FINANCIAL STATEMENTS ANALYSIS

1. SOURCES OF INFORMATION

The accounts of a business are designed to provide users with information about the performance and financial position of the entity. The bare figure, however, are not particularly useful and it is only through comparisons (usually ratios) that their significance can be established. Comparisons may be made with previous financial periods, with other similar businesses or with averages for the particular industry. The choice will depend on the purpose for which the comparison is being made and the information that is available.

Financial Analysis

The lack of detailed information available to the outsider is a considerable disadvantage to undertaking ratio analysis. The first difficulty is that there may be simply insufficient data to calculate all of the required ratios. A second concern is the availability of a suitable yard stick with which the calculated ratios can be compared.

2. RATIO ANALYSIS

Ratio analysis involves comparing one figure to another to produce a ratio and assessing whether a ratio indicates a strength or weakness of the company’s affairs.

Ratio analysis can be used to determine the following;

Whether the business
➢ is profitable
➢ has enough money to pay its employees higher wages
➢ has enough money to pay its bills
➢ is paying its tax
➢ is using its assets efficiency
➢ has a gearing problem or not
➢ is a candidate for being bought by another company or investor

Categories of ratios

1.) Profitability ratios
   Has the business made good profits when compared to it turnover

2.) Return ratios
   Compared to it assets and capital employed has the business made good profits

3.) Liquidity and efficiency ratios
   Does the business has enough money to pay its bills and how the business had made use of its current and fixed assets

4.) Gearing ratios
Does the company have a lot of debts or is it mainly financed by shares

5.) Investors ratios

1.) PROFITABILITY

Basic profitability

<table>
<thead>
<tr>
<th>1.) Gross profit margin = Gross Profit *100</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Gross profit ratio)</td>
</tr>
<tr>
<td>Sales</td>
</tr>
</tbody>
</table>

2.) Operating profit margin = Operating profit *100

3.) Net profit margin = Net Profit *100

Sales

In profitability ratios, we try to measure the profitability of the business by comparing profits to sales/turnover/revenue.

There are several measurements of profits such as Gross profit, Operating profits, profit before interest tax and profit for the year (profit after tax).

Each of the ratios mentioned above measures the profit made by the company for each rupee of sale.

Gross Profit Margin

This ratio measures the gross profit made by the company on each rupee of sale made by the company and shows the relationship between the company’s sales and cost of sales.

Net Profit Margin

This measures the net profit made by the company on each rupee of sale.

There are alternative methods of performing this calculation.

<table>
<thead>
<tr>
<th>1.) Net profit margin = Profit before tax *100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
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</tbody>
</table>

2.) Net profit margin = Profit after tax *100

Sales
2.) RETURN RATIOS

I. Return on capital employed

1.) Return on capital employed = \( \frac{\text{Profit before interest and tax (operating profit)}}{\text{Total capital employed (Equity + Debt)}} \times 100 \)

Alternative formula,

\[ \text{Return on capital employed} = \frac{\text{Profit before interest and tax (operating profit)}}{\text{Total assets} - \text{current liabilities}} \times 100 \]

This measures the total return the business has made when compared to the capital invested in it. This ratio shows by the available fund to the business (whether equity or debt) the total profits generated from operations which are available to its lenders and equity holders.

2.) Return on equity = \( \frac{\text{Profit for the year (Profit after tax)}}{\text{Total equity}} \times 100 \)

This measures the profit available to share holders as a % of the equity. This tries to determine the amount of return made by the company which is available for the share holders as a percentage of the equity invested in the company.

II.) Return on Total Assets Ratio

The Return on Total Assets Ratio (ROTA) has a similar meaning to ROCE and the method of calculating it is the same, too.

\[ \text{Return on Total Assets (ROTA)} = \frac{\text{PBIT}}{\text{Total Assets}} \times 100 \]

Notice that a different profit figure is used for this ratio - we use profit before interest and tax this time.

Accountants would say that interest payments and tax payments are separate from the ways in which the total assets are used. That is, if we are trying to measure the efficiency of our total assets, then take the profit that they have generated before interest and taxation.

Interest and tax problems are the senior managers’ concern, since they decide how much to borrow and therefore how much interest they ought to pay; senior managers decide on capital investment, too, and they have a big say in how much tax they pay for a year. Therefore, since operating managers can't control the amounts of interest and taxation paid, they should not be assessed against it.
3. Advanced Rate of Return

First some advanced Rate of Return equations:

\[
\text{Return on Fixed Assets (ROFA)} = \frac{\text{PBIT}}{\text{Fixed Assets}} \times 100
\]

\[
\text{Return on Working Capital (ROWC)} = \frac{\text{PBIT}}{\text{Working Capital}} \times 100
\]

In addition to the ROCE and ROTA ratios, there are other ratios that will help us to appreciate the efficiency with which the management is using its resources. Here are two ratios that help us with this further analysis.

Remember that with the ROTA we used PBIT for our numerator (that's the number on the top of the formula).

We use the same measure of profit for the Return on Fixed Assets (ROFA) and the Return on Working Capital (ROWC).

3. ASSET USAGE, EFFICIENCY AND LIQUIDITY

Stock turnover, Debtors' turnover and Creditors' turnover help us to assess the liquidity position as well as giving us detailed information about stock control and credit control.

Total asset turnover - The overall efficiency of the business. We will look at total asset turnover and net asset turnover; then we will investigate the fixed and current asset turnover ratios

WORKING CAPITAL MANAGEMENT (I) : LIQUIDITY

Working capital management is concerned with making sure we have exactly the right amount of money and lines of credit available to the business at all times.

In part 1 of our look at working capital management we will look at the liquidity ratios. Cash is the life-blood of any business, no matter how large or small. If a business has no cash and no way of getting any cash, it will have to close down. It's that simple!

Following on from this we can see that if a business has no idea of its liquidity and working capital position, it could be in serious trouble.

Current ratio = Current Assets: Current Liabilities

Quick assets ratio/ acid test ratio = (Current Assets-Stocks): Current Liabilities
The two liquidity ratios, the current ratio and the acid test ratio, are the most important ratios in almost the whole of ratio analysis are also the simplest to use and to learn.

**The Current Ratio**

The current ratio is also known as the **working capital ratio** and is normally presented as a real ratio. That is, the working capital ratio looks like this:

\[
\text{Current Assets: Current Liabilities} = x: y \text{ eg } 1.75: 1
\]

**The Acid Test Ratio**

The acid test ratio is also known as the liquid or the quick ratio. The idea behind this ratio is that stocks are sometimes a problem because they can be difficult to sell or use. That is, even though a supermarket has thousands of people walking through its doors every day, there are still items on its shelves that don't sell as quickly as the supermarket would like. Similarly, there are some items that will sell very well.

Nevertheless, there are some businesses whose stocks will sell or be used slowly and if those businesses needed to sell some of their stocks to try to cover an emergency, they would be disappointed. Engineering companies can have their materials in stock for as much as 9 months to a year; a greengrocer should have his stocks for no longer than 4 or 5 days - a good greengrocer anyway.

\[
\text{Acid Test Ratio} = (\text{Current Assets} - \text{Stocks}) : \text{Current Liabilities}
\]

**WORKING CAPITAL MANAGEMENT (II) STOCKS/ DEBTORS/ CREDITORS**

What we are about to study - stock, debtors and creditors control - are all part of working capital management in the same way that a discussion of liquidity was part of working capital management.

We know that working capital is concerned with the ability of a business to be able to pay its way. The three ratios we are concerned with now are concerned with spending and saving money in the right places.

Too much stock and we waste money on buying it and keeping it. Too much money loaned to our debtors and it's money we can't use for something else, such as buying machinery, paying our creditors or even investing it. Too much money in the form of creditors and we might have a problem that no one else will give us credit for anything else because they think we can't afford it, and, if we suddenly have a cash problem, we might not be able to pay our creditors.

Working capital management is concerned with the control aspects of the issues we have just mentioned.

I.) Stock Turnover: stock control
In principle, the lower the investment in stocks the better. Apart from buffer stocks that businesses sometimes need in case of shortages of supply and strategic stocks in case of war, sudden changes in demand and so on, modern stock control theory tells us to minimize our investment in stocks.

\[
\text{Stock Turnover times} = \frac{\text{Cost of sales}}{\text{Average Stocks}}
\]

\[
\text{Stock Turnover days (stock resident period)} = \frac{\text{Average Stocks} \times 365}{\text{Cost of sales}} = \frac{1}{\text{Stock turnover times}} \times 365
\]

Alternatives,

➢ In the absence of average stock closing stocks can be used.

In such a case the same formula should be used for all periods calculated.

II.) Debtors' Turnover

In the same way that stock control is a vital aspect of working capital management, so too is debtors' control. Many businesses need to sell their goods on credit, otherwise they might find it difficult to survive if their competitors provide such credit facilities; this could mean losing customers to the opposition.

Nevertheless, since we do provide credit, we must do so as optimally as possible. We've used the word 'optimal' before and it doesn't necessarily mean the best possible, but the best possible under the circumstances.

\[
\text{Debtors' Turnover times} = \frac{\text{Credit Sales}}{\text{Average Debtors}}
\]

\[
\text{Debtors' Turnover Days (Debtors resident period/settlement period)} = \frac{\text{Average Debtors} \times 365}{\text{Credit Sales}} = \frac{1}{\text{Debtors turnover times}} \times 365
\]

Alternatives,

➢ In the absence of average debtors closing debtors can be used.
➢ In the absence of credit sales total sales can be used

In such a case the same formula should be used for all periods calculated.

III.) Creditors' Turnover Ratio

Creditors are the businesses or people who provide goods and services in credit terms. That is, they allow us time to pay rather than paying in cash.

There are good reasons why we allow people to pay on credit even though literally it doesn't make sense! If we allow people time to pay their bills, they are more likely to buy from your business
than from another business that doesn't give credit. The length of credit period allowed is also a factor that can help a potential customer decide whether to buy from your business or not: the longer the better, of course.

**Creditors' Turnover times**  
\[ \text{Creditors' Turnover times} = \frac{\text{Credit purchase}}{\text{Average creditors}} \]

**Creditors' Turnover days**  
\[ \text{Creditors' Turnover days (creditors settlement period)} = \frac{\text{Average Creditors} * 365}{\text{Credit purchase}} = \frac{1}{\text{Creditors turnover times}} * 365 \]

**Alternatives,**
- In the absence of average creditors closing creditors can be used.
- In the absence of credit purchase total purchase can be used
- In the absence of total purchase cost of sales can be used

*In such a case the same formula should be used for all periods calculated.*

**Total Asset Turnover**

The asset turnover ratio simply compares the turnover with the assets that the business has used to generate that turnover. In its simplest terms, we are just saying that for every Rs.1 of assets, the turnover is Rs. X. Formula for total asset turnover is:

\[ \text{Total Asset Turnover} = \frac{\text{Turnover}}{\text{Total Assets}} \]

**IV.) Cash flow analysis**

The cash flow ratio is the ratio of a company's net cash inflow to its total debts.

(a) Net cash inflow is the amount of cash which the company has coming into the business from its operations.

(b) Total debts are short-term and long-term creditors, together with provisions for liabilities and charges. A distinction can be made between debts payable within one year and other debts and provisions.

Obviously, a company needs to be earning enough cash from operations to be able to meet its foreseeable debts and future commitments, and the cash flow ratio, and changes in the cash flow ratio from one year to the next, provides a useful indicator of a company's cash position.

**THE CASH CYCLE**

To help you to understand liquidity ratios, it is useful to begin with a brief explanation of the cash cycle. The cash cycle describes the flow of cash out of a business and back into it again as a result of normal trading operations.
Cash goes out to pay for supplies, wages and salaries and salaries and other expenses, although payments can be delayed by taking some credit. A business might hold stock for a while and then sell it. Cash will come back into the business from the sales, although customers might delay payment by themselves taking some credit.

However there is an apparent difference exist between the cash cycle and the operating cycle.

The **operating cycle**

Operating cycle is the time period between the acquisition of inventory and the collection of cash from receivables.

\[
\text{Operating cycle} = \text{Inventory period} + \text{Debtors period}
\]

The **Cash cycle**

It is the time period between cash disbursement and cash collection

\[
\text{Cash cycle} = \text{operating cycle} - \text{creditors period}
\]

The points about the cash cycle are as follows.
The timing of cash flows in and out of a business does not coincide with the time when sales and costs of sales occur. Cash flows out can be postponed by taking credit. Cash flows in can be delayed by having debtors.

The time between making a purchase and making a sale also affects cash flows. If stocks are held for a long time, the delay between the cash payment for stocks and cash receipts from selling them will also be a long one.

Holding stocks and having debtors can therefore be seen as two reasons why cash receipts are delayed. Another way of saying this is that if a company invests in working capital. Its cash position will show a corresponding decrease.

Similarly, taking credit from creditors can be seen as a reason why cash payments are delayed. The company's liquidity position will worsen when it has to pay the creditors, unless it can get more cash in from sales and debtors in the meantime.

The liquidity ratios and working capital turnover ratios are used to test a company's liquidity, length of cash cycle, and investment in working capital.

4.) FINANCIAL GEARING

I.) Gearing I

\[
\text{Gearing} = \frac{\text{Long Term Liabilities}}{\text{Equity Shareholders' Funds}}
\]

Gearing is concerned with the relationship between the long terms liabilities that a business has and its capital employed. The idea is that this relationship ought to be in balance, with the shareholders' funds being significantly larger than the long term liabilities.

Shareholders ought to have the upper hand because if they don't that could cause them problems as follows:

- Shares earn dividends but in poor years dividends may be zero: that is, businesses don't always need to pay any!
- Long term liabilities are usually in the form of loans and they have to be paid interest; even in bad years the interest has to be paid
- Equity shareholders have the voting rights at general meetings and can made significant decisions
- Long term liability holders don't have any voting rights at general meetings but they have the power to override the wishes of the shareholders if there are severe problems over their interest or capital repayments
So, shareholders like to see the gearing ratio, the relationship between long term liabilities and capital employed.

II.) Gearing II

There is an alternative gearing ratio, we can call it the Gearing Ratio II.

The formula for this ratio is:

$$\text{Gearing II} = \frac{\text{Long Term Liabilities}}{\text{Long Term Liabilities} + \text{Equity Shareholders' Funds}}$$

5.) INVESTOR RATIOS

Basic equations you'll need to know:

I.) Earnings per share: EPS

This is, perhaps, the fundamental investor ratio: in this case, we work out the average amount of profits earned per ordinary share issued.

$$\text{Earnings per share (EPS)} = \frac{\text{Profit available to equity shareholders}}{\text{Weighted Average number of issued equity shares}}$$

II.) Dividends per Share: DPS

The DPS ratio is very similar to the EPS: EPS shows what shareholders earned by way of profit for a period whereas DPS shows how much the shareholders were actually paid by way of dividends. The DPS formula is:

$$\text{Dividends per share (DPS)} = \frac{\text{Dividends paid to equity shareholders}}{\text{Number of issued equity shares}}$$

III.) Dividend Yield

The dividend yield ratio allows investors to compare the latest dividend they received with the current market value of the share as an indicator of the return they are earning on their shares.

Note, though, that the current market share price may bear little resemblance to the price that an investor paid for their shares. Take a look at the history of a business's share price over the last year or two and you will see that today's share price might be a lot higher or a lot lower than it was a year ago, two years ago and so on.
We clearly need the latest share price for this ratio and we can get that from newspapers. We can also find the share prices on the Internet.

The formula for the dividend yield is:

\[
\text{Dividend yield} = \frac{\text{Latest annual dividends (DPS)}}{\text{Current market share price (MPS)}}
\]

**IV.) Price Earnings Ratio: P/E ratio**

The P/E ratio is a vital ratio for investors. Basically, it gives us an indication of the confidence that investors have in the future prosperity of the business. A P/E ratio of 1 shows very little confidence in that business whereas a P/E ratio of 20 expresses a great deal of optimism about the future of a business.

\[
\text{Price/earnings or PE ratio} = \frac{\text{Current market share price (MPS)}}{\text{Earnings per share (EPS)}}
\]

Some other ratios are,

\[
\text{Earnings yield} = \frac{\text{Latest annual earnings (EPS)}}{\text{Current market share price (MPS)}}
\]

\[
\text{Dividend pay out (DPO)} = \frac{\text{Latest annual dividends (DPS)}}{\text{Latest annual earnings (EPS)}}
\]

\[
\text{Retention Ratio} = 1 - \text{DPO}
\]

\[
\text{Dividend cover} = \frac{\text{Net profit available to equity shareholders}}{\text{Dividends paid to equity shareholders}}
\]

\[
\text{Net Assets per share (NAPS)} = \frac{\text{Share capital + Reserves}}{\text{Average number of issued equity shares}}
\]

\[
\text{Price to Book value} = \frac{\text{Current market share price (MPS)}}{\text{Net assets per share (NAPS)}}
\]

**V.) Interest cover**

The interest cover ratio is the twin brother of the dividend payout ratio and it both means the same and is calculated in the same way. Here's the interest cover ratio formula:

\[
\text{Interest Cover} = \frac{\text{Net profit before interest}}{\text{Interest paid}}
\]
The interest cover ratio tells us the safety margin that the business has in terms of being able to meet its interest obligations. That is, a high interest cover ratio means that the business is easily able to meet its interest obligations from profits. Similarly, a low value for the interest cover ratio means that the business is potentially in danger of not being able to meet its interest obligations.

**LIMITATIONS OF RATIO ANALYSIS**

1. Non availability of comparable information
2. Use of historical information
3. Ratios are not definitive; they are only a guide
4. It is a subjective exercise
5. It can be subject to manipulation
6. Ratios are not defined in standard form
7. Negative effect
8. Problems of interpretation
9. Depending on balance sheet is figures could be in appropriate; Balance sheet is only a snap shot
10. Adopting inappropriate accounting policies

**Ratios for specific industries**

**Financial Services (Banks and other financial institutions)**

(I) **Profitability Measurement**

1. Net Interest Margin - (Net Interest income / Interest Earning assets)
   a. Net Interest income = Total Interest income – Total Interest expense

2. Composition of income
   a. Interest income / Total operating income
   b. Other income / Total operating income
   c. Total operating income = Interest income + Other income

3. Cost to income ratio
   a. Total Non-Interest Expense (excluding provision) / (Net Interest Revenue+ Other Operating Income)

(II) **Capital Adequacy**

1. Core Capital Ratio = Core Capital / Risk Weighted Assets
2. Total Capital Ratio = Total Capital / Risk Weighted Assets
(III) Liquidity

1. Liquid Assets to Customer Deposits = Liquid Assets / Customer Deposits
   a. Liquid assets = Cash + Bank Balances + Government securities (maturity <1 yr)

(IV) Asset Quality

1. Gross Non performing loan ratio (Gross NPL ratio) = Non performing Loan value – before provisioning / Total Loans
2. Net NPL ratio = Net NPLs / Total Loans
3. NPL Coverage Ratio = Loan Loss Reserve / NPL