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Education

Illustrative examples to accompany

## **IFRS 13 Fair Value Measurement**

Unquoted equity instruments within the scope of  
IFRS 9 Financial Instruments

Educational material on  
fair value measurement

Measuring the fair value of unquoted  
equity instruments within the scope of  
IFRS 9 *Financial Instruments*

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*This educational material accompanies, but is not part of, IFRS 13. It illustrates aspects of IFRS 13 but is not intended to provide interpretative guidance.*

## Summary

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- 1 This chapter describes, at a high level, the thought process for measuring the *fair value*<sup>1</sup> of individual *unquoted equity instruments* that constitute a *non-controlling interest* in a private company (ie the investee) within the scope of IFRS 9 *Financial Instruments*,<sup>2</sup> in accordance with the principles set out in IFRS 13 *Fair Value Measurement*.
- 2 This chapter presents a range of commonly used valuation techniques for measuring the fair value of unquoted equity instruments within the *market* and *income approaches*, as well as the *adjusted net asset method*. This chapter does not prescribe the use of a specific valuation technique, but instead encourages the use of professional judgement and the consideration of all facts and circumstances surrounding the measurement. The particular characteristics of the unquoted equity instruments of an investee and the information that is reasonably available to an entity (ie the investor) are two of the factors that the investor will need to consider when selecting the most appropriate valuation technique. For example, the availability of information about *comparable company peers* in the complete absence of any information about the *expected cash flow* stream of an investee might lead an investor to select the *comparable company valuation multiples technique* rather than the *discounted cash flow (DCF) method*. Alternatively, if the investee pays dividends an investor with limited financial information might consider using valuation techniques based on *dividend discount models (DDM)*.
- 3 An entity can comply with the measurement objective in IFRS 13 **even when limited information is available**. Although an ownership interest in another entity presumes the availability of some financial and other information about the investee, including publicly available information, it is occasionally the case that such information is incomplete or out of date. This chapter includes examples that illustrate how, despite an investor having limited financial information, the fair value of an unquoted equity instrument can nevertheless be measured by applying the valuation techniques described.

## Introduction

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- 4 During the development of IFRS 13, the International Accounting Standards Board (IASB) was made aware that entities in emerging and transition economies had concerns about applying the fair value measurement principles in their

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1 Terms defined in the glossary of this chapter are italicised the first time they appear. This does not include publication titles.

2 If an entity does not apply IFRS 9, any reference to IFRS 9 must be read as a reference to IAS 39 *Financial Instruments: Recognition and Measurement*.

jurisdictions.<sup>3</sup> However, the IASB noted that the concerns raised were not specific to entities in emerging and transition economies. The lack of market data or other key information necessary to perform fair value measurements is a global constraint, rather than a regional one. This is why the IASB decided to develop educational material on fair value measurement for an audience that includes not only entities in emerging and transition economies but also entities in developed economies.

- 5 To undertake this task, the IASB asked the IFRS Foundation Education Initiative to develop educational material on fair value measurement that describes, at a high level, the thought process for measuring assets, liabilities and an entity's own equity instruments at fair value that is consistent with the objective of a fair value measurement set out in IFRS 13. The IFRS Foundation received input from Financial Accounting Standards Board (FASB) staff and from a group of valuation specialists who measure fair value in developed, emerging and transition economies. The IFRS Foundation thanks these people for their assistance in this task.
- 6 The educational material is structured to address the application of the principles in IFRS 13 on different topics in individual chapters. These chapters will be published as they are finalised. This chapter is published by the IFRS Foundation. Its content is **non-authoritative** and has not been approved by the IASB.

## Objective

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- 7 This chapter illustrates, at a high level, the application of valuation techniques within the context of financial reporting and, more specifically, within the context of IFRS 13. It does not aim to provide comprehensive valuation guidance and, as a result, it does not describe all the substantial work that a valuation exercise might entail in practice. This chapter includes examples that seek only to illustrate in a simplified manner the valuation techniques described. Consequently, the examples included in this chapter do not describe all the procedures and complexities that a valuation exercise might entail in practice. These examples also do not stipulate the use of a specific valuation technique in particular circumstances and, as a result, other techniques might also be appropriate.

### Who will this chapter assist?

- 8 This chapter provides high level valuation guidance to support the personnel responsible for measuring fair value within their organisations when measuring the fair value of unquoted equity instruments of an investee within the scope of IFRS 9. Nevertheless, it is expected that, that personnel understand basic valuation concepts, even if they are not valuation specialists.
- 9 Valuations vary in complexity depending on the nature of the underlying asset or liability and the availability of information. This chapter might not be

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<sup>3</sup> A summary of the concerns can be found in the Basis for Conclusions accompanying IFRS 13 (see paragraph BC231).

comprehensive enough to support non-valuation specialists performing complex valuations for financial reporting purposes or to assist them with assessing whether complex valuations performed by valuation specialists have been made in accordance with the principles in IFRS 13.

## Scope

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- 10 IFRS 9 requires entities to measure all investments in equity instruments at fair value, even if those instruments are not quoted in an *active market*. This chapter focuses on measuring the fair value of individual unquoted equity instruments that constitute a non-controlling interest in an investee.
- 11 The guidance included in this chapter is appropriate for the measurement of such interests at initial recognition and subsequently and it should be considered within the context of materiality as defined in *International Financial Reporting Standards (IFRSs)*. IAS 8 *Accounting Policies, Changes in Accounting Estimates and Errors* stipulates that accounting policies in Standards need not be applied when the effect of applying them is immaterial. This complements the statement in IAS 1 *Presentation of Financial Statements* that disclosures required by Standards need to be made unless the information is immaterial.<sup>4</sup>

## The process of performing fair value measurements

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- 12 IFRS 13 states that when measuring fair value, the objective is to estimate the price at which an *orderly transaction* to sell an asset or to transfer a liability would take place between *market participants* at the measurement date under current market conditions (ie to estimate an *exit price*). This exercise might be similar to those situations when an entity has to make other estimates for financial reporting purposes, such as measuring provisions in accordance with IAS 37 *Provisions, Contingent Liabilities and Contingent Assets*. In many cases, a financial reporting measurement will involve uncertainty about the timing and/or amount of the future cash flows and other factors.

### Measuring unquoted equity instruments at fair value

- 13 This chapter shows how a range of valuation techniques can be used when measuring the fair value of unquoted equity instruments. Judgement is involved not only when applying a valuation technique, but also in the selection of the valuation technique. This includes consideration of the information available to an investor. For example, an investor is likely to place more emphasis on the comparable company valuation multiples technique (see paragraphs 34–69) when there are sufficiently comparable company peers or when the background or details of the observed transactions are known. Similarly, an investor is likely to place more emphasis on the discounted cash flow (DCF) method (see paragraphs 71–114) when, for example, the cash flows of

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<sup>4</sup> IAS 1 and IAS 8 state that omissions or misstatements of items are material if they could, **individually or collectively**, influence the economic decisions that users make on the basis of the financial statements. Materiality depends on the size and nature of the omission or misstatement judged in the surrounding circumstances. The size or nature of the item, or a combination of both, could be the determining factor.

an investee present unique characteristics such as periods of unequal rates of growth (for example, a period of high growth that stabilises later to more steady levels of growth). Alternatively, when measuring the fair value of unquoted equity instruments, an investor might conclude that, on the basis of the specific facts and circumstances (for example, the history, nature and stage of the development of the investee, the nature of the investee's assets and liabilities, its capital structure etc), it is appropriate to apply the adjusted net asset method (see paragraphs 125–129). Consequently, given specific facts and circumstances, some techniques might be more appropriate than others. The selection of an appropriate valuation technique might result in an investor changing the valuation technique or its application, but this does not contravene the requirement in IFRS 13 that valuation techniques must be applied consistently (see paragraphs 65 and 66 of IFRS 13).

- 14 Valuation involves significant judgement and it is likely that different valuation techniques will provide different results. This is because the *inputs* used, and any adjustments to those inputs, may differ depending on the technique used. The existence of such differences does not mean that any of the techniques is incorrect. Although IFRS 13 does not explicitly require an investor to use a variety of valuation techniques, the selection of the most appropriate valuation technique, depending on the facts and circumstances, will require the consideration of more than one technique so that the results from applying multiple techniques can be compared. In such situations, the investor must understand the reasons for the differences in valuation and select the amount within the ranges of values that is most representative of the fair value of the unquoted equity instrument.
- 15 When carrying out this exercise, the investor must determine how much weight to give to the results of each valuation technique by considering the reasonableness of the ranges of the values indicated by the different techniques and the relative subjectivity of the inputs used (see paragraphs 61 and 74 of IFRS 13) as well as the specific facts and circumstances. For example, when determining how much weight to give to the results obtained from the comparable company valuation multiples technique (see paragraphs 34–69), an investor would consider, along with the degree of subjectivity of the inputs used in that valuation technique, the degree of comparability between the comparable company peers and the investee being valued and whether there are any differences left unexplained between the relative values of the investee and those of the comparable company peers, on the basis of the specific facts and circumstances.
- 16 When assessing the price that is most representative of fair value, an investor must consider:
- (a) which valuation technique makes the least subjective adjustments to the inputs used (ie which technique maximises the use of relevant *observable inputs* and minimises the use of *unobservable inputs*);
  - (b) the ranges of values indicated by the techniques used and whether they overlap; and
  - (c) the reasons for the differences in value under different techniques.



## Approaches to valuation

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- 17 IFRS 13 states that fair value is a market-based measurement, although it acknowledges that in some cases observable market transactions or other market information might not be available. However, the objective of a fair value measurement, as mentioned above, remains the same (see paragraph 12).
- 18 IFRS 13 does not contain a hierarchy of valuation techniques nor does it prescribe the use of a specific valuation technique for meeting the objective of a fair value measurement. Like IFRS 13, this chapter does not stipulate the use of a specific valuation technique. However, IFRS 13 acknowledges that, given specific circumstances, one valuation technique might be more appropriate than another. Some of the factors that an investor will need to consider when selecting the most appropriate valuation technique(s) include (this list is not exhaustive):
- the information that is reasonably available to an investor;
  - the market conditions (ie bullish or bearish markets might require an investor to consider different valuation techniques);
  - the investment horizon and investment type (for example, the market sentiment when measuring the fair value of a short-term financial investment might be better captured by some valuation techniques than by others);
  - the life cycle of an investee (ie what may trigger value in different stages of an investee's life cycle might be better captured by some valuation techniques than by others);
  - the nature of an investee's business (for example, the volatile or cyclical nature of an investee's business might be better captured by some valuation techniques than others); and
  - the industry in which an investee operates.
- 19 IFRS 13 describes three valuation approaches (see paragraphs B5–B33 of IFRS 13):
- the market approach;
  - the income approach; and
  - the *cost approach*.
- 20 The application of the market and income approaches, as well as the adjusted net asset method to measure the fair value of unquoted equity instruments, is described below. This chapter does not categorise the adjusted net asset method within any of the three valuation approaches, because the application of this method often involves the simultaneous use of various valuation techniques (ie different valuation techniques might be used to measure the fair value of each of an investee's assets and liabilities) and each of those valuation techniques might be consistent with any of the three valuation approaches.
- 21 Figure 1 illustrates the valuation approaches and valuation techniques presented in this chapter.

Valuation approaches	Valuation techniques
Market approach	<ul style="list-style-type: none"> <li>• Transaction price paid for an identical or a similar instrument in an investee (see paragraphs 28–33)</li> <li>• Comparable company valuation multiples (see paragraphs 34–69)</li> </ul>
Income approach	<ul style="list-style-type: none"> <li>• Discounted cash flow (DCF) method (see paragraphs 71–114)</li> <li>• Dividend discount model (DDM; see paragraphs 115–116)</li> <li>• Constant-growth DDM (see paragraphs 117–121)</li> <li>• Capitalisation model (see paragraphs 122–124)</li> </ul>
A combination of approaches might be used (see paragraph 20)	<ul style="list-style-type: none"> <li>• Adjusted net asset method (see paragraphs 125–129)</li> </ul>
<b>Figure 1—Valuation approaches and valuation techniques</b>	

22 Apart from any specific rights that those instruments might provide to its holders, all equity instruments that are the subject of this chapter are unquoted instruments that constitute a non-controlling interest in an investee. The fair value measurement of those equity instruments must consider those characteristics (see paragraphs 59–67) regardless of the valuation technique used.

23 In addition, the fair value measurement of those equity instruments must reflect current market conditions (see paragraphs 15 and 24 of IFRS 13). An investor might ensure that the valuation techniques reflect current market conditions by calibrating them at the measurement date. At initial recognition, if the transaction price represented fair value and an investor will use a valuation technique to measure fair value in subsequent periods that uses unobservable inputs, the investor must calibrate the valuation technique so that it equals the transaction price (see paragraph 64 of IFRS 13). The use of calibration when measuring the fair value of the unquoted equity instruments at the measurement date is a good exercise for an investor to ensure that the valuation technique reflects current market conditions and to determine whether an adjustment to the valuation technique is necessary (for example, there might be a characteristic of the instrument that is not captured by the valuation technique or a new fact that has arisen at the measurement date that was not present at initial recognition).

24 Example 1 illustrates the use of calibration.<sup>5</sup>

<sup>5</sup> In the examples of this chapter, monetary amounts are denominated in 'currency units (CU)'.

**Example 1—The use of calibration**

An investor purchased five per cent of the equity capital (1,000 shares) of Entity A, a private company, on 31 December 20X6 for CU5,000, or CU5 per share. The investor concludes that the transaction price of CU5,000 represents fair value at initial recognition on 31 December 20X6.

The investor expects that it will subsequently use the comparable company valuation multiples technique (see paragraphs 34–69) when measuring the fair value of its non-controlling equity interest. That valuation technique uses unobservable inputs such as an investee’s performance measure.

The investor calibrates the price paid of CU5,000 and concludes that the transaction price resulted from using an EV/EBITDA multiple (see Figure 3) of 9.0x and from including a *non-controlling interest discount* and a *discount for the lack of liquidity* (see paragraphs 59–67) as follows:<sup>(a)</sup>

**Calibration of the valuation technique at initial recognition**

	CU	
<i>Indicated fair value</i> of the five per cent non-controlling equity interest based on EV/EBITDA of 9.0x	6,024.10	
Non-controlling interest discount	(662.65)	13.3%
Discount for the lack of liquidity	(361.45)	7.2%
<b>Fair value of five per cent non-controlling equity interest on 31 December 20X6</b>	<b>5,000.00</b>	<b>100.0%</b>

At each subsequent measurement date, the investor will assess whether the assumptions that were used when measuring the fair value at initial recognition have changed (ie whether an EV/EBITDA multiple of 9.0x is still appropriate, and whether the assumptions used to derive the non-controlling interest discount and the discount for the lack of liquidity at initial recognition are still valid at the measurement date). If they have changed, the investor will consider how those changes affect the measurement and whether new facts need to be embedded in the valuation technique. In other words, the investor will ensure that the valuation technique reflects current market conditions at the measurement date and will make any necessary adjustments if facts and circumstances affecting Entity A and the environment in which it operates have changed.

(a) The adjustments shown above should not be considered to be a comprehensive list of all applicable adjustments. Furthermore, the non-controlling interest discount adjustment might not be required in all cases (see paragraph 62). The necessary adjustments will depend on the specific facts and circumstances. In addition, the amounts of the adjustments above are not supported by detailed calculations. They have been included for illustrative purposes only.

25 Because of the nature of the inputs used in the valuation techniques described in this chapter (for example, unobservable inputs such as forecasts or budgets when applying the discounted cash flow method, or performance measures when applying comparable company valuation multiples) and their relevance in the resulting fair value measurements, most of the resulting measurements will

be categorised within Level 3 of the fair value hierarchy (see paragraphs 86–90 and paragraph B36 of IFRS 13). Accordingly, such fair value measurements will require an investor to prepare additional disclosures (see paragraphs 91–99 of IFRS 13). Such disclosures provide users of financial statements with information about the significant unobservable inputs used in fair value measurements categorised within Level 3 of the fair value hierarchy (*Level 3 inputs*) and about the generally higher subjectivity to which the valuation processes in this level are subject.

### Market approach

26 The market approach uses prices and other relevant information that have been generated by market transactions that involve identical or comparable assets (see paragraph B5 of IFRS 13). A number of techniques are consistent with the market approach. The market approach techniques that are most commonly referred to for valuing unquoted equity instruments are related to the data sources that they use (for example, quoted prices of public companies or prices from merger and acquisition transactions).

27 This section describes the following market approach techniques:

- transaction price paid for an identical or a similar instrument in an investee (see paragraphs 28–33); and
- comparable company valuation multiples derived from quoted prices (ie *trading multiples*) or from prices paid in transactions such as mergers and acquisitions (ie *transaction multiples*; see paragraphs 34–69).

### Transaction price paid for an identical instrument in an investee

28 When an investor has recently made an investment in an instrument that is identical to the unquoted equity instrument being valued, the transaction price (ie an *entry price*) might be a reasonable starting point for measuring the fair value of the unquoted equity instrument at the measurement date, if that transaction price represented the fair value of the instrument at initial recognition in accordance with IFRS 13 (see paragraphs 57–60 and paragraph B4 of IFRS 13). An investor must, however, use all information about the performance and operations of an investee that becomes reasonably available to the investor after the date of initial recognition up to the measurement date. Because such information might have an effect on the fair value of the unquoted equity instrument of the investee at the measurement date, it is only in limited circumstances that cost may be an appropriate estimate of fair value at the measurement date. Paragraph B5.4.15 of IFRS 9 identifies factors that might indicate that the investor's transaction price might not be representative of fair value at the measurement date. Those factors include the following (the list is not exhaustive):

- a significant change in the performance of the investee compared with budgets, plans or milestones;
- changes in expectation as to whether the investee's technical product milestones will be achieved;

- a significant change in the market for the investee's equity or its products or potential products;
- a significant change in the global economy or the economic environment in which the investee operates;
- a significant change in the performance of comparable entities, or in the valuations implied by the overall market;
- internal matters of the investee such as fraud, commercial disputes, litigation, changes in management or strategy; and
- evidence from external transactions in the investee's equity, either by the investee (such as a fresh issue of equity), or by transfers of equity instruments between third parties.

29 In addition, an investor must consider the existence of factors such as whether the environment in which the investee operates is dynamic, whether there have been changes in market conditions, or the passage of time itself. Such factors might undermine the appropriateness of using the transaction price as a means of measuring the fair value of unquoted equity instruments at the measurement date.

30 Examples 2 and 3 illustrate an investor's assessment of whether the transaction price (paid by the investor in Example 2 and paid by other investors in Example 3) is representative of fair value at the measurement date.

<b><i>Example 2—Transaction price paid for an identical instrument by the investor</i></b>
<p>An investor purchased five per cent of the equity capital (1,000 shares) of Entity B, a private company, on 1 July 20X6 for CU5,000, or CU5 per share. Because the investor is a non-controlling shareholder, it does not receive management's budgets or cash flow forecasts from Entity B. The investor prepares annual financial statements and is measuring the fair value of its non-controlling equity interest in Entity B on 31 December 20X6 (ie the measurement date). The investor concludes that the transaction price of CU5,000 represents fair value at initial recognition on 1 July 20X6.</p> <p>The amount paid for the unquoted equity instruments (CU5,000) in July 20X6 is a reasonable starting point for measuring the fair value of the investor's non-controlling equity interest in Entity B at the measurement date. However, the investor would still need to assess whether the amount paid needs to be adjusted if there is evidence that any of the factors in paragraphs 28 and 29 exist or if other evidence indicates that the transaction price might not be representative of fair value at the measurement date. For example, if market conditions had changed during the last six months in such a way that Entity B's growth prospects or expected milestones could be significantly affected, the investor would need to assess the extent of those changes and adjust the transaction price accordingly.</p>

**Example 3—Transaction price paid for an identical instrument by other investors**

In 20X0 Entity C bought ten equity shares of Entity D, a private company, representing ten per cent of the outstanding voting shares of Entity D, for CU1,000. Entity C prepares annual financial statements and is required to measure the fair value of its non-controlling equity interest in Entity D as at 31 December 20X2 (ie the measurement date).

During 20X2, Entity D raised funds by issuing new equity capital (ten shares for CU1,200) to other investors. Entity C concludes that the transaction price of the new equity capital issue for CU1,200 represents fair value at the date those shares were issued.

Both Entity C and the other investors in Entity D have shares with the same rights and conditions. Between the new equity capital issue to other investors and the measurement date, there have been no significant external or internal changes in the environment in which Entity D operates. No other factors of the types mentioned in paragraphs 28 and 29 occurred. As a result, Entity C concludes that CU1,200 is the amount that is most representative of the fair value of its non-controlling equity interest in Entity D at the measurement date.

- 31 The existence of any of the factors mentioned above (see paragraphs 28 and 29) might make it inappropriate to use the transaction price for measuring the fair value of unquoted equity instruments at the measurement date, although it might be used as a test to find the trend that the price (ie the fair value) might have followed during the period in which the unquoted equity instrument has been held. If, for example, the investor in Example 2 had acquired the investment in Entity B in a period in which economic conditions were different from those at the measurement date, the price paid (in July 20X6) would be less likely to reflect the fair value of the unquoted equity instruments at that date (in December 20X6). However, the analysis of the factors mentioned above (see paragraphs 28 and 29) might help the investor in Example 2 to corroborate the fair value that would be obtained by applying another valuation technique. A more appropriate valuation technique for measuring the fair value of the unquoted equity instruments in such a situation might be the use of comparable company valuation multiples or the discounted cash flow method, each of which is described below.

**Transaction price paid for a similar instrument in an investee**

- 32 The transaction price paid recently for an investment in an equity instrument in an investee that is similar, but not identical, to an investor's unquoted equity instrument in the same investee, would be a reasonable starting point for estimating the fair value of the unquoted equity instrument, if that transaction price represented the fair value of that equity instrument at initial recognition in accordance with IFRS 13 (see paragraphs 57–60 and paragraph B4 of IFRS 13). Examples of such transactions include the issue of new classes of shares to other investors and transactions in such shares between other investors.

If an investor considers the transaction prices of recent investments involving, for example, other investors, when measuring the fair value of its unquoted equity instruments, the investor must understand any differences between the unquoted equity instruments that it currently holds and the equity instruments for which the other investors are entering into transactions. Such differences might include different economic and *control* rights. Example 4 illustrates an investor's assessment of whether the transaction price of a recent investment carried out by other investors is representative of the fair value of its unquoted equity instruments at the measurement date.

**Example 4—Price of a recent transaction carried out by other investors involving similar instruments**

An investor prepares annual financial statements and is measuring the fair value of its non-controlling equity interest in Entity E, a private company, as at 31 December 20X0 (ie the measurement date).

Three years ago the investor acquired an *ordinary share* interest in Entity E. Entity E is developing a new manufacturing process and during the reporting period it has raised significant further equity capital through the issue of a new class of preferred shares to a venture capital fund that now holds a controlling interest in Entity E. The objective is for Entity E to progress to an initial public offering (IPO) within the next five years. The terms of the preferred shares, including the voting rights, are similar to those of the ordinary shares, except that the preferred shares have a cumulative fixed dividend entitlement for a period of five years and the preferred shares rank ahead of the ordinary shares upon liquidation of Entity E.

The investor follows the process set out below to measure the fair value of the ordinary shares at the measurement date by adjusting the recent transaction price (CU10 per share) for the preferred shares.

	CU per share
Transaction price for the preferred shares	10.00
Adjustment to reflect differences between preferred and ordinary shares (eg adjustment to reflect the priority of the preferred shares upon liquidation). <sup>(a)</sup>	(XX)
The investor has concluded that there is a benefit associated with control. This adjustment relates to the fact that the investor's individual ordinary shares represent a non-controlling interest whereas the preferred shares issued reflect a controlling interest. <sup>(a)</sup>	(XX)
Adjustment for lack of liquidity to reflect the lesser ability of the ordinary shareholder to initiate a sale of Entity E to realise its investment relative to the preferred shareholder. <sup>(a)</sup>	(XX)

*continued...*

...continued

**Example 4—Price of a recent transaction carried out by other investors involving similar instruments**

Adjustment for the cumulative dividend entitlement of the preferred shares. This is calculated as the *present value* of the expected future dividend receipts on the preferred shares, less the present value of any expected dividend receipts on the ordinary shares. The *discount rate* used must be consistent with the uncertainties associated with the relevant dividend streams.<sup>(a)</sup>

(XX)

**Fair value of each ordinary share****XX**

The investor also assesses whether it would be appropriate to consider further adjustments for factors of the types mentioned in paragraphs 28 and 29 that might have occurred between the issue of the preferred shares and the measurement date.

In addition, before applying the approach above, the investor fully evaluated the circumstances of the issue of the preferred shares to ensure that its price was a valid benchmark reference. For example, it confirmed that the price was not affected by the terms of management agreements or other commercial relationships with the incoming investor, which would give rise to additional differences between the preferred and the ordinary shares that might have warranted consideration. The investor concluded that the CU10 represented the fair value of the preferred shares at the date those shares were issued.

On the basis of that analysis, the investor concludes that the share price of CUXX is most representative of fair value for each of the ordinary shares held in Entity E at the measurement date.

(a) The process shown above is not the only possible method that an investor could apply to measure the fair value of its unquoted ordinary shares. As a result, the adjustments above should not be considered to be a comprehensive list of all applicable adjustments. The necessary adjustments will depend on the specific facts and circumstances.

**Comparable company valuation multiples**

- 34 Valuation techniques within the market approach are based on the concept of comparables, assuming that the value of an asset (or line of business or company etc) can be measured by comparing it to similar assets (or lines of businesses or companies etc) for which a market price is available.
- 35 For the purposes of measuring the fair value of the equity instruments of an investee, an investor can consider the fair value of the equity instruments of similar entities (ie comparable company peers) for which a market price is available. There are two main sources of information about the pricing of comparable company peers: quoted prices in exchange markets (for example, the Singapore Exchange or the Frankfurt Stock Exchange) and observable data



from transactions such as mergers and acquisitions. When such relevant data exists, an investor might be able to measure the fair value of an unquoted equity instrument by reference to multiples derived from prices of publicly traded comparable company peers (ie trading multiples) or by reference to multiples derived from observable data from merger and acquisition transactions involving comparable company peers (ie transaction multiples).

- 36 When using transaction multiples to measure the fair value of unquoted equity instruments, an investor must consider that those transaction multiples sometimes represent the sale of a controlling interest (ie the transaction price paid for a comparable company peer might include a *control premium*). The fair value of the investor's unquoted equity instruments that are the subject of this chapter must, however, be measured on a non-controlling basis. As a result, if an investor concludes that an observed transaction price includes a control premium, the control premium included in the associated transaction multiples must be excluded when measuring the fair value of the investor's individual unquoted equity instruments that are the subject of this chapter. This process is often described in practice as applying a non-controlling interest discount to any indicated fair values of an investee's equity derived with transaction multiples that include a control premium (see paragraphs 59–62 and Example 8). An investor must follow a similar thought process if the transaction multiples included any premium reflecting a higher degree of control or influence than would be available to a non-controlling shareholder (ie an investor would have to exclude any *joint control* or *significant influence* premiums if they were included in the observed transaction multiples).
- 37 In contrast, when using trading multiples, such a non-controlling interest discount will not usually be necessary because those multiples are based on quoted prices and, as a result, are likely to reflect a non-controlling interest basis.
- 38 Whether an investor uses trading multiples or transaction multiples, the fair value measurement of unquoted equity instruments consists of the following steps:

<b>Step 1</b>	Identify comparable company peers.
<b>Step 2</b>	Select the performance measure that is most relevant to assessing the value for the investee (ie the performance measure that market participants would use to price the investee). This would typically be by reference to measures of, for example, earnings, book value of equity or revenue. Once the performance measure is selected, derive and analyse possible valuation multiples and select the most appropriate one.
<b>Step 3</b>	Apply the appropriate valuation multiple to the relevant performance measure of the investee to obtain an indicated fair value of the investee's <i>equity</i> or the investee's <i>enterprise value</i> .

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**Step 4** Make appropriate adjustments (for example, for lack of liquidity) to ensure comparability between the unquoted equity instruments held in the investee and the equity instruments of the comparable company peers.

*Step 1: identify comparable company peers*

39 When valuation multiples are used, the aim is to identify companies that are comparable to the investee being valued in terms of their capacity to generate cash flows, the expected growth in those cash flows and the uncertainty associated with the timing and amount of those cash flows (ie risk, growth and cash flow generating potential) so as to limit potential adjustments to the selected valuation multiples. In most analyses, however, comparable company peers are defined to be other entities that are similar to the investee in terms of business activities, markets served, size and geographical region. This definition is based on the assumption that entities in the same sector have similar risk, growth and cash flow profiles. In deriving a reasonable multiple, deciding whether to refer to a single comparable company peer or to a number of comparable company peers is a matter of judgement and will depend on the specific facts and circumstances including the availability of relevant information. The closer the relationship between the characteristics of the comparable company peers and the characteristics of the investee, the fewer the adjustments that an investor must make to the valuation multiples derived from the comparable company peers (see Step 2 below).

*Step 2: select the investee's most relevant performance measure and the most appropriate valuation multiple*

**A relevant performance measure**

40 The selection of an investee's most relevant performance measure will depend on the business of the investee, its asset base and its capital structure relative to the comparable company peers. In other words, focusing first on identifying the performance measure that is most relevant to assessing the value of the investee can help an investor to select the most appropriate valuation multiple (see Examples 6 and 7).

**Valuation multiples from comparable company peers**

41 As shown in Figure 2 below, valuation multiples can be calculated either for the equity holders (ie equity value) or for both debt and equity holders (ie enterprise value).

<b>Valuation basis</b>	<b>Description</b>
Equity value	Equity value is the fair value of all equity claims. Equity value can also be expressed as the enterprise value less the fair value of all non-equity financial claims on an entity.
Enterprise value (EV)	There is a wide range of views regarding the definition of enterprise value. The intended use of this term in this chapter is to represent the fair value of all equity and non-equity financial claims attributable to all capital providers (ie equity and debt holders).

**Figure 2—Initial considerations when selecting valuation multiples**

42 The numerator in calculating a valuation multiple is either equity value or enterprise value, and the denominator is a performance measure. Whether using equity value or enterprise value, it is essential that the performance measures used in the denominator are consistent with those valuation bases in the numerator. For example, earnings before interest and taxes (EBIT), earnings before interest, taxes and amortisation (EBITA), earnings before interest, taxes, depreciation and amortisation (EBITDA) and revenue performance measures provide returns to all capital providers, whether debt or equity holders. Consequently, investors would apply enterprise value to such measures, because enterprise value reflects the value to all capital providers. Similarly, a net income (profit or loss) performance measure is a measure of earnings (E) after providing a return to debt capital providers (ie interest payments) and it is therefore a measure of earnings available to equity capital providers. For that reason, investors would apply the equity value (ie an entity's market capitalisation, based on its quoted share price, P) to the net income measure in a price/earnings (P/E) multiple. The same logic applies to price/book value (P/B) multiples, in which book value (B) represents the book value of an entity's shareholders' equity.

43 Figure 3 describes some of the more commonly used valuation multiples.

<b>Performance measure</b>	<b>Valuation basis</b>	<b>Valuation multiple</b>
<b>EBITDA</b>	<b>enterprise value</b>	<b>EV/EBITDA</b>
<p>An EBITDA multiple removes interest, tax, depreciation of tangible assets and amortisation of intangible assets from the earnings stream. Depending on the circumstances, an investor might consider EBITDA multiples to be more appropriate for valuing entities whose comparable company peers have different capital structures, different levels of asset intensity and different methods of depreciating and amortising tangible and intangible assets. For example, this multiple might be useful if there are entities within the group of comparable company peers that predominantly lease their operating assets (ie less capital-intensive entities) while others own them (ie more capital-intensive entities). However, an investor must exercise judgement and consider all facts and circumstances when using this valuation multiple, because it might tend to favour more highly capital-intensive entities. See Example 7.</p>		
<b>Performance measure</b>	<b>Valuation basis</b>	<b>Valuation multiple</b>
<b>EBIT</b>	<b>enterprise value</b>	<b>EV/EBIT</b>
<p>An EBIT multiple recognises that depreciation and amortisation reflect economic expenses associated with the use of an entity's assets that will ultimately need to be replaced, even though they are non-cash charges. However, this multiple might be distorted by any differences in the accounting policies for depreciation and amortisation between an investee and its comparable company peers. EBIT might also be very different between entities growing organically and entities growing by acquisition due to the amortisation of intangibles recognised in business combinations. See Example 7.</p>		
<b>Performance measure</b>	<b>Valuation basis</b>	<b>Valuation multiple</b>
<b>EBITA</b>	<b>enterprise value</b>	<b>EV/EBITA</b>
<p>An EBITA multiple is sometimes used as an alternative to the EBIT multiple when the level of intangible assets and associated amortisation is significantly different between an investee and its comparable company peers.</p>		
<p>o</p>		

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<b>Performance measure</b>	<b>Valuation basis</b>	<b>Valuation multiple</b>
<b>Earnings (ie net income)</b>	<b>equity value</b>	<b>P/E</b>
<p>A price/earnings multiple is appropriate when the entities have similar financing and tax structures and levels of borrowing. In practice, it is uncommon for entities to have similar financing structures. The price/earnings multiples of entities with different financing structures might be very different. This multiple is commonly used for entities in the finance sector (banking, insurance and leasing) where interest expense or interest income is a relevant operating expense or income line. See Example 6.</p>		
<b>Performance measure</b>	<b>Valuation basis</b>	<b>Valuation multiple</b>
<b>Book value</b>	<b>equity value</b>	<b>P/B</b>
<p>A price/book value multiple is considered a useful indicator for comparing the book value of an entity's equity with its market value (ie quoted price). Aside from being a key value indicator in some industries such as hotels or financial institutions, this multiple can also be a tool for identifying potentially undervalued or overvalued companies. This multiple is not suitable for asset-light industries, such as technology companies, because the carrying amounts of the assets in the statement of financial position are usually low compared to their market values as a result of such entities often having unrecognised intangible assets.</p> <p>A variation of this multiple is the price/<i>tangible book value</i>, which is sometimes used in the valuation of financial institutions. See Example 6.</p>		
<b>Performance measure</b>	<b>Valuation basis</b>	<b>Valuation multiple</b>
<b>Revenue</b>	<b>enterprise value</b>	<b>EV/Revenue</b>
<p>A revenue multiple is most useful if an entity's earnings are highly correlated with its revenue, because capitalising revenues can be considered a shortcut to capitalisation of earnings (ie this multiple is useful if a certain level of revenues is able to generate a specific earnings level in a given type of business). Multiples of revenue are applied most frequently to start-up companies, service businesses (for example, advertising companies, professional practices, insurance agencies etc) and to entities that are loss-making at an EBITDA level or that have profitability levels that are very similar to those of comparable company peers. Multiples of revenue are typically only applied as a cross-check (see paragraph 44).</p>		
<b>Figure 3—Commonly used valuation multiples</b>		

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The valuation multiples in Figure 3 are often categorised as follows:

- **Earnings multiples:** these multiples are most commonly used when valuing an established business with an identifiable stream of continuing and stable earnings.<sup>6</sup>
- **Book value multiples:** book value multiples are most commonly used by market participants in industries where entities use their equity capital bases to generate earnings (for example, price/book value multiples for financial institutions—see Example 6).
- **Revenue multiples:** for businesses that have not yet generated positive earnings, multiples of revenue might sometimes be used as a basis for valuation. In those cases, however, judgement needs to be exercised because there might be differences between the profitability of the investee and that of its comparable company peers. For that reason, revenue multiples are typically used only as a cross-check.

45 In addition, some industries might have industry-specific performance benchmarks that might provide analytical insights for comparison purposes when identifying comparable company peers or as an indication of value (for example, revenue per bed for hotels or revenue per subscriber for telecommunications).

46 When adequate information is available, forward-looking multiples (for example, multiples based on future estimates, such as next year’s forecast of EBITDA, EBIT, net income or revenue) are often viewed as being more useful than historical multiples (ie, multiples based on the past, for example, last year’s performance measures). However, using forward-looking multiples requires an investor to consider carefully the appropriateness of the estimates of the comparable company peers’, and the investee’s, performance measures. As a result, an investor must decide whether to use forward-looking multiples or historical multiples by considering all facts and circumstances. Regardless of which type of multiples are being used, there must be consistency between the valuation multiples and the investee’s performance measures to which the valuation multiples are applied. For example, when an investor uses forward-looking multiples to measure the fair value of its non-controlling equity interest in an investee, it must apply a forward-looking multiple obtained from comparable company peers to a forward-looking performance measure of the investee.

**Adjusting valuation multiples: differences between an investee and its comparable company peers**

47 An investor might need to adjust the valuation multiples for differences between an investee and its comparable company peers arising from differences, for example, in their operations, risk profiles or cash flow growth prospects. Examples of differences between the investee and its comparable company peers might include:

- size (in terms of revenue, assets etc);

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<sup>6</sup> The performance measures EBIT, EBITA and EBITDA are not defined terms in IFRSs. If those performance measures are extracted from comparable company peers’ financial reports, an investor should take due care that they have been derived consistently.

- the level and rate of growth of earnings;
- the diversity of product ranges;
- the diversity and the quality of the customer base;
- the level of borrowing, particularly when earnings or revenue multiples are used; and
- their locations (for example, where comparable company peers from developed markets are used in the valuation of investees in emerging markets).

**Adjusting valuation multiples and an investee’s performance measure: normalisation**

48 In addition, the performance measures (for example, EBITDA, EBIT, net income, revenue) of the comparable company peers used in the calculation of the valuation multiples, or the investee’s performance measure to which the valuation multiples are applied, might need to be adjusted to reflect their ongoing capacity to generate economic benefits. In other words, the performance measures might need to be ‘normalised’. *Normalisation* of the performance measures might include:

- the elimination of exceptional or non-recurring transactions (for example, litigation costs, gain or loss on sale of business assets, fire, flood, strikes etc);
- adjusting for the understatement or overstatement of income or expenses (for example, companies with different timing of recognition of revenues and expenses, different policies regarding capitalisation or expensing of various costs, different depreciation methods); and
- adjusting for the impact of acquisitions and discontinued operations.

49 However, normalisation should not eliminate the effect of current market conditions on the performance measures, even if those conditions are not aligned with the investor’s view of the investee’s or comparable company peers’ long-term outlook or prospects.

**Adjusting valuation multiples and an investee’s performance measure: non-operating items**

50 It is also important to consider whether an investee or its comparable company peers have relevant non-operating assets or non-operating liabilities. Non-operating assets and non-operating liabilities are assets and liabilities that are not part of what drives the value of an entity’s core operations (ie assets and liabilities whose income or expenses are not part of the entity’s operating income or expenses). Examples of non-operating items might include excess cash, excess net working capital, idle or unutilised assets that do not generate earnings or cash flows, unfunded pension liabilities, environmental liabilities, expected liabilities from lawsuits etc. An investor will need to apply judgement and consider all facts and circumstances when concluding whether specific assets and liabilities are non-operating.

- 51 For the purposes of deriving the value generated by an investee's operating assets and liabilities, if non-operating items are relevant, an investor must remove their effect (including any income or expenses they generate) from both the valuation multiple obtained from the comparable company peers and from the investee's performance measure. Generally, if a non-operating item enhances the value of a comparable company peer, that additional value should be subtracted from the comparable company peer's valuation multiples. If it detracts value from the comparable company peer, then that value should be added back to the comparable company peer's valuation multiples. Any non-operating items that an investor has made an adjustment for will need to be adjusted back to derive the indicated fair value of an investee's equity or the investee's enterprise value in Step 3 below (see paragraph 57). Example 5 illustrates this process.

**Example 5—Dealing with non-operating items when using valuation multiples**

An investor has concluded that CU250 million of the CU1,000 million cash balance of its investee, Entity F, a private company, is not being held by Entity F for operating purposes but it is held in excess at the end of the reporting period, which coincided with the measurement date. The investor estimated that the interest income generated by the CU250 million excess cash was CU10 million at the measurement date. The investor additionally concluded that having excess cash is a recurrent matter in the entities within the group of comparable public company peers of Entity F and, consequently, the investor adjusts the valuation multiples of each of those entities. For the purposes of deriving the indicated fair value of Entity F's equity, the investor selected the P/E multiple. The investor adjusted each of the comparable public company peers' P/E multiples and Entity F's net earnings as shown below:

$$(A) \quad \frac{P}{E} \text{ (adjusted)} = \frac{\text{Market capitalisation} - \text{Excess cash}}{\text{Net earnings} - \text{Interest income from excess cash}}$$

$$(B) \text{ Entity F's net earnings (adjusted)} = \text{Net earnings} - \text{Interest income from excess cash} = \text{Net earnings} - \text{CU10}$$

The investor subsequently derived the indicated fair value of Entity F's equity, (C), by applying an average of the comparable public company peers' P/E adjusted multiples to the Entity F's adjusted performance measure as follows (see Step 3 below).

$$(C) = (A) \times (B) + \text{Excess cash} = (A) \times (B) + \text{CU250}$$

**Selecting the valuation multiple from a range**

- 52 In practice, if there are a sufficient number of comparable company peers, entities might use an average or median when selecting the valuation multiple to apply to an investee's relevant performance measure (see Step 3 below). An average or median valuation multiple is selected when there is reason to believe



that the investee has characteristics that are similar to the average of the comparable company peers. However, if the investee experiences superior performance relative to the comparable company group, an investor might use a multiple at the upper end of the range of comparable company multiples. Conversely, a multiple at the lower end of the comparable multiple range might be used for an investee that experiences a poor performance relative to its comparable company peers.

### Selecting comparable company valuation multiples

53 Examples 6 and 7 illustrate the process that an investor might undertake in the selection of an appropriate valuation multiple.

#### **Example 6—Selecting comparable company valuation multiples**

An investor is measuring the fair value of its non-controlling equity interest in Entity G, a private company. Entity G is a commercial bank operating in the financial services industry. The investor has selected five comparable public company peers: Entities A1, A2, A3, A4 and A5. These entities have the same risk, growth and cash flow-generating potential profiles as Entity G. Because financial services companies such as Entity G use their equity capital bases to generate earnings, the investor concludes that P/B is an appropriate valuation multiple to measure the fair value of Entity G.

When comparing Entity G with Entities A1–A5, the investor observes that, like Entity G, Entities A1 and A2 do not have material intangible assets in their statements of financial position. However, Entities A3–A5 do have material intangible assets arising from acquisitions. The investor notes that the presence of recognised intangible assets does not, by itself, indicate different growth strategies in the future and concludes that this would not mean that Entities A3–A5 could not be used as comparable company peers. However, the recognition of intangible assets seems to be the main distinguishing factor between the comparable public company peers.

The P/B and P/Tangible book value (P/TB) multiples are as follows:

	<b>A1</b>	<b>A2</b>	<b>A3</b>	<b>A4</b>	<b>A5</b>	<b>Average</b>	<b>Median</b>
P/B	1.5	1.4	1.1	1.3	1.3	1.3	1.3
P/TB	1.5	1.4	1.6	1.5	1.5	1.5	1.5

Because Entities A3–A5 have material intangible assets in their statements of financial position, their P/B ratios are relatively lower than for Entities A1 and A2. Consequently, the investor must determine whether it is necessary to adjust the book values of Entities A3–A5 to exclude the effects of their acquisitions by using the P/Tangible book value multiple (ie book values excluding acquired and internally generated intangible assets).

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**Example 6—Selecting comparable company valuation multiples**

The investor concludes that P/Tangible book value is a more appropriate valuation multiple for valuing Entity G because:

- (a) some of the P/B multiples have been derived from comparable public company peers that, unlike Entity G, have recognised intangible assets in their statements of financial position. Consequently, applying those companies' multiples to Entity G's book value, which does not have intangible assets arising from acquisitions or that are internally generated, might not be appropriate; and
- (b) by eliminating the intangible assets from the valuation of Entities A3-A5, the resulting multiples of these three entities are within the range of the multiples for Entities A1 and A2, giving better support for the valuation of Entity G.

The multiples were prepared using information from Entities A1–A5's financial statements at the end of the reporting period, which coincides with the measurement date. The investor confirmed that the accounting policies of the underlying assets of the comparable public company peers and Entity G were the same. No additional adjustments to the valuation multiples were deemed to be necessary.

In determining where within the range to select the multiple, the investor observes that the average and median multiples are identical. The investor selects the average P/Tangible book valuation multiple because it believes that Entity G has characteristics (for example, risk, growth and cash flow-generating potential profiles) that are similar to the average of the comparable public company peers. The investor might have considered the median multiple instead of the average multiple if there were outliers among the comparable public company peers.

**Example 7—Selecting comparable company valuation multiples**

An investor is measuring the fair value of its non-controlling equity interest in Entity H, a private company. Entity H is a car manufacturer. The investor has selected five comparable public company peers: Entities B1, B2, B3, B4 and B5. These entities have the same risk, growth and cash flow-generating potential profiles as Entity H. They also operate in the same market (luxury passenger cars) and are at a similar stage of development as Entity H. The investor concludes that EBIT or EBITDA are both relevant performance measures for Entity H. For this reason, and also to remove any distortion in the valuation multiples that the differences in capital structure between Entity H and its comparable public company peers might cause, the investor has decided to consider both EV/EBIT and EV/EBITDA multiples as potential relevant valuation multiples to measure the fair value of Entity H.

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**Example 7—Selecting comparable company valuation multiples**

Entity H and its comparable public company peers have similar asset bases. When comparing Entity H with Entities B1–B5, the investor observes that Entities B1 and B2 have depreciation policies (ie useful life estimates for the depreciation of their tangible assets) that are similar to that of Entity H. However, Entities B3–B5 have a very different depreciation policy that uses a much longer useful life for the depreciation of their tangible assets than Entity H does, resulting in a lower depreciation expense. Entity B4’s depreciation policy is in between Entity H’s and Entities B3 and B5.

The EV/EBIT and EV/EBITDA multiples are as follows:

	<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>B4</b>	<b>B5</b>	<b>Average</b>	<b>Median</b>
EV/EBIT	10.0	9.5	6.6	7.8	6.3	8.0	7.8
EV/EBITDA	6.9	6.5	5.9	6.2	6.3	6.4	6.3

The investor observes that the range of the EV/EBITDA multiples is narrower (5.9x–6.9x), than the range of EV/EBIT multiples (6.3x–10.0x).

While the average and median EV/EBIT multiples are very close, the differences in the depreciation policy between Entity H and Entities B3–B5 does not make them comparable at an EBIT level and, consequently, neither the average nor the median EV/EBIT multiples are relevant in valuing Entity H.

The average and median EV/EBITDA multiples are also very close. In this example, the investor selects the EV/EBITDA multiple because it considers that all five entities are comparable to Entity H at EBITDA level. The differences in depreciation policy do not affect the EV/EBITDA multiple, because the earnings used in this multiple have not been reduced by any depreciation expenses. Consequently, the investor concludes that the EV/EBITDA multiple is the most relevant multiple to measure the fair value of Entity H.

The multiples were prepared using information from Entities B1–B5’s financial statements at the end of the reporting period, which coincides with the measurement date. The investor confirmed that the accounting policies of the remaining underlying assets of the comparable public company peers and of Entity H were the same. No additional adjustments to the valuation multiples were deemed to be necessary.

In determining where within the range to select the multiple, the investor observes that the average and median multiples are very close. The investor selects an EV/EBITDA valuation multiple of 6.7x because it believes that Entity H has characteristics (for example, risk, growth and cash flow-generating potential profiles) that are similar to the comparable public company peers at the upper end of the range of valuation multiples.

*Step 3: apply the valuation multiple to the relevant performance measure of the investee to obtain an indicated fair value of the investee's equity or the investee's enterprise value*

54 The valuation multiple obtained in Step 2 is then multiplied by the relevant normalised performance measure of the investee (for example, tangible book value in the case of Example 6 and EBITDA in the case of Example 7). The performance measure of the investee might need to be normalised, for example, to eliminate exceptional or non-recurring transactions or the impact of discontinued activities and acquisitions.

55 When an investor applies the valuation multiple from comparable company peers to an investee's normalised performance measure, the investor obtains either an indicated fair value of the investee's equity value or the investee's enterprise value, depending on the valuation multiple used. For example, if an investor used an equity trading valuation multiple, that multiple multiplied by the investee's normalised performance measure provides an indicated fair value of the equity of the investee as if the investee was publicly traded.

56 In the case in which an investor used an EV valuation multiple to measure the fair value of an investee, an investor must make appropriate adjustments to subtract the fair value of the investee's debt to derive the fair value of the equity of that investee (see Example 9 and paragraphs 76 and 80).<sup>7</sup>

57 In addition, any non-operating items that an investor has made an adjustment for will need to be adjusted back when deriving the indicated fair value of an investee's equity or the investee's enterprise value (see paragraph 51 and Example 5).

*Step 4: make appropriate adjustments to the indicated fair value of the investee's equity resulting from Step 3*

58 In some cases an investor will need to make adjustments to the indicated fair value of an investee's equity obtained from Step 3. While the adjustments in Step 2, apart from normalisation and non-operating items adjustments, deal with general qualitative differences between the investee and its comparable company peers (for example, differences in their risk profiles or earnings growth prospects), the adjustments in Step 4 deal with the differences that are more closely related to the investee's and comparable company peers' equity instruments themselves. Some common adjustments are described below (see paragraphs 59–67).

**Non-controlling interest discount**

59 When using transaction multiples from comparable company peers to measure the fair value of a non-controlling interest, it is important to make adjustments if the observed transaction price represents the sale of a controlling interest because the value of control is not attributable to the fair value of a non-controlling interest. Consequently, an investor would need to assess whether it is appropriate to adjust observed transaction prices for the effect of

<sup>7</sup> Some valuation specialists subtract cash from the fair value of debt to arrive at a 'net debt' amount, making the assumption that cash is a non-operating asset. See footnote 11.

control if the investor has evidence that controlling shareholders are able to receive greater returns than non-controlling shareholders (for example, because of the opportunity a controlling shareholder has to effect operational changes). If that is the case, the investor would deduct the amount of the control premium from the indicated fair value of the investee's equity that was obtained in Step 3 using transaction multiples.

- 60 An approach to estimating such an adjustment would be to consider the comparable company peer's acquisition price relative to its previous quoted prices, if available. When considering pre-announcement trading prices, an investor must consider the extent of any pre-announcement speculation or whether the comparable company peers were already subject to another acquisition offer before the successful offer.
- 61 Another approach for estimating the amount of a control premium is the use of databases that analyse premiums paid in transactions that involve the acquisition of a controlling interest or the use of data from empirical control premium studies. Premiums paid in acquisition transactions will vary over time and may differ across industries and jurisdictions. However, in emerging markets there will often be a lack of research or empirical data from which to derive a non-controlling interest discount. In those cases an alternative approach would be to identify actual transactions from which to derive the non-controlling interest discount or to use control premium studies based on data from developed countries as a reference or proxy.
- 62 Regardless of the approach used for estimating the amount of a control premium, an investor must exercise judgement to assess whether those premiums are directly related to acquiring a controlling interest or to other factors (for example, company-specific synergies).<sup>8</sup>
- 63 Example 8 illustrates how an investor would apply a non-controlling interest discount when measuring the fair value of a non-controlling equity interest in an investee.

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<sup>8</sup> The assessment of control premiums in valuation for financial reporting is a topic on which a working group at the Appraisal Foundation in the United States of America is focusing at the date of the publication of this chapter. The preliminary line of thought of this working group is that the quantification of control premiums should be based on the cash flow enhancements and/or on the reduced risks that holding a controlling interest might represent for a controlling shareholder. On the basis of this preliminary work, an investor might consider observed control premiums extracted from closed transactions when carrying out that quantification, but exclusive reliance upon those sources should be considered with caution.

**Example 8—Non-controlling interest discount**

An investor is measuring the fair value of a five per cent non-controlling equity interest in a private company, Entity I, using transaction multiples of comparable company peers. Those transactions involved the gaining of control over the peer companies that had been acquired. Because the multiples derived from those transactions are on a controlling interest basis, a non-controlling interest discount might be necessary to arrive at the fair value of a non-controlling equity interest in Entity I. The investor confirms that those transactions were not motivated by buyers seeking synergies between themselves and the comparable company peers, and that fact provides additional reassurance that the transaction prices used in the valuation multiples do not include premiums paid for synergies that are not applicable to Entity I.

The investor assessed the control premiums from which to derive the non-controlling interest discount by referring to premiums in recent acquisitions involving control, and from data on empirical control premium studies that considered industry, pricing, background, deal size, and timing of the observed premiums. In making its assessment, the investor disregarded transactions whose nature and motivation were different from the nature and motivation of its investment in Entity I and it determined that a median level of the data gathered was an appropriate indicator. This resulted in an assessed control premium of 25 per cent. The investor supplemented this assessment by evaluating the difference between the observed acquisition prices and the previous quoted prices for comparable company peers subject to acquisitions involving control during the past two years.

Assuming that the indicated fair value of the five per cent non-controlling equity interest in Entity I before the non-controlling interest discount is CU100 million and that there are no other additional adjustments necessary, applying the non-controlling interest discount reduces the indicated fair value of the five per cent non-controlling equity interest in Entity I to CU80 million ( $CU100/1.25 = CU80$ ). The investor concludes that CU80 million is the price that is most representative of the fair value of its five per cent non-controlling equity interest in Entity I at the measurement date.

**Discount for the lack of liquidity**

- 64 An investor must give appropriate consideration to the effect of the lack of liquidity of the unquoted equity instruments being measured at fair value, as compared to equity instruments of comparable company peers that are publicly traded and, therefore, likely to be more liquid. One source that is commonly used to quantify liquidity adjustments is *restricted stock studies*. Restricted stock studies aim to measure the decrease in value associated with an investment that has not traded on a public exchange for a certain period of time. Because an investor in a private company faces similar liquidity restrictions, implied

discounts in restricted stock transactions can be used to estimate the discount for the lack of liquidity applicable to a non-controlling equity interest in a private company.

65 When using implied discounts from restricted stock studies, it is essential to identify the relevant restricted stock studies from which to derive the observed trends in the level of discounts, by comparing the characteristics of the equity interest being valued with the population of entities included in those empirical studies. Discounts from restricted stock studies can be used as a starting point in assessing the discount for the lack of liquidity. However, an investor must analyse the factors and the characteristics of the population of entities included in the restricted stock studies because these are matters that might have influenced the magnitude of the restricted stock discounts. For example, an investor might need to assess whether the implied discounts are directly related to the illiquidity of the investments or to factors other than liquidity. An investor must also consider the characteristics of the population of entities included in those restricted stock studies, such as their size measured by revenue, because it has been observed that the discount for liquidity tends to be smaller for entities with higher revenues. The effect of any factors other than liquidity, or of any differences in the characteristics between the population of entities included in the restricted stock studies and the investee, must be considered when quantifying the appropriate discount for the lack of liquidity. In addition, appropriate consideration must be paid to:

- the range of discounts implied from those studies, because the range might vary depending on factors such as the period covered, the methodology followed and the sample size of those studies; and
- the fact that those studies refer typically to data from the United States of America.

66 As a result, an investor must apply judgement when using those studies as a source to derive the discount for the lack of liquidity and it must consider all relevant facts and circumstances.

67 Other approaches that are used to estimate the discount for the lack of liquidity are *option pricing models* such as Chafee, Longstaff and Finnerty. Views on how successful those models are in quantifying illiquidity differ among valuation specialists. An investor must apply judgement and consider all facts and circumstances when deriving the discount for the lack of liquidity using those models.

#### **Applying comparable company peers' valuation multiples**

68 Example 9 illustrates how comparable company peers' valuation multiples would be used to measure the fair value of a non-controlling equity interest in an investee.

**Example 9—Applying comparable company peers' valuation multiples**

An investor has a five per cent non-controlling equity interest in Entity J, a private company. The investor must measure its non-controlling equity interest at fair value for its annual financial statements for the year ending 31 December 20X1 (ie the measurement date). Entity J has a normalised EBITDA of CU100 million for that year. At the measurement date, the fair value of Entity J's debt is CU350 million.

The investor has selected six comparable public company peers that operate in the same business and geographical region as Entity J. The investor has chosen the EV/EBITDA multiple to value Entity J because there are differences in the capital structure and depreciation policies between Entity J's comparable company peers and Entity J. The investor has concluded that there are no relevant non-operating items that need to be adjusted from either the comparable company peers' normalised trading multiples or the investee's normalised EBITDA. No additional adjustments to the valuation multiples were deemed to be necessary.

The trading multiples of the comparable public company peers are as follows:

<b>Comparable public company peers</b>	<b>Trailing 12 months EV/EBITDA</b>
Entity C1	4.5x
Entity C2	8.0x
Entity C3	8.5x
Entity C4	15.0x
Entity C5	9.0x
Entity C6	8.5x

Upon further analysis, the investor was of the view that only Entities C2, C3, C5 and C6 should be considered as comparable company peers because they have similar risk, growth and cash flow-generating potential profiles. The investor applied the average multiple of 8.5x (computed excluding Entities C1 and C4) to Entity J's normalised EBITDA of CU100 million to derive Entity J's enterprise value of CU850 million. The investor selected the average multiple for the valuation of Entity J because the characteristics of Entities C2, C3, C5 and C6 led it to consider that the average multiple would appropriately reflect Entity J's characteristics relative to its peers.

The investor followed the process set out below to measure the fair value of its five per cent non-controlling equity interest in Entity J.

	CU (in millions)
Enterprise value	850
To arrive at the indicated fair value of equity, the investor deducted the fair value of Entity J's debt (CU350 million) from the enterprise value.	Indicated fair value of equity = 850 – 350 = 500

*continued...*



...continued

<b>Example 9—Applying comparable company peers' valuation multiples</b>	
No non-controlling interest discount is required because the valuation multiples used to measure the fair value of Entity J were derived from the trading prices of the comparable public company peers and are consistent with holding a five per cent non-controlling equity interest in Entity J.	n/a
Discount for the lack of liquidity to reflect the lesser liquidity of Entity J's unquoted equity instruments compared with those of its comparable public company peers. The investor assessed the discount for the lack of liquidity to be 30 per cent on the basis of relevant studies applicable in the region and industry as well as on the specific facts and circumstances of Entity J. <sup>(a)</sup>	Discount for the lack of liquidity = 500 x 0.30 = 150
The price that is most representative of the fair value of the investor's five per cent non-controlling equity interest in Entity J is CU17.5 million at the measurement date.	Fair value of equity = 500 – 150 = 350 Fair value of non-controlling equity interest = 0.05 x 350 = 17.5
(a) The process shown above is not the only possible method that an investor could apply to measure the fair value of its non-controlling equity interest. As a result, the adjustments above should not be considered to be a comprehensive list of all applicable adjustments. The necessary adjustments will depend on the specific facts and circumstances. In addition, the amounts of the adjustments above are not supported by detailed calculations. They have been included for illustrative purposes only.	

**Applying comparable company valuation multiples when there is limited financial information**

69 The examples below illustrate situations in which, despite an investor having limited financial information, the fair value of an unquoted equity instrument can nevertheless be measured by applying the comparable company valuation multiples technique. Examples 10, 11 and 12 are descriptive with few, or no, worked numerical calculations. The use of the comparable company valuation multiples technique in these examples might not be the preferred valuation technique for the specific fact patterns described. An investor might consider another valuation technique to be more appropriate for the circumstances described in these examples.

**Example 10—Limited financial information available**

Entity K is a private company. Fund L is a private equity fund that has purchased a one per cent non-controlling equity interest in Entity K from an existing shareholder. As a non-controlling investor, Fund L is entitled to receive quarterly management accounts and annual audited accounts, usually with a delay. Fund L does not have access either to up-to-date management accounts or to up-to-date financial projections.

In the absence of financial projections and up-to-date financial information, Fund L uses Entity K's most recent historical information. Fund L applies a relevant market valuation multiple, which was derived for a historical period similar to the one covered by the historical financial information that Fund L has about Entity K. In addition, Fund L assesses the relevant economic and market outlooks for Entity K and considers analysts' research regarding forecasts of comparable public company peers in order to support its fair value conclusion.<sup>(a)</sup>

(a) This example assumes that the fair value conclusion would have included any necessary adjustments (for example, non-controlling interest discount, discount for the lack of liquidity etc) that market participants would incorporate when pricing the equity instruments at the measurement date.

**Example 11—Limited financial information available**

Entity M is a private company with a financial year ending on 30 June. Fund N has a five per cent non-controlling equity interest in Entity M. Fund N must measure the fair value of its non-controlling equity interest in Entity M on 31 December 20X2 (ie the measurement date) for financial reporting purposes. The most recent financial statements that Fund N received from Entity M are as of 30 June 20X1 (ie 18 months ago). For the year ended 30 June 20X2, Fund N has only information on the sales volume and profit margin of Entity M, which it received from Entity M's management.

Fund N discusses and analyses the performance and outlook of Entity M with Entity M's management. Fund N then estimates the revenue and earnings of Entity M from additional information such as selling prices, growth rates and profit margins provided by Entity M's management for the year ended 30 June 20X2. Fund N further understands from Entity M's management that the revenue and earnings for the six months ended 31 December 20X2 has grown by 20 per cent compared to last years' same six-month period.

*continued...*

...continued

**Example 11—Limited financial information available**

On the basis of the above, Fund N applies a relevant trading multiple based on Entity M's comparable public company peers' share prices and Entity M's earnings for the 12-month period ended 31 December 20X2 to measure the fair value of its non-controlling equity interest at the measurement date. Finally, Fund N evaluates whether the indicated fair value for Entity M is consistent with its understanding of the development of the entity as well as with the economic and market outlooks.<sup>(a)</sup>

- (a) This example assumes that the fair value conclusion would have included any necessary adjustments (for example, non-controlling interest discount, discount for the lack of liquidity etc) that market participants would incorporate when pricing the equity instruments at the measurement date.

**Example 12—Limited comparable company peers available**

An investor needs to measure its non-controlling equity interest in Entity O, a private company, at fair value at the end of the current reporting period. The investor does not have sufficient financial information to apply the income approach (for example, a discounted cash flow method) and as a result it concludes that applying comparable company valuation multiples is the most appropriate technique.

Entity O operates in the auto ancillary segment and specialises in the manufacturing of seating systems. On the basis of the highly specialised segment in which Entity O operates, it is expected that it will be challenging for the investor to find many comparable company peers. As a result, the investor decided to widen the spectrum of entities when identifying comparable company peers of Entity O. Firstly, the investor considered cross-border companies in the same segment in which Entity O operates to confirm whether any of those could be considered comparable company peers. This first exercise did not yield any meaningful results. The public companies that the investor identified in Entity O's segment as potential comparable company peers were quite different from Entity O, both in asset size and profitability (those entities were loss-making while Entity O is a profitable entity).

Consequently, the investor widened its search further and considered the whole auto ancillary segment, rather than only those entities involved in the manufacture of seating systems. This made available a larger population of comparable company peers. From this larger population, the investor considered companies with similar growth prospects, profitability profiles and capital structures.

continued...

...continued

**Example 12—Limited comparable company peers available**

The investor applies a relevant market valuation multiple obtained from that selection of comparable company peers in the auto-ancillary segment. In addition, the investor assesses the economic and market outlooks in which Entity O operates to supplement its fair value conclusion.<sup>(a)</sup>

(a) This example assumes that the fair value conclusion would have included any necessary adjustments (for example, non-controlling interest discount, discount for the lack of liquidity etc) that market participants would incorporate when pricing the equity instruments at the measurement date.

### Income approach

70 The income approach converts future amounts (for example, cash flows or income and expenses) to a single current (ie discounted) amount. This is typically done using a discounted cash flow (DCF) method, which is applied to enterprise cash flows or, less frequently, to equity cash flows (see paragraphs 71–114). This section of the chapter also addresses the dividend discount model (DDM; see paragraphs 115 and 116), the constant growth DDM (see paragraphs 117–121) and the capitalisation model (see paragraphs 122–124).<sup>9</sup>

### Discounted cash flow (DCF) method

71 When applying the DCF method, investors are required to estimate the future expected cash flows of an investee. For practical purposes, when an investee is expected to have an indefinite life, most models estimate cash flows for a discrete period and then either use a constant growth model (such as the Gordon Growth Model; see paragraphs 117–121), apply a *capitalisation rate* to the cash flow immediately following the end of the discrete period (see paragraphs 122–124) or use an *exit multiple* to estimate a *terminal value*.<sup>10</sup>

72 When applying a DCF model, an investor would typically discount the expected cash flow amounts (ie possible future cash flows multiplied by their respective probabilities; see paragraphs B23–B30 of IFRS 13) to a present value at a rate of return that accounts for the time value of money and the relative risks of the

<sup>9</sup> Another valuation technique within the income approach is the Residual Income Stock Price Valuation Model. That model expresses the fair value of an investee's equity as the sum of the book value of equity and the present value of expected residual-income, defined as the difference between the investee's reported net income and the product of the investee's book value of equity and cost of equity capital.

<sup>10</sup> The terminal value might be estimated by using a multiple of earnings or revenues in the period immediately following the end of the discrete period. Such a multiple, also called an exit multiple, is estimated from comparable company peers. However, some authors believe that a more internally consistent way of estimating the terminal value in a discounted cash flow model is to use a constant growth model (see paragraphs 117–121) rather than using a multiple estimated from comparable company peers. In other words, those authors prefer to keep the income approach and the market approach as independent of each other as possible.

investment. Paragraphs B13–B30 of IFRS 13 describe the use of present value techniques, including how risk and uncertainty are reflected in the fair value measurement (see paragraph 102).

73 In addition, an investor will need to define the relevant cash flow measure. Equity instruments can be valued directly (equity valuation), using *free cash flow to equity (FCFE)*, or indirectly, by obtaining the enterprise value using *free cash flow to firm (FCFF)* and then subtracting the fair value of the investee’s debt net of cash.<sup>11</sup> Although both of these approaches result in discounted expected cash flows, the relevant cash flows and discount rates are different when using each approach. This is illustrated in Figure 4.

	<b>Equity value</b>	<b>Enterprise value</b>
<b>Cash flows</b>	FCFE are the cash flows available to all equity capital providers. In other words, FCFE are cash flows from assets, after debt payments and after making reinvestments that are needed for future growth.	FCFF are the cash flows available to all capital providers (equity and debt holders). In other words, FCFF are cash flows from assets, before any debt payments but after making reinvestments that are needed for future growth.
<b>Discount rate</b>	The discount rate reflects only the cost of raising equity financing (ie the <i>cost of equity capital</i> ). <sup>(a)</sup>	The discount rate reflects the cost of raising both debt and equity financing, in proportion to their use (ie the <i>weighted average cost of capital</i> , or <i>WACC</i> ). <sup>(a)</sup>
(a) Some authors consider that the ‘cost of equity’ is better referred as the ‘required return of equity’. Consequently, for those authors, WACC is neither a cost nor a required return, but a weighted average of a cost and a required return.		
<b>Figure 4—Discounted cash flow models</b>		

11 As mentioned in footnote 7, some valuation specialists subtract cash from the fair value of debt to arrive at a ‘net debt’ amount under the assumption that cash is a non-operating asset. A thorough analysis will, however, aim to answer the question of how much cash does, for example, a business need for its operations with the aim of distinguishing between operating and non-operating, or excess, cash.

74 As illustrated in Figure 4, depending upon which approach is selected, the appropriate discount rate will differ. Regardless of the approach, assumptions about cash flows and discount rates must be consistent. For example, after-tax cash flows must be discounted using an after-tax discount rate and pre-tax cash flows must be discounted at a pre-tax discount rate.<sup>12,13</sup> Similarly, the currency of the cash flows must always match the currency of the discount rate. When an investor's and an investee's currencies are different, the currency consistency between the cash flows and the discount rates needs to consider the expected inflation of the currencies. Figure 5 illustrates how to ensure that there is currency consistency between cash flows and discount rates, depending on whether the measurement is being carried out using the investee's or the investor's currency.

	<b>Cash flows</b>	<b>Discount rate (DR)</b>
<b>Investee's currency</b>	Estimate the cash flows in the investee's currency, building the expected inflation of the investee's currency into the growth rate.	Estimate the discount rate in the investee's currency (ensuring that the risk-free rate is default-free and that the required equity premium is consistently defined; see paragraph 84) or estimate the discount rate in the investor's currency and then convert it into the investee's currency using equation (A) below.
<b>Investor's currency</b>	Estimate the cash flows in the investor's currency, building into the growth rate the expected inflation of the investor's currency or estimate cash flows in the investee's currency and convert to the investor's currency, using expected exchange rates either from forward markets or using purchasing power parity.	Estimate the discount rate in the investor's currency (using the risk-free rate in the investor's currency and ensuring that the required equity premium is consistently defined; see paragraph 84).

continued...

12 Paragraph BCZ85 of IAS 36 *Impairment of Assets* includes an example that illustrates how can a pre-tax discount rate can be determined. In particular the example illustrates that a post-tax discount rate grossed-up by a standard rate of tax is not always an appropriate pre-tax discount rate.

13 The choice between after or pre-tax will depend upon the purpose of the valuation. When valuing businesses, post-tax cash flows are most commonly used in practice.

...continued

	Cash flows	Discount rate (DR)
(A)	$DR_{\text{Investee's currency}}$	$(1 + DR_{\text{Investor's currency}}) \times \frac{(1 + \text{Expected inflation investee's currency})}{(1 + \text{Expected inflation investor's currency})} - 1$
<b>Figure 5—Currency consistency between cash flows and discount rates</b>		

75 To illustrate the DCF method, this chapter will only refer to the DCF method using the enterprise value approach.

### *Enterprise value*

76 As mentioned in paragraph 73, equity instruments can be valued directly or indirectly. Regardless of the approach used, the objective remains the same (ie to measure the fair value of an investee's equity to subsequently derive the fair value of the investee's equity instruments). The enterprise value approach is summarised as follows:<sup>14</sup>

Indicated fair value of an investee's equity = Enterprise value – fair value of debt (see paragraphs 56 and 80).

Enterprise value in the expression above is obtained by discounting an investee's FCFF at WACC (see paragraph 79).

77 FCFF are the cash flows available to all of the investee's capital providers (equity and debt holders) after all operating expenses and corporate taxes (computed using market participants' expectations of the investee's effective unlevered income tax rate, (t)) have been paid, and any necessary reinvestment requirements (RR), such as capital expenditures in fixed assets, and net working capital (NWC) have been made. FCFF can be expressed as follows:<sup>15</sup>

$FCFF = EBIT(1 - t) + \text{Depreciation and amortisation} - RR - \text{Net increases in NWC}$

78 As mentioned in the comparable company valuation multiples section (see paragraphs 50 and 51), it is important to consider whether the investee (or the comparable company peers when applying comparable company valuation multiples) has relevant non-operating assets or non-operating liabilities. If non-operating items are relevant, an investor must remove their effect, including any income or expenses they generate, from the investee's estimated FCFF. The effect of any non-operating items that an investor has removed from the investee's FCFF will have to be adjusted back when estimating the investee's enterprise value. This process is illustrated in Figure 6.

14 The investee's equity fair value conclusion would require consideration of any necessary adjustments (eg non-controlling interest discount, discount for the lack of liquidity etc) that market participants would incorporate when pricing the equity instruments at the measurement date.

15 In some jurisdictions tax might be applied to EBITDA or EBITA instead. Applying tax to EBIT is only applicable in jurisdictions where accounting depreciation or amortisation and tax depreciation or amortisation are consistent (ie accounting depreciation or accounting amortisation equate to actual tax deductions).

<b>Removing the effect of non-operating items</b>
(1) Discount FCFF obtained from an investee's <b>operating</b> assets and liabilities at WACC.
(2) Add the value of <b>non-operating</b> assets (for example, cash, unutilised assets).
(3) Subtract the value of <b>non-operating</b> liabilities (for example, unfunded pension obligations, expected litigation payouts).
(4) <b>Enterprise Value = (1) + (2) - (3)</b>
(5) Subtract the investee's fair value of debt.
(6) <b>Indicated fair value of equity = (4) - (5)</b>
<b>Figure 6—Non-operating assets and liabilities</b>

79 Investors most commonly discount FCFF to their present value using the weighted average cost of capital (WACC), which represents the weighted average required return on all forms of capital (debt and equity). An investor obtains an investee's enterprise value by discounting its FCFF using WACC (see paragraph 76). WACC is commonly expressed as follows:

**WACC =  $D/(D + E) \times (1 - t) \times k_d + E/(D + E) \times k_e$** ; where:

D = fair value of debt capital;

E = fair value of equity capital;

$k_d$  = *cost of debt capital* (see paragraphs 104–111);

$k_e$  = *cost of equity capital* (see paragraphs 82–103); and

t = market participants' expectations of the investee's effective income tax rate.

Paragraphs 81–111 describe each of the components of the WACC expression and Example 21 illustrates its computation.

80 To measure the fair value of an investee's equity capital, the fair values of all non-equity financial claims (for example, interest-bearing debt) must be deducted from the resulting enterprise value (see paragraphs 56 and 76 and Example 22).

#### **Relative weights of debt and equity capital**

81 When computing WACC, the relative weights of debt and equity capital to total capital (ie  $D/(D + E)$  and  $E/(D + E)$ ) are broadly consistent with market participants' expectations of the investee's optimal capital structure over the long term. In other words, when computing WACC it is assumed that the investee manages its capital structure to a target or optimal debt-to-total capital ratio. Consequently, the investee's actual debt-to-total capital ratio is not generally decisive in the calculation. In some cases, the industry's average



capital structure can be considered an appropriate reference for the assessment of an investee's optimal capital structure over the long term. However, it would be important for an investor to understand how the industry's average capital structure is derived and whether it is reasonable to expect the investee to achieve such a capital structure, given the investee's financial health, current financial market conditions and any difference in the access to debt capital between the entities included in the industry benchmark and the investee. In other words, the industry's average capital structure is an appropriate reference for the assessment of an investee's optimal capital structure if it reflects the investee's debt capacity and the amount of debt financing that lenders would provide.

### Cost of equity capital

82 The cost of equity capital ( $k_e$ ) is often estimated using the *Capital Asset Pricing Model (CAPM)*; see paragraph B26 of IFRS 13).<sup>16</sup> CAPM estimates the relationship between the risk of an asset and its expected return<sup>17</sup> as a linear function of the asset's *systematic risk*, as shown below. According to CAPM, the systematic risk of an asset is proportional to the risk that the asset contributes to an optimal risky portfolio (ie the market portfolio).

83 The cost of equity capital using CAPM is commonly expressed as:

$k_e = r_f + (r_m - r_f) \times \beta$ ; where:

$k_e$  = cost of equity capital (ie the expected rate of return investors require on an equity investment);

$r_f$  = risk-free rate (ie the expected rate of return on a risk-free asset);

$r_m$  = required market rate of return (ie the expected rate of return on a fully diversified portfolio);

$r_m - r_f$  = required equity premium (ie the extra expected return on a fully diversified portfolio in excess of the expected rate of return on a risk-free asset);<sup>18</sup> and

$\beta$  (beta) = measure of the systematic risk for the individual shares (ie the  $\beta$  of an individual share measures its contribution to the variance of the market portfolio).

Paragraphs 84–102 describe each of the components of the CAPM expression and Example 17 illustrates the computation of cost of equity capital.

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16 There are other models to estimate the cost of equity capital, for example, the Arbitrage Pricing Theory (APT), in which the expected returns increase linearly with an asset's sensitivity to a small number of pervasive factors. Another model is the Fama-French Three-Factor Model, in which three factors appear to determine expected returns (ie market factor, size factor and book-to-market factor).

17 The cost of equity capital resulting from CAPM is an expected (market required) rate of return. 'Expected' refers to the probability-weighted average of the distribution of possible future returns.

18 Required equity premium is also referred to as 'equity risk premium' or 'market risk premium'.

*Risk-free rate*

84 The risk-free rate is typically referenced to the yield on government bonds that are in the same currency and that have the same or similar duration to the cash flows generated by the investment. However, before using the observed market government bond yield as the measure of the risk-free rate, consideration must be given to the basis on which the required equity premium is measured in the CAPM formula. The assumptions used in the selection of the risk-free rate must be consistent with the assumptions used in the selection of the required equity premium. For example, if the required equity premium was estimated as the premium over a long-term risk-free rate (for example, a 20-year government bond), then basing the risk-free rate input on a shorter-term instrument (for example, a 5-year government bond) would result in a mismatch. Furthermore, an investor must consider whether the instrument being used to derive a risk-free rate is in fact risk-free.

 $\beta$ 

85  $\beta$  measures the sensitivity of the excess expected return on an individual share relative to that of the market.<sup>19,20</sup>  $\beta$  is a forward-looking estimate (see paragraph 87). However, it is commonly derived for individual public companies by using a regression analysis of an entity's share price returns against the returns of an appropriate market index (ie regression analysis capture historical  $\beta$  relationships). Using historical  $\beta$ s assumes that the future will be sufficiently similar to the past to justify estimating  $\beta$ s using historical data.

86  $\beta$ s are typically measured by reference to two- to five-year historical data, depending on the specific facts and circumstances. The frequency of returns used when measuring  $\beta$  can be daily, weekly, monthly, quarterly or annual. Weekly or monthly returns will typically be used to balance the issues of sample size (ie having enough data points to derive a statistically significant estimate) with data quality (ie excessive frequency adds noise to the data, thereby reducing the statistical quality of the data). For example, weekly returns are typically used when estimating  $\beta$ s by reference to two-year historical data and monthly returns are typically used when estimating  $\beta$ s by reference to five-year historical data. The time frame selection for which an investor will estimate  $\beta$  will depend on the facts and circumstances. For example, in volatile markets, an investor might consider that it is appropriate to favour a five-year  $\beta$  instead of referring to a shorter time frame to avoid the potential distortion caused by short-term volatility.

87 Because  $\beta$  is a forward-looking estimate, an investor might consider using forward-looking approaches to estimate  $\beta$  such as, for example, extracting information from prices on equity and index options. While forward-looking estimates have more predictive value because they are based on factors in

19  $\beta$  measures the extent to which returns on an individual share and the returns on the market move together. Formally,  $\beta$  is defined as the covariance between the share and the market returns divided by the variance of the market returns.

20 Broad market indexes are sometimes used as proxies for the 'market'.

addition to historical price behaviour, their preparation would require the use of more sophisticated techniques and the use of judgement in the consideration of all facts and circumstances.

- 88 When estimating the  $\beta$  of a private company, the investor will need to derive a proxy  $\beta$  that is based on comparable public company peers'  $\beta$ s that have an optimal long-term capital structure similar to that of the investee. An investor might estimate the  $\beta$ s of the comparable public company peers applying regression analysis techniques (see paragraphs 85 and 86), optimally against the same index used as a market proxy. If the investor is not estimating the  $\beta$ s itself, the  $\beta$ s for the comparable public company peers should come from the same source to ensure they have been derived using internally consistent variables.
- 89 When comparable public company peers' optimal long-term capital structures differ from that of the investee, the estimates of applicable  $\beta$ s for the investee must be adjusted. The objective of that adjustment is to remove the effect that leverage has on the estimated equity  $\beta$ s of the comparable public company peers (ie financial leverage increases the systematic risk of equity; see paragraph 92). Such an adjustment is performed by the following steps:
- (a) Estimate unlevered  $\beta$ s for the comparable public company peers. An unlevered  $\beta$  is the  $\beta$  that an entity would have if it had no debt.
  - (b) Decide where the investee's risk would fall on an unlevered basis relative to that of the comparable public company peers, assuming that all of them had 100 per cent equity capital structures.
  - (c) Relever the  $\beta$  for the investee on the basis of its long-term target or optimal capital structure. The relationship between the unlevered ( $\beta_U$ ) and levered beta ( $\beta_L$ , the  $\beta$  reflecting the investee's capital structure that includes debt) can be expressed as follows:<sup>21</sup>

$$\beta_U = \frac{\beta_L}{(1 + (1 - t) \times \frac{W_d}{W_e})}$$

In the expression above,  $W_d$  and  $W_e$  have the following meaning:

$W_d$  = percentage of debt capital in the capital structure, or  $D/(D + E)$

$W_e$  = percentage of equity capital in the capital structure, or  $E/(D + E)$

- 90 Example 13 illustrates the process for estimating an investee's  $\beta$  using the  $\beta$ s of comparable public company peers.<sup>22</sup>

<sup>21</sup> This expression is known as the 'Hamada' equation, named after Robert S. Hamada. One of the limitations of this approach is, however, its assumption that debt capital bears no risk from the variability of an entity's operating cash flows.

<sup>22</sup> The formulas used in this example are correct only if one assumes constant debt.

**Example 13—Computing an investee's  $\beta$** 

An investor estimates  $\beta$  for its investee, Entity P, a private company, by reference to levered  $\beta$ s of comparable public company peers computed over a two-year historical period. The resulting  $\beta$  will be used in computing Entity P's cost of equity capital. Market participants' expectations of Entity P's effective income tax rate are 30 per cent.

The investor next unlevers the  $\beta$ s for each of the comparable public company peers using the following formula:

$$\beta_U = \frac{\beta_L}{(1 + (1 - t) \times \frac{W_d}{W_e})}$$

The investor believes that the riskiness of Entity P is approximately equal to the average of the comparable public company peers and, as a result, it concludes that the average of the unlevered  $\beta$ s of all the comparable public company peers, which is 0.90, is an appropriate estimate of the unlevered  $\beta$  for Entity P.

The investor then relevers the  $\beta$  (ie adjusts the unlevered  $\beta$  to a levered  $\beta$ ) for Entity P, using Entity P's tax rate and its long-term optimal capital structure. The investor concludes that the average capital structure of the industry to which Entity P belongs (60 per cent debt, 40 per cent equity) reflects the long-term optimal capital structure of Entity P. The investor uses that capital structure to relever the investee's unlevered  $\beta$  using the following formula:

$$\beta_L = \beta_U \times [1 + (1 - t) \times (W_d \div W_e)] = 0.90 \times [1 + (1 - 0.3) \times (0.60 \div 0.40)] = 1.85$$

The investor concludes that 1.85 is an appropriate estimate of the investee's  $\beta$  for the purposes of computing Entity P's cost of equity capital.

- 91 For the market index as a whole, the average  $\beta$ , by definition, is 1.0. If a share tends to have a positive excess return greater than that of the market when the market return is greater than the risk-free return, and a more negative excess return than that of the market when the market return is less than the risk-free rate, then the  $\beta$  for the share is greater than 1.0. For example, a share with a  $\beta$  of 2.0 tends to rise twice as much as the market in a rising market and fall twice as much in a falling market. If the difference between the share's return and the risk-free rate tends to be less than the difference between the market return and the riskfree return, then the  $\beta$  for the share is less than 1.0. For example, a share with a  $\beta$  of 0.5 tends to rise half as much as the market in a rising market and fall half as much in a falling market.
- 92 Equity  $\beta$ s increase with the operating risk of the business and with the increase of financial risk. In other words, all else being equal, entities whose businesses have higher operating risk and whose capital structure has more debt will have higher  $\beta$ s.

### *Required equity premium*

93 The required equity premium is a measure of the long-term incremental return of a diversified portfolio (the market) over the expected risk-free rate required by an investor. The required equity premium is a forward-looking estimate and, as a result, it is not directly observable.

94 Various studies of required equity premiums based on historical data are available for developed markets and those studies give a range of results depending on the geographical market, the exact period of the data included in the study and the method of calculation. Many investors consider those equity premiums to be a suitable starting point for estimating the required equity premium. However, even though historical data might be a valid starting point, there is no certainty that average rates from past decades are necessarily predictive of long-term expected returns. In addition, data on historical required equity premiums might not be available for emerging economies. Even if such data were available, the share returns might be highly volatile and, therefore, not necessarily a good proxy for what investors would expect in the future. Consequently, if historical required equity premiums are computed for those markets, they may be of little use because of the large standard errors in the estimates. In such cases it might therefore be appropriate to build required equity premiums for emerging markets from required equity premiums in developed markets, taking into account country risk spreads and identifying estimates used by valuation specialists in those emerging markets. This can be expressed as follows:

$$(r_m - r_f)_{\text{Emerging country}} = (r_m - r_f)_{\text{Developed country}} + \text{Country Equity Risk Premium}$$

95 There are various approaches to estimating the country equity *risk premium* (CERP).<sup>23</sup> The following are some examples of commonly used methods, but they are not the only ones. A possible method to estimate a country's equity risk premium is to use the rating assigned by a ratings agency to a country's national debt. This method is known as 'country bond default spread' or 'sovereign spread model'. Even though these ratings measure default risk on national debt instruments rather than equity risk, nevertheless because they are affected by many of the factors that drive equity risk (for example, the stability of a country's currency, its budget and trade balances), they can be used to estimate default spreads that investors demand over a risk-free rate. In order to apply this method:

- (a) the national debt instruments of the two countries (ie the emerging country and the developed country) are denominated in the same currency to avoid inflationary mismatches; and
- (b) the national debt instruments of the two countries have similar maturities to avoid mismatches associated with different yield curves.

96 One of the shortcomings of this method is that it assumes the same country equity risk premium for every entity in a specific emerging country, even

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<sup>23</sup> The formulas to estimate CERP in this chapter use the term 'emerging country', however, these formulas would also be applicable to any country considered to exhibit credit risk, regardless of whether it is an emerging country.

though different entities might have different exposures to country risk (for example, an emerging country entity with most of its revenues in developed markets and with only about ten per cent of its revenues in the emerging market country where it is incorporated would be exposed to country risk to a much lower extent than another entity whose business takes only place in that emerging market country). Example 14 illustrates this approach.

**Example 14—‘Country bond default spread’ or ‘sovereign spread model’**

Country C1 is an emerging country whose debt was rated Ba1/BB+ in December 20X3 (ie the measurement date). Country C2 is a developed country. Country C1’s ten-year government bond denominated in the currency of Country C2 was priced to yield 6.30 per cent, which was 2.50 per cent more than the risk-free interest rate (3.80 per cent) on a ten-year Country C2 government bond at the measurement date. The required equity premium in Country C2 is 4.50 per cent.

As a result the required equity premium for Country C1, denominated in the currency of Country C2, is estimated to be seven per cent at the measurement date (4.50% + 2.50% = 7.00%).

97 Another commonly used method of estimating the country equity risk premium is to consider the volatility of equities in a specific market (for example, an emerging market country) relative to another (for example, a developed market country). This approach relies on the assumption that the required equity premiums of each market should reflect the differences in equity risk in the markets of each country. A conventional measure of equity risk is the standard deviation (SD) of share returns, with higher standard deviations generally being associated with more risk. This approach is commonly expressed as follows:

$$\text{Relative Standard Deviation}_{\text{Emerging country}} = \frac{\text{SD}_{\text{Emerging country}}}{\text{SD}_{\text{Developed country}}}$$

The standard deviation of the returns of both equity markets in the expression above is measured in the currency of the developed market.

98 The emerging market country’s relative standard deviation (RSD), when multiplied by the developed market country’s required equity premium, is an estimate of the total required equity premium for that emerging market country, denominated in the currency of the developed market country:

$$(\text{r}_m - \text{r}_f)_{\text{Emerging country}} = (\text{r}_m - \text{r}_f)_{\text{Developed country}} \times \text{RSD}_{\text{Emerging country}}$$

99 The shortcomings of this approach are related to comparing standard deviations of markets with widely different market structures and liquidity. This approach could potentially understate the required equity premium in countries with illiquid equity markets (ie countries might have low standard deviations for their equity markets simply because the markets are illiquid). Example 15 illustrates this approach.

**Example 15—Relative standard deviation**

This example uses Countries C1 and C2 from Example 14. Country C2's required equity premium is 4.50 per cent. The annualised standard deviation in Country C2's equity index between 20X1 and 20X3, using weekly returns, was 15.50 per cent. The standard deviation in Country C1's equity index over the same period was 27.50 per cent. Using these values, the estimate of a total required equity premium for Country C1 in December 20X3 (ie the measurement date) would be as follows:

$$(r_m - r_f)_{\text{Country C1}} = (r_m - r_f)_{\text{Country C2}} \times \frac{\text{SD}_{\text{Country C1}}}{\text{SD}_{\text{Country C2}}}$$

$$(r_m - r_f)_{\text{Country C1}} = 4.50\% \times \frac{27.50\%}{15.50\%} = 7.98\%$$

The country equity risk premium (CERP) for Country C1, using this approach, can be estimated as follows:

$$(r_m - r_f)_{\text{Country C1}} = (r_m - r_f)_{\text{Country C2}} + \text{CERP}_{\text{Country C1}}$$

$$7.98\% = 4.50\% + \text{CERP}_{\text{Country C1}}$$

$$\text{CERP}_{\text{Country C1}} = 7.98\% - 4.50\% = 3.48\%$$

100 Another approach, although less commonly used, would be to estimate the country equity risk premium by considering default spreads (DS) plus relative standard deviations (SD). If a country has a sovereign rating, the spread based on the rating can be used as the default spread for the country (ie the country default spreads only measure the premium for default risk on debt instruments). Intuitively, the country equity risk premium would be expected to be larger than the country default risk spread. In order to factor this, this approach considers the volatility of the equity market in a country relative to the volatility of the sovereign bond used to estimate the spread. This can be expressed as follows:

$$\text{CERP}_{\text{Emerging country}} = \text{DS}_{\text{Emerging country}} \times \frac{\text{SD}_{\text{Emerging country's equity}}}{\text{SD}_{\text{Emerging country's bond}}}$$

101 Example 16 illustrates this approach.

**Example 16—Default spreads plus relative standard deviations**

This example uses data from Countries C1 and C2 (see Examples 14 and 15). The default spread on Country C1's bond denominated in the currency of Country C2 in December 20X3 (ie the measurement date) was 2.50 per cent, and the annualised standard deviation in Country C1's equity index over the previous year was 27.50 per cent. Using two years of weekly returns, the annualised standard deviation in Country C1's ten-year bond denominated in the currency of Country C2 was 13.55 per cent. The resulting country equity risk premium for Country C1 at the measurement date is as follows:

$$\text{CERP}_{\text{Country C1}} = \text{DS}_{\text{Country C1}} \times \frac{\text{SD}_{\text{Country C1's equity}}}{\text{SD}_{\text{Country C1's bond}}}$$

$$\text{CERP}_{\text{Country C1}} = 2.50\% \times \frac{27.50\%}{13.55\%} = 5.07\%$$

The total required equity premium for Country C1 at the measurement date would be as follows:

$$(r_m - r_f)_{\text{Country C1}} = (r_m - r_f)_{\text{Country C2}} + \text{CERP}_{\text{Country C1}}$$

$$(r_m - r_f)_{\text{Country C1}} = 4.50\% + 5.07\% = 9.57\%$$

*Adjusting the cost of equity capital*

102 The fundamental assumption of the CAPM is that the required premium on a security (for example, an equity instrument) over a risk-free return is a function of that instrument's systematic risk.<sup>24</sup> One of the criticisms of CAPM is that  $\beta$  does not fully describe expected returns. A 'modified CAPM' allows incremental risk factors that would be considered by market participants to be included as another element of the cost of equity capital. Examples of risks that might be added as an adjustment to the cost of equity capital are as follows:

- **Size:** an adjustment for the smaller size of an investee relative to the overall market, which would be taken into account by adding an increment to the cost of equity capital. The additional premium takes into account that smaller businesses are potentially riskier than larger organisations and hence investors might require higher returns. Size premiums are generally based on long-term information for major exchange markets on returns that are stratified by a measure of company size.
- **Other risks:** in some circumstances, the cost of equity capital is adjusted to reflect risks inherent in the cash flows (see paragraph 72) or features of the equity instruments such as the lack of liquidity (see paragraphs 64–67). Although this chapter does not prescribe the use of

<sup>24</sup> The CAPM has often been criticised because of the simplified assumptions on which it is based, but it has a widespread acceptance as at least a starting point for thinking about the risk-return relationship.



specific methodologies for making such adjustments, in some circumstances, direct adjustments to the cost of equity capital are perceived as being less transparent.

#### *Computing the cost of equity capital*

103 Example 17 illustrates the computation of the cost of equity capital.

#### **Example 17—Computing the cost of equity capital**

An investor needs to estimate the cost of equity capital to use in a discounted cash flow model for measuring the fair value of an equity interest in a private company, Entity Q, in December 20X5 (ie the measurement date). Entity Q operates in the transport sector within Country D1. The investor estimates that the elements of the cost of equity capital are as follows:

##### *Risk-free rate ( $r_f$ )*

The investor derives the  $r_f$  by referencing to the *yield to maturity (YTM)* of a 20-year government bond denominated in the local currency of Country D1 as at the measurement date. For this example, the rate was found to be four per cent.

##### *Required equity premium ( $r_m - r_f$ )*

The investor considered various studies of required equity premiums in Country D1 using historical data. After considering the period of data included in the studies, the different methods of calculation and current market conditions, the investor concludes that the required market rate of return ( $r_m$ ) is 11 per cent and that, as a result, the required equity premium ( $r_m - r_f$ ) is seven per cent ( $11\% - 4\% = 7\%$ ).

##### $\beta$

The investor considered the average of levered  $\beta$ s of comparable public company peers, computed over a five-year historical period, and adjusted its estimate to remove the effect of different levels of leverage between the investee and the comparable public company peers. Using that information, the equity  $\beta$  derived for the investee using market participants' expectations of the investee's long-term optimal capital structure of Entity Q is 1.05.

##### *Size risk ( $sr$ )*

The investor considered that Entity Q carried additional risk that might not be reflected in the  $\beta$  as a result of having a smaller size relative to companies across the overall market. On the basis of various studies referring to data from other countries and considering the required adjustment within the context of Country D1, the investor concludes that Entity Q's smaller size would warrant a three per cent premium. The investor determined that no further adjustments to the cost of equity capital were necessary.

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**Example 17—Computing the cost of equity capital**

*Cost of equity capital ( $k_e$ )*

The investor therefore estimated the cost of equity capital for Entity Q to be:

$$k_e = r_f + (r_m - r_f) \times \beta + sr = 4\% + (11\% - 4\%) \times 1.05 + 3\% = 14.35\%$$

**Cost of debt capital**

104 There are a number of approaches for estimating the cost of debt capital ( $k_d$ ). Some of the more commonly used approaches are described below. Regardless of the approach used, an investor's estimate of the cost of debt capital for an investee must be consistent with market participants' expectations of the investee's long-term optimal capital structure (see paragraph 81).

*Cost of debt capital estimated based on recent borrowings*

105 The cost of debt capital of an investee can be estimated using the long-term rates that are incurred at the measurement date for recent borrowings, rather than on the rates negotiated historically in the debt market for existing borrowings, if the investee's actual capital structure is aligned to market participants' expectations of the investee's long-term optimal capital structure. The determination of appropriate rates could therefore include consideration of the investee's incremental borrowing rate. Possible sources of information include:

- (a) the cost of debt incurred currently by the investee, taking into account any need to refinance, if the investee's actual capital structure is aligned to market participants' expectations of the investee's long-term optimal capital structure; and
- (b) the current market cost of borrowing incurred by comparable company peers that have a similar creditworthiness to the investee.

106 Example 18 illustrates this approach.

**Example 18—Cost of debt capital estimated based on recent borrowings**

This example illustrates the computation of cost of debt capital ( $k_d$ ) for Entity Q in Example 17. It assumes that Entity Q's actual capital structure is aligned to market participants' expectations of Entity Q's long-term optimal capital structure. Entities with creditworthiness that is similar to that of Entity Q have recently raised new financing through the issue of long-term bonds in the public market. The bonds trade at an average six per cent yield to maturity at the measurement date (appropriately adjusted to reflect issue costs).

The trading yield of six per cent is considered to be an appropriate estimate of the cost of debt to Entity Q at the measurement date.

*Cost of debt capital estimated by reference to an actual or synthetic credit rating and default spread*

- 107 This approach uses the actual credit rating of an investee, if available, or estimates the implied credit rating of an investee and adds the corresponding credit spread to the local risk-free rate to estimate the investee's cost of debt capital. However, in emerging markets and many developed markets, many investees have neither traded debt nor credit ratings from which to derive default spreads. If an investee does not have a credit rating, an investor could develop an estimated credit spread based on an analysis that might include, for example, the generation of financial ratios that are intended to evaluate the investee's credit quality relative to companies with published credit ratings. Those ratios consider leverage, industry factors and general financial strength. The rating guides produced by credit rating agencies are useful sources of information about how to determine a synthetic credit rating.
- 108 Example 19 illustrates how an investor could estimate the cost of debt capital using this approach.

**Example 19—Cost of debt capital estimated by reference to an actual or synthetic rating and default spread**

This example illustrates the computation of cost of debt capital ( $k_d$ ) for Entity Q in Examples 17 and 18 but it assumes that no information is available on the yield of a recent debt instrument issued by Entity Q or on an instrument issued by entities with similar creditworthiness. The investor therefore estimates a synthetic credit rating using a *credit scoring model* and the financial measures of Entity Q. The implied default spread over the local risk-free rate corresponding to Entity Q's implied credit rating is two per cent. Consequently, the investor estimates the cost of debt to be six per cent at the measurement date, which is the sum of the risk-free rate and the default spread ( $4\% + 2\% = 6\%$ ).

- 109 Although the synthetic credit ratings that an investor might obtain for an investee in a jurisdiction with high inflation and high interest rates, such as for many emerging countries, might allow the investor to compute the investee's default spread, that spread might not reflect the default risk of the country in which the investee operates. As a result, when an investor estimates the cost of debt for an investee operating in such an environment in the investor's country currency (ie a developed country), the investor might need to consider adding two distinct components of default spreads (DS) to the risk-free rate: one for the investee's default risk and another for the country's default risk. This can be expressed as follows:

$$k_d = r_{f \text{ Developed country}} + DS_{\text{Emerging country investee}} + DS_{\text{Emerging country}}$$

- 110 One of the difficulties in estimating the cost of debt for an investee in an emerging country is that the default spreads for the investee might not be available. In that case, an alternative approach is to adapt the default spread of an entity in a developed country with creditworthiness that is similar to that of the investee. By doing so, an investor is making two assumptions. The first is that the price charged for the default risk should be standardised across

markets, because differences could be exploited by multinational companies. The second assumption is that the default spreads, which are computed based on the developed country's corporate bonds, can be adapted to different currencies. However, if the currencies of the developed and emerging countries have very different risk-free rates, this practice might not work. For example, if the spread on a Baa2/BBB-rated corporate bond in a developed country is two per cent, it might not be appropriate for an investor to use the same (absolute) spread over an emerging country's risk-free rate to estimate the pre-tax cost of debt for a Baa2/BBB-rated investee in that emerging country, if the currencies of the developed and emerging countries have very different risk-free rates. In other words, it will be unlikely that a Baa2/BBB-rated investee in that emerging country will be able to borrow at a default spread of two per cent over the emerging country's risk-free rate of, for example, 14 per cent. The expectation is that the spread would increase as interest rates increase. A possible approach is first to estimate the cost of debt for an investee in an emerging country in the currency of the developed country, by adding the default spread of that investee in the currency of the developed country to the developed country's risk-free rate. An investor would then convert the developed country's cost of debt into the emerging country's cost of debt by bringing in the long-term expected differential inflation between the two currencies. The cost of debt for an investee in an emerging country in the currency of that emerging country can be expressed as follows:

$$k_d = (1 + k_d)_{\text{Developed country's currency}} \times \frac{(1 + \text{Expected Inflation})_{\text{Emerging country's currency}}}{(1 + \text{Expected Inflation})_{\text{Developed country's currency}}} - 1$$

111 Example 20 describes this approach.

**Example 20—Adapting a developed market default spread to other markets**

The cost of debt of an emerging country investee denominated in the currency of a developed country is five per cent. The expected inflation rates are three per cent in the currency of the developed country and 12 per cent in the currency of the emerging country. An investor estimates the cost of debt of the emerging country investee denominated in the currency of the emerging country as follows:

$$k_d = (1 + k_d)_{\text{Developed country's currency}} \times \frac{(1 + \text{Expected Inflation})_{\text{Emerging country's currency}}}{(1 + \text{Expected Inflation})_{\text{Developed country's currency}}} - 1$$

$$k_d = (1.05) \times \frac{(1.12)}{(1.03)} - 1 = 14.17\%$$

### Computing WACC

- 112 Example 21 illustrates the computation of WACC using the investee's cost of equity, cost of debt and market participants' expectations of the investee's long-term optimal capital structure.

<b>Example 21—Computing WACC</b>
<p>This example illustrates the computation of WACC for Entity Q in Example 17. The cost of equity capital estimated in that example amounted to 14.35 per cent. Market participants' expectations of Entity Q's effective income tax rate are 25 per cent.</p> <p>Entity Q's actual capital structure is aligned to market participants' expectations of Entity Q's long-term optimal capital structure. Entity Q's actual capital structure is 30 per cent debt capital and 70 per cent equity capital.</p> <p><i>Cost of debt capital (<math>k_d</math>)</i></p> <p>The cost of debt capital was estimated by considering the long-term rates incurred at the measurement date for recent borrowings that are issued by entities with creditworthiness that is similar to that of Entity Q. On the basis of this data, the cost of debt was estimated at six per cent (see Example 18).</p> <p>Including these parameters in the WACC formula, results in:</p> $\text{WACC} = \frac{D}{D + E} \times (1 - t) \times k_d + \frac{E}{D + E} \times k_e$ $\text{WACC} = 0.30 \times (1 - 0.25) \times 6\% + 0.70 \times 14.35\% = 11.40\%$

### DCF model using enterprise value

- 113 Example 22 illustrates the valuation of an investee using FCFF to calculate its enterprise value to arrive at an indicated fair value of the investee's equity. The investor in this example subsequently adjusts the indicated fair value of equity for the particular features of the unquoted equity instruments that it holds to measure the fair value of those unquoted equity instruments.

<b>Example 22—DCF method using enterprise value</b>
<p>An investor has a five per cent non-controlling equity interest in Entity R, a private company. The investor derives Entity R's indicated fair value of equity by deducting the fair value of debt (in this case assumed to be CU240 million) from the enterprise value of CU1,121.8 million as shown in the table below. The investor has concluded that there are no relevant non-operating items that need to be adjusted from Entity R's FCFF.</p>

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<b>Example 22—DCF method using enterprise value</b>							
Entity R's enterprise value was computed by discounting the FCFF (ie post-tax cash flows before interest expense and debt movements, using an unlevered tax rate) by an assumed WACC of 8.9 per cent. The WACC computation included the following variables: cost of equity capital of 10.9 per cent, cost of debt capital of 5.7 per cent, effective income tax rate of 30 per cent, debt to total capital ratio of 28.6 per cent and equity to total capital ratio of 71.4 per cent.							
		Year					
CU (in millions)	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	
FCFF <sup>(a)</sup>		100	100	100	100	100	
Terminal value (see paragraphs 117–121) <sup>(b)</sup>						1,121.8	
<b>DCF method using enterprise value (EV) less</b>							
<b>fair value of debt</b>							
Discount factors <sup>(c)</sup>		0.9182	0.8430	0.7740	0.7107	0.6525	
Present value (PV) of FCFF + PV of Terminal value <sup>(d)</sup>		91.8	84.3	77.4	71.1	797.2	
<b>EV = <math>\Sigma</math> PV of FCFF + PV of Terminal value</b>	<b>1,121.8</b>	(see paragraphs 122–124)					
less fair value of debt	(240.0)						
<b>Indicated fair value of equity</b>	<b>881.8</b>						
This example assumes that all unquoted equity instruments of Entity R have the same features and give the holders the same rights. However, the investor considers that the indicated fair value of equity obtained above (CU881.8 million) must be further adjusted to consider:							
<ul style="list-style-type: none"> <li>• a non-controlling interest discount because the investor's interest in Entity R is a non-controlling equity interest and the investor has concluded that there is a benefit associated with control. For the purposes of this example, it has been assumed that the non-controlling interest discount is CU8.00 million;<sup>(e)</sup> and</li> <li>• a discount for the lack of liquidity, because the investor's interest in Entity R is unquoted. For the purposes of this example, it has been assumed that the discount for the lack of liquidity amounts to CU4.09 million.<sup>(e)</sup></li> </ul>							
As a result, the investor concludes that CU32 million is the price that is most representative of the fair value of its five per cent non-controlling equity interest in Entity R at the measurement date, as shown below:							

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<b>Example 22—DCF method using enterprise value</b>	
	CU (in millions)
Indicated fair value of equity x 5%	
(ie CU881.8 x 5%)	44.09
Non-controlling interest discount	(8.00)
Discount for the lack of liquidity	(4.09)
<b>Fair value of five per cent non-controlling equity interest</b>	<b>32.00</b>
<p>(a) FCFF represent cash flows before interest expense and debt movements. The tax charge has been computed considering no deduction for interest expense.</p> <p>(b) The terminal value has been computed assuming the yearly cash flows amounting to CU100 million would grow in perpetuity at a rate of zero (ie assuming that the impact of inflation on future cash flows is expected to be offset by market shrinkage).</p> <p>(c) The discount factors have been computed using the formula: <math>1/(1 + WACC)^{\text{year}}</math>. This formula, however, implies that the cash flows are expected to be received at the end of each period. Sometimes it might be more appropriate to assume that cash flows are received more or less evenly throughout the year (mid-year discounting convention). Using the mid-year discounting convention, the discount factor for year 'n' would have been computed as follows: <math>1/(1 + WACC)^{(n - 0.5)}</math>.</p> <p>(d) The present value amounts have been computed by multiplying the FCFF and terminal value by the corresponding discount factors.</p> <p>(e) The process shown above is not the only possible method that an investor could apply to measure the fair value of its non-controlling equity interest. As a result, the adjustments above should not be considered to be a comprehensive list of all applicable adjustments. The necessary adjustments will depend on the specific facts and circumstances. In addition, the amounts of the adjustments above are not supported by detailed calculations. They have been included for illustrative purposes only.</p>	

#### *Applying the DCF method when there is limited financial information*

114 The examples below illustrate the use of the DCF method when, despite an investor having limited financial information, the fair value of an unquoted equity instrument can be measured by applying that method. Examples 23 and 24 are descriptive, with few, or no, worked numerical calculations. The use of the DCF method in these examples might not be the preferred valuation technique for the specific fact patterns described depending on the circumstances and it is therefore important that the investor should use judgement to determine which valuation technique is most appropriate, given the facts and circumstances.

**Example 23—DCF method with limited information**

Entity S is a private company. Fund T has a ten per cent non-controlling equity interest in Entity S. Entity S's management has prepared a two-year budget. However, Entity S's management shared with the manager of Fund T materials from its annual Board meetings, at which management discussed the assumptions to back up the expected growth plan for the next five years.

On the basis of the information obtained from the Board meeting, Fund T has extrapolated the two-year budget by reference to the basic growth assumptions discussed in the Board meeting and has performed a DCF calculation.

On the basis of Entity S's management's two-year detailed budget, sales and EBIT would reach CU200 and CU50, respectively, in 20X3. Fund T understands that Entity S's management expects sales to achieve further growth of five per cent per annum until 20X8 with the same EBIT margin (as a percentage of sales) as in 20X3. Consequently, Fund T projects the EBIT of Entity S as follows:<sup>(a)</sup>

<b>Entity S's long-term business plan</b>							
<b>Year</b>	<b>20X2</b>	<b>20X3</b>	<b>20X4</b>	<b>20X5</b>	<b>20X6</b>	<b>20X7</b>	<b>20X8</b>
Sales	150	200	210	221	232	243	255
EBIT margin	23%	25%	25%	25%	25%	25%	25%
<b>EBIT</b>	<b>35</b>	<b>50</b>	<b>53</b>	<b>55</b>	<b>58</b>	<b>61</b>	<b>64</b>

Fund T is also aware that the management of Entity S expects the entity to reach a stable growth stage by 20X8. To calculate the terminal value, using the constant growth discount model (see paragraphs 117–121), Fund T assumes a long-term terminal growth rate of two per cent on the basis of the long-term outlook of Entity S, its industry and the economy in the country where Entity S operates. If Entity S has not reached the stable growth stage by the end of the projection period, Fund T would need to extend the projection period until the stable growth stage is reached and calculate the terminal value at that point.<sup>(b)</sup>

Finally, Fund T cross-checks this valuation by comparing Entity S's implied multiples to those of its comparable company peers.<sup>(c)</sup>

- (a) To derive Entity S's FCFE for use in the DCF method, Fund T used Entity S's two-year budget and its understanding of the investee's asset and capital structures, reinvestment requirements and working capital needs.
- (b) This example illustrates a two-stage model in which the first stage is delineated by a finite number of periods (20X2–20X8) and after this first stage the example assumes a period of constant growth for which Fund T calculates a terminal value for Entity S. In other cases an investor might conclude that a multiple-stage model rather than a two-stage model would be more appropriate. A multiple-stage model would generally have a period after the discrete projection period in which growth might be phased down over a number of years before the constant growth period for which a terminal value can be estimated.
- (c) This example assumes that the fair value conclusion would have included any necessary adjustments (for example, non-controlling interest discount, discount for the lack of liquidity etc) that market participants would incorporate when pricing the equity instruments at the measurement date.



**Example 24—DCF method with limited information**

An investor has a one per cent non-controlling equity interest in Entity U, a private company. The investor is not able to obtain information about Entity U's budgets, tax position or business plans because of the limited shareholder rights granted by its interest. The investor's only information is Entity U's latest annual financial statements, which Entity U provided to all its shareholders.

The investor estimates Entity U's pro-forma cash flows by reference to forecasts that it obtained from analysts' reports for comparable public company peers. In particular, the investor analysed the comparable public company peers' forecast revenue growth rates, EBIT margins, EBIT margin growth rates and all other performance measures relevant to the group of comparable public company peers. Using this information, the investor performed a discounted cash flow calculation.

Finally, the investor cross-checks this valuation by comparing Entity U's implied multiples to those of its comparable public company peers.<sup>(a)</sup>

(a) This example assumes that the fair value conclusion would have included any necessary adjustments (for example, non-controlling interest discount, discount for the lack of liquidity etc) that market participants would incorporate when pricing the equity instruments at the measurement date.

**Other income approach methods**

*Dividend discount model (DDM)*

115 The DDM assumes that the price of an entity's equity instrument equals the present value of all of its expected future dividends in perpetuity. In other words, the price of an entity's equity instrument is ultimately determined by the cash flows accruing to shareholders in the form of dividends. The formula that expresses the dividends in perpetuity is as follows:

$$P_0 = \frac{D_1}{(1 + k_e)} + \frac{D_2}{(1 + k_e)^2} + \frac{D_3}{(1 + k_e)^3} + \dots$$

where  $P_0$  is the price of an equity instrument at time zero,  $D_n$  is the dividend to be received at the end of the  $n$  period and  $k_e$  is the cost of equity capital.

116 The DDM is often used when measuring the fair value of equity instruments for which the investee consistently pays dividends. If investors never expect a dividend to be paid, then this model implies that the equity instruments would have no value. To reconcile the DDM with the fact that non-dividend-paying equity instruments do have a market value, one must assume that investors expect that the investee eventually will pay out cash, even if only a liquidating dividend.

*Constant-growth DDM (Gordon Growth Model)*

117 The constant-growth DDM derives the fair value of an entity's equity instrument by reference to a forecast of a dividend stream. As a result, it requires investors to project dividends for every period into the indefinite future. As a shortcut, a simplifying assumption can be made that dividends grow at a stable growth rate,  $g$ . If  $D_0$  is the most recently paid dividend, expected future dividends are:

$$D_1 = D_0 (1+g)$$

$$D_2 = D_0 (1+g)^2$$

118 Using these dividend forecasts, the price of the equity instruments at time zero,  $P_0$ , is as follows:<sup>25</sup>

$$P_0 = \frac{D_0(1+g)}{(1+k_e)} + \frac{D_0(1+g)^2}{(1+k_e)^2} + \frac{D_0(1+g)^3}{(1+k_e)^3} + \dots +$$

which can be simplified to:

$$P_0 = \frac{D_0(1+g)}{(k_e-g)} = \frac{D_1}{(k_e-g)} + \dots +$$

119 This method can also be used to compute the terminal value of an investee when using the DCF method by replacing the dividends in the formulas above by the investee's cash flows, which are expected to grow at a specific rate (see Examples 22 and 23).

120 As reflected in the formulas above, this model is extremely sensitive to assumptions about the growth rate. The first constraint is that the constant-growth DDM is valid only when  $g$  is less than  $k_e$ . If dividends are expected to grow in perpetuity at a rate faster than  $k_e$ , the value of the share would be infinite. The second constraint is to acknowledge that growth is not free and requires funds to be reinvested in the business. Consequently, when the growth rate is increased, the dividend payout ratio must be decreased.

121 The constant-growth DDM is best suited for entities growing at a rate equal to, or lower than, the nominal growth in the economy with well-established dividend payout policies that they intend to continue into the future. This method could also be appropriate when the investor has limited financial information from the investee and when  $g$  is relatively stable.

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25 The discount rate used in this formula has to be aligned to the measure used in the numerator. Because dividends are cash flows that are only available to the providers of equity capital, the discount rate to be considered is the cost of equity capital or  $k_e$ . If the measure used in the numerator had been cash flows available to all capital providers, the discount rate to be used would have to be a rate representing total cost of capital (ie equity and debt).

### *Capitalisation model*

- 122 Capitalising is a process applied to an amount representing some measure of economic income in order to convert that economic income amount to an estimate of present value (PV). The formula to capitalise an economic income measure such as FCFF is as follows:

$$PV = \frac{FCFF}{c}$$

In the expression above, c is the capitalisation rate.

- 123 The capitalisation rate can be expressed as follows:  $c = k - g$ , where k is the discount rate and g is the annually compounded percentage of growth or decline in perpetuity. For an investment with perpetual life, the difference between the discount rate k and the capitalisation rate is g in perpetuity in the economic income variable being discounted or capitalised.

- 124 An important assumption underpinning this method is that the annual income stream that is capitalised is constant in perpetuity or that it grows at a constant annualised rate of growth (or decline). This might not necessary hold true in the real world, but it is a technique that might prove useful in some cases as a cross-check. For example, an investor such as the one in Example 22, with an interest in Entity R, could have obtained Entity R's enterprise value merely by applying the formula above, where:

$$PV = \frac{FCFF}{c} = \frac{FCFF}{k-g} = \frac{100}{8.9\% - 0\%} = \text{CU}1,121.8 \text{ million}$$

In this example the discount rate, k, is the discount rate applicable to all the capital providers, represented in Example 22 by the WACC.<sup>26</sup> This example also illustrates that when the expected economic income is a constant amount in perpetuity with g equal to zero, the discount rate is equal to c.

### **Adjusted net asset method**

- 125 The adjusted net asset method involves deriving the fair value of an investee's equity instruments by reference to the fair value of its assets and liabilities (recognised and unrecognised). This method is likely to be appropriate for an investee whose value is mainly derived from the holding of assets rather than from deploying those assets as part of a broader business. Examples of such investees are property-holding companies and investment entities.
- 126 This method might also be appropriate for an investee that is not making an adequate return on assets or that is making only marginal levels of profits because it is in the very early stages of its development (for example, an investee that has virtually no financial history, no developed product or a small amount of invested cash).

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<sup>26</sup> The discount rate considered in this formula has been presented with only one decimal point. The enterprise value has been computed with a discount rate of 8.9142%.

127 The adjusted net asset method requires an investor to measure the fair value of the individual assets and liabilities recognised in an investee's statement of financial position as well as the fair value of any unrecognised assets and liabilities at the measurement date. The resulting fair values of the recognised and unrecognised assets and liabilities should therefore represent the fair value of the investee's equity. Depending on the measurement method that the investee has used to measure its assets and liabilities, and depending on whether they are recognised in the statement of financial position, the assets and liabilities that are most commonly subject to adjustments are as follows (the list is not exhaustive):

- intangible assets (recognised and unrecognised);<sup>27</sup>
- property, plant and equipment (for example, land and buildings);
- receivables, intercompany balances;
- financial assets not measured at fair value; and
- unrecognised contingent liabilities.

128 Because the adjusted net asset method results in the valuation of a controlling interest, an investor must consider the need for applying a non-controlling interest discount when measuring the fair value of a non-controlling equity interest if the investor has concluded that there is a benefit associated with control. An investor must additionally consider the existence of other factors that might result in the need for an adjustment such as:

- lack of liquidity (see paragraphs 64–67);
- significant time elapsing between the reporting date and the measurement date. Adjustments would consider the effect of additional investments in assets, subsequent changes in the fair value of the investee's underlying assets, incurring additional liabilities, market changes or other economic condition changes; and
- any other facts and circumstances. For example, an investor measuring the fair value of an unquoted equity interest in a fund must consider whether, for example, potential performance fees have been recognised appropriately in the fund's net asset value. The investor must also consider any features of the fund agreement that might affect distributions, but that are not captured in the net asset value.

129 Example 25 illustrates the application of the adjusted net asset method.

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<sup>27</sup> If the investee has significant intangible assets, the adjusted net asset method is unlikely to be an appropriate valuation technique. This is mainly because when an investor has enough data to measure the fair value of intangible assets that are significant to an investee, the investor would probably have enough data to measure the fair value of the investee's equity instruments using the income approach. Also, if an investee has a significant amount of goodwill, an investor would measure the fair value of that goodwill by reference to the fair value of the investee's equity, which would have to be measured in the first place.

**Example 25—Adjusted net asset method**

An investor has a ten per cent non-controlling equity interest in Entity V, a private company. There is no controlling shareholder for Entity V, which is an outsourcing services provider for its shareholders, including the investor. Entity V's sales depend on its shareholders' business activities and, as a result, Entity V does not have its own growth strategy. Entity V additionally has a very low profit margin and it does not have comparable public company peers.

The investor needs to measure the fair value of its non-controlling equity interest in Entity V as of 31 December 20X1 (ie the measurement date). The investor has Entity V's latest statement of financial position, which is dated 30 September 20X1. The following are the adjustments performed by the investor to the latest statement of financial position of Entity V:

- Entity V's major asset is an office building that was acquired when Entity V was founded 25 years ago. The fair value of the building was measured by a valuation specialist at CU2,500 at the measurement date. This value compares to a book value of CU1,000.
- During the three-month period from 30 September 20X1 to the measurement date, the fair value of Entity V's investments in public companies changed from CU500 to CU600.
- The investor observes that Entity V measures its current assets and current liabilities at fair value. The volume of operations of Entity V is so flat that the investor estimates that the amounts of the current assets and current liabilities shown in Entity V's statement of financial position as of 30 September 20X1 are most representative of their fair value at the measurement date, with the exception of an amount of CU50 included in Entity V's trade receivables that became unrecoverable after 30 September 20X1.
- On the basis of Entity V's business model and profitability, the investor estimates that unrecognised intangible assets would not be material.
- The investor does not expect that Entity V's cash flows for the quarter ended 31 December 20X1 are material.
- The investor does not expect any major sales of assets from Entity V. As a result, it concludes that there are no material tax adjustments that need to be considered when valuing Entity V.

The adjustments described above are reflected in the adjusted statement of financial position shown below.

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<b>Example 25—Adjusted net asset method</b>			
<b>Entity V — Statement of financial position (in CU)</b>			
<b>ASSETS</b>	<b>30 Sept 20X1</b>	<b>Adjustments</b>	<b>Estimated 31 Dec 20X1</b>
<b>Non-current assets</b>			
Property, plant and equipment	2,000	1,500	3,500
Investments in equity instruments	500	100	600
	<u>2,500</u>	<u>1,600</u>	<u>4,100</u>
<b>Current assets</b>			
Trade receivables	500	(50)	450
Cash and cash equivalents	500	—	500
	<u>1,000</u>	<u>(50)</u>	<u>950</u>
<b>Total assets</b>	<b><u>3,500</u></b>	<b><u>1,550</u></b>	<b><u>5,050</u></b>
<b>EQUITY AND LIABILITIES</b>			
<b>Total equity</b>	<u>2,500</u>	<u>1,550</u>	<u>4,050</u>
<b>Current liabilities</b>	<u>1,000</u>	<u>0</u>	<u>1,000</u>
<b>Total equity and liabilities</b>	<b><u>3,500</u></b>	<b><u>1,550</u></b>	<b><u>5,050</u></b>

Before considering any adjustments (for example, discount for the lack of liquidity, non-controlling interest discount), the indicated fair value of the investor's ten per cent non-controlling equity interest in Entity V is CU405 (10% x CU4,050 = CU405). For the purpose of this example, it has been assumed that the discount for the lack of liquidity amounts to CU40 and that the non-controlling interest discount amounts to CU80.

On the basis of the facts and circumstances described above, the investor concludes that the price that is most representative of fair value for its ten per cent non-controlling equity interest in Entity V is CU285 at the measurement date (CU405 - (CU40+ CU85) = CU285).<sup>(a)</sup>

(a) The process shown above is not the only possible method that an investor could apply to measure the fair value of its non-controlling equity interest. As a result, the adjustments above should not be considered to be a comprehensive list of all applicable adjustments. The necessary adjustments will depend on the specific facts and circumstances. In addition, the amounts of the adjustments above are not supported by detailed calculations. They have been included for illustrative purposes only.

## Common oversights

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130 This section provides an overview of the common oversights when applying the valuation techniques described in this chapter. The lists below are not exhaustive.

### **Market approach (comparable company valuation multiples)**

- Inappropriate selection of comparable company peers.
- Using the multiples extracted from transactions entered into over a very long period of time during which market conditions have changed significantly.
- Using the average of transaction multiples that have a wide dispersion without confirming the reasonableness of this in relation to the investee.
- Deriving the equity multiple by using an EV valuation basis (for example, P/EBITDA).
- Performance measures used (both from comparable company peers and from the investee being valued) have not been appropriately normalised.
- Mismatch between the multiple and the investee's performance measure used (for example, use of historical earnings multiples on forward-looking earnings).
- Application of post-tax multiples to pre-tax performance measures.
- Omission of adjustments affecting the valuation multiples based on differences between the investee and its comparable company peers (for example, insufficient consideration to different accounting policies).
- Omission of other adjustments (for example, insufficient consideration given to non-operating assets in the investee or in the comparable company peers, discount for the lack of liquidity etc).

### **Income approach (DCF method)**

- Double-counting or omitting cash flows (for example, not including working capital requirements when calculating cash flows or assuming a significant level of revenue growth for an extended period of time with relatively small changes in required capital expenditures).
- Errors or inadequate allowance for uncertainty in the forecasting of cash flows.
- Mismatching cash flows and discount rates (ie discounting FCFE at the WACC or the FCFF at the cost of equity capital).
- Inconsistencies between risks inherent in cash flows and those reflected in the discount rate.
- Inappropriately high growth rates in the terminal value calculation.
- A perpetuity approach applied where businesses have limited life contracted revenue, concentrated customers and risk renewals.

- Inappropriate risk-free rates used for the discount rate calculation (for example, use of a government rate with dissimilar duration to the cash flows arising from an investment).
- Applying parameters derived in different jurisdictions to the investee without making necessary adjustments.
- Currency mismatch between the currency used to estimate the cash flow projections and the currency of the inputs to derive the discount rate (for example, cash flows denominated in Brazilian reals discounted with a USD-based WACC).
- Inappropriate  $\beta_s$  used for the discount rate calculation (for example, using the estimated  $\beta$  of an investor instead of the estimated  $\beta$  of an investee).
- Inappropriate calculation of WACC (for example, computing WACC using book values of debt and equity, use a cost of debt that is incompatible with the capital structure assumed in the WACC etc).
- Inappropriate treatment of country risk (for example, not considering the country risk, arguing that it is diversifiable).
- Omission of other adjustments (for example, discount for the lack of liquidity).

### **Adjusted net asset method**

- Not measuring the investee's assets and liabilities at fair value and, for example, measuring assets at book values for which fair values might be materially higher or lower (for example, omission of economic obsolescence when valuing tangible assets etc).
- Omission of unrecognised intangible assets.
- Omission of assessment of collectibility of trade receivables.
- Omission of contingent liabilities and other unrecognised liabilities (for example, unrecognised commitments).
- Omission of deferred tax adjustments, when economically relevant, arising from adjusting assets' carrying amounts to fair value.



## Glossary of terms

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131 The following terms are defined in IFRS 13 and are used in this chapter with the meanings specified in that Standard:

- active market
- cost approach
- entry price
- exit price
- expected cash flow
- fair value
- income approach
- inputs
- Level 3 inputs
- market approach
- market participants
- observable inputs
- orderly transaction
- risk premium
- unobservable inputs

132 The following terms are defined in the Glossary of Terms of IFRSs:

- control of an investee
- International Financial Reporting Standards (IFRSs)
- joint control
- non-controlling interest
- ordinary share
- present value
- significant influence

133 The **intended use** of the following terms **in this chapter** is described below.

<b>Term</b>	<b>Meaning in this chapter</b>
<b>adjusted net asset method</b>	A valuation technique whereby all the assets and liabilities (recognised and unrecognised) of an investee are measured at fair value with the objective of obtaining the fair value of the investee's equity instruments at the measurement date.
<b>capital asset pricing model (CAPM)</b>	A model in which the cost of capital for any share or portfolio of shares equals a risk-free rate plus a risk premium that is proportionate to the systematic risk $\beta$ (beta) of the share or portfolio.
<b>capitalisation rate</b>	A factor used to convert a single period's measure of economic income to an estimate of present value.
<b>comparable company peer</b>	An entity that is comparable to an investee in terms of its capacity to generate cash flows, its expected growth in these cash flows and the uncertainty associated with these cash flows.
<b>comparable company valuation multiples technique</b>	A valuation technique that uses prices and other relevant information generated by market transactions involving comparable company peers of an investee to derive a valuation multiple from which the indicated fair value of the investee's equity or enterprise value can be inferred.
<b>control premium</b>	An incremental amount that an investor would be willing to pay for obtaining control of an investee.
<b>cost of debt capital</b>	The rate of return required by an entity's debt capital providers (ie the cost of debt financing for an entity).
<b>cost of equity capital</b>	The expected rate of return required by an entity's equity capital providers (ie the cost of equity financing for an entity).
<b>credit scoring model</b>	An empirical model that identifies an entity's probability of default with a quantitative score (a credit score) by comparing entities that defaulted in the past with entities that did not. The comparison is based on financial data and financial ratios. A credit score is a statistically derived measurement of an entity's creditworthiness obtained from such models.

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<b>Term</b>	<b>Meaning in this chapter</b>
<b>discounted cash flow (DCF) method</b>	A valuation technique within the income approach whereby expected cash flows are discounted to obtain their present value.
<b>discount for the lack of liquidity</b>	An adjustment to an investee's indicated fair value of equity to reflect the relative inability to convert an investor's equity interest in the investee into a predictable amount of cash quickly and at a reasonably low cost.
<b>discount rate</b>	A rate of return used to convert expected cash flows into present value.
<b>dividend discount model (DDM)</b>	A valuation technique that derives the fair value of an entity's equity instrument by reference to the present value of all of its expected dividends in perpetuity.
<b>enterprise value (EV)</b>	The fair value of all equity and non-equity financial claims attributable to all capital providers (ie equity and debt holders).
<b>equity value</b>	The fair value of all equity claims attributable to the equity capital providers.
<b>exit multiple</b>	A multiple used to estimate an investee's terminal value.
<b>free cash flow to equity (FCFE)</b>	The cash flows generated by an investee that are available to all equity capital providers (ie the cash flows from assets, after debt payments and after making reinvestments that are needed for future growth).
<b>free cash flow to firm (FCFF)</b>	The cash flows generated by an investee that are available to all capital providers (ie the cash flows from assets, before any debt payments but after making reinvestments that are needed for future growth).

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<b>Term</b>	<b>Meaning in this chapter</b>
<b>indicated fair value</b>	An initial estimate of the fair value of an investee's equity value or enterprise value before making appropriate adjustments to reflect the characteristics of the equity instruments held by an investor (for example, non-controlling interest discount, discount for the lack of liquidity).
<b>non-controlling interest discount</b>	A discount for lack of control applied to an investee's indicated fair value of equity when measuring the fair value of a non-controlling equity interest in that investee.
<b>normalisation</b>	The process consisting of adjusting performance measures to reflect an entity's ongoing capacity to generate economic benefits.
<b>option pricing model</b>	A model used to value an option contract.
<b>restricted stock studies</b>	Studies in which the objective is to derive the difference in price that investors are willing to pay for two securities, one fully liquid and the other not. These studies aim to measure the reduction in value associated with an investment that lacks a ready market.
<b>systematic risk</b>	The risk that is common to all risky securities and that cannot be eliminated through diversification (ie the common risk shared by an asset or a liability with the other items in a diversified portfolio). The measure of systematic risk in shares is the $\beta$ coefficient.
<b>tangible book value</b>	An entity's book value of equity less acquired or internally developed intangible assets and goodwill.
<b>terminal value</b>	The value of holding an investment indefinitely beyond the end of an explicit forecast period.
<b>trading multiple</b>	Multiples derived from prices of an investee's publicly traded comparable company peers.
<b>transaction multiple</b>	Multiples derived from prices paid in transactions involving an investee's comparable company peers such as mergers and acquisitions.

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<b>Term</b>	<b>Meaning in this chapter</b>
<b>unquoted equity instrument</b>	The equity instruments of an investee that are not listed in an active market and, as a result, their price is unobservable.
<b>weighted average cost of capital (WACC)</b>	An entity's cost of raising both debt and equity financing in proportion to their use.
<b>yield to maturity (YTM)</b>	The internal rate of return on a bond assuming that the bond will be held until maturity and that all coupon and principal payments will be made in a timely manner.

## Additional sources of information

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- 134 The following references were used to develop this chapter. If referring to them, the reader must be aware that not all the concepts or methodologies included in these references are necessarily aligned with the principles in IFRS 13.
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