Understanding Basic Ratios

FORSYTH BARR

This paper examines several widely used ratios in the financial industry, which help enable investors to make decisions on whether to buy or sell shares at a given price.

The ownership of a publicly listed company is split into shares. The unit price for these shares is the price quoted on the share market. To compare the company's fundamental financial information with its share price, we calculate per share ratios, such as **Earnings per Share (EPS), Dividend per Share (DPS), Discounted Cash Flow (DCF)** and **Net Tangible Assets (NTA)**.

Earnings per Share (EPS)

EPS is the proportion of a company's after tax earnings attributed to each share on issue. As well as looking at the absolute level of EPS, the strength and stability of a company's earnings may be ascertained by also measuring EPS growth and reviewing the predictability or volatility of earnings over time. The information for calculating a company's EPS comes from its Statement of Financial Performance (Profit & Loss Statement).

EPS and EPS Growth are calculated as:

$$\text{EPS} = \frac{\text{Net Profit After Tax}}{\text{Shares on Issue}}$$

$$\text{EPS growth} = \frac{\text{Year 2 EPS - Year 1 EPS}}{\text{Year 1 EPS}}$$

Example: Calculate the 2016 EPS for Company A, using the information below.

Statement of Financial Performance	2016	2015
Revenue	$100m	$90m
Operating Expenses	$60m	$55m
Earnings before Interest, Taxation and Depreciation	$40m	$35m
Depreciation	$5m	$5m
Earnings before Interest and Taxation (EBIT)	$35m	$30m
Net Interest	$5m	$5m
Surplus before Taxation	$30m	$25m
Taxation Expense	$10m	$10m
Surplus after Taxation	$20m	$15m
Shares on Issue	$100.0m	$100.0m

Answer:

$$\textbf{2016 EPS} = \frac{\$20\text{m (Net Profit After Tax)}}{\$100\text{m (Shares on Issue)}} \quad \textbf{20c}$$

Example: Calculate the 2016 EPS growth for Company A, using the same information.

Answer:

$$\textbf{2015 EPS} = \frac{\$15\text{m (Net Profit After Tax)}}{\$100\text{m (Shares on Issue)}} \quad \textbf{15c}$$

$$\textbf{2016 EPS growth} = \frac{20\text{c (2016 EPS)} - 15\text{c (2015 EPS)} = 5\text{c}}{15\text{c (2015 EPS)}} \quad \textbf{33\%}$$

Basic P/E Ratio

The price to earnings ratio (P/E) is a widely used value indicator. A P/E is a rough proxy for the time required in years for an investor to recover the purchase price from a company's future earnings. A P/E is a universal indicator, which presents earnings and share prices in a common ratio, enabling comparisons to be made between companies, irrespective of the currency and country in which they trade and report profits (i.e. P/E's enable a comparison to be made between a New Zealand company and an Australian or a US company). Most commonly, a P/E comparison is undertaken to compare a company with its industry peers or against an overall market.

P/Es generally lie in a range between 8x and 30x. A low P/E suggests either the company is cheap or the company has a low earnings growth outlook (hence it would take many years of earnings to repay the purchase price). Conversely a high P/E could indicate an expensive stock or a high earnings growth company (the accelerating earnings would repay the purchase price more quickly)

The formula for calculating a P/E ratio is:

$$P/E = \frac{\text{Current Share Price}}{\text{EPS}}$$

Example: Using the 2016 EPS derived from in the previous question, and assuming a current market price of $2.50, calculate Company A's 2016 P/E ratio.

Answer:

$$2016\ P/E = \frac{\$2.50\ \text{(Current Share Price)}}{20c\ \text{(2016 EPS)}} \quad 12.5x$$

Example: Kiwi Construction, a New Zealand based building company, reported a 2016 EPS of 50c and trades at a current share price of $5.00. Wallaby Building, an Australian based building company, reported a 2016 EPS of A60c and trades at a current share price of A$6.60. Which trades on a higher P/E ratio?

Kiwi Construction

$$2016\ P/E = \frac{\$5.00\ \text{(Current Share Price)}}{50c\ \text{(2016 EPS)}} \quad 10.0x$$

Wallaby Building

$$2016\ P/E = \frac{\$6.60\ \text{(Current Share Price)}}{60c\ \text{(2016 EPS)}} \quad 11.0x$$

Answer: Wallaby's P/E of 11.0x is higher than Kiwi's P/E of 10.0x.

Dividends (DPS)

A dividend is a payment or distribution made to share holders from a company's profits. Most commonly, dividends are paid twice a year (although sometimes they are paid annually or quarterly). The first payment is referred to as an interim dividend and corresponds with a company's interim profit result. The second dividend is the final dividend and is paid soon after a full year result is released. The interim and final dividends are sometimes the same amount but may be of differing amounts.

Payout Ratio

Some companies aim to provide smooth (and gradually increasing) dividend payments over time, while others have a dividend policy which stipulates a certain percentage of profits in each year to be distributed to shareholders. The payout ratio for a company is the percentage of profits distributed each year in dividends.

The formula for calculating a payout ratio is:

$$\text{Payout Ratio} = \frac{\text{Dividend Per Share (DPS)}}{\text{Earnings Per Share (EPS)}}$$

Companies that are growing rapidly and require funds for expansion tend to retain a large proportion of their profits and have a low payout ratio. In contrast, companies in a mature industry with often predictable earnings streams and little need for expansion capital tend to have a high payout ratio.

Example: Calculate the payout ratio for Company B if DPS is 15c and EPS is 20c.

Answer:

$$\text{Payout Ratio} = \frac{\text{15c (Dividend Per Share)}}{\text{20c (Earnings Per Share)}} \quad \textbf{75\%}$$

i.e. 75% of Company B's earnings were paid out in dividends and 25% of its earnings were retained.

Dividend Yield

The dividend yield is the expected income return over the next year on a share investment at a given purchase price.

The formula for calculating a dividend yield is:

$$\text{Dividend Yield} = \frac{\text{DPS}}{\text{Current Share Price}}$$

Example: Calculate the dividend yield for Company C if DPS is 15c and current share price is $3.00.

Answer:

$$\text{Dividend Yield} = \frac{\text{15c (Dividend Per Share)}}{\text{\$3.00 (Current Share Price)}} \quad \textbf{5\%}$$

Valuation of Shares

While a P/E is a useful value indicator for comparison purposes and a dividend yield gives an idea of expected income return, neither give an estimate of a share's value or what price it should trade at. Two valuation estimates we will examine are **Discounted Cash Flow (DCF)** and **Net Tangible Assets (NTA)**.

Discounted Cash Flow (DCF)

The theory behind a DCF is that the price paid for a share today should be equivalent to the sum of its expected future cash flows discounted back to present value using a required rate of return (these cash flows would translate into dividends and capital gains for a share holder). A DCF is often used to estimate a "fair value" for a share.

The formula for calculating a DCF is:

$$DCF = \frac{\sum \frac{C_n}{(1 + \text{Required Rate of Return})^n}}{\text{Shares on Issue}}$$

Example: Calculate the DCF for Company D, using the information below. The required rate of return is 10%. Shares on issue = 300m

Year	Estimated Cash Flows
1	$100m
2	$105m
3	$112m
4	$111m
5	$113m
6	$116m
7	$121m
8	$118m
9	$122m
10	$125m
Terminal	**$600m**

Answer:

Year	Estimated Cash Flows	Present Value Factor*	Present Value#
1	$100m	0.9091	$91m
2	$105m	0.8264	$87m
3	$112m	0.7513	$84m
4	$111m	0.683	$76m
5	$113m	0.6209	$70m
6	$116m	0.5645	$65m
7	$121m	0.5132	$62m
8	$118m	0.4665	$55m
9	$122m	0.4241	$52m
10	$125m	0.3855	$48m
Terminal	**$600m**	**0.3855**	**$231m**

Notes
*Present Value Factor = $1/(1 + r)^n$. In this example r = 10%.
Present Value = Estimated Cash Flow x Present Value Factor

Answer:

$$DCF = \frac{\$921m \text{ (All Present Values added together)}}{\$300m \text{ (Shares on Issue)}} = \$3.07$$

Question: Using the answer above and given a current share price of $3.00, what is the premium/discount Company D is trading at compared to its fair value?

Answer:

$$\text{Prem/Discount} = \frac{\$3.00 \text{ (Current Share Price)}}{\$3.07 \text{ (DCF)}} = 97.7c - 1$$

$$= 2.3\% \text{ discount}$$

Net Tangible Assets (NTA)

Usually investors focus on a company's ability to generate future cash flows in ascertaining a value for its shares. An NTA is "break-up valuation" i.e. the amount per share which would be realised if a company's assets were sold and its debts repaid. An NTA is a particularly useful measurement tool for investment companies (i.e. companies which invest in other companies) whose annual earnings from buying and selling investments do not include unrealised gains or losses in asset values and do not represent a true picture of the share's underlying value. Information for calculating an NTA comes from a company's Balance Sheet.

The formula for calculating for an NTA is:

$$\text{NTA} = \frac{\text{Tangible Assets} - \text{Liabilities}}{\text{Shares on Issue}}$$

Note: NTA excludes intangible assets such as brands and goodwill.

Example: Calculate the NTA for Company E, using the information in the next column.

Balance Sheet	2016
Current Assets	
Cash	$5m
Debtors	$10m
Inventories	$10m
Total Current Assets	**$25m**
Long-Term Assets	
Property, Plant & Equipment	$90m
Goodwill	$5m
Other Assets	$5m
Total Long-Term Assets	**$100m**
TOTAL ASSETS	**$125M**
Current Liabilities	
Creditors	$10m
Short-Term Borrowings	$10m
Total Current Liabilities	$20m
Long-Term Liabilities	
Borrowings	$40m
Total Long-Term Liabilities	**$40m**
TOTAL LIABILITIES	**$60m**
Shareholders' Equity	
TOTAL EQUITY	**$65m**
Shares on Issue	**$100m**

Answer:

$$\textbf{Tangible assets} = \frac{\$125m\ (\text{Total Assets}) - \$5m\ (\text{Goodwill})}{\$120m}$$

$$\textbf{NTA} = \frac{\$120m\ (\text{Tangible Assets}) - \$60m\ (\text{Liabilities})}{\$100m\ (\text{Shares on Issue})} = 60c$$

Question: If the current share price for Company E is 75c, what is its premium/discount to NTA?

Answer:

$$\textbf{Prem/Discount} = \frac{75c\ (\text{Current Share Price})}{60c\ (\text{NTA})} = 1.25c - 1$$

$$= \textbf{25\% premium}$$

FORSYTH BARR

NZX Firm