# Ex 1.1: Financial Statements

These are a collection of reports about an organization's financial results and condition:

1. **A balance sheet** shows the financial position of the firm at a given point in time. It provides a snapshot and may be regarded as a static picture.

2. The **Profit and Loss A/c** reflects the performance of the firm over a period.

3. The **Cash Flow** statement displays the sources and uses of cash during a period Cash flow.

Do not include informal records of:

1. Expenses

2. Collections and payments

These are often referred to as "final accounts".

These are used by the government, shareholders, suppliers, customers, and other statutory authorities.

During the course of a business, an organization usually conducts numerous transactions and therefore needs to **maintain enormous amounts of data**. This data when recorded in an informal manner in records such as daily cash expenses, collections, and payments, etc., does not constitute financial statements. It is only when the organization's finance managers analyze and present financial data in a comprehensive and formal manner that financial statements are created.

Financial statements are often referred to as "financial accounts." However, there may be many other statements, such as Bank Reconciliation Statements, Debtors Ageing and Creditor's ageing analysis, which can be categorized as financial statements, but these cannot be called "accounts."

Financial statements containing **different types of data** are shared with various agencies such as the government, shareholders, suppliers, customers and other statutory authorities. Let's see how these agencies use an organization's financial statements.

- Financial statements help the organization's management to make business and economic decisions such as those related to **capital budgeting, financial planning, capital structure,** etc.

- Since a financial statement contains comprehensive data related to a company's business transactions, its thorough analysis provides the top management detailed information about the various aspects of a company's business. Therefore, the financial statement enables the top management to make critical business decisions.

- They are also used **for statutory reporting** to various regulators such as the Central Bank, Income Tax authorities, and Registrar of Companies.

  All regulatory authorities require organizations' financial data to be presented only in prescribed formats, and within a prescribed date. An efficient finance manager need to have in-depth knowledge of the country's regulations to be able to present financial statements accordingly.

- Financial statements help potential investors to decide whether to invest in the company's shares.

  Investors can analyze the information in statements such as Profit and Loss a/c, Balance Sheet, etc, using ratios and measures such as P/E ratio, Earning per Share (EPS), Current ratio, etc, to determine the company's financial health, before making investment decisions.

- They are also used by **other stakeholders** such as the organization's creditors and employees to make informed decisions regarding the organization. Creditors and employees, interested to know about the organization's financial health, often analyze its financial statements to get the required information.

- A financial statement should be **prepared and analyzed accurately** such that it provides correct data and information about the organization.

- Preparing a financial statement requires extensive data processing and analysis, which can be done using Excel. Excel provides a range of add-in tools and techniques for working with and presenting data. Next, let's look at common Excel tools and techniques for analyzing financial data.

## Ex 1.2: The Financial Statements are used

By the organization's management to make business and economic decisions such as those related to:

- Capital budgeting
- Financial planning
- Capital structure
- For statutory reporting to various regulators
- By investors to make investment decisions
- By the organization's other stakeholders such as employees and creditors

## Ex 1.3:

Creating financial statements requires precision and accuracy. At the same time, it also requires a thorough data analysis and presentation in different forms for use by different users. For example, the financial statement presented to a regulatory authority contains far greater details compared to that presented to an investor. In addition, classified data such as details of creditors may only be shared with the CEO and the top management but not with outsiders.

The different requirements for data analysis and presentation can be met using different tools that Excel provides.

The Common Excel tools for data analysis and presentation are:

- Creating a 5-Number Summary for Financial Analysis
- Analyzing financial data via repetition
- Charting financial frequency trending with a histogram
- Calculation of depreciation of assets
- Calculation of the effective interest rate

### Creating a 5-Number Summary for Financial Analysis

A 5-number summary is a powerful form of data representation that can:

**Shrink an enormous data set down to 5 simple numbers**, representing:

- Maximum number
- Minimum number
- Average
- Upper quartile
- Lower quartile

Provide information about a set of observations and is hence used in descriptive statistics. This can be used to summarize stocks, product life cycle, cost, profit, and other financial data.

**Quartiles** are the three values that divide any series into four equal parts. These three values Q1, Q2, and Q3 are called first (or lower) quartile, second (or median) quartile, and third (or upper) quartile, respectively.

Mathematically:

- Q1 = N + 1/4 th item

- Q2 = Value of the N + 1/2th item

- Q3 = Value of the 3N + 1/4th item, where N is the total number of items in the series

For example, the annual data on the stock prices for Company A will have almost 300 day-end figures. However, only key data such as the yearly average stock price and the highest and lowest stock prices needs to be analyzed to make a structured decision regarding investment in the stock of Company A.

In this case, a 5-number summary can be used to extract only the required set of data and present a concise summary of the distribution of the observations.

## Example: 01

**Question:**

| Month | Sales |
|---|---|
| Sept'12 | 1320 |
| Oct'12 | 1280 |
| Nov'12 | 1440 |
| Dec'12 | 5560 |
| Jan'13 | 4440 |
| Feb'13 | 2440 |
| Mar'13 | 2520 |

**Solution:**

**Process**

1. Type the data in excel, then write in row wise 0, 1, 2, 3, 4
2. Types Minimum, Lower Quartile, Median, Upper Quartile and maximum in next row
3. Type formula = Quartile(sales data, zero cell)

   Ex: =quartile(b:b, c2)

| Month | Sales | | | |
|---|---|---|---|---|
| Sep'12 | 1320 | 0 | Minimum | 1280 |
| Oct'12 | 1280 | 1 | Lower Quartile | 1380 |
| Nov'12 | 1440 | 2 | Median | 2440 |
| Dec'12 | 5560 | 3 | Upper Quartile | 3480 |
| Jan'13 | 4440 | 4 | Maximum | 5560 |
| Feb'13 | 2440 | | | |
| Mar'13 | 2520 | | | |

## Analyzing Financial Data via Repetition

Analyzing Financial Data via Repetition is creating a visual chart on the number of occurrences of an incident, like the number of sales per product and the number of purchases of each type of inventory. The visual chart is called a repetition scale.

- A repetition scale helps financial managers and financial analysts visualize repetition, without referring to another graph.

- Complex data, when presented in a visually appealing manner, helps in faster decision making.

In the figure, the repetition scale contains bars representing the number of sales of the company in each month. The scale provides a quick way to visually compare sales numbers for the months in a year.

| | A | B | C | D |
|---|---|---|---|---|
| 1 | Month | Price | No. of Sales | Scale of Repetition |
| 2 | Jan | 15000 | 25 | ||||||||||||||||||||||||| |
| 3 | Feb | 18000 | 20 | |||||||||||||||||||| |
| 4 | Mar | 17000 | 10 | |||||||||| |
| 5 | Apr | 20000 | 14 | |||||||||||||| |
| 6 | May | 25000 | 18 | |||||||||||||||||| |
| 7 | Jun | 22000 | 23 | ||||||||||||||||||||||| |
| 8 | Jul | 18000 | 0 | |
| 9 | Aug | 23000 | 11 | ||||||||||| |
| 10 | Sep | 21000 | 16 | |||||||||||||||| |
| 11 | Oct | 17500 | 18 | |||||||||||||||||| |
| 12 | Nov | 18200 | 34 | |||||||||||||||||||||||||||||||||| |
| 13 | Dec | 19000 | 36 | |||||||||||||||||||||||||||||||||||| |

**Example: 02**

| Month | Sales | No. Of Sales |
|---|---|---|
| Jan | 15000 | 45 |
| Feb | 16000 | 20 |
| Mar | 17000 | 14 |
| Apr | 18000 | 15 |
| May | 19000 | 20 |
| Jun | 20000 | 22 |
| Jul | 21000 | 10 |
| Aug | 22000 | 4 |
| Sep | 23000 | 41 |
| Oct | 24000 | 33 |
| Nov | 25000 | 26 |
| Dec | 26000 | 21 |

**Solution:**

**Process**

1. Type the data in excel.

2. Type the formula =rept("|", C2)

3. Drag the cells by mouse it shows like below picture.

| Month | Sales | No. Of Sales | Repetition |
|-------|-------|--------------|------------|
| Jan | 15000 | 45 | |||||||||||||||||||||||||||||||||||||||||||| |
| Feb | 16000 | 20 | |||||||||||||||||| |
| Mar | 17000 | 14 | |||||||||||| |
| Apr | 18000 | 15 | ||||||||||||| |
| May | 19000 | 20 | |||||||||||||||||| |
| Jun | 20000 | 22 | |||||||||||||||||||| |
| Jul | 21000 | 10 | |||||||| |
| Aug | 22000 | 4 | |||| |
| Sep | 23000 | 41 | |||||||||||||||||||||||||||||||||||||| |
| Oct | 24000 | 33 | |||||||||||||||||||||||||||||| |
| Nov | 25000 | 26 | |||||||||||||||||||||| |
| Dec | 26000 | 21 | ||||||||||||||||||| |

## Charting Financial Frequency Trending with a Histogram

A histogram is a frequency chart made of bars of different heights. The height of each bar represents the **frequency** of values in the class represented by the bar.

- A histogram is used as a tool for frequency distribution plotting.

**Frequency Distribution:**

- In statistics, frequency distribution is an arrangement of values that one or more variables take in a sample. Each entry in a table contains the frequency or count of the occurrences of values within a particular group or interval.

- A frequency distribution shows a summary of data divided into mutually exclusive classes and the number of occurrences in each class.

For example, the histogram on the slide shows a distribution of the number of employees who belong to different salary brackets, such as:

- Less than or equal to $10,000

- From $11,000 to $21,000

- From $22,000 to $32,000

- From $33,000 to $43,000 and so on

Another example of distribution data that can be depicted using a histogram is the number of people in a population that belong to different age groups such as 0–20 years, 21–40 years, 41–60 years, and 61 years and above.

A histogram is used most commonly to depict frequency distribution.



## Calculation of Depreciation of Assets

Depreciation, in finance and accounts refers to:

1. The decrease in the value of assets from use or effluxion of time through technology and market changes.

2. The allocation of the cost of the assets to each accounting period during the useful life of the asset.

The former affects the Balance Sheet and the latter affects the Profit and Loss A/c.

Methods of computing depreciation and the periods over which the assets are depreciated may vary between asset types within the same business.

These may be specified by law or accounting standards, which may vary from one country to another.

There are several methods of computing depreciation; the common methods are:

- Straight Line method
- Reducing balance method
- Fixed percentage method
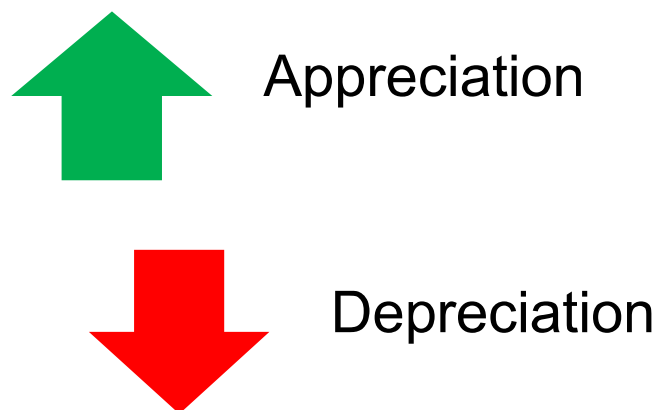


**Appreciation:** It shows the value of an assets increased.

**Depreciation:** It shows the value of an assets decreased.

**Straight Line depreciation** is the simplest and most often used method. In this method, the company estimates the salvage value of the asset at the end of the period during which it will be used to generate revenues (i.e., its useful life).

(Salvage value is an estimate of the value of the asset at the time it will be sold or disposed of; it may be zero or even negative. Salvage value is also known as scrap value or residual value). The company will then charge the same amount to depreciation each year over that period, until the value shown for the asset has reduced from the original cost to the salvage value.

**Straight Line method:**

$$\text{Annual depreciation expense} = \frac{\text{Cost of fixed asset} - \text{Salvage value}}{\text{Useful life of asset (years)}}$$

For example, a vehicle that depreciates over 5 years is purchased at a cost of $5,000 and will have a salvage value of $1,000. Then, this vehicle will depreciate at $800 per year, i.e., ($5,000 − $1,000) / 5 = 8.

Note that Book value at the beginning of the first year of depreciation is the original cost of the asset. At any time, book value equals the original cost minus accumulated depreciation.

The Straight Line method of depreciation can be calculated in Excel by using the function **SLN**. For using this function, the useful life and the salvage value needs to be known. Using these two values, the annual depreciation amount can be calculated.

## Example: 03

| | A | B |
|---|---|---|
| 1 | **Calculation of Depreciation by Straight Line Method** | |
| 2 | Cost Price of an Asset | $5,000.00 |
| 3 | Salvage Value | $1,000.00 |
| 4 | Useful Life in Years | 5 |
| 5 | **Depreciation=SLN(B2,B3,B4)** | **$800.00** |

## Calculation of the Effective Interest Rate

Effective interest rate is the actual interest rate taking into consideration the compounding factor. For example, an investment with an interest rate of 12% annually will have a higher effective interest rate if it is compounded on a monthly, quarterly, or bi-annual basis.

As a finance manager, determining the effective cost of interest is important for planning out the cash flows in an effective way.

Effective rate can be found out in Excel by using the function = **EFFECT(Nominal_ rate, NPERY)**, where:

Nominal Rate is the nominal interest rate or the declared interest rate.

NPERY is the number of compounding periods per year. For example, 2 for bi-annual, 4 for quarterly, and 12 for monthly.

**Compound interest** arises when interest for a period is added to the principal, so that, from that moment on, the interest that has been added also earns interest in the next compounding period.

The effective interest rate for an investment having a nominal interest rate of 12% per annum, compounded quarterly will be 12.55%. This calculation is shown in the figure.



## Ex 1.4:

Common Excel techniques for data analysis and presentation are:

- Importing data lists from the Web
- Debtors ageing analysis
- Creditors ageing analysis

### Importing Data Lists from the Web

Data from the web has a series of applications in daily life.

An example of web-based data list would be a list of currency conversion amounts and companies' stock prices.

Consider an example. An exporter, who has business interests in various countries requires updated data on the currency conversion rates for different countries. Since the conversion rates fluctuate, the currency conversion list would also need to be updated every hour.One of the methods to gather this data is to get an employee to obtain the latest data from the relevant website and update it in a database every few hour; however, this method is error-prone and would result in extra costs. Other examples of data includes daily stock prices and mutual fund NAV (day end value of mutual fund). This type of data is tedious to collect manually and update frequently.

Therefore, if this data, which is readily available on various websites, is automatically imported from the websites and updated in an Excel file, it would serve all purposes, while keeping the costs low.

Hence, we need to learn and know how to import data from the web. Data on the web can be imported into Excel by performing a few simple steps. The data can also be refreshed/updated automatically.

**Data on the Web:**

- Can be imported into Excel
- Can also be refreshed/updated automatically
- Is error-prone, costly, and time-consuming if copied and updated manually

# Debtors Ageing Analysis

This analysis is performed to find out the bills for which an amount is due for a long period of time. The process categorizes the debtors list in various time brackets, according to the duration for which they have been pending.

Debtors ageing analysis is necessary so that the finance manager can follow up on the long pending dues or can classify them as bad debts.

The finance manager can also make required provisions in the books of accounts for doubtful debts, depending on the result of ageing analysis.

Debtors ageing analysis involves categorizing the amount receivable in various buckets as per their due dates.

For example, the buckets can be < 30 days, 30–60 days, 60–90 days, > 90 days.

Debtors analysis can be done by using various accounting packages like Tally. However, Excel also provides a technique for performing Debtors ageing analysis.

It helps a finance manager to:

1. Follow up on long-pending dues.
2. Make provisions for bad debt and doubtful debts.

## Example

| | A | B | C | D | E | F | G | H | I |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | XYAB Inc. | | | | | | | |
| 2 | | | | | | | | | |
| 3 | Details of Age-wise Debtors Report as on | | 31-Dec-12 | | | | | | |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |
| 6 | Name of the Party | Invoice No. | Invoice Date | Amount ($) | 0-30 Days | 31-60 Days | 61-90 Days | 91-180 Days | >180 Days |
| 7 | A1B1 Inc. | 402 | 30-Jan-12 | 1,532,657 | - | - | - | - | 1,532,657 |
| 8 | X2Y2 Corp. | 506 | 2-Feb-12 | 5,132 | - | - | - | - | 5,132 |
| 9 | T & L Engg. | 509 | 1-Apr-12 | 6,890 | - | - | - | - | 6,890 |
| 10 | A1B2 Solutions | 542 | 22-May-12 | 5,178 | - | - | - | - | 5,178 |
| 11 | A1B2 Solutions | 548 | 5-Jun-12 | 600 | - | - | - | - | 600 |
| 12 | A1B1 Inc. | 563 | 8-Jun-12 | 1,000 | - | - | - | - | 1,000 |
| 13 | T & L Engg. | 572 | 10-Jul-12 | 5,192 | - | - | - | 5,192 | - |
| 14 | A1b3 Steel Supplies | 577 | 20-Aug-12 | 9,000 | - | - | - | 9,000 | - |
| 15 | T & L Engg. | 581 | 30-Oct-12 | 8,592 | - | - | 8,592 | - | - |
| 16 | A1b3 Steel Supplies | 594 | 2-Dec-12 | 10,000 | 10,000 | - | - | - | - |
| 17 | X2Y2 Corp. | 603 | 6-Dec-12 | 5,342 | 5,342 | - | - | - | - |
| 18 | A1B2 Solutions | 609 | 15-Dec-12 | 8,015 | 8,015 | - | - | - | - |
| 19 | T & L Engg. | 614 | 22-Dec-12 | 1,012 | 1,012 | - | - | - | - |

## Creditors Ageing Analysis

1. Involves categorizing the amount payable by the company as per the due dates
2. Helps to avoid legal and regulatory proceedings
3. Involves arranging the creditors' data according to their due dates

A creditors ageing analysis table can be created using the same process as that for creating a debtors ageing analysis table.
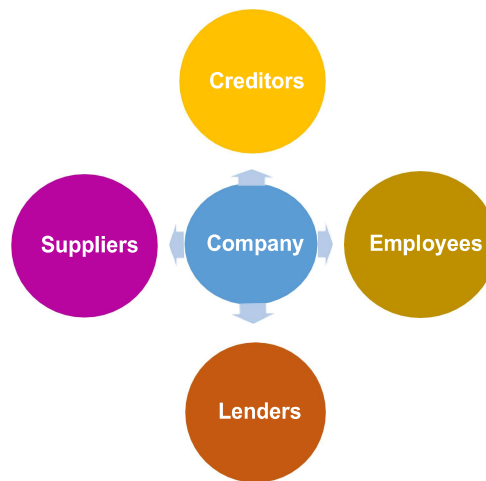


## Problem Statement

The CEO of A1B1 wants a report from the Finance Manager, Mr. Thomas Cazillo, regarding the company's outstanding creditors. The CEO wishes to pay off all the dues of the company and wants to know the age-wise creditors' data. The age buckets specified are less than 30 days, 31 to 60 days, and more than 61 days.

- The company's creditor's data is as shown in the figure.



**Solution:**

| | A1B1 | | Date | 19-Apr-13 | | | |
|---|---|---|---|---|---|---|---|
| | Sundry Creditors Details | | | | | | |
| Date | Particulars | Bill | Amount | Less Than 30 Days | 31–60 Days | More Than 61 Days | |
| 10-Apr-13 | Jones Furniture | 76 | $2,000.00 | 2,000 | | | |
| 02-Feb-13 | F & T Co. | 54 | $4,400.00 | | | 4,400 | |
| 10-Mar-13 | Unique Power Traders | 536 | $22,300.00 | | 22,300 | | |
| 01-Apr-12 | F & T Co. | 5 | $3,220.00 | | | 3,220 | |
| 25-May-12 | Jones Furniture | 82 | $2,200.00 | | | 2,200 | |
| 21-Sep-12 | Unique Power Traders | 271 | $16,310.00 | | | 16,310 | |

Formulas for above problem:

1. **Less than 30 days:** =IF($D$1-A4<=30,D4,"")

2. **31- 60 days:** =IF(AND($D$1-A4>=31,$D$1-A4<=60),D4,"")

3. **More than 61 days:** =IF(AND($D$1-A4>=61),D4,"")

# Summary

In this chapter, you learned that:

- Financial statements are used by the financial managers to analyze and present financial data in a user-friendly manner.

- Various Excel tools help the finance manager to analyze and present the financial data to various end users in an effective manner.

- Important Excel tools and techniques for data analysis and interpretation are:
  - Creating a 5-number summary for financial analysis
  - Analyzing financial data via repetition
  - Charting financial frequency trending with a histogram
  - Calculating depreciation of assets
  - Calculating the effective interest rate
  - Importing data lists from the Web
  - Debtors ageing analysis
  - Creditors ageing analysis

- A 5-number summary helps to shrink an enormous data set down to simple numbers.

- A histogram is used as a tool for frequency distribution plotting.

- It is possible to import important data from the Web directly to Excel tables.

- Analyzing financial data via repetition helps to create a visual chart on the number of occurrences of an incident.

- Debtors ageing analysis and creditors ageing analysis categorize a company's receivables and payment into various time buckets, which helps the management to take various important decisions.

- Common methods used to calculate depreciation are:
  - Straight Line method
  - Reducing balance method
  - Fixed percentage method

- Excel can calculate depreciation by using the Straight Line method.

- You can calculate the effective interest rate by using the EFFECT formula.

# Questions Based on this Chapter

1. What are the three Constituents of financial Statement?

2. What is 5no summary? What components we can calculate by this?

3. What is depreciation? Mention some methods of depreciation.

4. What do you meant by ageing analysis?

5. Write down the steps to process Import data into excel from web.

6. Calculate Depreciation under SLN:

| | |
|---|---|
| Cost Price of an Asset | 1200000 |
| Salvage Value | 400000 |
| Useful Life Value | 20 |
| **Depreciation** | **?** |

7. Calculate Effective rate of interest:

| | |
|---|---|
| Nominal Rate of Interest | 15% |
| Compound Term | 4 |
| Effective rate of Interest | ? |