and Inspection department will be overall responsible for coordination at the Zonal Office/Regional office.

Each of the functional departments will ensure proper adherence to the areas of compliance. Wherever required, they will also maintain proper documents and records in fulfilment of the compliance requirements".

- ✓ Internal Control and Inspection department shall cover compliance related issue in their routine inspections through the matrix prepared for the purpose by including laid down systems, procedures, rules and guidelines for Zonal Office/Regional office as well as for all the branches reporting to Regional office.

- ✓ Role of Zonal Office/Regional office as regards Compliance Function in Branches is that of handholding, trouble shooting and monitoring.

Compliance Functions at Overseas Centres

- ✓ Each Centre covering a cluster of foreign branches/representative offices will have an independent Compliance Department headed by local compliance officer, preferably or/and an India Based Officer in the level of Scale III/IV supported by local staff.
- ✓ The Compliance Officer (CO) of the centre may also be a local staff if mandated by the Host Regulator.
- ✓ A local staff may also be the Compliance Officer where the local language necessitates such an arrangement.
- ✓ He/She will be known as "Compliance Officer" of the centre.
- ✓ Wherever required, the Compliance Officer of the Centre may be assisted by a Compliance Officer at the branches under the centre wherever such arrangement has been created as per host country regulations.
- ✓ The Chief Executive of the centre will assess the staff requirement of the Compliance Department

The Compliance Officer of the centre should have the knowledge of various statutory and regulatory guidelines prevailing in host country/centre and also bank's internal guidelines, general or specific for the centre/branch.

- The Compliance officer of the centre will have a dotted line direct reporting to the CCO.
- The Chief Compliance Officer/General Manager (International Division) will provide guidance and directions on the compliance issues at the centre to the Chief Executive and the Compliance Officer of the centre.
- A dedicated overseas compliance desk at HO-Compliance shall ensure effective oversight on the overseas operations and ensure timely reporting to the Top Management/ACB/Board/RBI.

Role of Learning and Development Department:

- ✓ In order to keep the compliance staff up-to-date with developments in the areas of banking laws, rules and standards, the Learning and Development Department will arrange regular and systematic education and training to the compliance staff in new products and services introduced in the bank as well as in Corporate Governance, Risk Management, Supervising practices, etc.
- ✓ All training institutes/centres of the bank should ensure to have content pertaining to compliance function in each training schedule to educate the functional staff on the objective and importance of compliance function in the bank and the need for observances of the compliance guidelines.
- ✓ The Learning & Development department will also ensure to include compliance related modules in administering e-learning process in the

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CAIIB Paper 1 (ABM) Module D Unit 4: Framework for Identification of Compliance Issues and Compliance Risks

Introduction

- The banking landscape of India is changing rapidly.

- With the evolution of technology, the industry has undergone a massive transformation that has changed the way financial procedures are carried out, and the way financial institutions operate.
- The collaboration between finance and technology has led to a radical change in several aspects of banking.
- Financial technology is said to be a disruptive force that in the future is expected to reshape the financial sector, business models and banking structures.
- This paradigm change has posed significant challenges to the banks as well as the regulators.
- One of the important challenges is '**Compliance'**; a very important aspect for sustainable growth and become a success story for any banking and financial system.
- Compliance is defined as the act of following laws, rules, regulations, and various codes of conduct including the voluntary ones.
- Although most of these arise from external requirements, following the organisation's own internal rules, policies, and procedures, acting in accordance with ethical practices is equally important.

Compliance Issues

- The definition of compliance means following a rule or order.
- An example of compliance is when someone is told to go outside and they listen to the order.
- An example of compliance is when a financial report is prepared that adheres to standard accounting principles.
- Compliance issue means a single event during which any Accountable Employee is in violation of one or more processes **or procedures required under the Rules.**

Compliance Challenges in Present Times

- As the financial world gets more and more regulated every day, organisations are facing greater burden and stress to keep up with the pace of alterations and to comply with the evolving regulations.
- In 2020, the challenges of regulatory compliances will require latest technology and user-friendly strategies since the concepts like the geopolitical protectionism, the divergence in regulatory obligations, data processing, operational resilience, credit quality, shifts in capital, agility in compliance procedures, financial crimes, customer trust, and ethical business would be some of the hot topics to be tackled effectively.
- With fast moving changes in the BFSI sector, e.g., Payment & Settlement system, banking products and processes, customers' expectations, and delivery system, there is a felt need to improvise the Compliance policies and implementation.

Some of the important challenges for the BFSI sector are:

Geopolitical Trends towards Nationalism

- As the popularity of "**globalisation**" started to fade away, the focus on protectionism, nationalism and sovereign rights re-emerged as an **"anti-"** movement and this created an uncertainty in the policy and regulation side as well.
- The change in the geopolitical area directly or indirectly affect the economic activities, trade businesses, monetary policies and eventually related regulations like Data Protection, KYC, beneficial ownership, etc.
- Therefore financial organisations must remain aware of what is to come and expect the disruptions in the process even if they think that they are addressing diverse policies and regulations and continuing to implement necessary changes.
- Another risk here is that in the countries of uncertainty, financial crime may thrive due to the facilities provided by the innovative technologies.
- Therefore financial organisations must remain aware of what is to come and expect the disruptions in the process even if they think that they are addressing diverse policies and regulations and continuing to implement necessary changes.
- Another risk here is that in the countries of uncertainty, financial crime may thrive due to the facilities provided by the innovative technologies.

Divergence in Regulation and the Need to "merge"

- The divergent nature of regulations thanks to local and global needs is to be understood and embraced by financial organisations and the term "merge the diverge" must be learned and adapted into their strategies.

The main areas of divergence are:

- Cybersecurity, data privacy regulation, servicing of loans, Customer and industry-related banking services
- Special regulatory and supervisory expectations to risk and complexity, deviating from global standards
- Innovative technological applications where new regulations may emerge
- Alignment with non-financial services and statutory regulators

Data Processing: Protection and Governance

- Financial services providers acknowledge data as something to be protected with governance and control within their organisation and through third-party organisations.
- Although the quality of data and the way it is used are the most important aspects in the protection of personal or operational information, data is perpetually captured, monitored, processed and shared.
- Since the breaches in data sharing continues, the expectations for more stringent data privacy and security regulations are increasing in both local and global levels

Operational Resilience: Be Ready for the Unexpected and Adapt to Changing Patterns

- For the process of business transformation for the sake of regulatory compliance, the ability of the financial institutions to adapt to changing environments is one of the key concepts.
- Regulators expect Banks & FIs to have a highly broad view of operational resilience by both controlling the operational risks and managing the disruptions.
- Therefore, they need to operate an integrated approach including continuity planning, operational risk, and concentration risk analysis.
- Also, the Banks & FIs need to take into consideration that outside sources like cyber-crimes, environmental aspects or socio-political changes might create threats or disruptions to their businesses so, they must be ready for these as well.

Risks Related to Credit Cycles

Financial institutions should learn from previous credit cycles and apply the learnings into their operations to prevent the potential risks which are related to:

- Risk layering and leveraged lending
- Expanded delivery channels and payment options
- New products and services and technology applications
- Disclosures via securities or trading activities, lending to non-depository institutions, or partnership arrangements**.**
- It is time to take on board the increasing risks arising out of Climate Change, increasing air and water pollution, and health of employees in big organisations funded by banks & FIs.
- These elements have direct impact on production cycles and productivity in agriculture and industries and supply chain management.
- Insurance companies can offer policies for Risk mitigation of such risks

Easing of Regulatory Capital and Liquidity Requirements

In some countries there is a trend in easing the buffers in the capital and liquidity requirements; however, this does not necessarily mean weakening risk management because it seems that the regulatory focus on managing these activities together with risk management will resume.

In this scenario, financial institutions should expect:

- Upcoming final rulemakings for banks and nonbank entities
- Emphasis on governance over capital planning
- Creating a regulatory focus on capital and liquidity frameworks
- business strategies of the organisations change accordingly giving more attention to c**onsumer protection risks including privacy, accessibility, and prejudice** by taking AI and cloud systems into consideration.
- Eventually, the firms will bear the responsibility to understand the technological applications and their outcomes.

- On top of this, the challenges on the compliance side will remain in the centre of areas like **financial crimes, ethics, customer data protection, and geopolitical shifts.**

Fine Line in between Innovation and Financial Crime

- As the beneficial side of technology is undeniable for the financial organisations to deliver better service and value to their customers, it is also giving way to financial crimes and fraud.
- There is a huge regulatory pressure on Banking and Non-Banking **finance companies to work to identify the risks for the crimes.**
- The adoption of innovations to prevent these crimes like AI, fintech, or other cosourcing arrangements is accepted and supported the regulatory authorities.
- However, since the volume of data, diversity, and number of sources and control of data is hard to navigate, the companies are still struggling with these.

Building Consumer Trust

- The customer-centric business model involves a personalised service experience, mobility in between channels, data privacy, evidence of good corporate citizenship, and fair value.
- This is the model needed by financial service companies to build a loyalty-based relationship with their customers and it gained more importance in this evolving environment.
- Personal data protection is also at the centre of regulations as topics like use and/or sale of data for marketing purposes and similarly, data ownership and control are still hot topics when it comes to privacy concerns in the digital era.

Ethics in Business

- Financial companies are also expected to identify and prevent unethical conducts as stated by the regulations.
- Monitoring, surveillance, reporting, and governance will be added to the frameworks of misconduct identification procedures.
- The main points of concern will be personal data privacy, sales processes, fair treatment, incentive plans, market conduct, and third-party oversight, etc.
- These challenges on one hand would require extensive use of latest technological tools like AI, IOT, Data Analytics, Block Chain technology **and more and on the other hand upgrade in Skills set of employees at all levels.**

COMPLIANCE RISK

The Basel Committee on Compliance Function defines Compliance risk as "the risk of legal or regulatory sanctions, material financial loss, or loss to reputation a bank may suffer as a result of its failure to comply with laws, regulations, rules, related self-regulatory organisation standards, and codes of conduct applicable to its banking activities" (together, "compliance laws, rules and standards").

Identification of compliance risk

***Some common compliance risks include*:**

- Corruption
- Employee Behaviour
- Workplace Health and Safety
- Environmental Impact
- Data Management
- Quality
- Process
- Social Responsibility.

The level of Compliance Risk in each business line, products and processes shall be identified based on:

- ❑ Regulatory Focus
- ❑ Customer Service aspect
- ❑ Control aspects
- ❑ Nature of activity – Whether inherently high risk in nature
- ❑ Bank's exposure to it – materiality
- ❑ Any major breaches reported in the past-history
- ❑ Penalty implications
- ❑ The Bank should put in place 'New product approval process". The Compliance department through New product approval process shall ensure that Compliance Risk in all new products and processes introduced get identified and appropriate risk mitigants are put in place before launching the same.
- ❑ The Compliance officer shall be a member of the "New product approval Committee" of the Bank.
- ❑ The Chief Compliance officer shall necessarily be a participant in the quarterly informal discussions held with RBI. The CCO shall continuously
- ❑ keep contact with SSM, RBI & team for issues related to compliance, regular reporting and submitting information if any.
- ❑ *The Compliance staff shall be empowered to have access to information required, to conduct compliance reviews/investigations.
- ❑ Staff accountability shall be examined for all compliance failures. Moreover, Bank shall endeavor to design a suitable system to give due weightage to the record of compliance during performance appraisal of all staff members.

- ❑ Principles of compliances management

Being one of the key elements in the bank's Corporate Governance Structure, the Compliance function shall be:

- ✓ Independent and sufficiently resourced.
- ✓ Its responsibilities shall be clearly defined.
- ✓ Its activities shall be subject to periodic and independent review by the internal audit function.
- ✓ Compliance function shall be regarded as a Core Risk management activity within the bank and shall not be outsourced.

Compliance Risk Management Function

- Historically the compliance function did not understand and model processes for risk management.
- Compliance documented and met requirements, and found and resolved issues.
- There was limited modeling of compliance issues and risk to determine business impact and prioritisation of resources.
- Most often compliance was reactive, putting out fires instead of actively interpreting and predicting compliance and ethics risk issues, and developing treatment plans to mitigate or avoid damage to the organisation. The present day approach is a risk based and due diligence is also essential.
- Due diligence is when an organisation is able to demonstrate that it had been duly diligent in meeting its obligations through developing, implementing and maintaining a management system.

The following points are critical to proving this due diligence:

- ✓ Systems must be "effective" and not "paper", "legalistic" systems.
- ✓ Systems that emphasises results not process.
- ✓ Systems are procedures that are in place and working procedures that outline what staff should do.

Essential ingredients of due diligence are:

- ✓ Real commitment to compliance.
- ✓ Culture in the Business (a pro-active culture that is not just about lip service)
- ✓ Consistent & effective enforcement – discipline, investigative, corrective/preventative action.
- ✓ Full and effective reporting and action on reports.
- ✓ Making sufficient resources available.
- ✓ Be satisfied system actually working – audits, monitor, inspect.
- ✓ Identify and assess requirements as they impact your business.
- ✓ Outsourcing/contractual obligations – establish required standard and monitor.
- ✓ Identify/analysis of risk exposure and manage/control.
- ✓ Measure/assess level of compliance.

The complete risk management function can be detailed as under:

- ✓ On a pro-active basis, to identify, document and assess the compliance risks associated with the Bank's business activities, including the development of new products and business practices, the proposed establishment of new types of business or customer relationships, or material changes in the nature of such relationships;
- ✓ To assist and advise all committees on operations related integrity and reputational issues, including – among others – checks on borrowing clients, project sponsors and other partners upon request;
- ✓ Under the guidance of the CMD the Head of the Internal audit & Compliance department shall lead and co-ordinate investigations into alleged unsatisfactory conduct or misconduct of Bank employees or consultants, and, where appropriate, recommend disciplinary or corrective action;
- ✓ To deal with and lead and co-ordinate investigations into issues of conflict of interest (of the Bank, staff, etc.), cases of alleged corruption, money laundering, terrorist financing, and complaints received with regard to Bank-financed operations;
- ✓ To consider ways to measure compliance risk and use such measurements to enhance compliance risk assessment;
- ✓ To assess the appropriateness and consistency of the Banks regulatory framework (statutory documents, policies, strategies, guidelines, **rules, regulations and procedures in force) related to compliance issues, promptly following up any identified deficiencies in the policies and procedures and, where necessary, formulating proposals for amendments;**
- ✓ To ascertain compliance with the provisions of the Banks Code of Conduct, to review and propose amendments to the Banks Code of Conduct and other policies and procedures, as necessary, to reflect ethical standards in all areas;
- ✓ The responsibilities of the compliance function shall be carried out under a risk based annual compliance programme that sets out its planned activities, subject to oversight by the head of compliance to ensure appropriate coverage and co-ordination among risk management functions.

Inherent Risk And Control Risk

- ✓ We can define inherent risks as the risk to a company in the absence of any security controls or actions that might be taken to alter, mitigate, or reduce either the likelihood or impact of a data loss. In other words, the inherent risk of a system is the risk that the system poses "**out of the box,"** before any processes, technologies, or people are put in place. Inherent risk is somewhat akin to operation risk.
- ✓ It is a function of threats and vulnerability.
- ✓ **Inherent Risk = Threats × vulnerability**.
- ✓ Residual risk is a function of inherent and control risk and be defined as 'The probability of loss that remains to systems that store, process, or transmit information after security measures or controls have been implemented.

- ✓ Implemented controls may include best practice control frameworks'. **Residual Risk = Inherent Risk × Control Risk,**
- ✓ a great example to illustrate the difference between inherent risk and residual risk is walking across the street.
- ✓ If you cross the street, there are a nearly infinite number of inherent risks.
- ✓ One of the inherent risks with a high probability and large impact would be getting hit by a car.

Some of the Inherent Risks and the Control are Discussed Below

Credit risk

Basic policies

- ✓ Credit risk is inherent in many banking activities and may lead to losses when the Bank's customers experience deterioration in financial condition, making it impossible to recover principal and interest on loans, securities, and other monetary claims outstanding.
- ✓ Management of this type of risk is the most fundamental task in banking operations.
- ✓ The Bank places the highest priority on ensuring the soundness of its assets and works to continually enhance its credit risk management capabilities.

Credit analysis Systems

- ✓ The fundamental pillars of the Bank's credit risk management systems are its credit rating system for ranking its customers and the self-assessment system.
- ✓ These systems are employed in quantifying credit risk and in setting various lending policies.

Market risk

Basic policy

- ✓ Market risk refers to the possibility that banks may incur losses due to movements in interest rates, foreign currency exchange rates, stock prices, and/or other market-related indicators.
- ✓ Market risk is defined to include credit risk inherent in market transactions that may lead to losses when counterparties fail to meet their obligations.
- ✓ The Bank conducts strict management and control of market risk based on the awareness that the possibility of substantial losses is inherent in the nature of market transactions.

Market Risk Management System

- ✓ The risk volumes in the Bank's operations (limits on the maximum volume of risk and loss limits) are decided by the Board of directors and the Executive Committee.
- ✓ Units engaging in market transactions conduct their operations within the various limits that have been assigned to them, based on the decisions of the Executive Committee.

- ✓ The results of operations and profit/loss are reported on a daily basis to the directors in charge, and reports are presented to the Executive Committee each month.

Liquidity risk

Basic policy

- ✓ Liquidity risk is the risk that a financial institution may run short of funds, owing to a decline in its creditworthiness or an extreme gap between its maturities in inflow and outflow of funds, and may therefore have to pay prohibitively high interest rates to bridge the gap.
- ✓ The Banks have recognised the management of liquidity risk to be a basic and vital aspect of its operations and developed effective monitoring systems to ensure sufficient liquidity to meet its needs.

Specific Liquidity Risk Management Activities

- ✓ To manage liquidity risk, the Bank first periodically examines the structure of fund sources and uses and implements measures **needed to improve this structure.**
- ✓ In addition, taking into consideration the size of assets, the Bank's funding capabilities, and other factors, guidelines are established for the funds gap (the amount of funds that must be raised).
- ✓ Through these and other activities, the Bank works to structure systems to prevent unforeseen developments.

Liquidity Risk Management Systems

- ✓ Information on the funds gap, the market environment, and other matters related to liquidity risk is reported by all units involved in managing the Bank's cash flow to the Risk management department, which is in overall charge of managing the cash flow.
- ✓ Reports on the overall cash flow are made periodically to the Executive Committee.
- ✓ In the event a sudden change in the market funding environment leads to the emergence of a possible liquidity shortage, the Banks have contingency plans to respond flexibly and quickly in response to the seriousness of the emergency.

Operations Risk

Basic policy

- ✓ Operations risk is inherent in the handling of customer transactions, and errors, unethical conduct, and certain other circumstances that may lead to losses.
- ✓ Typical examples are disparities between actual cash and cash balances and customer complaints concerning transactions.
- ✓ Accurate and rapid fulfilment of transactions requested by customers is the foundation of trust in the Bank's services, and, as banking activities become more

diverse, proper management of these activities to lessen and minimise operations risk is essential.

Operations Risk Management Systems

- ✓ The Bank should have established the operations department to be in overall charge of operations risk management.
- ✓ The department's activities include improving operating procedures and implementing systems upgrades as well as supervising branch operations and providing specific guidance.
- ✓ In addition, the Bank has set up the Inspection department to perform internal checking functions, and this department conducts examinations and provides guidance to prevent operations problems before they occur at all the Bank's offices, including overseas offices and operations centres.

Systems risk

Basic policy and Risk Management Systems

- ✓ Systems risk is inherent in computer systems, and losses as well as damages may be incurred owing to malfunctions and unethical conduct.
- ✓ For financial institutions, which are highly dependent on these systems, there is a possibility that systems risk may have an impact on society at large.
- ✓ Systems risk is, therefore, one form of risk that may have a major impact on management.
- ✓ Aware of this, the Bank does not regard the management of systems risk as simply a systemic or technological issue but, as one form of management risk, is working to supervise and control it as part of a unified, bank wide management system.
- ✓ Specific activities Specific measures for the management of systems risk have included the installation of multiple telecommunications lines for online operations and backup computer centres to prevent systems failures and prepare for possible natural disasters.
- ✓ In addition, the Bank has established the System office within the planning department, which is responsible for undertaking periodic monitoring based on fundamental policies for Bank wide systems risk management.
- ✓ Compliance Risk Assessment is the process of assessing the level of compliance of regulatory directives impacting the banks and the major compliance risks faced by the bank.
- ✓ For better understanding, we may identify few areas related to, observations in Regulatory Examination reports, Compliance testing, implementation of regulatory guidelines, regulatory reporting, enhancing compliance culture, etc.
- ✓ Further at overseas establishments few parameters covering regulatory examination reports, enforcement action, closure of the audit reports, implementation of regulatory guidelines, regulatory reporting, AML CFT compliance, training, etc., may be taken.

Accordingly, the compliance risk score can be assessed on a scale of 1–10 as per table below

Compliance Risk Score	Compliance Risk Level
7.1- 10	Needs significant improvement
5.1- 7	Needs improvement
3.1- 5	Meets requirement
1-3	Well controlled

Based on the results of the Compliance Risk assessment, a plan may be prepared to mitigate the risks with actions:

- To conduct assessment of the compliance risk activity-wise (at least once a year) and to develop a risk-oriented activity plan for compliance assessment. The activity plan should be submitted to the ACB for approval and be made available to the internal audit.
- To report promptly to the Board/ACB/MD & CEO about any major changes/observations relating to the compliance risk.
- To periodically report on compliance failures/breaches to the Board/ACB and circulating to the concerned functional heads.
- To examine sustenance of compliance as an integral part of compliance testing and annual compliance assessment exercise.
- To ensure compliance of Supervisory observations made by RBI and/or any other directions in both letter and spirit in a time bound and sustainable manner.

Independent Testing and Effective Audit Programme

Compliance units in banks may evaluate the compliance risk in each business line at periodical intervals and put up the results to the Board/Management Committee.

An effective audit programme is the key to a successful compliance policy. Its key components are:

- Have appropriate policy for the institutions risk profile
- Cover all applicable regulations and guidance
- Have effective scoping and planning
- Ensure adequate transaction testing
- Have no gaps in the program – program covers all appropriate areas
- Be well-organised with work papers
- Establish clear paper trails
- Communicate exceptions effectively
- Identify violations and explain risks
- Recommend appropriate corrective action
- Track corrective action
- Communicate results to Board of directors/audit Committee and senior management

- Document resolution of audit observations not carried to audit report.

On the other hand to have an efficient and effective compliance policy it needs to:

- Document your understanding of the AML risk profile
- Identify high risk services, products and clients
- Identify new regulations and regulatory guidance issued since prior audit
- Consider results of the most recent audit and regulatory examinations
- Consider results of other independent or self-compliance reviews
- Identify resolution of past recommendations

Consider factors that have changed since prior audit, such as:

- Changes to organisation's risk profile since last audit
- Changes in the compliance function since prior audit
- New regulations introduced since the prior audit
- New regulatory guidelines issued since the prior audit
- IT enhancements introduced
- Changes in monitoring parameters
- Changes in key compliance and operation staff
- New products or services

The success of a compliance policy needs a system of independent testing of the existing policies/ procedures/activities.

The areas/activities to be tested are:

- Adequacy of policies and procedures
- Ensure comprehensive test procedures
- Adequacy of High Risk Customer identification
- Adequacy of Customer due diligence (CDD)
- Adequacy of Enhanced Due Diligence (EDD) and compliance with documented policies and procedures
- Adequacy of Customer Identification Program (CIP)
- Adequacy of Internal Controls and Reporting
- Investigation and suspicious activity monitoring process
- Reporting & Record keeping
- Bank Risk assessment
- Cash activities and Cash Transaction Reports (CTRs)
- Cash aggregation, ATM transactions Track & monitor Corrective actions
- Track all actionable issues
- Document responsibility for resolution of issues
- Ensure completeness of corrective action
- Validate closure of audit issues
- Maintain adequate support on all closed issues

Where the corrective action involves the implementation of a new system, validate successful implementation and ensure data integrity audit Resources & auditor's expertise

- Independent audit Function within the Institution
- Head office audit (Foreign Financial Institutions)
- Outside audit firm
- Staff performing the testing should possess the expertise to assess **compliance regulations – Technical expertise – Specialised training – Familiar with new regulations/guidance**

Reporting Framework And Monitoring Compliance

Effective implementation and monitoring of compliance function calls for proper reporting framework. The reporting system is devised considering the changes in the organisational structure. Reporting framework may be structured on following lines:

Reporting of status/extent of compliance

(i)	Gist of the Reporting System	Gist of the Reporting System Submitted by & to	Periodicity
(ii)	Certificate by the branches and other operating units confirming compliance to all regulatory/ statutory/internal guidelines including a separate certificate for KYC and AML compliance.	Branches to RO/ ZO. Note: RO/ZO to make the copy of the certificate available to Risk officer for test checking on random basis.	Quarterly as on last working day of the quarter within 5 days of closure of the quarter
(iii)	Based on certificate from branches, a consolidated Certificate by RO/ZO confirming compliance to various regulatory/internal guidelines	RO/ZO to Compliance department at Central office on quarterly basis. RO/ZO to make the copy of the certificate available to Risk officer for test checking on random basis.	Quarterly within 10 days of closure of quarter.
(iv)	Certificate by Functional departments at HO/ Corporate Office confirming compliance with regulatory/statutory guidelines and RBI/ MOF circulars to the extent applicable to their Functional area For giving such certificate, basis will be the list of compliance issues already sent and RBI/MOF circulars sent during the quarter.	Head of Functional department to Compliance department.	Quarterly within 10 days of closure of the quarter.
(v)	Certificate by overseas Branch(es) confirming compliance with local laws, statutory/regulatory guidelines applicable to the respective countries to Compliance Department, Corporate Office/ HO	From overseas Branch(es) to Compliance department, Chief Executive of the Centre with a copy to International Dept H.O.	Monthly within in 5 days of completion of month.

Reporting of breaches/non-compliances

- Wherever breaches/non-compliances are observed, the same should be reported in the structured format as approved vide compliance policy and the same

should be sent Compliance department at Central office with a copy to FGMO and respective Functional department.

- Ro should make the copy of the certificate available to Risk officer for test checking on random basis.
- Such breaches/non-compliances can be reported not only on the basis of reporting by the branches but also by the RO/ZO officials as observed during their visit or through audit report or through survey conducted for specific compliance issue.
- Functional depts. at Central office shall also report non-compliance/ breaches observed by them to CCO, Compliance department at HO.
- Similar reporting system should be followed for reporting of breaches/ non-compliances as regards overseas branches. Also, audit dept. should provide to the Compliance dept. a copy of its Report on breaches observed during the branch audit furnished to the controlling Regional office.

Framework for Test Checking on Random Basis

- Based on compliance certification received from the branches, Compliance deptt. should identify on random basis the branches/departments for independent compliance testing and see the correctness of the certification.
- While selecting the sample size, the level of compliance risk as assessed through the following parameters shall be kept in mind.

✓ Based on regulatory focus
✓ Whether the activity inherently have high risk?
✓ Bank's exposure to it.
✓ Whether any major Breaches are reported in the past?
✓ Care should be taken to ensure that branches in the sample are not repeated each time.
✓ KYC AML norms/compliance at branch level

Role Of Inspection and Audit

- An inspection is typically something that involves a visit to the site and is required to be done as part of compliance obligation.
- An audit is the process of checking that compliance obligations have been met, including that the required inspections have been done. In general, inspections deal with things that can cause immediate accidents or other problems, while audits cover the root causes of these problems.
- These are both vital processes.

The Checker Software will help a great deal in streamlining and maximizing the value to an organisation.

Types of Audits

✓ Risk Based Internal Audit
✓ Concurrent Audit

- ✓ Statutory Audit & Tax Audit
- ✓ Credit Audit
- ✓ Forensic Audit
- ✓ RBI Inspections
- ✓ System Audit
- ✓ Stock Audit
- ✓ Foreign Exchange Audit
- ✓ Snap Audit

- Banks conduct Risk Based Internal Audit thru their Inspection & Audit Departments.
- Internal auditors during their inspection should continue to capture breaches/non-compliances and report the same to the Chief Compliance Officer, at Head office of the bank under copy to Risk management department at administrative/controlling offices
- Risk management department at administrative offices should make use of such reporting from audit during their random sample testing of compliances.

The role of the audit committee shall include the following:

- ✓ It should provide direction and oversee the operations of the total audit function in the bank and maintain quality of internal audit and inspection
- ✓ Follow up on the observations of statutory audit of the bank and inspection (ISE) of the Reserve Bank of India.
- ✓ Strengthening housekeeping.
- ✓ Fixing accountability of inspecting/auditing officials for failure to detect serious irregularities.
- ✓ Periodical review of the accounting policies/internal control systems in the bank with a view to ensuring greater transparency in the bank's accounts.
- ✓ Sensitizing the Board about risk prone areas.
- ✓ Review of Risk management measures to mitigate the risk.
- ✓ Ensure implementation of various statutory compliances applicable to the bank.

The audit Committee should have discussions with the auditors periodically about internal control systems, the scope of audit including the observations of the auditors and review the quarterly, half-yearly and annual financial statements before submission to the Board and also ensure compliance of internal control systems.

The audit Committee shall have authority to investigate into any matter in relation to the items specified in this section or referred to it by the Board and for this purpose, shall have full access to information contained in the records of the company and external professional advice, if necessary.

CAIIB Paper 1 (ABM) Module D Unit 5 - Compliance Culture and GRC Framework

How To Create Compliance Culture Across the Organisation

- A culture of compliance is crucial for growth and profitability of an organisation.
- Compliance must be visibly embraced by senior management and built into the hiring and training process.
- Ideally, it should be linked to pay and promotions as well.
- Moreover, the right metrics can make the culture of compliance concrete.

It is important to address such questions as:

- ✓ Who delivers the compliance message – line or staff?
- ✓ How seniors are the messengers?
- ✓ How often do they address compliance issues?

- **Culture, like other aspects of compliance processes, can be managed and measured over time.**

Compliance Culture & Its Significance

- "Compliance culture" today represents the next generation of corporate compliance and ethics programs.
- Regulators, legal scholars, and businesses are urging organisations to develop a culture of compliance that aligns with external laws, internal policies, and increasingly with the ethical values.

Compliance Culture: can be defined as:

- ❑ "Workplace behavior that naturally meets ethical and legal norms.
- ❑ Compliance is adhering to established norms, which take the form of external laws, internal policies, and ethical values.
- ❑ Values depend on the organisation, but can take the form of things like reputation and employees' personal ethics and goals.
- ❑ Regulators are most concerned with an organisation meeting external laws and related policies whereas board members, employees, and **the public expect compliance according to internal policies and values,**
- ❑ Culture provides the foundation that shapes employee decisions in the moment.
- ❑ Culture informs compliance decision making through explicit and implicit reference to organisational values, norms and assumptions**.**

- In other words, employee decisions are made implicitly, or naturally, through the influence of corporate culture.
- A strong compliance culture should ensure adherence to fair practice codes, manage conflicts of interests, and treat customers fairly, with the larger objective of delivering efficient customer service.
- Thus, compliance shall go beyond what is legally binding and embrace broader standards of integrity and ethical conduct.
- The responsibilities of the Compliance Function are to be carried out under a Compliance programme that sets out its planned activities such as the review of compliance risk assessment in specific products/ processes for which Regulator attaches importance compliance testing and educating staff on compliance matters/activities.

Benefits of Good Compliance Culture:

It is important for banks and Financial Institutions to demonstrate a good compliance culture to retain their reputation and win the trust of customers, investors, other stakeholders, employees and regulators.

A good compliance culture can benefit banks in several ways which includes:

- ✓ Low organisational and individual risk;
- ✓ Low reputational risk;
- ✓ Increased confidence among employees while performing their jobs
- ✓ Helps attract and retain talent and ensure employees engagement.
- ✓ Improved transparency which enables better decisions;
- ✓ Enhanced relationship with regulators and other stakeholders and
- ✓ Enhanced valuation among investors;

Banks which have undergone the stress testing program reported that top most benefits of complying with stress testing principles are better informed capital planning decisions, and maintaining a forward-looking view of the organisation's risks.

Banks, therefore, need to embrace compliance if they want customer satisfaction which eventually leads to better Return on Equity.

Sign of Poor Culture

- ✓ Focusing on short-term profitability, including personal interests, with little or no consideration for the long-term interest of the entity.
- ✓ Dominance of individuals in decision making forums and lack of challenge.
- ✓ Sub-Cultures, which are not aligned with the organisational culture (especially during acquisitions/ mergers):
- ✓ Adherence to the letter of law/regulation, but not spirit (tick-box attitude)
- ✓ Treating internal control/risk management framework as an irritant and breaching them at will for short-term benefits.
- ✓ Ineffective incentive structures vis-a-vis poor management of risks;

- ✓ Tendency to cover up the problems, rather law/regulation than resolving the underlying causes of the problems.
- ✓ Follow the market attitude.
- ✓ Employees are not encouraged or reluctant to speak out when they have concerns about the way in which the entity operates; and
- ✓ Failing to challenge the status quo and consider alternative viewpoints resulting in a false sense of security and the risk blind spots

Costs of poor Compliance Culture:

- Compliance risk is the risk of legal or regulatory sanctions, material financial loss, or loss to reputation, a bank may suffer as a result of its failure to comply with laws, regulations, rules, related self-regulatory organisation standards, and codes of conduct applicable to its banking activities. For better compliance culture a list of do's and don'ts must be created for all employees.

Banks should also:

- ✓ Convert misconducts and violations into Case studies to be disseminated among the staff for education and entrenchment of desired attitudes.
- ✓ Eschew the tendency to treat compliance merely as cost and should recognise that proper conduct saves the bank from possible reputational loss and penalties – thus, generates hidden earnings **which most banks do not quantify, and hence do not realise.**

The risk of RBI Penalties arises due to noncompliance of

- ✓ Prudential and regulatory norms
- ✓ Integrity and Market Conduct
- ✓ Legal directions, related Acts
- ✓ Internal Poilcies & Procedures as approved by Bank's Board

Note: As per Sections 46(4)(i) and 51(1) of the Banking Regulation Act, 1949: RBI can impose penalty

Compliance Culture – Indian Scenario

- ✓ Reserve Bank of India had introduced a system of designating "Compliance Officer" in banks in August 1992, based on recommendations by the Committee on Frauds and Malpractices in Banks (Ghosh Committee).
- ✓ The role and responsibilities of Compliance function received a shot in the arm after the Basel Committee on Banking Supervision (BCBS) issued the High Level Paper on Compliance Risk and Compliance Function in Banks in April 2005.
- ✓ Subsequent to the financial crisis, the focus on compliance has gone up significantly, especially in the area of conduct, KYC/AML, suitability and appropriateness of banking products offered to a specific customer.
- ✓ It will not be an exaggeration to say that some of the big losses suffered by banks in India on account of frauds could have been avoided if a good compliance culture was ingrained in respective banks. In most cases of frauds, a common

thread is non-adherence to internal policies and procedures by employees concerned.

In order to build a compliance program in any organisation following 7 elements can be followed:

- Implementing written policies, procedures, and standards of conduct.
- Designating a compliance officer and compliance committee.
- Conducting effective training and education.
- Developing effective lines of communication.
- Conducting internal monitoring and auditing.
- Enforcing standards through well-publicised disciplinary guidelines.
- Responding promptly to detected offenses and undertaking corrective action.
- **Additionally, measurement and management of compliance risk is needed.**
- **It can help to anticipate where compliance mis-steps are most likely to surface.**

How well are compliance processes working?

- It is important to know the level of enterprise-wide compliance risk which helps to gauge the effectiveness of compliance.
- The Indian financial regulators always emphasise the importance of an organisation's "culture of compliance".
- Having a "robust" culture of compliance can help organisations avoid severe financial consequences.
- A "robust culture of compliance" is essentially an environment that fosters ethical behavior and decision-making.
- It is important to note that the most clearly written, comprehensive **compliance program is destined for failure without such an environment.**
- compliance". Having a **"robust**" culture of compliance can help organisations avoid severe financial consequences. **A"robust culture of compliance"** is essentially an environment that fosters ethical behavior and decision-making. It is important to note that the most clearly written, comprehensive compliance program is destined for failure without such an environment.
- The challenge, however, is that a **"robust culture of compliance"** can be an elusive concept. To take some of the guess work, out of developing a culture of compliance, **here are 10 typical attributes that regulators look for:**

- **Tone at the top**: This is the most important hallmark of a culture of compliance. Regulators are increasingly meeting with senior management during examinations to get a sense of their engagement in compliance. Tone at the top is often evidenced by the processes for making critical decisions.

- **Integration across the enterprise is key**: Risks in banking are both complex and often inter-related. Credit can be accompanied by interest rate risk, market and other risks can aggravate liquidity risk, and compliance risk can overlap with other types of risk, especially operational risk. To ensure that risk is managed thoughtfully across the enterprise, compliance must work closely and communicate well with all risk areas and businesses.
- **Silos**: The compliance department should not be walled off from the rest of the organisation. It is important that compliance staff is present when business decisions are made? Does the firm seek their input? Firms with a strong culture of compliance would answer "yes" to both.
- **Powe**r: Regulators also look at who holds power in the firm. Is the chief compliance officer (CCO) part of senior management? Is the compliance department independent? Is it respected? or does the CCO sit in a back office, neither seen nor heard? When discussing an issue, who wins – business or compliance?
- **Cowboys:** Does the organisation reward risk-taking without limits? Are rewards based solely on financial performance? In a strong culture of compliance, risks are taken within the organisation's tolerance for risk and is seen as being bigger than any one individual.
- **Resources:** Compliance costs money. Is the compliance program appropriately structured and sufficiently funded? Is there a strong disparity in the organisation's investment in technology and other resources to make money versus its investment in technology and other resources to facilitate compliance?
- **Employee Buy-In:** Once the compliance infrastructure is established, it is the employees who carry out the mandate. The firm's culture of compliance must be embedded in the culture of the employees. To facilitate employee buy-in, organisations should have a Zero tolerance policy for employee misconduct and should have a continuing training program to ensure that employees understand their obligations and that the firm takes compliance seriously.
- **Living Compliance Program**: The compliance program should not be a stagnant checklist of procedural requirements. It must be tailored to the organisation's business and risks; it must be tested and modified; and it must be enforced. Are the policies actually working? Are issues escalated to senior management?
- **Technology:** Is compliance handled with pencil and paper? Does the organisation look for ways to automate compliance and limit human error, as it does with portfolio and risk management? How are workflows and documents managed? Technology allows organisations to spend less time in managing papers and people and more time in actively managing risk.
- **Documentation:** Regulators love documentation and so should organisations. Good record keeping reflects a strong compliance culture. When testing compliance policies, can the organisation prove that they work? Is testing documented? Is a documented workflow in place to track the process of marketing materials being approved, and to show that sign-off was received from the legal department?

Governance, Risk and Compliance – GRC Framework

- Growing regulatory environment, higher business complexity and increased focus on accountability have led enterprises to pursue a broad range of governance, risk and compliance initiatives across the organisation.
- However, these initiatives are uncoordinated in an era when risks are interdependent and controls are shared.
- As a result, these initiatives get planned and managed in silos, which potentially increases the overall business risk for the organisation.
- In addition, parallel compliance and risk initiatives lead to duplication of efforts and cause costs to spiral out of control.
- Governance, Risk, and Compliance process through control, definition, enforcement, and monitoring has the ability to coordinate and integrate these initiatives.
- **The span of a Governance, Risk and Compliance process includes three elements.**

GRC Solution's Overview of Working

GRC solution provides an integrated platform for standardizing and managing strategic and operational risk, as well as consolidating information from all financial risk management systems (e.g., credit risk, market risk, etc.) to develop an enterprise view of your risk exposure throughout all common risk management stages – including risk identification, assessment, response and monitoring.

The following modules may be generally implemented in GRC application

- Incident Management Module
- Risk Control Self-Assessment (RCSA) Module
- Key Risk Indicators (KRI) Module
- Issues and Action Plan Module
- Compliance/Policy Management Module
- Governance/Audit Management Module
- Regulatory Reports – Basic Indicator Approach (BIA) & The Standardised Approach (TSA)& Other MIS Reports

Benefits Of An Integrated GRC Approach

- Many organisations find themselves managing their governance, risk and compliance initiatives in silos, each initiative is managed separately even if reporting needs overlap.
- Even though, each of these initiatives individually follow the governance, risk and compliance process outlined above, when they deployed software solutions to enable these processes, the selections were made in a very tactical manner, without a thought for a broader set of requirements.
- As a result, organisations have ended up with dozens of such systems to manage individual governance, risk and compliance initiatives, each operating in its own silo.

By taking an integrated GRC process approach and deploying a single system to manage the multiple governance, risk and compliance initiatives across the organisation, the issues listed above can be easily addressed. Such an approach can:

- ✓ Have a dramatic positive impact on organisational effectiveness by providing a clear, unambiguous process and a single point of reference for the organisation
- ✓ Eliminate all redundant work in various initiatives
- ✓ Eliminate duplicative software, hardware, training and rollout costs as multiple governance, risk and compliance initiatives can be managed with one software solution
- ✓ Provide a "single version of the truth" available to employees, management, auditors and regulatory bodies
- ✓ An integrated GRC approach enables an organisation to integrate and streamline these individual compliance initiatives. So it can significantly reduce the cost of compliance. It is critical that a GRC solution must be able to address a wide range of compliance and risk management initiatives so that an organisation can leverage GRC to deploy a consistent framework across the organisation for compliance and risk management.

Whistle-Blower Mechanism/Policy

Introduction to a Model Whistle-blower Policy In an organisation whistleblowing policy means that the company gives freedom and allows their employees to report or telling the management the Facts and putting a Stop on all unethical immoral or illegal work.

Objective:

- ✓ To give employees, investors, contractors, vendors, and other stakeholders a platform whereon they can raise their concern against any wrongdoing done by the company.
- ✓ To protect employees against retaliation due to whistleblowing policy
- ✓ The company is committed for doing business in ethical ways and therefore an employee should raise their concern if they come across any behaviour, activity which is suspected to be unethical and dangerous for the company.
- ✓ The whistleblowing policy is a crucial policy which gives stakeholders the liberty to raise concern against any suspected illegal activity.
- ✓ The employees of the company can report any concern by an authorised channel operated under the audit committee.

Areas covered under whistleblowing policy:

Below mentioned list gives some examples of the area where the breach of the code of conduct is observed. However, there can be reasons beyond the list as well:

- ✓ Any kind of Harassment or discrimination
- ✓ Sharing of confidential information
- ✓ Any breach of privacy

- ✓ Any kind of Fraud or Fraudulent
- ✓ Misrepresentation of financial data
- ✓ Any kind of illegal activity
- ✓ Corruption
- ✓ Invalid promotion
- ✓ Illegal sales activity
- ✓ Conflict of interest
- ✓ Trading within the company
- ✓ Illegal competitive behaviour
- ✓ Improper use of company assets.

Whistle-blowing Policy in India

The whistle-blower policy in India is aimed to safeguard the interest of the general public. Employees who reveal fraud, corruption or mismanagement to the senior management are called internal whistle blowers. Employees who report fraud or corruption to the media, public or law authorities are external whistle-blowers. Indian whistle-blowers are protected under the Whistle-blower Protection Act India. Laws relating to whistleblowing and protection of whistle-blowers are inadequate in India. However, the Companies Act, 2013 lays down provisions for whistleblowing and corporate governance in India and the elimination of fraud by establishing adequate vigil mechanism. Sections 206 to 229 of the Companies Act, 2013 lay down laws relating to Inspection, Inquiry, and Investigation incorporate. Section 208 of the Act empowers an Inspector to inspect company records and furnish any recommendations to conduct investigations. **Section 210 states that the Central Government may order an investigation into the affairs of the company in the following cases:**

- ✓ On receipt of a report by Registrar or Inspector of the company.
- ✓ On intimation of a Special Resolution passed by a company that the affairs of the company must be investigated.
- ✓ To uphold the public interest.
- ✓ The Serious Fraud Investigation Office (SFIO), a statutory body is created under Section 211 of the Act which has the power to arrest any person for fraud in the company. The auditors have the responsibility to report to the Central Government if they have reason to believe a fraud committed or being committed to the company.

CAIIB Paper 1 (ABM) Module D Unit 6: Compliance Function and Role of Chief Compliance Officer in NBFCs

Framework For Scale Based Regulation For Non-Banking Financial Companies

Regulatory structure for NBFCs

Comprises of four layers based on their size, activity, and perceived riskiness.

- NBFCs in the lowest layer is known as NBFC - Base Layer (NBFC-BL).

- NBFCs in middle layer and upper layer shall be known as NBFC-Middle Layer (NBFC-ML) and
- NBFC-Upper Layer (NBFC-UL) respectively.
- The Top Layer is ideally expected to be empty and will be known as NBFC - Top Layer (NBFC-TL).

Base Layer Base

Layer comprises of Non-deposit taking NBFCs below the asset size of ` 1000 crore and **NBFCs undertaking the following activities:**

- NBFC-Peer to Peer Lending Platform (NBFC-P2P),
- NBFC-Account Aggregator (NBFC-AA)
- Non-Operative Financial Holding Company (NOFHC)
- NBFCs not availing public funds and not having any customer interface.

Middle Layer

The Middle Layer consist of

- All deposit taking NBFCs (NBFC-Ds), irrespective of asset size,
- Non-deposit taking NBFCs with asset size of ` 1000 crore and above and

NBFCs undertaking the following activities

- ✓ Standalone Primary Dealers (SPDs),
- ✓ Infrastructure Debt Fund - Non-Banking Financial Companies (IDF-NBFCs),
- ✓ Core Investment Companies (CICs),
- ✓ Housing Finance Companies (HFCs) and
- ✓ Infrastructure Finance Companies (NBFC-IFCs).

Upper Layer

The Upper Layer comprises of those NBFCs which are specifically identified by the Reserve Bank as warranting enhanced regulatory requirement based on a set of parameters and scoring. The top ten eligible NBFCs in terms of their asset size shall always reside in the upper layer, irrespective of any other factor. Upper Layer shall be populated with NBFCs, identified by way of a parametric scoring methodology, comprising of quantitative and qualitative parameters/ supervisory judgment. The quantitative and qualitative parameters shall have weightage of 70% and 30% respectively. Scoring methodology for identification of an NBFC as NBFC-UL shall be based on the set of NBFCs fulfilling the following criteria:

- ✓ Top 50 NBFCs (excluding top ten NBFCs based on asset size, which automatically fall in the Upper Layer) based on their total exposure including credit equivalent of off-balance sheet exposure.
- ✓ NBFCs designated as NBFC-UL in the previous year.
- ✓ NBFCs added to the set by supervisors using supervisory judgment.

Top Layer

- ✓ The Top Layer will ideally remain empty. This layer can get populated if the Reserve Bank is of the opinion that there is a substantial increase in the potential systemic risk from specific NBFC sin the Upper Layer.
- ✓ Such NBFCs shall move to the Top Layer from the Upper Layer.

Regulatory Changes under Scale Based Regulation (SBR)

Net Owned Fund: Regulatory minimum Net Owned Fund (NOF) for NBFC-ICC, NBFC-MFI and NBFC-Factors shall be increased to ` **10 crores. The following glide path is provided for the existing NBFCs to achieve the NOF of ` 10 crore:**

NBFCs	Current NOF	By March 31, 2025	By March 31, 2027
NBFC-ICC	₹ 2 crore	₹ 5 crore	₹ 10 crore
NBFC-MFI	₹ 5 crore (₹ 2 crore in NE Region)	₹ 7 crore (₹ 5 crore in NE Region)	₹ 10 crore
NBFC-Factors	₹ 5 crore	₹ 7 crore	₹ 10 crore

However, for NBFC-P2P, NBFC-AA, and NBFCs with no public funds and no customer interface, the NOF shall continue to be ` 2 crores.

NPA Classification: The extant NPA classification norm stands changed to the overdue period of more than 90 days for all categories of NBFCs. A glide path is provided to NBFCs in Base Layer to adhere to the 90 days NPA norm as under:

NPA Norms	Timeline
>150 days overdue	By March 31, 2024
>120 days overdue	By March 31, 2025
> 90 days	By March 31, 2026

However, the glide path will not be applicable to NBFCs which are already required to **follow the 90-day NPA norm.**

Experience of the Board: Considering the need for professional experience in managing the affairs of NBFCs, at least one of the directors shall have relevant experience of having worked in a bank/ NBFC.

Ceiling on IPO Funding: There shall be a ceiling of `1 crore per borrower for financing subscription to Initial Public Offer (IPO). NBFCs can fix more conservative limits.

Transition Path

Transition Plan: Once a NBFC is identified for inclusion as NBFC-UL, the NBFC shall be advised about its classification by the Department of Regulation, Reserve Bank and it will be placed under regulation applicable to the Upper Layer. ***For this purpose, the following timelines shall be adhered to:***

- Within three months of being advised by the RBI regarding its inclusion in the NBFC-UL, the NBFC shall put in place a Board approved policy for adoption of the

enhanced regulatory framework and chart out an implementation plan for adhering to the new set of regulations.

- The Board shall ensure that the stipulations prescribed for the NBFC-UL are adhered to within a **maximum time-period of 24 months** from the date of advice regarding classification as a NBFCUL from the Reserve Bank. During the period of transition, calibrated increment to business may be allowed through supervisory engagement. The period of 3 months provided for charting out the plan for implementation shall be subsumed within the 24-months' time-period referred to above.
- The roadmap as approved by the Board towards implementation of the enhanced regulatory requirement shall be submitted to the Reserve Bank and shall be subject to supervisory review.

CAIIB Paper 1 (ABM) Module D Unit 7: Fraud and Vigilance in Banks

Definition Of Fraud

Fraud is basically an intentional deception to secure unfair or unlawful gain for money either directly or indirectly. Fraud is a very common term in the present day highly monetised societies. It may take various forms depending upon the context being referred to. It has been defined differently in various acts though the gist remains the same. Accordingly, it may be civil wrong doing or criminal offence depending upon the context and severity.

Fraud has been defined in **section 17 of the Indian Contract Act, 1881 whereby "Fraud"** means and includes any of the following acts committed by a party to a contract, or with his connivance, or by his agent, with intent to deceive another party thereto or his agent, or to induce him to enter into the contract:

- The suggestion, as a fact, of that which is not true, by one who does not believe it to be true.
- The active concealment of a fact by one having knowledge or belief of the fact.
- A promise made without any intention of performing it.
- Any other act fitted to deceive.
- Any such act or omission as the law specially declares to be fraudulent.

Definition Of Forgery

A fraud may be committed through various innovative ways. One of the oldest ways is through forgery. Forgery generally means forging a document i.e., creation of a false written document or alteration of a genuine document with the intent to defraud.

Forgery has been defined u/s 463 of IPC 1860 "Whoever makes any false document [or false electronic record] or part of a document [or electronic record] with intent to cause damage or injury, to the public or to any person, or to support any claim or title, or to cause any person to part with property, or to enter into any express or implied contract, or with intent to commit fraud or that fraud may be committed, commits forgery.

Further, making a false document has been defined u/s 464. So, without going into drudgery of further sections of IPC, Forgery may be described/elaborated as follows:

- The offence of making a false document is complete as soon as a document is made with intent to commit a fraud.
- It is not necessary that the document should be made in the name of a really existing person. It may be in the name of a fictitious person or a deceased person.
- If several persons combine to forge an instrument and each takes a distinct part in it, they are nevertheless all guilty.
- The word forgery is used in Section 463 as a general term and that section is referred to in a comprehensive sense in Section 195 CrPC.
- Counterfeiting a document to support a legal claim will amount to forgery.
- Antedating a document may become forgery if the date is a material part of the forgery.
- A document made to conceal a previous fraudulent or dishonest act amounts to forgery. But such falsification is not forgery if it is only for the purpose of concealing a previous negligent act.
- A man's signature of his own name may amount to forgery.
- Offence of forgery can be abetted.
- The expression affixing electronic signature shall have the meaning assigned to it in clause (d) of sub section (1) of section 2 of Information Technology Act, 2000.

Banking And Cyber Frauds

Post demonetisation on account of thrust of government and policy makers towards digital banking, convenient, affordable and cheaper mode of transaction; the pace of digital transactions has increased many folds. With the advancement of technology, the fraudsters have also moved with the time and cyber frauds are thing more frequent these days. As identity data is available at various platforms and its being compromised in many ways. What one can do is to have proper safeguards and never ever fall prey to greed, freebees as there is nothing absolutely free in this materialistic world.

The main types of cyber threats are:

- Distributed denial of service (DDoS)
- Social engineering
- Man in the Middle (MitM)
- Malware and spyware
- Password attacks
- Advanced persistent threats (APT)

Vigilance Function In Banks

- The dictionary defines Vigilance as being watchful and cautious to detect danger, being ever awake and alert. While being vigilant is important in all walks of life, the observance of vigilance becomes more critical in the financial sector and particularly for institutions like banks, which deal with public money.

- Banks, which act as an intermediary between depositors and lenders, are duty bound to observe the highest standards of safeguards to ensure that money accepted from depositors are not mis-utilised and are put to gainful use or are available with them to be paid on demand.
- To ensure this, banks are not only required to do due diligence on the borrowers but are also expected to put in place appropriate safeguards to ensure that the transactions being undertaken by the staff are as per laid down guidelines. The watchfulness enforced by the vigilance function is required to ensure that public money, which banks hold in fiduciary capacity is not allowed to be misused by the delinquent elements in any manner.

Types of Vigilance in Banks:

There are Mainly Three Types of Vigilance in Banks

- **Preventive Vigilance**: It plays an important role in strengthening the vigilance set up of any organisation. Preventive Vigilance sets up procedure and systems to restrain the acts of wrong doing and misconduct in the various areas of the functioning of department.
- **Detective Vigilance**: Effective use and scan of Complaints, Inspection Reports, Audit Reports, etc. Detection of Corrupt Practices, Malpractices, Negligence, Misconduct and better surveillance of public contact points. Close watch on officers at sensitive posts of doubtful integrity and detect fraud and scrutiny of decision taken by officials having discretionary powers.
- **Punitive Vigilance:** It includes investigation and collection of evidence and speedy departmental inquiries. Swift and deterrent action against the real culprit.
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