

PART **5**

**Interpretation**

## CHAPTER 25

# Earnings per share

### 25.1 Introduction

The main purpose of this chapter is to understand the importance of earnings per share (EPS) and the PE ratio as a measure of the financial performance of a company (or 'an enterprise'). This chapter will enable you to calculate the EPS according to IAS 33 both for the current year and prior years, when there is an issue of shares in the year. Also, it will enable you to understand and calculate the diluted earnings per share, for future changes in share capital arising from exercising of share options and conversion of other financial instruments into shares.

#### Objectives

By the end of the chapter, you should be able to:

- define earnings per share and the PE ratio;
- comment critically on the PE ratio of an enterprise in comparison with the industry average;
- calculate the basic and diluted earnings per share.

### 25.2 Why is the earnings per share figure important?

One of the most widely publicised ratios for a public company is the price/earnings or PE ratio. The PE ratio is significant because, by combining it with a forecast of company earnings, analysts can decide whether the shares are currently over- or undervalued.<sup>1</sup>

The ratio is published daily in the financial press and is widely employed by those making investment decisions. The following is a typical extract from the *Risk Measurement Service*:<sup>2</sup>

#### Breweries, Pubs and Restaurants

<i>Company</i>	<i>Price</i>	<i>PE ratio</i>
	<i>31/3/98</i>	
Company A	453	12.6
Company B	340	39.3
Company C	1,125	19.6

The PE ratio is calculated by dividing the market price of a share by the earnings that the company generated for that share. Alternatively, the PE figure may be seen as a multiple of

the earnings per share, where the multiple represents the number of years' earnings required to recoup the price paid for the share. For example, it would take a shareholder in Company B just under forty years to recoup her outlay if all earnings were to be distributed, whereas it would take a shareholder in Company A just over twelve years to recoup his outlay, and one in Company C just under twenty years.

### 25.2.1 What factors affect the PE ratio?

The PE ratio for a company will reflect investors' confidence and hopes about the international scene, the national economy and the industry sector, as well as about the current year's performance of the company as disclosed in its financial report. It is difficult to interpret a PE ratio in isolation without a certain amount of information about the company, its competitors and the industry within which it operates.

For example, a **high PE ratio** might reflect investor confidence in the existing management team: people are willing to pay a high multiple for expected earnings because of the underlying strength of the company. Conversely, it might also reflect lack of investor confidence in the existing management, but an anticipation of a takeover bid which will result in transfer of the company assets to another company with better prospects of achieving growth in earnings than has the existing team.

A **low PE ratio** might indicate a lack of confidence in the current management or a feeling that even a new management might find problems that are not easily surmounted. For example, there might be extremely high gearing, with little prospect of organic growth in earnings or new capital inputs from rights issues to reduce it.

These reasons for a difference in the PE ratios of companies, even though they are in the same industry, are market-based and not simply a function of earnings. However, the current earnings per share figure and the individual shareholder's expectation of future growth relative to that of other companies also have an impact on the share price.

## 25.3 How is the EPS figure calculated?

Because of the importance attached to the PE ratio, it is essential that there be a consistent approach to the calculation of the EPS figure. IAS 33 *Earnings per Share*<sup>3</sup> was issued in 1998 for this purpose. A revised version of the standard was issued in 2003.

The EPS figure is of major interest to shareholders not only because of its use in the PE ratio calculation, but also because it is used in the earnings yield percentage calculation. It is a more acceptable basis for comparing performance than figures such as dividend yield percentage because it is not affected by the distribution policy of the directors. The formula is:

$$\text{EPS} = \frac{\text{Earnings}}{\text{Weighted number of ordinary shares}}$$

The standard defines two EPS figures for disclosure, namely,

- **basic EPS** based on ordinary shares currently in issue; and
- **diluted EPS** based on ordinary shares currently in issue *plus* potential ordinary shares.

### 25.3.1 Basic EPS

**Basic EPS** is defined in IAS 33 as follows:<sup>4</sup>

- Basic earnings per share is calculated by dividing the net profit or loss for the period attributable to ordinary shareholders by the weighted average number of ordinary shares outstanding during the period.

For the purpose of the BEPS definition:

- **Net profit** is the profit for the period attributable to the parent entity after deduction of preference dividends (assuming preference shares are equity instruments).<sup>5</sup>
- The **weighted average number of ordinary shares** should be adjusted for events, other than the conversion of potential ordinary shares, that have changed the number of ordinary shares outstanding, without a corresponding change in resources.<sup>6</sup>
- An **ordinary share** is an equity instrument that is subordinate to all other classes of equity instruments.<sup>7</sup>

Earnings per share is calculated on the overall profit attributable to ordinary shareholders but also on the profit from continuing operations if this is different to the overall profit for the period.

### 25.3.2 Diluted EPS

**Diluted EPS** is defined as follows:

- For the purpose of calculating diluted earnings per share, the net profit attributable to ordinary shareholders and the weighted average number of shares outstanding should be *adjusted for the effects of all dilutive potential ordinary shares*.<sup>8</sup>

This means that *both* the earnings *and* the number of shares used *may* need to be adjusted from the amounts that appear in the profit and loss account and statement of financial position.

- **Dilutive** means that earnings in the future may be spread over a larger number of ordinary shares.
- **Potential ordinary shares** are financial instruments that may entitle the holders to ordinary shares.

## 25.4 The use to shareholders of the EPS

Shareholders use the reported EPS to estimate future growth which will affect the future share price. It is an important measure of growth over time. There are, however, limitations in its use as a performance measure and for inter-company comparison.

### 25.4.1 How does a shareholder estimate future growth in the EPS?

The current EPS figure allows a shareholder to assess the wealth-creating abilities of a company. It recognises that the effect of earnings is to add to the individual wealth of shareholders in two ways: first, by the payment of a dividend which transfers cash from the company's control to the shareholder; and, secondly, by retaining earnings in the company for reinvestment, so that there may be increased earnings in the future.

The important thing when attempting to arrive at an estimate is to review the statement of comprehensive income of the current period and identify the earnings that can reasonably be expected to continue. In accounting terminology, you should identify the **maintainable post-tax earnings** that arise in the **ordinary course of business**.

Companies are required to make this easy for the shareholder by disclosing separately, by way of note, any unusual items and by analysing the profit and loss on trading between discontinuing and continuing activities.

Shareholders can use this information to estimate for themselves the maintainable post-tax earnings, assuming that there is no change in the company's trading activities. Clearly, in a dynamic business environment it is extremely unlikely that there will be no change in the current business activities. The shareholder needs to refer to any information on capital commitments which appear as a note to the accounts and also to the chairman's statement and any coverage in the financial press. This additional information is used to adjust the existing maintainable earnings figure.

### 25.4.2 Limitations of EPS as a performance measure

EPS is thought to have a significant impact on the market share price. However, there are limitations to its use as a performance measure.

The limitations affecting the use of EPS as an inter-period performance measure include the following:

- It is based on historical earnings. Management might have made decisions in the past to encourage current earnings growth at the expense of future growth, e.g. by reducing the amount spent on capital investment and research and development. Growth in the EPS cannot be relied on as a predictor of the rate of growth in the future.
- EPS does not take inflation into account. Real growth might be materially different from the apparent growth.

The limitations affecting inter-company comparisons include the following:

- The earnings are affected by management's choice of accounting policies, e.g. whether non-current assets have been revalued or interest has been capitalised.
- EPS is affected by the capital structure, e.g. changes in number of shares by making bonus issues.

However, the **rate of growth** of EPS is important and this may be compared between different companies and over time within the same company.

## 25.5 Illustration of the basic EPS calculation

Assume that Watts plc had post-tax profits for 20X1 of £1,250,000 and an issued share capital of £1,500,000 comprising 1,000,000 ordinary shares of 50p each and 1,000,000 £1 10% preference shares that are classified as equity. The basic EPS (BEPS) for 20X1 is calculated at £1.15 as follows:

	£000
Profit on ordinary activities after tax	1,250
Less preference dividend	<u>(100)</u>
Profit for the period attributable to ordinary shareholders	<u>1,150</u>

$$\text{BEPS} = \text{£}1,150,000 / 1,000,000 \text{ shares} = \text{£}1.15$$

Note that it is the *number* of issued shares that is used in the calculation and *not the nominal value* of the shares. The market value of a share is not required for the BEPS calculation.

## 25.6 Adjusting the number of shares used in the basic EPS calculation

The earnings per share is frequently used by shareholders and directors to demonstrate the growth in a company's performance over time. Care is required to ensure that the number of shares is stated consistently to avoid distortions arising from changes in the capital structure that have changed the number of shares outstanding without a corresponding change in resources during the whole or part of a year. Such changes occur with (a) bonus issues and share splits; (b) new issues and buybacks at full market price during the year; and (c) the bonus element of a rights issue.

We will consider the appropriate treatment for each of these capital structure changes in order to ensure that EPS is comparable between accounting periods.

### 25.6.1 Bonus issues

A bonus issue, or capitalisation issue as it is also called, arises when a company capitalises reserves to give existing shareholders more shares. In effect, a simple transfer is made from reserves to issued share capital. In real terms, neither the shareholder nor the company is giving or receiving any immediate financial benefit. The process indicates that the reserves will not be available for distribution, but will remain invested in the physical assets of the company. There are, however, more shares.

#### Treatment in current year

In the Watts plc example, assume that the company increased its shares in issue in 20X1 by the issue of another 1 million shares and achieved identical earnings in 20X1 as in 20X0. The EPS reported for 20X1 would be immediately halved from £1.15 to £0.575. Clearly, this does not provide a useful comparison of performance between the two years.

#### Restatement of previous year's BEPS

The solution is to restate the EPS for 20X0 that appears in the 20X1 accounts, using the number of shares in issue at 31.12.20X1, i.e.  $\text{£}1,150,000 / 2,000,000 \text{ shares} = \text{BEPS of } \text{£}0.575$ .

### 25.6.2 Share splits

When the market value of a share becomes high some companies decide to increase the number of shares held by each shareholder by changing the nominal value of each share. The effect is to reduce the market price per share but for each shareholder to hold the same total value. A share split would be treated in the same way as a bonus issue.

For example, if Watts plc split the 1,000,000 shares of 50p each into 2,000,000 shares of 25p each, the 20X1 BEPS would be calculated using 2,000,000 shares. It would seem that the BEPS had halved in 20X1. This is misleading and the 20X0 BEPS is therefore restated using 2,000,000 shares. The total market capitalisation of Watts plc would remain unchanged. For example, if, prior to the split, each share had a market value of £4 and the company had a total market capitalisation of £4,000,000, after the split each share would have a market price of £2 and the company market capitalisation would remain unchanged at £4,000,000.

### 25.6.3 New issue at full market value

Selling more shares to raise additional capital should generate additional earnings. In this situation we have a real change in the company's capital and there is no need to adjust any

comparative figures. However, a problem arises in the year in which the issue took place. Unless the issue occurred on the first day of the financial year, the new funds would have been *available to generate profits* for only a part of the year. It would therefore be misleading to calculate the EPS figure by dividing the earnings generated during the year by the number of shares in issue at the end of the year. The method adopted to counter this is to use a time-weighted average for the number of shares.

For example, let us assume in the Watts example that the following information is available:

	<i>No. of shares</i>
Shares (nominal value 50p) in issue at 1 January 20X1	1,000,000
Shares issued for cash at market price on 30 September 20X1	500,000

The time-weighted number of shares for EPS calculation at 31 December 20X1 will be:

	<i>No. of shares</i>
Shares in issue for 9 months to date of issue	
$(1,000,000) \times (9/12 \text{ months})$	750,000
Shares in issue for 3 months from date of issue	
$(1,500,000) \times (3/12 \text{ months})$	<u>375,000</u>
Time-weighted shares for use in BEPS calculation	<u>1,125,000</u>

BEPS for 20X1 will be  $\pounds 1,150,000 / 1,125,000 \text{ shares} = \pounds 1.02$

#### 25.6.4 Buybacks at market value

Companies are prompted to buy back their own shares when there is a fall in the stock market. The main arguments that companies advance for purchasing their own shares are:

- To reduce the cost of capital when equity costs more than debt.
- The shares are undervalued.
- To return surplus cash to shareholders.
- To increase the apparent rate of growth in BEPS.

The following is an extract from the 2000 Annual Report of EVN AG in respect of both a buyback and a share split, both of which will impact on the EPS figure:

##### Share buyback programme prolonged

At the 71st Annual General Meeting on January 14, 2000, the EVN Executive Board was given authorisation to purchase company shares up to a maximum of 10% of share capital over 18 months. This authorisation also extends to the resale of the shares via the stock markets. The main aim was the stabilisation of the shareholder structure and the stock market share price. On this basis, the Executive Board decided to repurchase shares initially to the value of 3% of share capital in the period up to September 30, 2000.

##### Share split

In line with a resolution passed by the 71st Annual General Meeting, EVN AG share capital was reallocated through a 1:3 share split. Shareholders have received three shares for every one in their possession. Share capital, which remains unchanged at Eur 82,878,000 is now divided into 34,200,000 ordinary shares. The measure was aimed at easing the price of the EVN share, thereby stimulating trading and share price development.

The impact on the weighted number of shares is explained by the EVN in Note 52 as follows:

### Earnings per share

Due to the 1:3 ratio share split, the number of ordinary shares outstanding totalled 34,200,000. Following the deduction of own shares, the weighted number of shares outstanding is 33,974,310 . . .

In the UK, examples are found amongst the FTSE 100 companies: e.g. in 1998 NatWest Bank purchased 175,000; Rio Tinto 2.965m; BTR 700,020 ordinary shares.<sup>9</sup>

The shares bought back by the company are included in the basic EPS calculation time apportioned from the beginning of the year to the date of buyback.

For example, let us assume in the Watts example that the following information is available:

	<i>No. of shares</i>
Shares (50p nominal value) in issue at 1 January 20X1	1,000,000
Shares bought back on 31 May 20X1	240,000
Profit attributable to ordinary shares	£1,150,000

The time-weighted number of shares for EPS calculation at 31 December 20X1 will be:

1.1.20X1	Shares in issue for 5 months to date of buyback	$1,000,000 \times 5/12$	416,667
31.5.20X1	Number of shares bought back by company	<u>(240,000)</u>	
31.12.20X1	Opening capital less shares bought back	$760,000 \times 7/12$	443,333
	Time-weighted shares for use in BEPS calculation		<u>860,000</u>

BEPS for 20X1 will be  $\text{£}1,150,000/860,000$  shares = **£1.34**

Note that the effect of this buyback has been to increase the BEPS for 20X1 from £1.15 as calculated in section 25.5 above. This is a mechanism for management to lift the BEPS and achieve EPS growth.

## 25.7 Rights issues

A rights issue involves giving existing shareholders ‘the right’ to buy a set number of additional shares at a price below the fair value which is normally the current market price. A rights issue has two characteristics being both an issue for cash and, because the price is below fair value, a bonus issue. Consequently the rules for *both* a cash issue *and* a bonus issue need to be applied in calculating the weighted average number of shares for the basic EPS calculation.

This is an area where students frequently find difficulty with Step 1 and we will illustrate the rationale without accounting terminology.

The following four steps are required:

- Step 1: Calculate the average price of shares before and after a rights issue to identify the amount of the bonus the company has granted.
- Step 2: The weighted average number of shares is calculated for current year.
- Step 3: The BEPS for current year is calculated.
- Step 4: The previous year BEPS is adjusted for the bonus element of the rights issue.

### Step 1: Calculate the average price of shares before and after a rights issue to identify the amount of the bonus the company has granted

Assume that Mr Radmand purchased two 50p shares at a market price of £4 each in Watts plc on 1 January 20X1 and that on 2 January 20X1 the company offered a 1:2 rights issue (i.e. one new share for every two shares held) at £3.25 per share.

If Mr Radmand had bought at the market price, the position would simply have been:

	£
2 shares at market price of £4 each on 1 January 20X1	= 8.00
1 share at market price of £4.00 per share on 2 January	= <u>4.00</u>
Total cost of 3 shares as at 2 January	<u>12.00</u>
Average cost per share unchanged at	<u>4.00</u>

However, this did not happen. Mr Radmand only paid £3.25 for the new share. This meant that the total cost of 3 shares to him was:

	£
2 shares at market price of £4 each on 1 January 20X1	= 8.00
1 share at discounted price of £3.25 on 2 January 20X1	= <u>3.25</u>
Total cost of 3 shares	= <u>11.25</u>
Average cost per share (£11.25/3 shares)	= <u>3.75</u>

The rights issue has had the effect of reducing the cost per share of each of the three shares held by Mr Radmand on 2 January 20X1 by (£4.00 – £3.75) **£0.25 per share**.

The accounting terms applied are:

- Average cost per share after the rights issue (£3.75) is *the theoretical ex-rights value*.
- Amount by which the average cost of each share is reduced (£0.25) is *the bonus element*.

In accounting terminology, Step 1 is described as follows:

Step 1: The bonus element is ascertained by calculating the theoretical ex-rights value, i.e. the £0.25 is ascertained by calculating the £3.75 and deducting it from £4 pre-rights market price

#### Step 1: Theoretical ex-rights calculation

In accounting terminology, this means that existing shareholders get an element of bonus per share (£0.25) at the same time as the company receives additional capital (£3.25 per new share). The bonus element may be quantified by the calculation of a **theoretical ex-rights price (£3.75)**, which is compared with the last market price (£4.00) prior to the issue; the difference is a bonus. The theoretical ex-rights price is calculated as follows:

	£
2 shares at fair value of £4 each prior to rights issue	= 8.00
1 share at discounted rights issue price of £3.25 each	= <u>3.25</u>
3 shares at fair value after issue (i.e. ex-rights)	= <u>11.25</u>
The theoretical ex-rights price is £11.25/3 shares	= 3.75
The bonus element is fair value £4 less £3.75	= 0.25

Note that for the calculation of the number of shares and time-weighted number of shares for a bonus issue, share split and issue at full market price per share the market price per share is not relevant. The position for a rights issue is different and the market price becomes a relevant factor in calculating the number of bonus shares.

**Step 2: The weighted average number of shares is calculated for current year**

Assume that Watts plc made a rights issue of one share for every two shares held on 1 January 20X1.

There would be no need to calculate a weighted average number of shares. The total used in the BEPS calculation would be as follows:

	<i>No. of shares</i>
Shares to date of rights issue:	
1,000,000 shares held for a full year	= 1,000,000
Shares from date of issue:	
500,000 shares held for full year	= <u>500,000</u>
Total shares for BEPS calculation	<u>1,500,000</u>

However, if a rights issue is made part way through the year, a time-apportionment is required. For example, if we assume that a rights issue is made on 30 September 20X1, the time-weighted number of shares is calculated as follows:

	<i>No. of shares</i>
Shares to date of rights issue:	
1,000,000 shares held for a full year	= 1,000,000
Shares from date of issue:	
500,000 shares held for 3 months ( $500,000 \times 3/12$ )	= <u>125,000</u>
Weighted average number of shares	<u>1,125,000</u>

Note, however, that the 1,125,000 has not taken account of the fact that the new shares had been issued at less than market price and that the company had effectively granted the existing shareholders a bonus. We saw above that when there has been a bonus issue the number of shares used in the BEPS is increased. We need, therefore, to calculate the number of bonus shares that would have been issued to achieve the reduction in market price from £4.00 to £3.75 per share. This is calculated as follows:

Total market capitalisation was 1,000,000 shares	
@ £4.00 per share	= £4,000,000
Number of shares that would reduce the market price to £3.75	= £4,000,000/£3.75
	= 1,066,667 shares
Number of shares prior to issue	= <u>1,000,000</u>
Bonus shares deemed to be issued to existing shareholders	= 66,667
Bonus share for period of 9 months to date of issue ( $66,667/12 \times 9$ )	= <b>50,000</b>

The bonus shares for the nine months are added to the existing shares and the time apportioned new shares as follows:

	<i>No. of shares</i>
Shares to date of rights issue:	
1,000,000 shares held for a full year	= 1,000,000
Shares from date of issue:	
500,000 shares held for 3 months ( $500,000 \times 3/12$ )	= <u>125,000</u>
Weighted average share number of shares	<u>1,125,000</u>
Bonus share:	
66,667 shares held for 9 months ( $66,667/12 \times 9$ )	= <u>50,000</u>
	<u>1,175,000</u>

**Figure 25.1 Formula approach to calculating weighted average number of shares**

				<i>No. of shares</i>
Shares to date of rights issue:				
No. of shares	×	Increase by bonus fraction	×	Time adjustment
1,000,000			×	9/12 = 750,000
Bonus:		((1,000,000 × 4/3.75) – 1,000,000)	×	9/12 = 50,000
Shares from date of issue:				
1,500,000	×		×	3/12 = 375,000
Weighted average number of shares				1,175,000

The same figure of 1,175,000 can be derived from the following approach using the relationship between the market price of £4.00 and the theoretical ex-rights price of £3.75 to calculate the number of bonus shares.

The relationship between the actual cum-rights price and theoretical ex-rights price is shown by the bonus fraction:

$$\frac{\text{Actual cum-rights share price}}{\text{Theoretical ex-rights share price}}$$

This fraction is applied to the number of shares before the rights issue to adjust them for the impact of the bonus element of the rights issue. This is shown in Figure 25.1.

### Step 3: Calculate BEPS for current year

BEPS for 20X1 is then calculated as £1,150,000 / 1,175,000 shares = **£0.979**

### Step 4: Adjusting the previous year's BEPS for the bonus element of a rights issue

The 20X0 BEPS of £1.15 needs to be restated, i.e. reduced to ensure comparability with 20X1.

In Step 2 above we calculated that the company had made a bonus issue of 66,667 shares to existing shareholders. In re-calculating the BEPS for 20X0 the shares should be increased by 66,667 to 1,066,667. The restated BEPS for 20X0 is as follows:

$$\begin{array}{rcl} \text{Earnings} & / & \text{restated number of shares} \\ \text{£1,150,000} & / & 1,066,667 = \text{£1.078125} \end{array}$$

Assuming that the earnings for 20X0 and 20X1 were £1,150,000 in each year the 20X0 BEPS figures will be reported as follows:

$$\begin{array}{rcl} \text{As reported in the 20X0 accounts as at 31.12.20X0} & = & \\ \text{£1,150,000/1,000,000} & = & \text{£1.15} \\ \text{As restated in the 20X1 accounts as at 31.12.20X1} & = & \\ \text{£1,150,000/1,066,667} & = & \text{£1.08} \end{array}$$

The same result is obtained using the bonus element approach by reducing the 20X0 BEPS as follows by multiplying it by the reciprocal of the bonus fraction:

$$\begin{array}{rcl} \frac{\text{Theoretical ex-rights fair value per share}}{\text{Fair value per share immediately before the exercise of rights}} & = & \frac{\text{£3.75}}{\text{£4.00}} \\ \text{As restated in the 20X1 accounts as at 31.12.20X1} & = & \text{£1.15} \times (3.75/4.00) = \text{£1.08} \end{array}$$

### 25.7.1 Would BEPS for current and previous year be the same if the company had made a separate full market price issue and a separate bonus issue?

This section is included to demonstrate that the BEPS is the same, i.e. £1.08 if we approach the calculation on the assumption that there was a full price issue followed by a bonus issue. This will demonstrate that the BEPS is the same as that calculated using theoretical ex-rights. There are five steps, as follows:

#### Step 1: Calculate the number of full value and bonus shares in the company's share capital

	<i>No. of shares</i>
Shares in issue <i>before</i> bonus	1,000,000
Rights issue at full market price (500,000 shares × £3.25 issue price/full market price of £4)	<u>406,250</u>
	1,406,250
Total number of bonus shares	<u>93,750</u>
Total shares	<u>1,500,000</u>

#### Step 2: Allocate the total bonus shares to the 1,000,000 original shares

(Note that the previous year will be restated using the proportion of original shares: original shares + bonus shares allocated to these original 1,000,000 shares.)

Shares in issue before bonus	1,000,000
Bonus issue applicable to pre-rights: 93,750 bonus shares × (1,000,000/1,406,250) = 66,667 shares × 9/12 months	= 50,000
Bonus issue applicable to post-rights 93,750 bonus shares × (1,000,000/1,406,250) = 66,667 shares × 3/12 months	= <u>16,667</u>
<i>Total bonus shares allocated to existing 1,000,000 shares</i>	<u>66,667</u>
Total original holding plus bonus shares allocated to that holding	1,066,667

#### Step 3: Time-weight the rights issue and allocate bonus shares to rights shares

Rights issue at full market price 500,000 shares × (£3.25 issue price/full market price of £4) = 406,250 × 3/12 months	101,563
Bonus issue applicable to rights issue: 93,750 bonus shares × (406,250/1,406,250) = 27,083 shares × 3/12 months	<u>6,770</u>
Weighted average ordinary shares (includes shares from Steps 2 and 3)	<u>1,175,000</u>

#### Step 4: BEPS calculation for 20X1

Calculate the BEPS using the post-tax profit and weighted average ordinary shares, as follows:

$$20X1 \text{ BEPS} = \frac{\pounds 1,150,000}{\pounds 1,175,000} = \pounds 0.979$$

**Step 5: BEPS restated for 20X0**

There were 93,750 bonus shares issued in 20X1. The 20X0 BEPS needs to be reduced, therefore, by the same proportion as applied to the 1,000,000 ordinary shares in 20X1, i.e. 1,000,000:1,066,667

$$\begin{aligned} 20X0 \text{ BEPS} \times \text{bonus adjustment} &= \text{restated 20X0 BEPS} \\ \text{i.e. } 20X0 &= \pounds 1.15 \times (1,000,000/1,066,667) = \pounds 1.08 \end{aligned}$$

This approach illustrates the rationale for the time-weighted average and the restatement of the previous year's BEPS. The adjustment using the theoretical ex-rights approach produces the same result and is simpler to apply but the rationale is not obvious.

## 25.8 Adjusting the earnings and number of shares used in the diluted EPS calculation

We will consider briefly what dilution means and the circumstances which require the weighted average number of shares and the net profit attributable to ordinary shareholders used to calculate BEPS to be adjusted.

### 25.8.1 What is dilution?

In a modern corporate structure, a number of classes of person such as the holders of convertible bonds, the holders of convertible preference shares, members of share option schemes and share warrant holders may be entitled as at the date of the statement of financial position to become equity shareholders at a future date.

If these people exercise their entitlements at a future date, the EPS would be reduced. In accounting terminology, the EPS will have been diluted. The effect on future share price could be significant. Assuming that the share price is a multiple of the EPS figure, any reduction in the figure could have serious implications for the existing shareholders; they need to be aware of the potential effect on the EPS figure of any changes in the way the capital of the company is or will be constituted. This is shown by calculating and disclosing both the basic and 'diluted EPS' figures.

IAS 33 therefore requires a diluted EPS figure to be reported using as the denominator potential ordinary shares that are dilutive, i.e. would decrease net profit per share or increase net loss from continuing operations.<sup>10</sup>

### 25.8.2 Circumstances in which the number of shares used for BEPS is increased

The holders of convertible bonds, the holders of convertible preference shares, members of share option schemes and the holders of share warrants will each be entitled to receive ordinary shares from the company at some future date. Such additional shares, referred to as potential ordinary shares, *may* need to be added to the basic weighted average number *if they are dilutive*. It is important to note that if a company has potential ordinary shares they are not automatically included in the fully diluted EPS calculation. There is a test to apply to see if such shares actually are dilutive – this is discussed further in section 25.9 below.

### 25.8.3 Circumstances in which the earnings used for BEPS are increased

The earnings are increased to take account of the post-tax effects of amounts recognised in the period relating to dilutive potential ordinary shares that will no longer be incurred on their conversion to ordinary shares, e.g. the loan interest payable on convertible loans will no longer be a charge after conversion and earnings will be increased by the post-tax amount of such interest.

### 25.8.4 Procedure where there are share warrants and options

Where options, warrants or other arrangements exist which involve the issue of shares below their fair value (i.e. at a price lower than the average for the period) then the impact is calculated by notionally splitting the potential issue into shares issued at fair value and shares issued at no value for no consideration.<sup>11</sup> Since shares issued at fair value are not dilutive that number is ignored but the number of shares at no value is employed to calculate the dilution. The calculation is illustrated for Watts plc:

Assume that Watts plc had at 31 December 20X1:

- an issued capital of 1,000,000 ordinary shares of 50p each nominal value;
- post-tax earnings for the year of £1,150,000;
- an average market price per share of £4; and
- share options in existence 500,000 shares issuable in 20X2 at £3.25 per share.

The computation of basic and diluted EPS is as follows:

	<i>Per share</i>	<i>Earnings</i>	<i>Shares</i>
Net profit for 20X1		£1,150,000	
Weighted average shares during 20X1			1,000,000
<i>Basic EPS</i> (£1,150,000/1,000,000)	<i>1.15</i>		
Number of shares under option			500,000
Number that would have been issued At fair value (500,000 × £3.25)/£4			<u>(406,250)</u>
Diluted EPS	1.05	<u>£1,150,000</u>	<u>1,093,750</u>

### 25.8.5 Procedure where there are convertible bonds or convertible preference shares

The post-tax profit should be adjusted<sup>12</sup> for:

- any dividends on dilutive potential ordinary shares that have been deducted in arriving at the net profit attributable to ordinary shareholders;
- interest recognised in the period for the dilutive potential ordinary shares; and
- any other changes in income or expense that would result from the conversion of the dilutive potential ordinary shares, e.g. the reduction of interest expense related to convertible bonds results in a higher post-tax profit but this could lead to a consequential increase in expense if there were a non-discretionary employee profit-sharing plan.

### 25.8.6 Convertible preference shares calculation illustrated for Watts plc

Assume that Watts plc had at 31 December 20X1:

- an issued capital of 1,000,000 ordinary shares of 50p each nominal value;
- post-tax earnings for the year of £1,150,000;
- convertible 8% preference shares of £1 each totalling £1,000,000, convertible at one ordinary share for every five convertible preference shares.

The computation of basic and diluted EPS for convertible bonds is as follows:

	<i>Per share</i>	<i>Earnings</i>	<i>Shares</i>
Post-tax net profit for 20X1 (after interest)		£1,150,000	
Weighted average shares during 20X1			1,000,000
<i>Basic EPS (£1,150,000/1,000,000)</i>	<i>£1.15</i>		
Number of shares resulting from conversion			200,000
Add back the preference dividend paid in 20X1		80,000	
Adjusted earnings and number of shares		<u>1,230,000</u>	<u>1,200,000</u>
<i>Diluted EPS (£1,230,000/1,200,000)</i>	<i>£1.025</i>		

### 25.8.7 Convertible bonds calculation illustrated for Watts plc

Assume that Watts plc had at 31 December 20X1:

- an issued capital of 1,000,000 ordinary shares of 50p each nominal value;
- post-tax earnings after interest for the year of £1,150,000;
- convertible 10% loan of £1,000,000;
- an average market price per share of £4;

and the convertible loan is convertible into 250,000 ordinary shares of 50p each.

The computation of basic and diluted EPS for convertible bonds is as follows:

	<i>Per share</i>	<i>Earnings</i>	<i>Shares</i>
Post-tax net profit for 20X1 (after interest)		£1,150,000	
Weighted average shares during 20X1			1,000,000
<i>Basic EPS (£1,150,000/1,000,000)</i>	<i>£1.15</i>		
Number of shares resulting from conversion			250,000
Interest expense on convertible loan		100,000	
Tax liability relating to interest expense – Assuming the firm's marginal tax rate is 40%		<u>(40,000)</u>	
Adjusted earnings and number of shares		<u>1,210,000</u>	<u>1,250,000</u>
<i>Diluted EPS (£1,210,000/1,250,000)</i>	<i>£0.97</i>		

## 25.9 Procedure where there are several potential dilutions

Where there are several potential dilutions the calculation must be done in progressive stages starting with the most dilutive and ending with the least.<sup>13</sup> Any potential 'antidilutive' (i.e. potential issues that would increase earnings per share) are ignored.

Assume that Watts plc had at 31 December 20X1:

- an issued capital of 1,000,000 Ordinary shares of 50p each nominal value;
- post-tax earnings after interest for the year of £1,150,000;
- an average market price per share of £4; and
- share options in existence 500,000 shares
  - exercisable in year 20X2 at £3.25 per share;
- convertible 10% loan of £1,000,000
  - convertible in year 20X2 into 250,000 ordinary shares of 50p each;
- convertible 8% preference shares of £1 each totalling £1,000,000
  - convertible in year 20X4 at 1 ordinary share for every 40 preference shares.

There are two steps in arriving at the diluted EPS, namely:

Step 1: Determine the increase in earnings attributable to ordinary shareholders on conversion of potential ordinary shares;

Step 2: Determine the potential ordinary shares to include in the diluted earnings per share.

### Step 1: Determine the increase in earnings attributable to ordinary shareholders on conversion of potential ordinary shares

	<i>Increase in earnings</i>	<i>Increase in number of ordinary shares</i>	<i>Earnings per incremental share</i>
<i>Options</i>			
Increase in earnings			
Incremental shares issued for no consideration			
$500,000 \times (\text{£}4 - 3.25) / \text{£}4$	nil	93,750	nil
<i>Convertible preference shares</i>			
Increase in net profit			
8% of £1,000,000	80,000		
Incremental shares $1,000,000 / 40$		25,000	3.20
<i>10% convertible bond</i>			
Increase in net profit			
$\text{£}1,000,000 \times 0.10 \times (60\%)$ (assumes a marginal tax rate of 40%)	60,000		
Incremental shares $1,000,000 / 4$		250,000	0.24

### Step 2: Determine the potential ordinary shares to include in the computation of diluted earnings per share

	<i>Net profit attributable to continuing operations</i>	<i>Ordinary shares</i>	<i>Per share</i>
As reported for BEPS	1,150,000	1,000,000	1.15
Options	—	93,750	
	1,150,000	1,093,750	1.05 dilutive
10% convertible bonds	60,000	250,000	
	1,210,000	1,343,750	0.90 dilutive
Convertible preference shares	80,000	25,000	
	1,290,000	1,368,750	0.94 antidilutive

Since the diluted earnings per share is increased when taking the convertible preference shares into account (from 90p to 94p), the convertible preference shares are antidilutive and are ignored in the calculation of diluted earnings per share. The lowest figure is selected and the diluted EPS will, therefore, be disclosed as 90p.

## 25.10 Exercise of conversion rights during financial year

Shares actually issued will be in accordance with the terms of conversion and will be included in the BEPS calculation on a time-apportioned basis from the date of conversion to the end of the financial year.

### 25.10.1 Calculation of BEPS assuming that convertible loan has been converted and options exercised during the financial year

This is illustrated for the calculation for the year 20X2 accounts of Watts plc as follows. Assume that Watts plc had at 31 December 20X2:

- an issued capital of 1,000,000 ordinary shares of 50p each as at 1 January 20X2;
- convertible 10% loan of £1,000,000 converted on 1 April 20X2 into 250,000 ordinary shares of 50p each;
- share options for 500,000 ordinary shares of 50p each exercised on 1 August 20X2.

The weighted average number of shares for BEPS is calculated as follows:

	<i>Net profit attributable to continuing operations</i>	<i>Ordinary shares</i>	<i>Per share</i>
As reported for BEPS	1,150,000	1,000,000	1.15
Options	—	93,750	
	<u>1,150,000</u>	<u>1,093,750</u>	1.05 dilutive
10% convertible bonds	60,000	250,000	
	<u>1,210,000</u>	<u>1,343,750</u>	0.90 dilutive
Convertible preference shares	80,000	25,000	
	<u>1,290,000</u>	<u>1,368,750</u>	0.94 antidilutive

## 25.11 Disclosure requirements of IAS 33

The standard<sup>14</sup> requires the following disclosures:

For the current year:

- Companies should disclose the basic and diluted EPS figures for profit or loss from continuing operations and for profit or loss with equal prominence, whether positive or negative, on the face of the statement of comprehensive income for each class of ordinary share that has a different right to share in the profit for the period.
- The amounts used as the numerators in calculating basic and diluted earnings per share, and a reconciliation of those amounts to the net profit or loss for the period.
- The weighted average number of shares used as the denominator in calculating the basic and diluted earnings per share and a reconciliation of these denominators to each other.

For the previous year (if there has been a bonus issue, rights issue or share split):

- BEPS and diluted EPS should be adjusted retrospectively.

### 25.11.1 Alternative EPS figures

In the UK the Institute of Investment Management and Research (IIMR) published Statement of Investment Practice No. 1, entitled *The Definition of Headline Earnings*,<sup>15</sup> in which it identified two purposes for producing an EPS figure:

- as a measure of the company's **maintainable earnings** capacity, suitable in particular for forecasts and for inter-year comparisons, and for use on a per share basis in the calculation of the price/earnings ratio;
- as a factual headline figure for historical earnings, which can be a benchmark figure for the **trading outcome for the year**.

The Institute recognised that the maintainable earnings figure required exceptional or non-continuing items to be eliminated, which meant that, in view of the judgement involved in adjusting the historical figures, the calculation of maintainable earnings figures could not be put on a standardised basis. It took the view that there was a need for an earnings figure, calculated on a standard basis, which could be used as an unambiguous reference point among users. The Institute accordingly defined a **headline earnings** figure for that purpose.

### 25.11.2 Definition of IIMR headline figure

The Institute criteria for the headline figure are that it should be:

- 1 **A measure of the trading performance**, which means that it will:
  - (a) *exclude* capital items such as profits/losses arising on the sale or revaluation of fixed assets; profits/losses arising on the sale or termination of a discontinued operation and amortisation charges for goodwill, because these are likely to have a different volatility from trading outcomes;
  - (b) *exclude* provisions created for capital items such as profits/losses arising on the sale of fixed assets or on the sale or termination of a discontinued operation; and
  - (c) *include* abnormal items with a clear note and profits/losses arising on operations discontinued during the year.
- 2 **Robust**, in that the result could be arrived at by anyone using the financial report produced in accordance with IAS 1 and IFRS 5.
- 3 **Factual**, in that it will not have been adjusted on the basis of subjective opinions as to whether a cost is likely to continue in the future.

The strength of the Institute's approach is that, by defining a headline figure, it is producing a core definition. Additional earnings, earnings per share and price/earnings ratio figures can be produced by individual analysts, refining the headline figure in the light of their own evaluation of the quality of earnings.

### 25.11.3 IAS 33 Disclosure requirements

If an enterprise discloses an additional EPS figure using a reported component of net profit other than net profit for the period attributable to ordinary shareholders, IAS 33 requires that:

**Figure 25.2 Reconciliation of earnings per share**

	2003	2002
	Pence	Pence
	per share	per share
As calculated from FRS 14	(4.3)	40.7
Profit on the disposal of discontinued operations	—	(0.7)
Profit on sale of investments	—	(12.0)
Loss on impairment of investment	0.7	
Loss/(profit) on disposal of fixed assets held for resale	0.2	(0.1)
Amortisation of goodwill	10.4	1.5
<b>Headline earnings per share as defined by IIMR</b>	<b>7.0</b>	<b>29.4</b>
Reorganisation costs	11.9	5.0
<b>Headline earnings per share before items shown above</b>	<b>18.9</b>	<b>34.4</b>

- It must still use the weighted average number of shares determined in accordance with IAS 33.
- If the net profit figure used is not a line item in the statement of comprehensive income, then a reconciliation should be provided between the figure and a line item which is reported in the statement of comprehensive income.
- The additional EPS figures cannot be disclosed on the face of the statement of comprehensive income.

The extract in Figure 25.2 from the De La Rue 2003 Annual Report is an example of an IIMR-based reconciliation (FRS 14 is the UK equivalent of IAS 33).

#### 25.11.4 Will companies include an alternative EPS figure?

In 1994 Coopers & Lybrand surveyed 100 top UK companies.<sup>16</sup> The survey found that fifty-four companies reported additional EPS figures, which varied from 62% lower to 278% higher than the reported figure. The basis of the most frequently used additional EPS figures was as follows:

<i>Basis of additional EPS</i>	<i>No. of companies</i>
IIMR headline EPS	16
Adjusted for exceptional items reported below operating profit	16
Adjusted for all exceptional items above and below operating profit	13

A number of other bases were used. Commenting on the choice of basis, the authors stated:

This may result in stability for an individual company, but they certainly do not give rise to comparability across companies. To our surprise, only sixteen of the fifty-four companies used the IIMR headline figures as their EPS. The remainder evidently preferred to tell their own story despite the analysts' announcement of the basis on which they will perform their analysis.

The survey, therefore, also tested the hypothesis that companies would produce an alternative EPS figure where the alternative exceeded the standard figure. The outcome suggested that companies show additional EPS figures primarily to stabilise their earnings figures and not merely to enhance their reported performance.

An interesting recent research study (Young-soo Choi, M. Walker and S. Young, 'Bridging the earnings GAAP', *Accountancy*, February 2005, pp. 77–78) supports the finding that the additional EPS figures provide a better indication of future operating earnings one year ahead.

## 25.12 The Improvement Project

IAS 33 was one of the IASs revised by the IASB as part of its Improvement Project. The objective of the revised standard was to continue to prescribe the principles for the determination and presentation of earnings per share so as to improve comparisons between different entities and different reporting periods. The Board's main objective when revising was to provide additional guidance on selected complex issues such as the effects of contingently issuable shares and purchased put and call options. However, the Board did not reconsider the fundamental approach to the determination and presentation of earnings per share contained in the original IAS 33.

## 25.13 Convergence project

The earnings used as the numerator and the number of shares used as the denominator are both calculated differently under IAS 33 and the US SFAS 128 *Earnings per Share* and so produce different EPS figures.

In 2008, as part of the convergence project, the IASB and FASB issued an Exposure Draft which aimed to achieve some convergence in the calculation of the denominator of earnings per share. They are, in the meanwhile, conducting a joint project on financial statement presentation and when they have completed that project and their joint project on liabilities and equity, they may consider whether to conduct a more fundamental review of the method for determining EPS which would look at an agreed approach to determining earnings and number of shares to be used in both the basic and diluted EPS calculation.

### Summary

The increased globalisation of stock market transactions places an increasing level of importance on international comparisons. The EPS figure is regarded as a key figure with a widely held belief that management performance could be assessed by the comparative growth rate in this figure. This has meant that the earnings available for distribution, which was the base for calculating EPS, became significant. Management action has been directed towards increasing this figure: sometimes by healthy organic growth; sometimes by buying-in earnings by acquisition; sometimes by cosmetic manipulation, e.g. structuring transactions so that all or part of the cost bypassed the statement of comprehensive income; and at other times by the selective exercise of judgement, e.g. underestimating provisions. Regulation by the IASB has been necessary.

IAS 33 permits the inclusion of an EPS figure calculated in a different way, provided that there is a reconciliation of the two figures. Analysts have expressed the view that EPS should be calculated to show the future maintainable earnings and in the UK have arrived at a formula designed to exclude the effects of unusual events and of activities discontinued during the period.

## REVIEW QUESTIONS

- 1 Explain: (i) basic earnings per share; (ii) diluted earnings per share; (iii) potential ordinary shares; and (iv) limitation of EPS as a performance measure.
- 2 Why are issues at full market value treated differently from rights issues?
- 3 In the 1999 Annual Report and Accounts of Associated British Ports Holdings plc, the directors report earnings per share – basic, and earnings per share – underlying, as follows:

<i>Underlying</i>	<i>Goodwill</i>	<i>Exceptional</i>	<i>Total</i>	<i>1999</i>	<i>1998</i>
	£m	amortisation £m	items £m	£m	£m
Profit on ordinary activities after tax attributable to shareholders	86.3	(3.8)	(76.9)	5.6	84.1
Dividends	<u>(39.4)</u>	—	—	<u>(39.4)</u>	<u>(37.2)</u>
Retained profit/(loss)	<u>46.9</u>	(3.8)	(76.9)	<u>(33.8)</u>	<u>46.9</u>
Earnings per share – basic	24.6	(1.1)	(21.9)	<b>1.6p</b>	22.4p
Earnings per share – underlying				<b>24.6p</b>	22.4p

Note 11 Reconciliation of profit used for calculating the basic and underlying earnings per share:

	<i>1999</i>	<i>1998</i>
	£m	£m
Profit for year attributable to shareholders for calculating basic earnings per share	<b>5.6</b>	84.1
Amortisation of goodwill	3.8	2.0
Impairment of goodwill	60.6	—
Impairment of fixed assets	19.6	—
Profit on sale of fixed assets	(3.3)	(1.2)
Withdrawal from a discontinued business	—	(1.2)
Attributable tax	<u>—</u>	<u>0.3</u>
Profit for year attributable to shareholders for calculating the underlying earnings per share	<b>86.3</b>	<u>84.0</u>

The directors state that the underlying basis is a more appropriate basis for comparing performance between periods.

Discuss the relevance of the basic figure of 1.6p reported for 1999.

- 4 The following note appeared in the 2002 Annual Report of Mercer International Inc.

	<i>2002</i>	<i>2001</i>	<i>2000</i>
Net income (loss) available to shareholders of beneficial interest	€(6,322)	€(2,823)	€32,013
BEPS weighted average number of shares outstanding – basic	16,774,515	16,874,899	16,778,962
Effect of dilutive securities:			
Options	<u>—</u>	<u>—</u>	<u>365,528</u>
Weighted average number of shares outstanding – diluted	<u>16,774,515</u>	<u>16,874,899</u>	<u>17,144,490</u>

For 2002 and 2001 options and warrants were not included in the computation of diluted earnings per share because they were antidilutive. Warrants were not dilutive in 2000.

Explain:

- (a) why the BEPS shares were weighted; and  
 (b) what is meant by antidilutive.
- 5** Would the following items justify the calculation of a separate EPS figure under IAS 33?
- (a) A charge of £1,500 million that appeared in the accounts, described as additional provisions relating to exposure to countries experiencing payment difficulties.  
 (b) Costs of £14 million that appeared in the accounts, described as redundancy and other non-recurring costs.  
 (c) Costs of £62.1 million that appeared in the accounts, described as cost of rationalisation and withdrawal from business activities.  
 (d) The following items that appeared in the accounts:
- |   |       |
|---|-------|
| (i) Profit on sale of property              | £80m  |
| (ii) Reorganisation costs                   | £35m  |
| (iii) Disposal and discontinuance of hotels | £659m |
- 6** Income smoothing describes the management practice of maintaining a steady profit figure.
- (a) Explain why managers might wish to smooth the earnings figure. Give three examples of how they might achieve this.  
 (b) It has been suggested that debt creditors are most at risk from income smoothing by the managers. Discuss why this should be so.
- 7** In connection with IAS 33 *Earnings per Share*:
- (a) Define the profit used to calculate basic and diluted EPS.  
 (b) Explain the relationship between EPS and the price/earnings (P/E) ratio. Why may the P/E ratio be considered important as a stock market indicator?
- 8** The following is an extract from the FirstGroup 2004 Annual Report:

Profit for adjusted basic EPS calculation	£112.0m	EPS: £27.3p
Depreciation	£103.0m	EPS: £25.1p
Profit for adjusted cash EPS calculation	£215.0m	EPS: £52.4p

Discuss the relevance of an adjusted cash EPS.

## EXERCISES

An extract from the outline solution is provided on the Companion Website ([www.pearsoned.co.uk/elliott-elliott](http://www.pearsoned.co.uk/elliott-elliott)) for exercises marked with an asterisk (\*).

### Question 1

Alpha plc had an issued share capital of 2,000,000 ordinary shares at 1 January 20X1. The nominal value was 25p and the market value £1 per share. On 30 September 20X1 the company made a rights issue of 1 for 4 at a price of 80p per share. The post-tax earnings were £4.5m and £5m for 20X0 and 20X1 respectively.

- Required:** (i) Calculate the basic earnings per share for 20X1.  
 (ii) Restate the basic earnings per share for 20X0.

**Question 2**

Beta Ltd had the following changes during 20X1:

1 January	1,000,000 shares of 50c each
31 March	500,000 shares of 50c each issued at full market price of \$5 per share
30 April	Bonus issue made of 1 for 2
31 August	1,000,000 shares of 50c each issued at full market price of \$5.50 per share
31 October	Rights issue of 1 for 3. Rights price was \$2.40 and market value was \$5.60 per share.

**Required:**

**Calculate the time-weighted average number of shares for the basic earnings per share denominator.**

**Note that adjustments will be required for time, the bonus issue and the bonus element of the rights issue.**

**\* Question 3**

The computation and publication of earnings per share (EPS) figures by listed companies are governed by IAS 33 *Earnings per Share*.

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<i>Nottingham Industries plc</i>		
<i>Statement of comprehensive income for the year ended 31 March 20X6</i>		
<i>(extract from draft unaudited accounts)</i>		
		<i>£000</i>
Profit on ordinary activities before taxation	(Note 2)	(1,000)
Tax on profit on ordinary activities	(Note 3)	<u>(420)</u>
Profit on ordinary activities after taxation		<u><u>580</u></u>

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Notes:

- 1 Called-up share capital of Nottingham Industries plc:
  - In issue at 1 April 20X5:
    - 16,000,000 ordinary shares of 25p each
    - 1,000,000 10% cumulative preference shares of £1 each
  - 1 July 20X5: Bonus issue of ordinary shares, 1 for 5.
  - 1 October 20X5: Market purchase of 500,000 of own ordinary shares at a price of £1.00 per share.
- 2 In the draft accounts for the year ended 31 March 20X6, 'profit on ordinary activities before taxation' is arrived at after charging or crediting the following items:
  - (i) accelerated depreciation on fixed assets, £80,000;
  - (ii) book gain on disposal of a major operation, £120,000.
- 3 Profit after tax included a write-back of deferred taxation (accounted for by the liability method) in consequence of a reduction in the rate of corporation tax from 45% in the financial year 20X4 to 40% in the financial year 20X5.
- 4 The following were charged:
  - (i) Provision for bad debts arising on the failure of a major customer, £150,000. Other bad debts have been written off or provided for in the ordinary way.
  - (ii) Provision for loss through expropriation of the business of an overseas subsidiary by a foreign government, £400,000.

- 5 In the published accounts for the year ended 31 March 20X5, basic EPS was shown as 2.2p; fully diluted EPS was the same figure.
- 6 Dividends paid totalled £479,000.

**Required:**

- (a) On the basis of the facts given, compute the basic EPS figures for 20X6 and restate the basic EPS figure for 20X5, stating your reasons for your treatment of items that may affect the amount of EPS in the current year.
- (b) Compute the diluted earnings per share for 20X6 assuming that on 1 January 20X6 executives of Nottingham plc were granted options to take up a total of 200,000 unissued ordinary shares at a price of £1.00 per share: no options had been exercised at 31 March 20X6. The average fair value of the shares during the year was £1.10.
- (c) Give your opinion as to the usefulness (to the user of financial statements) of the EPS figures that you have computed.

**\* Question 4**

The following information relates to Simrin plc for the year ended 31 December 20X0:

	£
Turnover	700,000
Operating costs	476,000
Trading profit	224,000
Net interest payable	2,000
	222,000
Exceptional charges	77,000
	145,000
Tax on ordinary activities	66,000
Profit after tax	79,000

Simrin plc had 100,000 ordinary shares of £1 each in issue throughout the year. Simrin plc has in issue warrants entitling the holders to subscribe for a total of 50,000 shares in the company. The warrants may be exercised after 31 December 20X5 at a price of £1.10 per share. The average fair value of shares was £1.28. The company had paid an ordinary dividend of £15,000 and a preference dividend of £9,000.

**Required:**

- (a) Calculate the basic EPS for Simrin plc for the year ended 31 December 20X0, in accordance with best accounting practice.
- (b) Calculate the diluted EPS figure, to be disclosed in the statutory accounts of Simrin plc in respect of the year ended 31 December 20X0.
- (c) Briefly comment on the need to disclose a diluted EPS figure and on the relevance of this figure to the shareholders.
- (d) In the past, the single most important indicator of financial performance has been earnings per share. In what way has the profession attempted to destroy any reliance on a single figure to measure and predict a company's earnings, and how successful has this attempt been?

**\* Question 5**

Gamma plc had an issued share capital at 1 April 20X0 of:

- £200,000 made up of 20p shares.
- 50,000 £1 convertible preference shares receiving a dividend of £2.50 per share:
  - these shares were convertible in 20X6 on the basis of 1 ordinary share for 1 preference share.

There was also loan capital of:

- £250,000 10% convertible loans:
  - the loan was convertible in 20X9 on the basis of 500 shares for each £1,000 of loan;
  - the tax rate was 40%.

Earnings for the year ended 31 March 20X1 were £5,000,000 after tax.

**Required:**

- (a) Calculate the diluted EPS for 20X1.
- (b) Calculate the diluted EPS assuming that the convertible preference shares were receiving a dividend of £6 per share instead of £2.50.

**Question 6**

Delta NV has share capital of €1m in shares of €0.25 each. At 31 May 20X9 shares had a market value of €1.1 each. On 1 June 20X9 the company makes a rights issue of 1 share for every 4 held at €0.6 per share. Its profits were €500,000 in 20X9 and €440,000 in 20X8. The year-end is 30 November.

**Required:**

**Calculate**

- (a) the theoretical ex-rights price;
- (b) the bonus issue factor;
- (c) the basic earnings per share for 20X8;
- (d) the basic earnings per share for 20X9.

**Question 7**

The following information is available for X Ltd for the year ended 31 May 20X1:

Net profit after tax and minority interest	£18,160,000
Ordinary shares of £1 (fully paid)	£40,000,000
Average fair value for year of ordinary shares	£1.50

- I Share options have been granted to directors giving them the right to subscribe for ordinary shares between 20X1 and 20X3 at £1.20 per share. The options outstanding at 31 May 20X1 were 2,000,000 in number.

- 2 The company has £20 million of 6% convertible loan stock in issue. The terms of conversion of the loan stock per £200 nominal value of loan stock at the date of issue were:

Conversion date	No. of shares
31 May 20X0	24
31 May 20X1	23
31 May 20X2	22

No loan stock has as yet been converted. The loan stock had been issued at a discount of 1%.

- 3 There are 1,600,000 convertible preference shares in issue. The cumulative dividend is 10p per share and each preference share can convert into two ordinary shares. The preference shares can be converted in 20X2.
- 4 Assume a corporation tax rate of 33% when calculating the effect on income of converting the convertible loan stock.

**Required:**

- (a) Calculate the diluted EPS according to IAS 33.  
 (b) Discuss why there is a need to disclose diluted earnings per share.

### Question 8

- (a) The issued share capital of Manfred, a quoted company, on 1 November 2004 consisted of 36,000,000 ordinary shares of 75 cents each. On 1 May 2005 the company made a rights issue of 1 for 6 at \$1.46 per share. The market value of Manfred's ordinary shares was \$1.66 before announcing the rights issue. Tax is charged at 30% of profits.

Manfred reported a profit after taxation of \$4.2 million for the year ended 31 October 2005 and \$3.6 million for the year ended 31 October 2004. The published figure for earnings per share for the year ended 31 October 2004 was 10 cents per share.

**Required:**

**Calculate Manfred's earnings per share for the year ended 31 October 2005 and the comparative figure for the year ended 31 October 2004.**

- (b) Brachly, a publicly quoted company, has 15,000,000 ordinary shares of 40 cents each in issue throughout its financial year ended 31 October 2005. There are also:
- 1,000,000 8.5% convertible preference shares of \$1 each in issue. Each preference share is convertible into 1.5 ordinary shares.
  - \$2,000,000 12.5% convertible loan notes. Each \$1 loan note is convertible into 2 ordinary shares.
  - Options granted to the company's senior management giving them the right to subscribe for 600,000 ordinary shares at a cost of 75 cents each.

The statement of comprehensive income of Brachly for the year ended 31 October 2005 reports a net profit after tax of \$9,285,000 and preference dividends paid of \$85,000. Tax on profits is 30%. The average market price of Brachly's ordinary shares was 84 cents for the year ended 31 October 2005.

**Required:**

**Calculate Brachly's basic and diluted earnings per share figures for the year ended 31 October 2005.**

*(The Association of International Accountants)*

### Question 9

The capital structure of Chavboro, a quoted company, during the years ended 31 October 2005 and 2006 was as follows:

	\$
6,000,000 ordinary shares of 50 cents	3,000,000
10% preferred shares of \$1	200,000
300,000 deferred ordinary shares of \$1	300,000
12% convertible loan stock	250,000

The company has an executive share option scheme which gives the company's directors the option to purchase a total of 100,000 ordinary shares for \$2.10 each. During the year ended 31 October 2006 no shares were issued in accordance with the share incentive scheme and the company's obligations under the scheme remained unchanged.

On 31 August 2006 Chavboro plc made a 1 for 6 rights issue at \$2.50 per share. The cum-rights price on the last day of quotation cum rights was \$2.85 per share. The shares issued in the rights issue are not included in the figure for ordinary shares given above.

The deferred ordinary shares will not rank for dividends until 1 November 2010 when they will each be divided into two 50 cents ordinary shares ranking *pari passu* with the other ordinary shares then in issue.

The 12% loan stock is convertible into 50 cents ordinary shares on the following terms:

- (i) if the option is exercised on 1 November 2007 each \$100 of loan stock can be converted into 40 ordinary shares;
- (ii) if the option is exercised on 1 November 2008 each \$100 of loan stock can be converted into 35 ordinary shares.

The following information comes from the statement of comprehensive income of the company for the year ended 31 October 2006:

	\$
Profit before interest and tax	1,253,000
less Interest	<u>30,000</u>
	1,223,000
less Income tax, at 30%	<u>366,900</u>
Profit attributable to shareholders	<u><u>856,100</u></u>

You may assume that the yield on 2.5% government consolidated stock was 7.5% on 1 November 2005 and 6% on 1 November 2006, and that the rate of income tax is 30% throughout. Chavboro plc's reported earnings per share for the year ended 31 October 2005 were 10 cents.

Required:

- (a) Calculate Chavboro plc's basic earnings per share in cents for the year ended 31 October 2006.
- (b) Calculate Chavboro plc's restated earnings per share in cents for the year ended 31 October 2005.
- (c) Calculate Chavboro plc's fully diluted earnings per share in cents for the year ended 31 October 2006.
- (d) Calculate Chavboro plc's fully diluted earnings per share in cents for the year ended 31 October 2005.
- (e) How can an investor evaluate the quality of the earnings per share figure published in a company's financial statements?

(The Association of International Accountants)

## References

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- 2 London Business School, *Risk Measurement Service*, April–June 1998, ISBN 0361-3344.
- 3 IAS 33 *Earnings per Share*, IASB, 2003.
- 4 *Ibid.*, para. 10.
- 5 *Ibid.*, para. 12.
- 6 *Ibid.*, para. 26.
- 7 *Ibid.*, para. 5.
- 8 *Ibid.*, para. 31.
- 9 *Accountancy*, November 1998, p. 73.
- 10 IAS 33, para. 31.
- 11 *Ibid.*, para. 45.
- 12 *Ibid.*, para. 33.
- 13 *Ibid.*, para. 44.
- 14 *Ibid.*, paras 66 and 70.
- 15 Statement of Investment Practice No. 1, *The Definition of Headline Earnings*, IIMR, 1993.
- 16 Coopers and Lybrand, *EPS and Exceptional Items*, 1994.