FINANCIAL STATEMENT ANALYSIS

Lecture 3

FINANCIAL ANALYSIS TOOLS

Lecturer; DR. Stephen Ndung'u

A variety of tools designed to fit specific needs are available to help users analyze financial statements. These are:

1. Financial ratio analysis
2. Comparative financial statement analysis
3. Common-size financial statement analysis
4. Cash flow analysis
5. Valuation

FINANCIAL RATIO ANALYSIS

Ratio analysis is among the most popular and widely used tools of financial analysis. Yet its role is often misunderstood and, consequently, its importance often overrated. A ratio expresses a mathematical relation between two quantities. A ratio of 200 to 100 is expressed as 2:1, or simply 2. While computation of a ratio is a simple arithmetic you must establish economically important relation. For example, there is a direct and crucial relation between an item's sales price and its cost. Accordingly, the ratio of cost of goods sold to sales is important.

In contrast, there is no obvious relation between transport costs and the balance of marketable securities. We must remember that ratios are tools to provide us with insights into underlying conditions. They are one of the starting points of analysis, not an end point. Ratios, properly interpreted, identify areas requiring further investigation. Analysis of a ratio can reveal important relations and bases of comparison in uncovering conditions and trends difficult to detect by inspecting the individual components that make up the ratio. Still, like other analysis tools, ratios often are most useful when they are future oriented.

This means we often adjust the factors affecting a ratio for their probable future trend and magnitude. We also must assess factors potentially influencing future ratios. Therefore, the usefulness of ratios depends on our skillful application and interpretation of them, and these are the most challenging aspects of ratio analysis.

Ratio Interpretation

Ratios must be interpreted with care because factors affecting the numerator can correlate with those affecting the denominator. For instance, companies can improve the ratio of operating expenses to sales by reducing costs that stimulate sales (such as advertising). However, reducing these types of costs is likely to yield long-term declines in sales or market share. Thus, a seemingly short-term improvement in profitability can damage a company's future prospects. We must interpret such changes appropriately. Many ratios

have important variables in common with other ratios. Accordingly, it is not necessary to compute all possible ratios to analyze a situation.
Ratios, like most techniques in financial analysis, are not relevant in isolation. Instead, they are usefully interpreted in comparison with

(1) Prior ratios
(2) Predetermined standards
(3) Ratios of competitors
(4) Average industry performance

Finally, the variability of a ratio across time is often as important as its trend.

Types of ratios

Ratios can be categorized into five broad groups namely;

1. Liquidity ratios.
2. Gearing/leverage/capital structure ratios.
3. Profitability ratios.
4. Growth and valuation ratios.
5. Turnover ratios.

1. Liquidity Ratios

These ratios are also referred to as working capital ratios. They indicate the ability of a business to meet its short-term maturing obligations (current liabilities) as and when they fall due. They include;

1. Current ratio

This ratio indicates the number of times current liabilities can be paid from current assets before they are exhausted. A relatively high current ratio is an indication that the firm is liquid and has the ability to pay its current obligations in time and when they become due. On the other hand, a relatively low current ratio represents that the liquidity position of the firm is not good and the firm shall not be able to pay its current liabilities in time without facing difficulties. An increase in the current ratio represents improvement in the liquidity position of the firm while a decrease in the current ratio represents that there has been deterioration in the liquidity position of the firm. The most recommended ratio is 2:1 i.e. current assets should at least be twice as high as the current liabilities.

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

2. Quick/acid test ratio

This is a more refined current ratio which excludes the amount of stock and prepaid expenses due to the following reasons;

1. Stock is valued on historical basis and is thus not a good indicator of the net worth of the business.
2. Stock cannot be converted into cash very quickly.
3. Prepaid expenses are also excluded from the list of liquid assets because they are not expected to be converted into cash.

The ratio therefore indicates the ability of the business to pay its current liabilities from the more liquid assets of the business. The most recommended ratio is 1:1.

$$\text{Quick/acid test ratio} = \frac{\text{Current assets – stock \& prepaid expenses}}{\text{Current liabilities}}$$

3. Cash ratio

This ratio is a refinement of the acid test ratio. It indicates the ability of a business to meet its short term obligations from its most liquid assets i.e. cash and cash equivalents.

$$\text{Cash ratio} = \frac{\text{Cash in hand/bank + short term marketable securities}}{\text{Current liabilities}}$$

The cash ratio indicates to creditors, analysts, and investors the percentage of a company's current liabilities that cash and cash equivalents will cover A ratio above 1 means that the company will be able to pay off its current liabilities with cash and cash equivalents.

Creditors prefer a high cash ratio as it indicates that the company can easily pay off its debt. Although there is no ideal figure, a ratio of not lower than 0.5 to 1 is usually preferred.

2. Gearing/Leverage/Capital Structure Ratios

These ratios indicate the extent to which a business has borrowed fixed charge capital to finance its operations. They include;

1. Debt ratio

The debt ratio is concerned with how much a business owes in relation to its size i.e. whether it's getting into more debt or is improving. A debt ratio of 50% is considered as a safe limit. It's calculated as below;

$$\text{Debt ratio} = \frac{\text{Total debts (current and long term)}}{\text{Total assets}} \times 100$$

2. Capital gearing ratio

This ratio is a measure of the proportion of a business capital that is debt. A business with a capital gearing ratio of over 50% is said to be highly geared and thus risky to lend to.

$$\text{Capital gearing ratio} = \frac{\text{Interest bearing debt}}{\text{Shareholders equity + interest bearing debt}} \times 100$$

4. Equity to asset ratio

This ratio measures the proportion of total assets that are financed by equity. The key to the equity-to-asset ratio is to determine what percentage of a company's assets are owned by investors and not leveraged and therefore could come under the control of debt holders (such as banks) in the event of bankruptcy. The higher the equity-to-asset ratio, the less leveraged the company is, meaning that a larger percentage of its assets are owned by the company and its investors.

$$\text{Equity to asset ratio} = \frac{\text{Shareholders equity}}{\text{Total assets}} \times 100$$

5. Interest cover

This ratio shows whether a business entity is earning enough profits before interest and tax to pay its interest costs comfortably, or whether its interest costs are high in relation to the size of its profits. An interest cover of 2 times or less would be low, and should really exceed 3 times before a business entity interest costs can be considered to be within acceptable limits.

$$\text{Interest cover} = \frac{\text{Profit before interest and tax}}{\text{Interest charges}}$$

3. Profitability Ratios

These ratios indicate the performance of a business in relation to its ability to derive returns from investments or sales. They include;

1. Gross profit margin

This ratio indicates the efficiency with which the business can generate a given level of profits out of its sales activities. If the ratio is high it may indicate;

A. Good management policies regarding control of costs.
B. That the business can produce at low cost.

A low ratio indicates that;

A. A higher cost of production than warranted.
B. Inefficient utilization of resources.

$$\text{Gross profit margin} = \frac{\text{Gross profit}}{\text{Sales}} \times 100$$

2. Net profit margin

This ratio is the overall gauge of the business efficiency with which it turns each dollar in sales into net profit. It indicates the ability of a business to control its cost of sales, operating and financing expenses. If the ratio is high it indicates the ability of the business to control its overall costs and if it's low it indicates decline in sales due to external factors or increase in cost of production.

$$\text{Net profit margin} = \frac{\text{Net profit after interest and tax}}{\text{Sales}} \times 100$$

3. Return on capital employed (ROCE)

This ratio indicates the return a business will give to both the owners and creditors. A high ROCE boosts the goodwill of the company while a low ratio indicates inefficiency of the management in utilizing funds given to the business. However, calculating just the ROCE of a company is not enough. Other profitability ratios such as return on assets, return on

invested capital, and return on equity should be used in conjunction with ROCE to determine whether a company is truly profitable or not.

$$\text{Return on capital employed} = \frac{\text{Net profit before interest and tax}}{\text{Total capital employed}} \times 100$$

Or

$$\text{Return on capital employed} = \text{net profit margin} \times \text{asset turnover}$$

Where

$$\text{Capital employed} = \text{shareholders equity} + \text{noncurrent liabilities}$$

Or

$$\text{Capital employed} = \text{total assets} - \text{current liabilities}$$

4. **Return on equity (ROE)**

This ratio indicates the return for every one dollar of equity capital contributed by shareholders e.g. a ratio of 25% indicates that one dollar of equity generates $ 0.25 of the profits.

By comparing a company's ROE it to the industry's average, something may be pinpointed about the company's competitive advantage. The ROE may also provide insight is how the management is using the financing from equity to grow the business. A sustainable and increasing ROE over time can mean a company is good at generating shareholder returns because it knows how to reinvest its earnings wisely, so as to increase productivity and profits. In contrast, a declining ROE can mean that management is making poor decisions on reinvesting capital in unproductive assets.

$$\text{Return on equity} = \frac{\text{Net profit after tax and preference dividend}}{\text{Total equity}} \times 100$$

5. **Return on assets**

This ratio measures the efficiency with which a business uses its assets to generate profits. This ratio indicates how well a company is performing by comparing the profit it's generating to the capital it's invested in assets. The higher the return, the more productive and efficient management is in utilizing economic resources. It's calculated as below;

$$\text{Return on assets} = \frac{\text{Net profit before interest and tax}}{\text{Total assets}} \times 100$$

6. **Return on investment**

Return on investment or ROI is a profitability ratio that calculates the profits of an investment as a percentage of the original cost. It measures how much money was made on the investment as a percentage of the purchase price. It shows investors how efficiently

each dollar invested in a project is at producing a profit.

$$\text{Return on investment} = \frac{\text{investment revenue} - \text{investment cost}}{\text{Investment cost}} \times 100$$

Generally, any positive ROI is considered a good return. This means that the total cost of the investment was recouped in addition to some profits left over. A negative return on investment means that the revenues weren't even enough to cover the total costs. That being said, higher return rates are always better than lower return rates.

The ROI calculation is extremely versatile and can be used for any investment. Managers can use it to measure the return on invested capital. Investors can use it to measure the performance of their stock and individuals can use it to measure their return on assets like their homes.

4. Growth and Valuation Ratios

These ratios are also referred to as market ratios and indicate the growth potential of a business in addition to determining the value of the business and the investments made by investors. These ratios include;

1. Earnings per share (EPS)

This ratio indicates how much a share will earn if there was no retention of profits. It therefore indicates the potential return to a shareholder. EPS is quoted in financial markets and is disclosed on the income statement of publicly-traded companies. A higher earnings per share is always better than a lower ratio because this means the company is more profitable and the company has more profits to distribute to its shareholders.

$$\text{Earnings per share} = \frac{\text{Earnings to ordinary shareholders}}{\text{Weighted number of ordinary shares}}$$

2. Dividend per share (DPS)

This ratio indicates the cash dividend received for every share held by an investor. Increasing the level of DPS is considered to be a positive signal as it shows that company has more confidence in its future earnings. Similarly, reducing that level would send a negative signal. In this scenario, you should always go through dividend policy before concluding anything. It's calculated as below;

$$\text{Dividend per share} = \frac{\text{Dividend paid}}{\text{Number of ordinary shares}}$$

3. Price earnings (P/E) ratio

This ratio indicates how long a business will take to payback the original cost of the investment if there was no retention of profit. If it's low it will attract investors and vice versa. A high P/E also indicates a stronger confidence in the company and its future e.g. in

profit growth. Assume Company A has a current market value of $15 per share and an EPS of $1 per share. It will have a P/E ratio of 15. If Company B has a market value of $4 per share and an EPS of $0.50 per share, it will have a P/E ratio of 8. This means that the stock market expects Company A to earn relatively more in the future than Company B. For every sh1 of net income generated by Company A, investors are willing to invest $15. In comparison, for every $1 of net income generated by Company B, investors are willing to pay only $8. Investors perceive shares of Company A as more valuable because the company is expected to earn greater returns in the future than is Company B.

$$P/E = \frac{\text{Market price per share}}{\text{Earnings per share}}$$

4. **Dividend cover**

Dividend cover indicates the number of times dividends can be paid from earnings to ordinary shareholders. If the dividend cover is greater than one, it indicates that the earnings generated by a company are enough to serve the shareholders. As a rule of thumb, a dividend cover of above two is considered to be good. A deteriorating dividend cover or one that is consistently below 1.5 signals poor company profitability in the future. It's calculated as below;

$$\text{Dividend cover} = \frac{\text{Profit attributable to equity/ordinary shareholders}}{\text{Dividends}}$$

5. **Earning yield**

This ratio indicates the return or earnings for every one dollar invested in the business. A high earning yield will make the shares of a company attractive to investors.

$$\text{Earning yield} = \frac{\text{Earnings per share}}{\text{Market price per share}} \times 100$$

5. Turnover Ratios

These ratios are also referred to as efficiency or asset management ratios. The ratios indicate the efficiency with which a business utilizes the resources at its disposal to generate sales revenue. They include;

1. **Inventory/Stock Turnover Ratio**

This ratio is a relationship between the cost of goods sold during a particular period of time and the cost of average inventory during a particular period. It is expressed in number of times. Stock turnover ratio/Inventory turnover ratio indicates the number of time the stock has been turned over during the period and evaluates the efficiency with which a firm is able to manage its inventory. Inventory turnover is a measure of how efficiently a company can control its merchandise, so it is important to have a high turn. This shows the company does not overspend by buying too much inventory and wastes resources by storing non-salable inventory. It also shows that the company can effectively sell the inventory it buys. This ratio indicates whether investment in stock is within proper limit or

not.

Stock/inventory turnover ratio (Times) = Cost of sales / Average inventory

2. Inventory turnover period

This ratio indicates the average number of days that the items of inventory are held for. It shows how vigorously the business is trading therefore, the lower the inventory turnover period the better. A lengthening inventory turnover period indicates;

A. A slowdown in trading.
B. A build up in inventory levels, perhaps suggesting that the investment in inventories is becoming excessive.

Inventory turnover period = Closing Inventory / Cost of sales x 365 days

3. Accounts receivable turnover

This ratio indicates the frequency with which credit customers (debtors) were turned into sales i.e. the number of times they came to buy on credit after paying their dues. It should be noted that provision for bad and doubtful debts should not be deducted since this may give an impression that some amount of receivables has been collected. But when the information about opening and closing balances of trade debtors and credit sales is not available, then the debtors' turnover ratio can be calculated by dividing the total sales by the balance of debtors (inclusive of bills receivables) given.

The higher the value of debtors' turnover the more efficient is the management of debtors or more liquid the debtors are. Similarly, low debtors turnover ratio implies inefficient management of debtors or less liquid debtors.

Accounts receivable turnover = Credit sales / Average debtors

4. Accounts receivable collection period

This is a rough estimate of the average time it takes for the business customers to pay what they owe the business. This ratio measures the quality of debtors. A short collection period implies prompt payment by debtors. It reduces the chances of bad debts. Similarly, a longer collection period implies too liberal and inefficient credit collection performance. It is difficult to provide a standard collection period of debtors.

Accounts receivable collection period = Trade receivables / Credit sales x 365 days

5. Accounts payable turnover

This ratio indicates the number of times per year the business bought goods after paying its suppliers. It signifies the credit period enjoyed by the firm in paying creditors. Accounts

payable include both sundry creditors and bills payable. The average payment period ratio represents the number of days by the firm to pay its creditors. A high creditor's turnover ratio or a lower credit period ratio signifies that the creditors are being paid promptly. This situation enhances the credit worthiness of the company. However a very favorable ratio to this effect also shows that the business is not taking the full advantage of credit facilities allowed by the creditors.

$$\text{Accounts payable turnover} = \frac{\text{Credit purchases}}{\text{Average creditors}}$$

6. Accounts payables payment period

This ratio indicates the credit period granted by suppliers to the business. A long period shows a source of free finance, or indicates the company is unable to pay quickly because of liquidity problems.

If the accounts payable payment period is too long, you should note the company may lose out on worthwhile cash discounts, and the existing suppliers won't continue to supply.

$$\text{Accounts payables payment period} = \frac{\text{Trade payables}}{\text{Credit purchases}} \times 365 \text{ days}$$

NB

It's rare to find purchases disclosed in published accounts and so cost of sales is used.

7. Total asset turnover

This ratio indicates the amount of sales revenue generated from utilization of one dollar of total assets e.g. a ratio of 1.4 indicates that $ 1 of total assets was used to generate $ 1.4 of sales.

$$\text{Total assets turnover} = \frac{\text{Annual sales}}{\text{Capital employed}}$$

$$\text{Capital employed} = \text{shareholders equity} + \text{noncurrent liabilities}$$

Or

$$\text{Capital employed} = \text{total assets} - \text{current liabilities}$$

Advantages of Ratio Analysis

1. Indication of Overall Profitability:

The management is always concerned with the overall profitability of the firm. They want to know whether the firm has the ability to meet its short-term as well as long-term obligations to its creditors, to ensure a reasonable return to its owners and secure optimum utilisation of the assets of the firm. This is possible if all the ratios are considered together.

2. Communication:

Ratios are effective means of communication and play a vital role in informing the position of and progress made by the business concern to the owners or other parties.

3. Measurement of Operating Efficiency:

Ratio analysis indicates the degree of efficiency in the management and utilisation of its assets. Different activity ratios indicate the operational efficiency. In fact, solvency of a firm depends upon the sales revenues generated by utilizing its assets.

4. Indication of Liquidity Position:

Ratio analysis helps to assess the liquidity position i.e., short-term debt paying ability of a firm. Liquidity ratios indicate the ability of the firm to pay and help in credit analysis by banks, creditors and other suppliers of short-term loans.

5. Forecasting and Planning:

The trend in costs, sales, profits and other facts can be known by computing ratios of relevant accounting figures of last few years. This trend analysis with the help of ratios may be useful for forecasting and planning future business activities.

6. Inter-firm Comparison:

Comparison of performance of two or more firms reveals efficient and inefficient firms, thereby enabling the inefficient firms to adopt suitable measures for improving their efficiency. The best way of inter-firm comparison is to compare the relevant ratios of the organisation with the average ratios of the industry.

7. Simplification of Financial Statements:

Ratio analysis makes it easy to grasp the relationship between various items and helps in understanding the financial statements.

8. Indication of Long-term Solvency Position:

Ratio analysis is also used to assess the long-term debt-paying capacity of a firm. Long-term solvency position of a borrower is a prime concern to the long-term creditors, security analysts and the present and potential owners of a business. It is measured by the leverage/capital structure and profitability ratios which indicate the earning power and operating efficiency. Ratio analysis shows the strength and weakness of a firm in this respect.

9. Signal of Corporate Sickness:

A company is sick when it fails to generate profit on a continuous basis and suffers a severe liquidity crisis. Proper ratio analysis can give signal of corporate sickness in advance so that timely measures can be taken to prevent the occurrence of such sickness.

10. Control of Performance and Cost:
Ratios may also be used for control of performances of the different divisions or departments of an undertaking as well as control of costs.
11. Aid to Decision-making:
Ratio analysis helps to take decisions like whether to supply goods on credit to a firm, whether bank loans will be made available etc.
12. Budgeting:
Budget is an estimate of future activities on the basis of past experience. Accounting ratios help to estimate budgeted figures. For example, sales budget may be prepared with the help of analysis of past sales.

Limitations of Ratio Analysis

1. Different Accounting Policies:
Different accounting policies regarding valuation of inventories, charging depreciation etc. make the accounting data and accounting ratios of two firms non-comparable.
2. Lack of Standard of Comparison:
No fixed standards can be laid down for ideal ratios. For example, current ratio is said to be ideal if current assets are twice the current liabilities. But this conclusion may not be justifiable in case of those concerns which have adequate arrangements with their bankers for providing funds when they require, it may be perfectly ideal if current assets are equal to or slightly more than current liabilities.
3. Limitations of Financial Statements:
Ratios are calculated from the information recorded in the financial statements. But financial statements suffer from a number of limitations and may, therefore, affect the quality of ratio analysis.
4. Changes in Price Level:
Fixed assets show the position statement at cost only. Hence, it does not reflect the changes in price level. Thus, it makes comparison difficult.
5. Historical Information:
Financial statements provide historical information. They do not reflect current conditions. Hence, it is not useful in predicting the future.
6. Quantitative Analysis:
Ratios are tools of quantitative analysis only and qualitative factors are ignored while computing the ratios. For example, a high current ratio may not necessarily mean sound liquid position when current assets include a large inventory consisting of mostly obsolete items.
7. Ratios Account for one Variable:
Since ratios account for only one variable, they cannot always give correct picture since several other variables such Government policy, economic conditions, availability of resources etc. should be kept in mind while interpreting ratios.
8. Window-Dressing:
The term 'window-dressing' means presenting the financial statements in such a way to show a better position than what it actually is. If, for instance, low rate of depreciation is charged, an item of revenue expense is treated as capital expenditure etc. the position of the concern may be made to appear in the balance sheet much better than what it is. Ratios

computed from such balance sheet cannot be used for scanning the financial position of the business.

9. Seasonal Factors Affect Financial Data:

Proper care must be taken when interpreting accounting ratios calculated for seasonal business. For example, an umbrella company maintains high inventory during rainy season and for the rest of year its inventory level becomes 25% of the seasonal inventory level. Hence, liquidity ratios and inventory turnover ratio will give biased picture.

10. Causal Relationship Must:

Proper care should be taken to study only such figures as have a cause-and-effect relationship; otherwise ratios will only be misleading.

Questions

1. Describe four categories of financial analysis tools.
2. Discuss whether the past trend is a good predictor of future trend? Justify your response.
3. Describe five limitations and advantages of financial ratio analysis.
4. Ratio analysis is an important tool in financial analysis. Explain at least four ratios that use:
    a. Balance sheet data exclusively.
    b. Income statement data exclusively.
    c. Both balance sheet and income statement data

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