Chapter 27
SHARES

One of a kind, or one of many?

A share or a stock is a security that is not redeemed – the investment can only be realised through a disposal – and whose revenue flows are uncertain. It is in compensation for these two disadvantages that shareholders have a say in managing the company via the voting rights attached to their shares.

The purpose of this chapter is to present the key parameters used in analysing stocks and show how the stock market operates. For a discussion of stock as a claim option on operating assets, refer to Chapter 35, and to find out more about stock as a claim on assets and commitments, see Chapter 32 on company valuation.

In the previous chapters, you learned that the easiest and most efficient way to determine equity value is to subtract the value of net debt from enterprise value (i.e. the value of its operating assets).

Equity value is equal to enterprise value minus net debt value.

To determine the value of a share, simply divide equity value by the number of shares.

Section 27.1
BASIC CONCEPTS

This section presents the basic concepts for analysing the value of stocks, whether or not they are listed. Remember that past or future financial transactions could artificially skew the market value of a stock with no change in total equity value. When this happens, technical adjustments are necessary, as explained in Section 4 of this chapter. We will then assume that they have been done.

To familiarise ourselves with basic stock information, let's use the example of Indesit:

Latest price	€8.005	52wk range	7.210–18.740
Trade time	5:30 pm	Volume	238.525
Change	↑ 0.261 (3.37%)	Average volume (3 m)	543.442
Previous close	7.744	Market capitalisation	€829m
Open	7.535	P/E (07)	7.85
Bid	8.245	EPS (07)	1.02
Ask	8.000	Dividend	0.509
Day's range	7.520–8.025		

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1/ VOTING RIGHTS

Shares are normally issued with one voting right each. For our purposes, this is more of a compensation for the risk assumed by the shareholder than a basic characteristic of stock.

A company can issue shares with limited or without voting rights. These are known under different names, such as preference shares, savings shares, or simply nonvoting shares.

At the other extreme, companies in some countries, such as the Netherlands and Sweden, issue several types of shares ("A" shares, "B" shares, etc.) having different numbers of voting rights. Some shareholders use this to strengthen their hold on a company, as we will see in Chapter 40.

2/ EARNINGS PER SHARE (EPS)

EPS is equal to net attributable profit divided by the total number of shares in an issue. EPS reflects the theoretical value creation during a given year, as net profit belongs to shareholders.

There is no absolute rule for presenting EPS. However, financial analysts generally base it on restated earnings, as shown below:

> Net attributable profit:
> — Exceptional (after-tax) profit
> — Other nonrecurring items not included in exceptional profit
> + Depreciation and goodwill amortisation

Indesit's 2007 EPS is €1.02.

Some companies have outstanding equity-linked securities, such as convertible bonds, warrants and stock options. In this case, in addition to standard EPS, analysts calculate **fully diluted EPS**. We will show how they do this in Section 4.

3/ DIVIDEND PER SHARE (DPS)

Dividends are generally paid out from the net earnings for a given year but can be paid out of earnings that have been retained from previous years. Companies sometimes pay out a quarterly or half-year dividend.

European company dividends can come with a tax credit. The dividend and tax credit taken together constitute the gross dividend. The tax credit is a way of totally or partially returning to shareholders some of the tax that the company has already paid, thus avoiding the double taxation of both the company and its shareholders.

In 2007 Indesit paid a €0.509 dividend per share.

Some shares – like preference shares – pay out higher dividends than other shares or have priority in dividend payments over those other shares. They are generally nonvoting shares.

4/ DIVIDEND YIELD

Dividend yield per share is the ratio of the last dividend paid out to the current share price:

$$\text{Dividend yield} = \frac{\text{Dividend per share}}{\text{Share Price}} = \frac{DPS_0}{P_0}$$

Yield is either gross (including the tax credit) or net (without the tax credit).

The net dividend yield on Indesit is 7%.

Yield is based on market value and never on book value.

DIVIDEND YIELD (%)

	UK	Germany	France	Italy	Spain	Netherlands	Belgium	Switzerland	USA	Japan
1989	4.8	2.3	2.5	2.5	3.3	4.2	2.7	1.8	3.7	0.5
1990	4.3	1.8	2.8	2.5	3.5	3.7	2.5	1.7	3.3	0.4
1991	5.5	2.4	3.9	3.6	5.2	4.7	4.1	2.3	3.6	0.7
1992	5.0	2.4	3.6	3.5	4.8	4.4	3.8	2.1	2.8	0.8
1993	4.3	2.6	3.6	3.3	5.2	4.5	3.5	1.7	2.7	1.0
1994	3.4	1.7	2.6	2.2	3.3	3.2	2.8	1.3	2.6	0.8
1995	4.0	1.9	3.1	1.8	4.1	3.3	3.1	1.7	2.8	0.7
1996	3.8	2.0	3.5	1.8	4.2	3.3	2.9	1.5	2.2	0.7
1997	3.7	1.9	2.9	2.1	3.0	2.7	2.4	1.4	1.9	0.8
1998	3.2	1.4	2.4	1.7	2.3	2.2	2.2	1.1	1.5	1.0
1999	2.9	1.3	2.4	1.6	1.9	2.1	1.5	1.4	1.3	1.0
2000	2.4	1.3	1.8	1.6	1.7	1.7	1.7	1.2	1.1	0.6
2001	2.4	1.5	2.1	2.1	2.1	2.0	2.4	1.4	1.1	0.7
2002	3.0	2.0	2.6	2.8	1.8	3.0	3.2	1.9	1.3	0.9
2003	4.0	2.9	3.5	3.8	2.5	3.7	3.9	1.6	1.8	1.1
2004	3.4	2.0	3.3	3.4	2.3	3.3	3.4	1.5	1.5	0.9
2005	3.0	1.9	2.7	3.4	2.5	3.3	3.1	1.6	1.7	1.0
2006	3.0	2.0	2.6	3.0	2.3	2.8	3.0	1.5	1.7	0.9
2007	2.9	2.1	2.6	3.2	2.5	2.6	2.5	1.5	1.7	1.1
2008	3.2	2.1	3.0	3.7	2.7	3.3	3.6	2.0	1.8	1.5

Source: Datastream.

5/ PAYOUT RATIO

The payout ratio is the percentage of earnings from a given year that is distributed to
shareholders in the form of dividends. It is calculated by dividing dividend by earnings
for the given year:

$$\text{Payout ratio} = d = \frac{\text{Cash dividend}}{\text{Net income}}$$

When the payout ratio is above 100%, a company is distributing more than its earnings;
it is tapping its reserves. Conversely, a payout close to 0% indicates that the company is
reinvesting almost all its earnings into the business.

In 2008, European companies paid out an average of about 40% of their earnings.

It will be clear that the higher the payout ratio, the weaker future earnings growth
will be. The reason for this is that the company will then have less funds to invest. As a
result, fast-growing companies such as Google and Ryanair pay out little or none of their
earnings, while a mature company will pay out a higher percentage of its earnings. Mature
companies are said to have moved from the status of a **growth stock** to that of an **income
stock**.

The dividend is legally drawn on parent company profits. However, it should be
assessed on the basis of consolidated net attributable profit – the only meaningful figure,
as in most cases the parent company is merely a holding company.

Indesit's payout ratio is 49.7%.

6/ CASH FLOW PER SHARE

Cash flow per share has no theoretical basis, in that it does not constitute true creation of value.

Cash flow per share is nonetheless used for two reasons:

- when EPS is very low, it can be used for comparisons where EPS cannot;
- one of its components, depreciation, in some cases has little connection to real wear and tear and instead results from a tax strategy. Consolidated accounts fortunately offset this drawback.

Such calculations assume that cash flow provides a better picture of real earnings than reported earnings. However, cash flow is not equal to real earnings, only proportional to them.

When the expression price to cash flow is mentioned, it is best to check what exactly is included in the vague term "cash flow".

7/ EQUITY VALUE (BOOK VALUE OR NET ASSET VALUE) PER SHARE

Equity value (book value or net asset value) per share is the accounting estimate of the value of a share. While book value may appear to be directly comparable to equity value, it is determined on an entirely different basis – it is the result of strategies undertaken up to the date of the analysis and corresponds to the amount invested by the shareholders in the company (i.e. new share issued and retained earnings).

Book value may or may not be restated. This is generally done only for financial institutions and holding companies.

8/ COST OF EQUITY (EXPECTED RATE OF RETURN)

According to CAPM (see Chapter 22), the cost of equity is equal to the risk-free rate plus a risk premium that reflects the stock's market (or systematic) risk.

$$K_E = r_f + \beta \times (r_M - r_f)$$

9/ SHAREHOLDER RETURN (HISTORICAL RATE OF RETURN)

In a given year, shareholders receive a return in the form of dividends (dividend yield) and the increase in price or market value (capital gain):

$$\frac{P_1 - P_0}{P_0} + \frac{Div_1}{P_0}$$

Total Shareholder Return (TSR) is calculated in the same way, but over a longer period.

10/ LIQUIDITY

A security is said to be liquid when it is possible to buy or sell a large number of shares on the market without it having too great an influence on the price. Liquidity is a typical

measure of the relevance of a share price. It would not make much sense to analyse the price of a stock that is traded only once a week, for example.

A share price is relevant only if the stock is sufficiently liquid.

A share's liquidity is measured mainly in terms of free float and trade volumes.

(a) Free float

The free float is the proportion of shares available to purely financial investors, to buy when the price looks low and sell when it looks high. Free float does not include shares that are kept for other reasons, i.e. control, sentimental attachment or "buy and hold" strategies. A skyrocketing share price could make sellers out of loyal shareholders, thus widening the free float.

Free float can be measured either in millions of euros or in percentage of total shares. It is becoming more common to use free-float-based indices, i.e. indices composed with the relative free float value of each company. The free float factor is normally given by the percentage of shares remaining after the block ownership and restricted shares adjustments are applied to the total number of shares:

> Free Float Factor (%)
> $= 100\% - [$ Larger of block ownership and restricted shares adjustments (%)$]$

The free float market capitalisation is the portion of a stock's total market capitalisation that is available for trading:

> Free float market capitalisation
> $=$ Capitalisation free float factor $\times$ Total market

Thus it may happen that a company with a high total market value has a lower percentage in the free float index because the percentage of shares "free to float" is low. At the same time, mid-caps could increase their relevance in the indices if relevant shareholders hold a low portion of the entire equity.

Dow Jones (DJ) has been the first institution to create free-float indexes. The indexes it offers are free float market capitalisation weighted to reflect the portion of a stock's shares that is available for trading. This is achieved by adjusting a stock's shares by the shares held in strategic holdings, i.e. block ownership. This block ownership adjustment is applied if blocks of at least 5% of a stock's total number of shares are held by private, cross or government ownership.[1]

(b) Volumes

Liquidity is also measured in terms of volumes traded daily. Here, again absolute value is the measure of liquidity, as a major institutional investor will first try to determine how long it will take to buy (or sell) the amount it has targeted. But volumes must also be

1 Block ownership is not applied if:

- *blocks are less than 5% of the total number of shares;*
- *blocks are held by custodian nominees, trustee companies, mutual and pension funds, and investment companies with short-term investment strategies.*

expressed in terms of percentage of the total number of shares and even as a percentage of free float.

11/ MARKET CAPITALISATION

Market capitalisation is the market value of company equity. It is obtained by multiplying the total number of shares outstanding by the share price. However, rarely can the majority of the shares be bought at this price at the same time, for example, in an attempt to take control and appoint new management. Most often, a premium must be paid (see Chapters 32 and 42).

All too often, only the shares in free float are counted in determining market capitalisation. All shares must be included, as market cap is the market value of company equity and not of the free float.

On 17 June 2008, Indesit had a market cap of €829m.

12/ PRICE TO BOOK RATIO (PBR)

PBR (Price to Book Ratio) measures the ratio between market value and book value:

$$PBR = \frac{\text{Price per share}}{\text{Book value per share}} = \frac{\text{Market capitalisation}}{\text{Book value of equity (Net worth)}}$$

PBR can be calculated either on a per share basis or for an entire company. Either way, the result is the same.

It may seem surprising to compare book value to market value which, as we have seen, results from a company's future cash flow. Even in the event of liquidation, equity value can be below book value (due, for example, to restructuring costs, accounting issues, etc.).

There is no direct link between book value and market value.

However, there is an economic link between book value and market value, as long as book value correctly reflects the market value of assets and liabilities.

It is not hard to show that a stock's PBR will be above 1 if its market value is above book value, when return on equity (r_E) is above the required rate of return (k_E). The reason for this is that if a company consistently achieves 15% ROE, and the shareholders require only 10%, a book value of 100 would mean equity value of 150, and the shareholders will have achieved their required rate of return:

$$\frac{15\% \times 100}{150} = 10\%, \text{ and } \quad PBR = 1.5$$

However, PBR will be below 1 if ROE (r_E) is below the required rate of return (k_E).

A sector cannot show equity value below book value for long as sector consolidation will soon intervene and re-establish balance, assuming that markets are efficient. Nor can a sector have equity value higher than book value for long as new entrants will be attracted to the sector and bring down the abnormally high returns. Market equilibrium will thus have been re-established.

As an illustration, here are the PBRs seen on the main world markets since 1989.

PBR

	UK	Germany	France	Italy	Spain	Netherlands	Belgium	Switzerland	USA	Japan
1989	1.3	1.5	1.7	1.8	1.1	1.2	1.0	1.3	1.8	3.8
1990	1.6	1.9	1.9	1.9	1.3	1.7	1.1	1.4	2.0	4.0
1991	1.4	1.5	1.3	1.2	0.9	1.3	0.2	1.2	1.9	2.3
1992	1.6	1.5	1.4	1.2	1.0	1.4	0.2	1.1	2.6	2.2
1993	1.8	1.4	1.4	1.1	1.2	1.2	0.2	1.3	2.6	1.7
1994	2.3	1.9	1.7	1.5	1.6	1.8	0.2	2.0	2.5	1.9
1995	2.1	1.6	1.5	1.5	1.3	1.7	0.3	1.8	2.2	2.1
1996	2.5	1.6	1.4	1.4	1.2	1.7	0.3	1.9	2.7	2.0
1997	2.8	1.8	1.6	1.3	1.6	1.7	0.3	2.1	3.0	1.9
1998	3.6	2.6	1.9	1.8	2.3	2.1	0.8	3.3	3.8	1.7
1999	3.0	2.4	2.3	2.4	2.8	2.7	2.2	3.0	4.4	1.6
2000	3.1	2.7	2.8	2.3	2.8	3.0	1.9	3.1	4.5	2.6
2001	2.7	2.3	2.9	2.6	2.4	3.3	1.8	3.3	4.1	1.8
2002	2.8	2.1	2.6	2.0	2.6	3.2	1.9	3.0	3.6	1.6
2003	2.2	1.3	1.7	1.7	1.8	1.9	1.2	2.1	2.4	1.8
2004	2.4	1.6	1.8	1.8	2.0	1.9	1.2	2.2	2.7	2.0
2005	2.0	1.4	1.6	1.7	2.2	1.7	1.4	2.0	2.7	1.9
2006	2.3	1.6	1.8	1.9	2.3	1.9	1.5	2.3	2.5	2.0
2007	2.4	2.0	2.2	2.2	3.0	2.1	1.7	2.7	2.7	1.9
2008	2.4	2.3	2.2	2.0	3.1	2.1	1.5	2.7	2.9	1.7

Source: Datastream.

Section 27.2

MULTIPLES

In order to understand the level of stock prices, investors must make some comparisons with comparable investments (similar stocks). By doing so, they can arbitrage between stocks taking into account their belief about the companies' qualities and the level of their prices. To achieve this objective, investors normally relate the stock price to a financial item.

There are two basic categories of multiples:

- those who allow a direct estimate of the market capitalisation. In this section, we will refer specifically to the price to earnings ratio (P/E);
- those who don't consider the capital structure of the company. These multiples allow the estimate of the value of the entire firm (firm or enterprise value) or, which is the same, the market value of the capital employed. The EBIT multiple will be presented in this section. Since capital employed is financed by equity and net debt, the enterprise value must then be allocated between creditors (first) and shareholders. We know in fact that:

> Enterprise value = Value of net debt + Value of equity
> and
> Value of equity = Enterprise value − Value of net debt

1/ EBIT MULTIPLE

(a) The principle

Investors interested in estimating the market value of a company's capital employed frequently find that the stock market believes that a fair value for similar companies could be, for example, 8 times their EBIT (or operating profit). With a pinch of salt, the investor can then decide to apply the same multiple to the EBIT of the company she is considering.

Investors name this ratio the EBIT multiple:

$$\text{EBIT multiple} = \frac{\text{Enterprise value}}{\text{Operating profit}}$$

Enterprise value is normally estimated by summing the market value of equity and the book value of net debt, assuming that the difference between the book value of debt and the corresponding market value is rarely enormous.

Where the comparison is made using companies with different fiscal positions (because they belong to different countries, for example), it is more appropriate to consider an operating profit net of taxes. This result can be easily obtained by multiplying the operating profit by (1 – the corporate tax rate of the specific country).

A company whose value is 100 while the operating profit is 12.5 will be traded for $8 \times$ its operating profit. If the operating profit remains unchanged, and disregarding the terminal value, these figures imply that investors must wait 8 years before they can recover their investment. Conversely, if the operating profit increases, they will not have to wait so long. The following interpretation is consequently allowed: the EBIT multiple corresponds to the purchase price of €1 of the operating profit.

The reader might be interested in knowing why the EBIT multiple is so popular in practice and is preferred to multiples based on similar aggregates. The reason is very simple: the operating profit is the result generated by the capital employed. Net of taxes, the operating profit is the result generated by the company ready for distribution between financial creditors and shareholders.
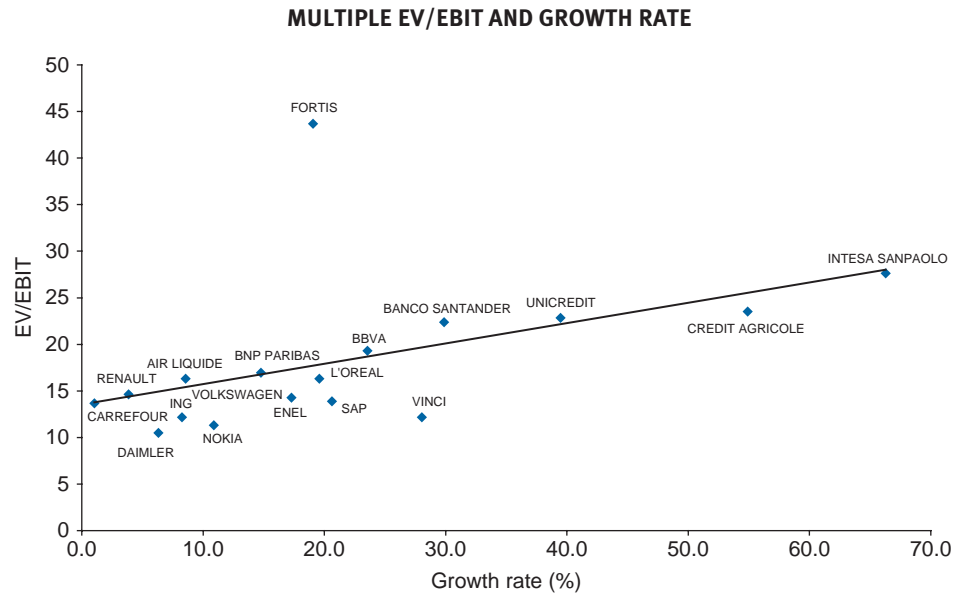
In practice, when applying the multiple, financial analysts prefer using the operating profit of the current period or of the next period.

(b) The multiple drivers

Although the EBIT multiple is a ratio that summarises a lot of information, its value is basically determined by three factors: the growth rate of the operating profit, the risk of the company and the level of interest rates.

1   **The growth rate of the operating profit**. There is a certain degree of correlation between the multiple and the expected growth of the operating profit. This is no surprise. Investors will be more willing to pay a higher price if the operating profit is expected to grow at a high rate. However, the reader should not forget that behind the growth of the operating profit are the growth of both revenues and operating margins.

The following graph shows the relation between the medium-term growth rate of the operating profit of some European companies and their multiples.

MULTIPLE EV/EBIT AND GROWTH RATE

2   **The risk of the capital employed**. The link between growth rate and multiples is not always verified in the market. Sometimes some companies show a low multiple and a high growth rate, and vice versa. This apparent anomaly can often be explained by considering the risk profile of the company. Analysts and investors in fact do not take the expected growth rate for granted. Thus, they tend to counterweight the effects of the growth rate with the robustness of these estimates.

> All other things held equal, the higher the risk of the company, the lower the operating profit multiple; the lower the risk, the higher the multiple.

3   **The level of interest rates**. There is a strong inverse correlation between the level of interest rates and the operating profit multiple. This link is rather intuitive: our reader is in fact perfectly aware that high interest rates increase the returns expected by investors (think for example, about the CAPM equation!), thus reducing the value of any asset.

> All other things held equal, the higher the level of interest rates, the lower the operating profit multiple; the lower the interest rates, the higher the multiple.

Generally speaking, we can say that the level of the multiple can be frequently explained – *in a specific moment* – by the current level of interest rates in the economy.

2/ PRICE TO EARNINGS (P/E)

(a) The principle

Many market operators now value shares based on earnings per share (EPS) multiplied by the price earnings (P/E) ratio.

P/E is equal to:

$$P/E = \frac{\text{Price per share}}{\text{EPS}}$$

Another way to put this is to consider the aggregate values:

$$P/E = \frac{\text{Market capitalisation}}{\text{Net income}}$$

EPS reflects theoretical value creation over a period of one year. Unlike a dividend, EPS is not a revenue stream.

As an illustration, here are the P/E ratios of the main markets since 1988.

	UK	Germany	France	Italy	Spain	Netherlands	Belgium	Switzerland	USA	Japan
1989	10.8	14.3	12.6	14.5	11.8	12.4	12.6	11.9	11.7	58.7
1990	12.4	14.9	11.5	16.0	11.4	11.5	14.0	12.6	14.3	60.6
1991	11.2	13.5	9.1	14.2	8.2	10.0	10.4	12.3	14.2	38.6
1992	15.1	16.2	10.9	15.3	9.0	12.0	12.2	13.8	19.2	40.5
1993	18.0	17.2	13.0	15.2	8.9	12.9	13.4	15.3	20.1	40.3
1994	20.5	22.8	18.7	20.3	15.3	17.9	18.7	19.0	20.0	57.0
1995	15.1	17.6	13.1	19.0	13.4	14.5	14.9	16.4	16.2	67.0
1996	15.6	17.0	13.2	14.3	11.7	13.6	14.5	19.3	17.8	62.7
1997	16.2	17.6	16.7	14.4	15.8	18.5	16.6	20.4	20.4	54.7
1998	18.5	20.4	17.9	21.6	19.6	21.7	14.6	24.8	23.4	40.2
1999	20.6	18.4	19.9	25.9	23.6	22.8	24.5	23.9	27.7	50.5
2000	26.7	25.6	24.5	28.0	24.0	31.9	19.1	21.0	30.6	83.1
2001	21.0	21.1	19.3	22.4	19.1	22.1	12.3	19.9	25.3	49.7
2002	19.9	18.2	18.0	16.7	15.2	16.1	11.2	20.7	27.8	40.8
2003	14.9	10.3	11.8	16.8	13.0	13.2	8.5	17.4	21.4	34.3
2004	16.5	12.2	16.0	15.7	16.0	15.5	11.9	21.4	23.1	38.5
2005	15.1	13.3	13.2	16.7	18.4	12.0	14.8	16.1	20.3	27.5
2006	14.5	14.4	15.2	19.4	19.3	13.5	16.0	18.5	18.5	34.9
2007	14.0	14.2	15.4	17.1	21.2	12.2	14.3	18.3	17.9	26.1
2008	13.2	13.6	14.0	12.9	12.7	11.1	10.9	13.9	18.0	25.2

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Source: Datastream.

While there is no obligation to do so, P/E is based on estimated earnings for the current year. However, forward earnings are also considered; for example, N + 1 expresses the current market value of the stock vs. estimated earnings for the following year. For fast-growing companies or companies that are currently losing money, P/E_{N+1} or P/E_{N+2} are sometimes used, either to give a more representative figure (and thus avoid scaring the investor!) or because, in the case of loss-making companies, it is impossible to calculate P/E for year N.

The widespread use of P/E (which is implicitly assumed to be constant over time) to determine equity value has given rise to the myth of EPS as a financial criterion to assess a company's financial strategy. Such a decision might or might not be taken on the basis
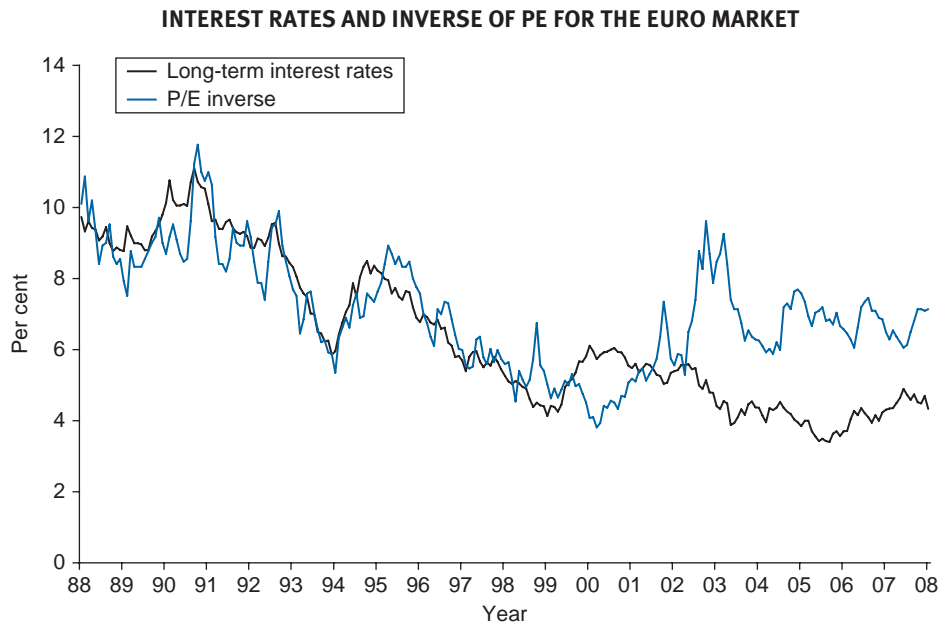
of its positive or negative impact on EPS. This is why P/E is so important, but it also has its limits, as we will demonstrate.

P/E is conceptually similar to the NOPAT multiple. The latter is a division of enterprise value by after-tax operating profit, while P/E is a division of market value by net profit.

Hence, many of the things we have said about the NOPAT multiple also apply to P/E:

● Another way of understanding P/E is to note that it expresses market value on the basis of the number of years of earnings that are being bought. Thus an equity value of 100, with earnings of 12.5 is valued at 8 times these earnings and the P/E is therefore 8. This means that if EPS remains constant, the investor will have to wait 8 years to recover his investment, while ignoring the residual value of the investment after 8 years, omitting the discount, and assuming that he receives all of the EPS. If the EPS rises (falls), the investor will have to wait less (more) than 8 years.

● In an efficient market, the greater EPS growth, the higher the P/E, and vice versa.

● P/E is inversely proportional to interest rates: all other factors being equal, the higher the interest rates the lower the P/Es and vice versa, again assuming efficient markets:

INTEREST RATES AND INVERSE OF PE FOR THE EURO MARKET

The looser correlation seen in 2000 is due to the speculative bubble on Internet, tech and media stocks.

Source: Datastream.

● The greater the perceived risk, the lower the P/E, and vice versa.

P/E is used in the same way as the NOPAT multiple. To value a company, it is useful to set it alongside other companies as comparable as possible in terms of activity, growth prospects and risk, and then apply their P/E to it.

P/E reflects a risk that the NOPAT multiple does not – financial structure – which comes on top of the risk presented by the operating assets.

P/E can only be used for valuation purposes if the comparable companies have the same EPS growth and the same risks on both the operating and financial levels.

(b) P/E and investors' required rate of return

Inverse P/E, also called earnings yield, is often mistakenly used in approximating investors' required rate of return. This should only be done in those very rare cases where earnings growth is nil and the company pays out 100% of its earnings. Here is our reasoning:

$$P = \frac{DPS}{k_E} = \frac{EPS}{k_E}$$

Then:

$$\frac{P}{E} = \frac{P}{EPS} = \frac{1}{k_E}$$

and, thus,

$$\frac{1}{\frac{P}{E}} = k_E$$

In most cases, companies are growing and the inverse P/E is below the required rate of return. Using the inverse P/E to approximate required rate of return would seriously underestimate the latter — a big mistake.

The P/E of company with EPS of 12 that's trading at 240 would then be:

$$\frac{240}{12} = 20$$

The inverse P/E is just 5%, whereas the required return nowadays is probably about 10%.

For a mature company, the inverse P/E is above the shareholders' required rate of return. Using the inverse P/E to approximate required rate of return would overestimate the rate of return – another big mistake.

All in all, the inverse P/E reflects only an immediate accounting return for a new shareholder who has bought the share for V and who has a claim on EPS:

$$\text{Accounting rate of return} = \frac{EPS}{V} = \frac{1}{P/E}$$

- A very low return means that shareholders expect EPS growth to be strong enough to ultimately obtain a return commensurate with their required rate of return.
- A very high rate means that immediate return is uncertain and shareholders expect negative EPS growth to ultimately bring accounting return closer to their required rate of return.
- a normal rate, i.e. in line with the required rate of return, means that EPS growth is expected to be nil, and the investment is considered a perpetual annuity.

We are now able to fill in the blanks of the chart below, but it will only make sense if you have first assessed the company's strategy and finances.

We have filled in the data for Indesit, whose ROE (18.2%) surpasses the rate of return required by its shareholders (about 8.6%). Hence equity value (€829m) is greater than book value (€636m), and PBR is greater than one.

Moderate earnings growth explain why Indesit's P/E is medium. At 50%, its payout is higher than the average, but we have seen before that Indesit has quite low investment needs.

Although Indesit's free-float is low, the market for the stock is liquid (0.47% of total equity exchanged every day on average, good coverage by analysts) so the above comments apply here.

KEY MARKET DATA ON INDESIT

In Euros	Past		Current	Future	
	2006	2007	2008	2009	2010
Adjusted share price					
High	12.9	18.53	10.63		
Low	8.46	10.42	7.21		
Average or last	12.34	10.62	8.05		
Absolute data					
Number of fully diluted shares[2] (m)	103	103	103		
Market capitalisation (bn)	1270	1095	829		
Equity, less minority interests (bn)	620	636			
Value of net debt (bn)	600	522			
Enterprise value (bn)	1870	1617			
Multiples					
Fully diluted EPS	0.74	1.02	0.96	1.04	1.16
EPS growth	48%	38%	−6%	8%	12%
P/E	16.7	10.4	8.4	7.7	6.9
After-tax operating profit (m)	158	197	187	202	210

2 *See Section 27.4*

KEY MARKET DATA ON INDESIT (cont.)

In Euros	Past		Current	Future	
	2006	2007	2008	2009	2010
NOPAT multiple	11.8	8.2	7.2	6.7	6.4
Price/Book Ratio (PBV)	2.0	1.7			
Dividend					
Dividend per share (DPS)	0.39	0.51	0.56	0.69	0.65
DPS growth	7%	32%	10%	23%	−6%
Net yield	3.1%	4.8%	7.0%	8.6%	8.1%
Payout	52%	50%	58%	66%	56%
Return					
Beta(β)	1.09	1.10	0.87		
Risk premium: $rM - rF$	3.82%	4.16%	4.84%		
Risk-free rate: rF	3.67%	4.17%	4.41%		
Required rate of return: kE	7.83%	8.75%	8.62%		
Return on equity: rE	11.0%	14.7%	18.2%		
Actual return (capital gains and dividends)	44.3%	−9.1%	−17.2%		
Free float	20%	20%	20%		

Section 27.4
ADJUSTING PER SHARE DATA FOR TECHNICAL FACTORS

1/ REWRITE HISTORY, IF NECESSARY

"Let's not mix apples with oranges." This old saying applies to the adjustment of per-share data after the detachment of rights and for free-share awards and rights issues which, **from a technical point of view**, can modify the value of a stock.

Studying past share prices only makes sense if they are comparable, that is, if they have been adjusted for variations that are due solely to technical factors. Prices prior to the detachment of a right are adjusted by multiplying them by what is called the "adjustment coefficient".

(a) Free share awards

Suppose a company decides to double its equity by incorporating its reserves, and issues one new share for each existing share. Each shareholder is then the owner of twice as many shares without having paid in additional funds and with no change to the company's financial structure. The unit value of the shares has simply been divided into two.

Naturally, the company's equity value will not change, as two shares will be equal to one previously existing share. However, the share price before and after the operation will have to be adjusted to obtain a comparable series.

In this case, simply divide the shares existing after the free share award by two. The adjustment coefficient is 1/2.

More generally, if N' new shares are issued for N already existing shares, the adjustment coefficient is as follows:

$$\frac{N}{N + N'}$$

(b) A rights issue with an exercise price below the current share price

This is the second reason we might have to adjust past per-share data. We will go further into detail in Chapter 30, which deals with share offerings.

To subscribe the new shares, investors must first buy one or more rights detached from previously existing shares, whose price is theoretically such that it doesn't matter whether they buy previous existing shares or use the rights to buy new ones. The detachment of the right from the existing shares makes an adjustment necessary.

For a rights issue (in which the company is raising additional funds instead of simply incorporating its reserves, as in the example above), the adjustment coefficient is:

$$\frac{\text{Share price after detachment}}{\text{Share price before detachment}} = \frac{\text{Share price after detachment} - \text{Rights}}{\text{Share price before detachment}}$$

If P is the price of the already existing share, E the issue price of the new shares, N' the number of new shares and N the number of already existing shares, the adjustment coefficient will be equal to:

$$\frac{N \times P + N' \times E}{(N' + N) \times P}$$

More generally, the adjustment coefficient is equal to the price after detachment of the right (either the right to receive a free share or the right to buy a new one) divided by the price before detachment of the right. Henceforth, we will assume all prices to have been adjusted.

To make the adjustment, simply multiply all the share data (e.g. price, EPS, DPS, BV/S) before the detachment by this coefficient.

As you have seen, the adjustment consists in rewriting past stock performance to make it comparable to today and tomorrow, and not the reverse.

2/ THE IMPACT OF FUTURE TRANSACTIONS

When equity-linked securities (convertible bonds, mandatory convertibles, bonds with warrants attached, stock options, etc.) have been issued, financial managers must factor these potential new shares into their per-share data. Here again, we must adjust in order to obtain an average number of outstanding shares.

As there is at least potential dilution, we have to assume full conversion in calculating the per-share data (EPS, BV/S, etc.) on a fully diluted basis. This is easy to do for convertible bonds (CBs). Simply assume that the CBs have been converted. This increases the number of shares but lowers financing costs as interest is no longer paid on the CBs.

For warrants (or stock options), two methods can be used. The **first method** called the **treasury method**, is commonly used: it assumes investors will exercise their warrants in-the-money and the company will buy back its own shares with the proceeds. The company thus offsets some of the dilution caused by the exercise of the warrants. This is the method recommended by the French CNC and the IASB.

The following example will illustrate the method: on 1 September 2007, Loch Lomond Corporation decided to issue 100,000 equity warrants exercisable from 1 January 2008 to 1 January 2012 at one share at €240 per warrant.

In 2008, EPS is €10m (net income 2008) divided by 1,000,000 (number of shares), i.e. €10.

As of 31 December 2008, Loch Lomond's share price is €300, all the warrants are in the money and thus are assumed exercised: 100,000 new shares are issued. The exercise of the warrants raises the following sum for the company: $100,000 \times €240 = €24,000,000$.

The company could use this money to buy back 80,000 of its own shares trading at €300. Fully diluted EPS can be computed as follows:

$$2008 \ \text{EPS} = 10,000,000/(1,000,000 + 100,000 - 80,000) = €9.80$$

Note that only in-the-money diluting securities are restated; out-the-money securities are not taken into account.

The **second method**, called the "**investment of funds method**", assumes that all investors will exercise their warrants and that the company will place the proceeds in a financial investment. Let's go back to that last example and use this method.

In this method, we assume all warrants are exercised by investors and the proceeds are invested at 3% after taxes[3] pending use in the company's industrial projects. Fully diluted EPS would be as follows:

$$\text{EPS} = \frac{100,000 \times 240 \times 3\% + 10,000,000}{1,000,000 + 100,000} = €9.75$$

As can be seen, the two methods produce different results as a direct consequence of the different uses of the cash proceeding from the exercise of warrants.

The treasury method can be considered to be the closest to the financial markets, as the main figure it uses is the company's share price. However, the treasury method assumes that the best investment for a company is to buy back its own shares.

[3] *Depending on the case, we can assume either the company's average rate on short-term investment or the weighted average cost of capital.*

Summary

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Share analysis is centred on changes in stock market prices, multiples (especially P/E), dividends and returns, compared with required returns.

Dividends are analysed by looking at returns (dividend on the share price) and the payout ratio (dividend on net profit).

The P/E (Price Earnings Ratio) is the ratio of the value of the share to EPS (Earnings Per Share). Changes in P/E follow future EPS growth and move in the opposite direction from interest rates and risk (financial and operational).

It is only when the company pays out all of its profits and when financial and industrial markets are in equilibrium, that inverse P/E (also called earnings yield) is equal to shareholders' required rate of return. Generally, the inverse P/E criteria results in an underestimation of shareholders' required rate of return.

We'll be looking at P/E, which is more of a valuation instrument than an instrument used in financial policy, in greater detail in the following chapters.

Questions

@
quiz

1/Why is adjustment necessary?

2/Define growth stock and yield stock.

3/What are the growth prospects for a company that pays out all of its profits?

4/Does a "high" P/E necessarily mean that the company is experiencing high growth?

5/What assumptions must be made for inverse P/E to provide an approximate estimate of required rate of return?

6/Will a change in required rate of return have a greater impact on a company that pays out 75% of its profits than a company that has a payout ratio of 5%, but which should increase to 75% in 25 years?

7/Will a share with a higher than average required rate of return for the same risk, be undervalued or overvalued?

8/What is dividend growth that is higher per share than for the total amount of dividends paid out a sign of? What is dividend growth that is higher for the total amount of dividends paid out than the payout per share a sign of? What are your conclusions?

9/Is a company's earnings growth the most important criteria defining a growth stock?

10/What does a PBR that is much higher than 1 mean?

1/ You buy a stock which has the following features:

- price: €500
- EPS: €33.3
- payout ratio: 25%
- projected EPS growth 15%

What will EPS have to be equal to in year 3 for you to get a 12% return on your investment? What will the share be worth then?

2/ What is your view of the following companies?

Company	Share price	EPS (€)			EPS CAGR (2007 * 2009)	g 2007	Payout	Yield	BV/S	P/R 2008e
		2007	2008e	2009e						
Pearson	688 p	46.69	49.02	52.44	6%	5.0%	81%	4.31%	144.47	13.66
Bharti Airtel	845.45 IR	33.71	45.78	55.09	28%	35.8%	0%	0.00%	449	18.5
Lehman Brothers	16.83 $	7.26	−2.63	3.61	−29%	−136.2%	8.26%	0.92%	29.53	ns

* Compounded annual growth rate

The risk-free rate is 3.7%. The market premium is 5.5%.

3/ For each of the following shares, provide an approximation of the missing figure (?) and then give your view of each share.

	Share A	Share B	Share C	Share D
P/E	10	25	7	50
Payout ratio d	95	20	20	?
Annual EPS growth after 5 years: g	?	30%	5%	30%
Long-term debt/Shareholders' equity	0.15	0.20	0.25	8
r_{CP}	10	30	?	90%
PBR	1	?	0.4	45

ANSWERS

Questions

1/ *Because a share is no longer the same after a right has been detached.*
2/ *Growth stock: a stock which does not pay out much but is likely to in the future (high expectations of capital gains). Yield stock: stock that pays out a high dividend given the lack of investment opportunities (low expectations of capital gains).*
3/ *Zero, unless there is an improvement in productivity or an upturn in the economy.*
4/ *Generally yes, but not if the company is experiencing problems (drop in profits, anticipated restructuring).*
5/ *That the company will pay out all of its profits in dividends, that profits will be constant and that the markets will be in equilibrium.*
6/ *No, on the contrary, the latter will be more sensitive as a result of the long period that will elapse before any inflows are received.*
7/ *Undervalued.*
8/ *Capital reductions. Capital increases.*
9/ *Yes, along with the rate of return on shareholders' equity.*
10/ *That the rate of return on shareholders' equity is much higher than that required by shareholders.*

Exercises

1/ *$P/E = 13.1$ $V = €665$.*
2/ *Pearson has reached its maturity: earning are relatively steady. Dividend policy is generous because the company does not need to invest a lot. The risk is logically medium as well as the PER. Bharti Airtel has a strong growth profile: this explains why the company does not distribute dividends, its PER is also relatively high. Risk is also quite low: this is notable for a growing company and contributes to a high PBR. Lehman Brothers is having some trouble: its earnings are falling because of the subprime crisis. The company is destroying value (PBR<1). Its risk is also high (beta close to 2). The risk combined to bearish expectations on earnings explains a very low PER (2.3 based on 2007 earnings). The company has almost stopped distributing dividends to retain its cash reserves to face current liquidity turmoil.*
3/ *The g of A is very low at around 100%. PBR of B = $P/E \times r_{SE}$ = 7.5. r_{SE} of C = $PBR/P/E$ = 5.7% The d of D: probably very low, given the amount of debt and the very high growth rate. A is very close to returning a profit, without growing. B is growing briskly with excellent returns. The returns achieved by C will not meet the requirements of its shareholders and will have to pay out much more (see Chapter 44). D's returns on shareholders' equity are exceptional, which is explained by a very high leverage effect.*

BIBLIOGRAPHY

For institutional aspects regarding stock markets see *www.fibv.org*, where the reader can find links to the stock exchanges belonging to the International Federation of Stock Exchanges.