Fundamental Analysis Ratios

Fundamental analysis ratios are used to both measure the performance of a company relative to other companies in the same market sector and to value a company.

There are three main types of ratios – those dealing with:

- Financial Stability – short and long-term
- Operating Efficiency
- Investment Performance

Financial Stability

a) Short Term Stability

These ratios reflect a company's ability to meet its current or short-term financial commitments.

Current Ratio

Calculated by dividing the company's current assets by its current liabilities.

Current Ratio = \frac{\text{Current Assets}}{\text{Current Liabilities}}

This is a measure of a company's working capital and reflects a company's ability to pay its short-term debts. A current ratio of 2.0 means that current assets are double current liabilities. It is generally accepted that the current ratio should be 2.0 or more but this can vary according to the nature of the company. The nature of the assets indicates the extent to which they can be converted to cash. A reducing current ratio may indicate efficient management or that a company may be facing difficulties. A company with a strong cash flow, turning stock over quickly and collecting its debts quickly can handle a low current ratio.

Quick Ratio (Acid Test Ratio)

Calculated by dividing the company's current assets less inventory by its current liabilities.
Current Ratio = \frac{\text{Current Assets - Inventory}}{\text{Current Liabilities}}

This is often more meaningful than the current ratio as some current assets may not be readily convertible to cash e.g. inventory. It is calculated by dividing current liabilities into current assets less inventory. It is generally accepted that the quick ratio should not be less than 1.0. While possible to operate with a lower level a value significantly less than 1.0 is cause for concern, while 1.5 is excellent.

\textbf{b) Long Term Liquidity/Solvency}

These ratios reflect the company's borrowings - how much, for how long and how easily interest payments can be met and are about its healthiness and ability to survive in the longer term.

\textbf{Debt to Assets}

Calculated by dividing net assets by the amount of debt a company has.

\text{Debt to Assets} = \frac{\text{Net Assets}}{\text{Debt}}

\textbf{Debt to Equity (Gearing Ratio)}

Debt to equity is calculated by dividing the company's total debt by shareholders funds less intangibles.

\text{Debt to Equity} = \frac{\text{Total Debt}}{\text{Shareholders’ Funds - Intangibles}}

This ratio measures the amount of long term borrowing (interest bearing) compared to shareholder's equity and reflects choices made by management about how it raises funds - either borrowing or raising new equity. Martin Roth suggests should be less than 70-80% - but Colin Nicholson suggests less than 50%. Generally the lower the better but can also be too low for a company to be effectively using its assets - some debt is usually good. It can vary significantly from sector to sector and should generally be compared within the sector or against the sector "average".

\textbf{Times Interest Earned (Interest Cover)}

Calculated by dividing earnings before interest & tax (EBIT) by the amount of interest paid.
Interest Cover = \( \frac{\text{EBIT}}{\text{Interest Paid}} \)

This ratio shows the number of times a company's interest payments are covered by its earnings and reflects a company's ability to meet interest payments and make profits in bad times. The higher the ratio the better as this provides more security. A ratio of less than 2.0 may indicate that the company will have problems meeting interest charges while ratios greater than 3-4 are fine and provide increasing security.

**Operating Efficiency**

These ratios reflect how efficiently management is using the company's assets and comparisons between companies should generally be made within sectors comparing like against like.

**Asset Turnover**

This is calculated by dividing assets into sales.

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

This indicates how efficiently a company is using its assets to create sales. Some companies require expensive assets eg a steel maker, while service companies may have few assets. The quicker the turnover the better but the ratio varies between industries/sectors. This comparison should be made within sectors, comparing like against like.

**Inventory Turnover**

Calculated by dividing inventory into the cost of sales.

\[
\text{Inventory Turnover} = \frac{\text{Cost of Sales}}{\text{Inventory}}
\]

The figure is often hard to find and is usually calculated by substituting sales for cost of sales (cost price of the goods sold). It indicates how quickly a company turns over its inventory ie how quickly it sells its warehoused goods. The quicker the turnover the better but it varies significantly between industries/sectors eg a bread maker will turn over its inventory daily while a piano maker will take longer. Within a company the comparison should be with previous years and between companies be made within sectors, comparing like against like.
Accounts Payable Turnover (Days Creditors/Average Payment Period)

Calculated as trade creditors divided by sales multiplied by 365.

\[
\text{Accounts Payable Turnover} = \frac{\text{Trade Creditors} \times 365}{\text{Sales}}
\]

This ratio represents the time, on average, in days, it takes for a company to pay its bills (trade creditors). Generally the longer the better as a company has use of the money for a longer period and can use it for other purposes or it may need to use less of a borrowing facility. However, if a company is progressively taking longer to pay its bills this may be cause for concern and may indicate cash flow problems.

Accounts Receivable Turnover (Days Debtors/Average Collection Period)

Calculated as trade debtors divided by sales multiplied by 365.

\[
\text{Accounts Receivable Turnover} = \frac{\text{Trade Debtors} \times 365}{\text{Sales}}
\]

This ratio represents the time, on average, in days, it takes for a company to collect monies owing to it (trade debtors). This measures the length of time the company's debtors take to pay their accounts and generally the shorter the better.

Cashflow Mix

This helps us get an overview of how the company has managed its financial affairs. Adding the cashflow (turnover) from operating and investing activities shows us the company's funds excess or shortfall. The financing activities cashflow subsequently shows us how the company got the funds or disposed of them.

a) % Cashflow from Operating Activities

This is the amount received by the company for goods and services supplied (deducting expenses from this gives operating profit) expressed as a percentage of all cashflows.

\[
\text{Cashflow (Operations)} = \frac{\text{Cashflow from Operating Activities} \times 100}{\text{Total Cashflow}}
\]

If cashflow from operating activities is not positive seek the reason.
% Cashflow from Investing Activities

This is the amount received by the company from sales and purchases of fixed assets and investments (deducting expenses from this gives profit from investments) expressed as a percentage of all cashflows.

\[
\text{Cashflow (Investing)} = \frac{\text{Cashflow from Investing Activities}}{\text{Total Cashflow}} \times 100\%
\]

% Cashflow from Financing Activities

This shows changes in share capital, cash, interest bearing debt, etc as a percentage of all cashflows.

\[
\text{Cashflow (Finance)} = \frac{\text{Cashflow from Financing Activities}}{\text{Total Cashflow}} \times 100\%
\]

Look for a reasonable balance in the funds source between equity and debt.

Investment Performance

These ratios relate the information in company financial statements to the company's shares and reflect how the stock market considers the company.

Total Asset Turnover

Calculated by dividing operating revenue (sales) by total assets.

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

It is a measure of how hard the company is working its assets to create sales. The greater the value the more efficiently assets have been used to generate sales. Compare only like with like ie.within sectors.

EBIT Margin (Earnings Before Interest and Tax)

This is calculated by dividing sales into EBIT and multiplying by 100.

\[
\text{EBIT Margin} = \frac{\text{EBIT}}{\text{Sales}} \times 100\%
\]

This shows how much profit the company is making as a percentage of sales. A rising profit margin (irrespective of whether sales/profits are rising or falling) indicates greater efficiency. Falling costs as a percentage of sales can be due to interest fluctuations. Generally a high margin is better but a lower margin will be
found with high turnover goods. EBIT is a measure of operating efficiency, but only compare like with like as it will vary between businesses.

**EBITDA (Earnings Before Interest, Tax, Depreciation and Amortisation)**

EBITDA can be calculated top down by adding back depreciation and amortisation deducted as sales costs to operating income before interest and taxes. EBITDA can also be calculated bottom up by adding interest, depreciation and amortization back to pretax income. For example, to find EBITDA, if the income statement shows $2 million of pretax income and depreciation and amortization are $12 million and interest expense $6 million, then EBITDA is $20 million.

EBITDA became a standard tool to measure cash flow in the 1980s with a EBITDA/debt ratio at a 2x multiple considered the limit of safe leverage.

**Profit Margin, Net Profit Margin or Operating Profit Margin (NOPAT)**

This ratio is similar to EBIT margin but uses profit after tax. It is a measure of corporate efficiency and is calculated by dividing operating profit after tax by operating revenue (excluding abnormals and extraordinary items because they distort the figures).

\[
\text{Profit Margin} = \frac{\text{Operating Profit After Tax}}{\text{Operating Revenue}}
\]

Acceptable values vary between sectors so compare like with like and look for a company where the profit margin increases with time.

**Return on Assets (ROA) or Return on Investment (ROI)**

Calculated as earnings before interest & tax (EBIT) divided by total assets multiplied by 100.

\[
\text{Return on Assets} = \frac{\text{EBIT}}{\text{Total Assets}} \times 100
\]

This is a measure of a company's ability to make profits from its assets. It is an important and dynamic ratio as it reflects the links between operating revenue, costs and profits with the underlying asset base. It declines if: sales fall, costs increase faster than sales or assets increase faster than post tax operating profit. It shows how effectively assets are being used and is a measure of operational management rather than financial management. Look for a return that compares favourably within the sector plus increases over time. It can be compared with current interest rates to see what could theoretically be earned if a company sold
off all its assets and invested them in an interest bearing deposit. Note that the EBIT figure in reports spans 12 months while the assets figure is an end of year figure and a particularly large purchase late in year may swell assets but contribute little to the year's profits. The higher the ratio the better, but only compare like with like. Book value can also change quickly at times eg times of rapid inflation so make sure these are accurate.

**ROE (Return on Equity/Return on Shareholders’ Equity)**

Calculated by dividing net profit after tax (NPAT) or operating profit after tax by shareholders equity x 100.

\[
\text{Return on Equity} = \frac{\text{Net Profit After Tax}}{\text{Shareholders’ Equity}} \times 100
\]

ROE measures the return a company achieves with shareholders' funds and the higher the better. A high ROE should enable a company to pay a good dividend and to plough back funds for growth. Ideally a company should achieve an ROE greater than current interest rate or at least have the prospect of doing so. It is one of best indicators of overall performance and can be compared with the return from any other investment. It can also be calculated by dividing return on assets by shareholders' equity. A company with a high ROE over a period of time is a highly desirable investment.

**EPS (Earnings per Share)**

Calculated as net profit after tax (NPAT) divided by the number of shares on issue.

\[
\text{Earnings per Share} = \frac{\text{Net Profit After Tax}}{\text{No. Shares on Issue}}
\]

EPS shows how much net profit is earned for each share and is usually shown as an amount (in cents) per share. This is one ratio where analysts may use different calculation methods as some remove abnormals and the number of shares may vary throughout the year in which case the year end figure is not correct. It is therefore best to use a weighted average of the number of shares on issue during the year. EPS figures in company reports usually include abnormals and these are often used by the media eg the AFR whereas brokers' analysts tend to remove abnormals. Check year on year EPS trend figures and also examine the potential for future dilution from options and convertible securities.

**Earnings Yield**

This is calculated by dividing earnings per share (EPS) by the current share price (each expressed in cents).
Earnings Yield \[= \frac{\text{Earnings per Share}}{\text{Current Share Price}}\]

It is useful to us as a measure of company performance and can be compared with general interest rates from cash etc. Dividend yield has some comparative shortcomings because it depends upon the payout ratio decided upon by the company and ignores the potential benefit to the company of that part of its profits which it retains and ploughs back into the company.

**Price Earnings Ratio (PE)**

Calculated by dividing the current share price by the company’s earnings per share (EPS) (both in cents).

\[
\text{Price Earnings Ratio} = \frac{\text{Share Price}}{\text{Earnings per Share}}
\]

This ratio is widely used - a PE of 10 means that it would take ten years for the investor to recoup their initial outlay in the form of dividends paid by the company, assuming that 100% of earnings are paid out in dividends (and this is maintained every year) and no new shares are issued.

Therefore companies with a high PE will take longer to return an investor’s outlay than a company with a lower PE. Growth companies will often have higher PEs as they pay out lower dividends as a percentage of profits and have a lower dividend yield. This is based on market expectations that earnings growth is strong and will continue. Although PEs enables a comparison between companies, one problem is that the formula includes share price. Therefore during a market correction all PEs will fall yet nothing about a particular company may have changed. In addition, the PE is based upon historic profits which may not reflect the profit outlook for the current year and this combined with lower share prices may give artificially low PEs. The media also uses historic PEs. As the share price is usually based upon future earnings rather than last years (ie expectations are already in the price) then we need an estimate of future earnings which must usually be obtained from a broker.

**Dividend per Share (DPS)**

This is the amount the company pays out of its profits to shareholders and is expressed as cents per share.

**Dividend Yield**

Calculated as the dividend as a percentage of the current share price (both in cents).
Dividend Yield = \[ \frac{\text{Dividend}}{\text{Current Share Price}} \times 100 \]

This helps us measure what sort of return we are getting from our shares and fluctuates with share price. It is useful to compare this percentage to the percentage returns of other investments but take account of the extent of franking (see below). As with EPS best to use estimated dividends as media yield calculations are based upon historic dividend figures. Generally the higher the yield the better but artificially high yields can arise in some instances using historic dividends where a company is in trouble as share price will have fallen.

**Grossed up Value of Fully Franked Dividends**

The grossed up value (yield) of dividends is useful when comparing companies with varying levels of franking attached to their dividends.

\[
\text{Grossed Up Value} = \frac{\text{Dividend Paid} \times 100 \times \text{Franking \%}}{\text{Share Price} \times (1 - \text{Company Tax Rate})}
\]

For example if Company A pays a dividend of 10 cents per share, the share price is $1.00 and the dividend is 70% franked then the grossed up yield will be:

\[
\text{Grossed Up Value} = \frac{0.10 \times 100 \times 0.7}{1.00 \times (1 - 0.30)} = 7/0.7 = 10\
\]

Remember that there is really no difference between a 70 cent fully franked dividend and a $1.00 unfranked dividend (except that you get 30 cents extra in the bank with the unfranked dividend and don’t get the 30 cents tax paid on the franked dividend until you lodge your income tax return, which may be up to 20 or more months later!). Grossed up figures should always be used when making comparisons with yield from other investments eg cash, bonds, property.

**Dividend Payout Ratio/Dividend Cover**

The dividend payout ratio is calculated as:

\[
\text{Dividend Payout Ratio} = \frac{\text{Dividend per Share}}{\text{Earning per Share}}
\]

whereas dividend cover is the reverse:

\[
\text{Dividend Cover} = \frac{\text{Earnings per Share}}{\text{Dividend per Share}}
\]

Both provide the same information namely the proportion of profit after tax paid out by way of dividends to ordinary shareholders. The ratio of profit paid out reflects the company’s dividend policy. A payout of 60 - 70% is about average.
Note that company policy varies with some preferring to pay out a higher ratio of profits while others elect to pay out a lower proportion thereby retaining more funds for growth (this ultimately should flow through to dividend yield in future years). A payout ratio approaching 100% check the reason why eg special dividends for a short period or use of borrowed funds etc to avoid reducing the amount of dividend.

**Net Assets per Share or Net Tangible Assets per Share (NTA)**

Calculated as net worth (ie shareholders funds) and subtracting minorities and intangibles and dividing by the number of ordinary shares.

\[
\text{Net Assets per Share} = \frac{\text{Net Worth} - \text{Minorities} - \text{Intangibles}}{\text{Number of Ordinary Shares}}
\]

This is a measure of whether shares are undervalued or overvalued. A share price above NTA suggests good use is being made of the assets and that the market is prepared to pay a price premium. If price is below NTA it suggests management is not utilising assets to their best advantage and the company may be vulnerable to takeover. NTA per share is more relevant for companies valued partly for their net asset backing eg listed property trusts or investment funds. Note that intangibles include goodwill, brands and future tax benefits.

**Market to Book Ratio or Price to Book Value or Price to Assets Ratio (PA)**

Price to Book Value is simply Price to NTA with the intangibles excluded.

It is calculated using Shareholders Equity minus Intangibles, (NTA) divided by the Number of Shares with the result divided into the Share Price.

\[
\text{Price to Book Value} = \frac{\text{Share Price}}{(\text{Shareholders’ Equity} – \text{Intangibles})/\text{Number of Shares}}
\]

The ideal is a ratio of 1 or less as this means for every dollar of share price you receive a dollar of net asset value. If the ratio is more than 1, you will be paying a premium over and above the value of the net assets.

**Price/Sales Ratio (PSR or P/S)**

Price to Sales Ratio compares the market value of a company’s shares to its sales. It is calculated as:

\[
\text{Price to Sales} = \frac{\text{Share Price}}{\text{Sales}}
\]
PSR reflects a company’s underlying financial strength so a company with a low PSR is more attractive while one with a high PSR is less attractive. Investors should avoid stocks with a PSR of 1.5 or more and should sell a stock whose PSR is between 3 to 6. This ratio was considered the best single ratio by James O'Shaughnessey in "What Works on Wall Street".

**Price Earnings Growth (PEG)**

This ratio is widely used and is calculated as:

\[
\text{Price Earnings Growth} = \frac{\text{P/E Ratio}}{\text{Growth Rate in \%}}
\]

So a P/E of 10 divided by a growth rate of 10% would have a PEG of 1 and a P/E of 20 divided by a growth rate of 20% would have a PEG of 1. But a P/E of 20 divided by a growth rate of 10% would have a PEG of 2 and a P/E of 10 divided by a growth rate of 20% would have a PEG of 0.5.

In general, the P/E should equal the long term growth rate in %. So a PEG ratio of one is considered to represent fair value and a PEG ratio greater than one indicates a more “expensive” stock. This ratio is a useful high level check to see whether the P/E is justified. Jim Slater introduced the ratio in 1996. At that time, overall Market PEG was 1.5 which was historically very high so a peg of 1 was good value. One should compare with the average market figure at the time and the average for the industry. Small investors usually use a PEG under .6 for small caps or use under .75 or .8 for mid/large caps as being good value.