

1.4.2 Valuation of Futures Contracts

It follows from the above that the valuation of futures contracts is similar to that of a forward contract, except that no discounting is necessary, given that settlement is done through the margin account on a daily basis:

$$\text{Fair value of futures contract} = (\text{Difference between contracted and prevailing forward price quoted in the futures exchange}) \times \text{notional quantity}$$

Similar to that of a forward contract, the fair value of a futures comprises a spot and interest element:

$$\text{Spot element of futures contract} = (\text{Difference between spot rate on contract date and prevailing spot rate}) \times \text{notional quantity}$$

The spot element may be positive or negative, depending whether it is calculated from the buyer's or seller's perspective

$$\text{Interest element of futures contract} = \text{Fair value of futures contract} - \text{Spot element of futures contract}$$

Illustration 1.14 Futures Contract

In June 20x1, Farmer John expects to harvest at least 10,000 bushels of soybeans during September 20x1. June harvest is expected to be delivered to buyers by November 20x1. Assume the following spot and futures prices of soybeans:

In June 20x1:

Spot rate	\$7.00 per bushel
Futures rate for November 20x1 delivery	\$7.25 per bushel

In September 20x1:

Spot rate	\$6.72 per bushel
Futures rate for November 20x1 delivery	\$6.95 per bushel

Assume that by beginning September 20x1, where the prices have fallen, and that Farmer John contracted with local retailers to sell his soybeans for delivery in November 20x1 at \$6.72 per bushel.

Farmer John could hedge against risk of falling prices by entering into a futures contract to lock in a price for his soybeans in June 20x1.

Month in 20x1	Cash soybeans	Soybean November futures	Remarks
June	Price for soybeans = \$7.00 per bushel	Sells (Short) two lots of November soybean futures at \$7.25 per bushel	Futures contract is typically standardised. In this case, each lot represents 5,000 bushels of soybeans.
September	Sells 10,000 bushels to local retailers to deliver in November at \$6.72 per bushel.	Buys (Long) two lots of November soybean futures at \$6.95 per bushel	The act of entering into an opposite position of the same commodity, number of contracts, and delivery month is commonly known as "squaring off" or "closing off" a position.

If Farmer John had not hedged his risk, he would be subject to the falling soybean prices and sells his harvest at \$6.72 per bushel. Hedging with the use of futures on hindsight was a good decision, for he derived gains from the November futures at $(\$7.25 - \$6.95 = \$0.30)$ per bushel. The consequence of hedging was that Farmer John would have a net selling price of $(\$6.72 + \$0.30 = \$7.02)$ per bushel.

In September 20x1, the fair value of the two lots of "short" November futures is:

(i) **Fair value of futures contract = (Difference between contracted and prevailing forward price quoted in the futures exchange) x notional quantity**

$$\text{Fair value of futures contract} = (7.25 - 6.95) \times 10,000 = \$3,000$$

(ii) **Spot element of futures contract = (Difference between spot rate on contract date and prevailing spot rate) x notional quantity**

$$\text{Spot element of futures contract} = (7.00 - 6.72) \times 10,000 = \$2,800$$

(iii) **Interest element of futures contract = Fair value of futures contract - Spot element of futures contract**

$$\text{Interest element of futures contract} = 3,000 - 2,800 = \$200$$

1.4.3 Accounting for Futures Contracts

The accounting for futures contracts is similar to that of forward contracts, except that it would typically involve journal entries for the recognition of margin deposit and margin calls from time to time.

that interest rates are rising and consequently enter into an interest rate swap to convert its fixed rate yield from the corporate bond to floating rate or simply to derive gains from such speculations. The accounting entries will be exactly the same as those for hedging purposes, unless where hedge accounting is applied.

1.5.1.3 Comparative Advantage

Illustration 1.17 Interest Rate Swap Entered to Maximise Comparative Advantage

Assume ABC Ltd and XYZ Ltd wish to borrow \$10 million for three years and have been offered the following rates:

Entity	Fixed rate (per annum)	Floating rate
ABC Ltd	10.0%	LIBOR + 0.3%
XYZ Ltd	11.2%	LIBOR + 1.0%
ABC's advantage over XYZ	1.2%	0.7%

From the above, it may be noted that ABC Ltd has a comparative advantage in the fixed-rate loan, and XYZ Ltd has a comparative advantage in the floating-rate loan.

Assume ABC Ltd desires a floating-rate loan, and XYZ Ltd wishes to have a fixed-rate loan.

To take advantage of their comparative advantage, ABC Ltd should borrow a fixed-rate loan, and XYZ Ltd should borrow a floating rate loan, and then enter into an interest rate swap between them.

The interest rate swap could be structured as ABC paying a floating rate of LIBOR + 0%, and receiving a fixed rate of 9.95% per annum (and XYZ receiving a floating rate of LIBOR + 0%, and paying a fixed rate of 9.95% per annum).

Through this interest rate swap, ABC pays 10.0% to the bank, receives 9.95% from XYZ, and pays LIBOR + 0% to XYZ. Thus, the net effect is ABC will pay only LIBOR + 0.05%, saving 0.25%.

XYZ pays LIBOR + 1.0% to the bank, pays 9.95% to ABC, and receives LIBOR + 0% from ABC. Thus, the net effect is XYZ will pay only a fixed 10.95%, again saving 0.25%.

Note that both ABC and XYZ derive benefits (i.e. savings of 0.25% each) from this arrangement.

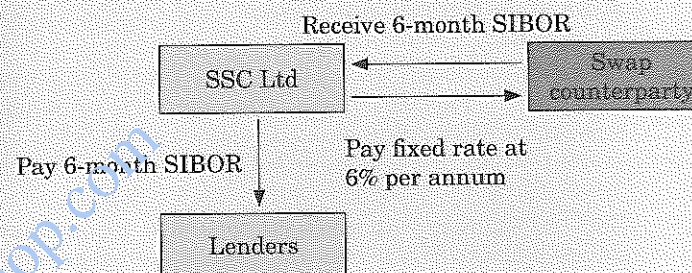
1.5.2 Valuation of Swap Contracts

The value of a swap is calculated based on the net present value of all estimated future cash flows. Specifically, as a swap involves both a pay and a receive leg, the value of a swap involves calculating the net present value of the outgoing and incoming cash flows.

Illustration 1.18 Valuation of an Interest Rate Swap (Facts identical to Illustration 1.15)

On 1 January 20x1, SSC Ltd borrows a S\$100 million 5-year floating rate term loan. The interest rate is based on 6-month SIBOR. The interest is to be paid semi-annually, and the principal is to be repaid on 31 December 20x5. SSC Ltd's risk management policies are that SSC should not expose itself to fluctuations in interest rates.

On 1 January 20x1, SSC Ltd enters into an interest swap under which it pays fixed rate of 6% per annum and receives 6-month SIBOR over the 10 semi-annual periods.



The effect of the interest rate swap was to convert SSC Ltd's floating interest obligations into fixed interest obligations.

Assume that the 6-month SIBOR on 1 January 20x1 is 5%.

The fair value of an interest swap is the difference between the value of the floating rate bond and the value of the fixed rate bond. The value of a floating rate bond will typically be equal to its face value at each interest payment date. The value of a fixed rate bond may be calculated as the present value of its future cash flows discounted at the bond yield rate.

Assume that the 4.5-year fixed rate bond "prevailing" yield is 5% per annum and assume also hypothetically that this rate remains the same as the "expected" yield for the remaining tenure of the bond. The value of the swap at 30 June 20x1 immediately after the interest payment may be calculated as follows:

Value of the floating rate bond: \$100 million (typically equal to face value)

Value of the fixed rate bond: $\$3 \text{ million} \times 7.97087^a + \$100 \text{ million} \times 0.80073^b = \103.98 million

^a Present value factor of an ordinary annuity due = $R \times [(1 - (1+i)^{-n})/i]$, where i is the interest rate per compounding period; n is the number of compounding periods; and R is the fixed periodic payment

^b present value factor = $1/1.025^9$

Value of the swap = $-\$3.98 \text{ million} (\$100 \text{ million} - \$103.98 \text{ million})$

1.6.1.3 Current/Non-current Presentation

The presentation of a derivative asset and liability as current or non-current generally depends on the maturity date or expectation to settle, whichever earlier. This is summarised below:

Expectation to settle Maturity	Expects to settle <12 months from end of reporting period	Expects to settle >12 months from end of reporting period
Maturity of < 12 months from end of reporting period	Current asset / liability	Not applicable
Maturity of >12 months from end of reporting period	Current asset / liability	Non-current asset / liability

1.6.2 Statement of Profit or Loss and Other Comprehensive Income

In many of the earlier illustrations, it is indicated that the fair value changes of a derivative from the end of a reporting period to another may be accounted for through profit or loss, or through other comprehensive income, depending on the intended purpose or use of the derivative and whether hedge accounting is applied.

As a general rule, derivatives are classified as “held for trading” under IAS 39. That means derivatives are to be accounted for as “fair value through profit or loss”. As derivatives are re-measured to their fair value from the end of one reporting period to another, the changes in fair value are recorded through profit or loss.

Under IFRS 9, the “held for trading” classification is removed and replaced with the “fair value through profit or loss” classification. The classification criterion of financial assets is changed significantly under IFRS 9. However it does not change the general accounting rule surrounding derivatives, where the re-measurement effects of the fair values from the end of one reporting period to another are recorded through profit or loss.

When entities use derivatives for hedging, they can elect (i.e. not mandatory) to apply a set of hedge accounting rules, which represent an exception to the above general rule. The focus of Chapters 2 and 3 of this book is to introduce and discuss the details of these hedge accounting rules. The key objective of hedge accounting is to ensure that profits or losses arising from the re-measurement of the hedged item and hedging instruments (typically derivatives) offset one another within the same period, thereby reducing profit or loss volatility, which would otherwise not be the case under general accounting rules. Depending on the hedge accounting model applied, the re-measurement gains and losses may be

recorded in other comprehensive income rather than profit or loss. If entities do not elect to apply hedge accounting, they will apply the general rule of recording changes in fair value through profit or loss, as described above.

1.6.3 Contracts to Buy or Sell Non-Financial Items

Section 1.6 mentions that the definition of a derivative can be a broad one, especially where it relates to contracts to buy or sell non-financial items. Consider Illustration 1.20 below.

Illustration 1.20 Is a Contract to Buy or Sell Non-Financial Items a Financial Instrument under IAS 39 or IFRS 9?

Entity XYZ enters into a fixed price forward contract to purchase one million kilogrammes of copper. At first glance, it appears that the forward purchase contract meets the definition of a derivative:

No	Characteristic	Forward purchase contract
1	Its value changes in response to changes of an underlying variable.	The underlying is represented by the forward copper rates.
2	It requires no initial net investment or one that is smaller than would be required for other types of contracts that would be expected to have a similar response to changes in market factors.	On date of contract inception, the contracted forward price represents the market forward price prevailing as at contract date. This gives rise to zero fair value on contract inception – which implies no initial net investment.
3	It is settled at a future date.	Delivery of the one million kilograms of copper will take place in the future.

An immediate misconception arising from the above is that all forward purchases or sales of raw materials and goods or any other forms of non-financial items by manufacturers or other corporates would meet the definition of a derivative and be marked-to-market at the point a contract is entered into.

The inaccurate conclusion in Illustration 1.20 clearly appears odd and it is henceforth important to note that for contracts to buy or sell non-financial items, there are additional criteria to be considered before such contracts may be scoped in within IAS 39 or IFRS 9.

Contracts to buy or sell non-financial items are within the scope of IAS 39 or IFRS 9 if the following conditions are met (IAS 39 para 5; IFRS 9 para 2.4):

- i. the contract to buy or sell a non-financial item can be settled net in cash or another financial instrument, or by exchanging financial instruments, as if the contracts were financial instruments; and

- the embedded derivative does not significantly modify the cash flows that otherwise would be required by the contract; or
- it is clear with little or no analysis when a similar hybrid instrument is first considered that separation of the embedded derivative is prohibited, as in the case of a prepayment option embedded in a loan that permits the holder to prepay the loan for approximately its amortised cost.

Of the three criteria, condition (a) is the most challenging to implement. There is no specific definition of what constitutes “closely related”. In certain cases, the evaluation of whether an embedded feature is closely related to its host is straight-forward. For example, in the case of a convertible bond, the host carries economic risks and characteristics of that of a debt instrument, for example interest rate risks, whereas the embedded convertible feature carries economic risks and characteristics of an equity instrument, for example equity price risks. In this instance, it is clear that the convertible feature needs to be separated from the host contract and accounted for as a derivative, and hence FVPL, while the host is accounted for as a debt instrument under other classification and measurement principles under IAS 39.

In other cases, the evaluation entails significant judgement. For example, a bond which gives holders the right to put back to the issuers at a certain price at any point in time. The put feature is an embedded feature which may or may not be closely related to the debt host.

Instead of specific guidance on what constitutes “closely related”, IAS 39 sets out two illustrative lists – one comprising of examples where embedded derivatives are closely related to their hosts, and the other comprising of examples where embedded derivatives are not closely related to their hosts. In the absence of specific guidance, entities are required to draw analogy to the illustrative lists in evaluating whether an embedded derivative is closely related to their hosts.

The topic of embedded derivatives is complex. It is not within the scope of this book to cover the details of accounting for embedded derivatives.

1.6.5.2 IFRS 9 Accounting for Embedded Derivatives

The IAS 39 principles of accounting for embedded derivatives described above are retained and carried forward to the new IFRS 9 where the host is a financial liability or a non-financial item. However, if the host is a financial asset, the hybrid contract is accounted for in its entirety, and does not require split accounting.

1.7 Summary

Derivatives are used increasingly by corporations for speculative and risk management purposes. Although derivatives can come in different forms, the most basic forms are options, forwards and swaps. Futures are similar to forwards.

Derivatives are generally accounted for at “fair value through profit or loss”, unless hedge accounting rules are elected and applied. Contracts to buy or sell non-financial items need to be further evaluated against additional conditions to ascertain if they are accounted for as derivatives under IAS 39 or IFRS 9.

Derivatives may also be embedded within other host contracts. The accounting for such embedded derivatives may at times be complex and difficult to apply.

1.8 Problems for self-study

This last section of the chapter presents nine problems on derivatives for self-study.

Problem 1.1 (Uses of options)

The current market price of AIS Ltd's share is \$3.00 per share, and a three-month call option for 10,000 AIS Ltd's shares at a strike price of \$3.00 costs \$1,000. You are contemplating to (i) buy 10,000 AIS Ltd shares or (ii) buy the call option.

What would be your gain/loss under each of the investment strategies if the market price of AIS Ltd's shares at the end of the 3-month period when you have to liquidate your investment is (i) \$3.30 per share and (ii) \$2.50 per share. Assuming there is a 50-50 chance that the price of AIS Ltd price will be \$3.30 and \$2.50, which investment strategy will give you a higher expected value? Ignore transaction costs.

Suggested solution to Problem 1.1

(a) Buy shares; (b) buy option

Price = \$3.30:

Strategy (a): gain of \$3,000 (10,000 x (\$3.30 - \$3.00))

Strategy (b): gain of \$2,000 (10,000 x (\$3.30 - \$3.00) - \$1,000)

Price = \$2.50:

Strategy (a): loss of \$5,000 (10,000 x (\$2.50 - \$3.00))

Strategy (b): loss of \$1,000 (value of call option = \$nil)

Expected value:

Strategy (a): \$3,000 x 50% - \$5,000 x 50% = loss of \$1,000

Strategy (b): \$2,000 x 50% - \$1,000 x 50% = gain of \$500

functional currency, the exchange gain or loss arising therefrom will not be fully eliminated, and thus, this inter-company loan (even though there is no external party involved) may qualify as a hedged item in the consolidated financial statements.

IAS 39 also provides that:

- (i) If the hedged item is a financial asset or financial liability, it may be a hedged item with respect to the risks associated with only a portion of the cash flows or fair value, provided that effectiveness can be measured (para 81); and
- (ii) If the hedged item is a non-financial asset or non-financial liability, it should be designated as a hedged item either in its entirety for all risks, or for foreign currency risk only (para 82).

While IAS 39 does not permit designating only a portion of the time period during which a derivative is outstanding as a hedging instrument (para 75), it does permit a portion of the time period and a portion of the amount of a financial asset or liability to be a hedged item (para 81). For example, for purposes of hedge accounting, an entity is allowed to hedge the foreign currency exchange risk relating to US\$100 of a US\$500 AFS investment in shares, and to hedge the foreign currency exchange risk relating to the first two years of a five-year "held-to-maturity" investment in bonds.

IAS 39 permits similar assets and liabilities to be aggregated and hedged as a group (if the individual assets and individual liabilities in the group share the risk exposure that is designated as being hedged and the fair value of individual items change proportionately to entire group (para 83)).

IAS 39 does not permit the net position (the net amount after offsetting assets and liabilities) to qualify for hedge accounting (para 84). However, what is allowed is to hedge the "excess" asset or liability position (IAS 39.AG101). For example, if an entity has \$100 worth of an asset and \$80 worth of a liability with risks and terms of a similar nature, it cannot designate \$20 of the net asset (asset of \$100 less liability of \$80) as a hedged item, but it can designate \$20 of the asset as a hedged item.

2.3.3 Hedged Risks

IAS 39.AG99F provides that, to be eligible for hedge accounting, the designated risks must be separately identifiable components of the financial instrument, and changes in the cash flows or fair value of the entire financial instrument arising from changes in the designated risk must be reliably measurable.

For example, for a fixed rate financial instrument hedged for changes in fair value attributable to changes in a risk-free or benchmark interest rate, the risk-free or benchmark rate is normally regarded as both a separately

identifiable component of the financial instrument and reliably measurable, and is thus, permitted to be designated as risk for hedge accounting under IAS 39.

In Illustration 2.1 and Illustration 2.3, the hedged risks are foreign currency exchange risk, which are separately identifiable and reliably measurable. In Illustration 2.2, the hedged risk is price risk which is separately identifiable and reliably measurable.

General business risk, for example inflation, is not separately identifiable and reliably measurable and therefore, cannot be designated as a risk for hedge accounting under IAS 39. However, a contractually specified inflation portion of the cash flows of a recognised inflation-linked bond (assuming there is no requirement to account for an embedded derivative separately) is separately identifiable and reliably measurable as long as other cash flows of the instrument are not affected by the inflation portion, and will therefore, qualify as a risk for hedge accounting under IAS 39.

IAS 39 also allows one-sided risk, usually downside, to be the hedged risk. For example, in Illustration 2.2, the hedged risk is the downside price risk.

2.3.4 Qualification Criteria

IAS 39 provides that a hedging relationship qualifies for hedge accounting if, and only if, the following conditions are met (para 88):

- (a) At the inception of the hedge, there is formal documentation of the hedging relationship and the entity's risk management objective and strategy for undertaking the hedge; and
- (b) The effectiveness of the hedge can be reliably measured. The hedge is expected to be highly effective at the inception of the hedge, and is actually assessed to have been highly effective throughout the financial reporting periods for which the hedge was designated.

The hedging documentation should be done at the inception of the hedge. It should include identification and designation of the hedging instrument, the hedged item and the hedged risk. It should also state how the entity will assess the hedge effectiveness (for example, whether the entire fair value or only the intrinsic value of option is to be designated for hedge accounting purposes, and whether delta ratio (the ratio of changes in fair value of hedged item and hedging instrument) is to be calculated on a period-by-period basis or on a cumulative basis).

For hedge effectiveness, IAS 39.AG105 requires a prospective test and a retrospective test.

For the prospective test, IAS 39.AG105(a) requires that at the inception of the hedging relationship and in subsequent periods, the hedge is expected

- (2) Applying hedge accounting helps to reduce income volatility by requiring the hedged item (being an AFS investment which is otherwise accounted for at fair value through OCI) to be accounted for at FVPL, so that the loss of the AFS investment (hedged item) will be offset against the gain of option and forward (hedging instruments) during the same accounting period for which the hedge is designated. The effects may be shown below:

	Not applying hedge accounting	Applying hedge accounting
P/L for quarter 31 March 20x1	<ul style="list-style-type: none"> • Intrinsic value gain: \$35,000 • Time value loss: \$5,000 • Exchange gain (spot): \$25,000 • Exchange loss (interest): \$10,000 • Net gain = \$45,000 	<ul style="list-style-type: none"> • Time value loss: \$5,000 • Exchange loss (interest): \$10,000 • Net loss = \$15,000
P/L for subsequent quarters	<ul style="list-style-type: none"> • Loss on AFS = \$60,000 <p>Note: the loss is on the recycling of the fair value reserve on the AFS investment upon derecognition</p>	• Nil

In the illustration above, the option (hedging instrument) is entered into at-the-money. Options may, of course, also be entered into in-the-money or out-of-the-money and used as the hedging instrument. At inception, an out-of-the-money option has no intrinsic value but would have time value (see also Chapter 1).

The following illustrates a case where an out-of-the-money option is used as the hedging instrument.

Illustration 2.10

On 1 August 20x9, DEF Ltd (with 31 December year-ends and prepares quarterly financial statements) purchases 200,000 shares of Ababa Ltd at \$1.50 per share. The investment is classified as AFS under IAS 39.

On the same date, DEF Ltd purchases an out-of-the-money put option on 200,000 shares of Ababa Ltd at a premium of \$5,000. The put option has an exercise price of \$1.47 and will expire on 30 September 20x9.

DEF Ltd designates the change in the intrinsic value of the put option as the hedging instrument. The time value of the option contract is excluded from hedge accounting.

On 30 September 20x9, the put option position was closed and net-settled. DEF Ltd continues to hold the 200,000 shares of Ababa Ltd.

The prices of the shares of Ababa Ltd and the put option were as follows:

	Share price of Ababa Ltd	Price per unit of put option
On 31 August 20x9	\$1.35	\$0.16
On 30 September 20x9	\$1.26	\$0.21
On 31 December 20x9	\$1.20	—

Solution

This is a fair value hedge of the possible decline in fair value of the AFS investment in Ababa Ltd's shares below the exercise price of \$1.47 per share (i.e. DEF Ltd does not hedge the risk of fall in price of AFS shares from \$1.50 to \$1.47).

Given that the critical terms are the same (and assuming there is no liquidity and other credit risk), the hedge is expected to be 100% effective.

The hedge effectiveness may be calculated as shown below:

	31 July 20x9	31 August 20x9	30 September 20x9
Hedged item			
Price of AFS	\$1.50	\$1.35	\$1.26
Less amount not hedged	\$0.03	—	—
	\$1.47	\$1.35	\$1.26
Quantity	200,000	200,000	200,000
Hedged fair value	\$294,000	\$270,000	\$252,000
Change in hedged fair value		(\$24,000)	(\$18,000)
Cumulative change		(\$24,000)	(\$42,000)
Hedging instrument			
Exercise price	\$1.47	\$1.47	\$1.47
Option price	\$0.025	\$0.16	\$0.21
Notional amount	200,000	200,000	200,000
Fair value of option	\$5,000	\$32,000	\$42,000
Intrinsic value	—	\$24,000	\$42,000
Time value	\$5,000	\$8,000	—
Delta ratio		100%	100%

Nevertheless, the gain or loss on hedged item would still have to be calculated for the purpose of computing the delta ratio for hedge effectiveness testing.

Thus, there are two levels of effectiveness testing to be done in the case of cash flow hedge, (i) the 80% - 125% effectiveness test, and (ii) the effective/ineffective test. The 80% - 125% effectiveness test is performed to assess if hedge accounting is allowed under paragraph 88(e). The effective/ineffective test is performed to ascertain the amount of hedge that is to be recognised in other comprehensive income in accordance with cash flow hedge accounting (the effective portion) and the amount (if any) that is not required for cash flow hedge accounting and is to be written off in profit or loss (the ineffective portion). (Note that in the case of fair value hedge, there is no need for the "effective/ineffective" test as all the gains/losses on hedging instruments are recognised in profit or loss.)

Illustration 2.17

On 10 November 20x1, ABC Ltd (with 31 December accounting year-end) enters into a cash flow hedge by acquiring a derivative (hedging instrument) to hedge the cash flow risk in a highly probably forecast transaction (hedged item) expected to occur on April 20x2.

At the inception of the hedging relationship, ABC Ltd has complied with all the requirements of IAS 39 for hedge accounting, except for the retrospective effectiveness test (delta ratio test).

Scenario A

The fair value calculation of the hedging instrument and hedged item as at 31 December 20x1 reveals the following:

Gain in value of the hedging instrument: \$100

Loss in expected cash flow of hedged item: \$70

In this case, the hedge is not effective, as it is outside the range of 80% - 125%, and the hedging relationship will not qualify for hedge accounting under IAS 39.

Scenario B

The fair value calculation of the hedging instrument and hedged item as at 31 December 20x1 reveals the following:

Gain in value of the hedging instrument: \$100

Loss in expected cash flow of hedged item: \$90

In this case, the hedge is effective, as it is within the range of 80% - 125%, and the hedging relationship will qualify for hedge accounting under IAS 39.

Under the cash flow hedge, the second level effectiveness test of "effective/ineffective" portions of the hedge has to be dealt with.

The effective portion of the gain on the hedging instrument, that is \$90, should be recognised in OCI in the Statement of Profit or Loss and Other Comprehensive Income (and subsequently as "Cash flow hedge reserve" in the Statement of Financial Position); and the ineffective portion of the gain, that is the \$10 arising from "over-hedging", will be immediately written off in profit or loss.

The journal entry will be as follows:

Dr Hedging instrument	\$100	
Cr Cash flow hedge gain (OCI)		\$90
Cr Other gain (P/L)		\$10
(Gain on hedging instrument)		

Scenario C

The fair value calculation of the hedging instrument and hedged item as at 31 December 20x1 reveals the following:

Gain in value of the hedging instrument: \$100

Loss in expected cash flow of hedged item: \$105

In this case, the hedge is effective, as the delta ratio (either \$100/\$105, or \$105/\$100) is within the range of 80% - 125%, and the hedging relationship will qualify for hedge accounting under IAS 39.

Under the cash flow hedge, the second level effectiveness test of "effective/ineffective" has to be dealt with.

The gain on the hedging instrument which is 100% effective, that is \$100, should be recognised in OCI in the Statement of Profit or Loss and Other Comprehensive Income (and subsequently as "Cash flow hedge reserve" in the Statement of Financial Position). The "under-hedged" loss of \$5 will be ignored (since the hedged item has not been recognised yet, and the gain/loss on hedged item need not be accounted for).

The journal entry will be as follows:

Dr Hedging instrument	\$100	
Cr Cash flow hedge gain (OCI)		\$100
(Gain on hedging instrument)		

It should be noted that, in a multiple-period hedging relationship, while the first level of effectiveness test (delta ratio test) may be done on a period-by-period basis or cumulative basis in accordance with paragraph 88(d), the second level of effectiveness test (effective/ineffective portions of the hedge) must be done on a cumulative basis in accordance with paragraph 96(a).

IAS 39 specifically provides that the cash flow hedge reserve in the Statement of Financial Position should be adjusted to the lesser of (i) the cumulative gain or loss on the hedging instrument from the inception of the hedge, and (ii) the cumulative change in fair value of the expected future cash flows on the hedged item from inception of the hedge (para 96(a)).

(5) Cash flow impact of "hedging" vs "no hedging"

Hedging: net cash outflow = locked-in at (RM10,000,000 x 0.42) of \$4,200,000 + purchase of option of \$100,000 = \$4,300,000 or (\$3,630,000 purchase of investment + \$100,000 purchase of option - \$330,000 settlement of option + \$900,000 settlement of forward exchange contract = \$4,300,000)

No hedging: net cash outflow = \$3,630,000

The difference of \$670,000 is due to net settlement of the derivatives, i.e., receipt of \$230,000 (\$330,000 - \$100,000) on option and payment of \$900,000 on forward exchange contract.

The following illustration on cash flow hedge takes into account the time value of money in the valuation of the long-term derivative instruments.

Illustration 2.21

On 1 January 20x1, Singa Ltd ("the company"), whose functional and presentation currency is S\$, finalises its plan to buy a piece of freehold land in the United States of America on 31 December 20x2 at a price ranging from US\$110 million to US\$130 million.

The company is concerned about the effects of changes in the foreign currency exchange rates on this highly probable forecast transaction, and so, it enters into a forward foreign exchange contract on 1 January 20x1 to buy US\$100 million on 31 December 20x2. The company has designated the change in S\$ cash flow (based on forward rate) of the US\$100 million forward foreign exchange contract as a hedge against the change in S\$ cash flow (based on forward rate) of US\$100 million of the highly probable forecast transaction. The company has complied with all the requirements of IAS 39 in respect of hedge accounting.

The exchange rates between US\$ and S\$ are as follows:

Date	Spot exchange rate for US\$1.00	Forward exchange rate for US\$1.00 (at 31 December 20x2)
1 January 20x1	S\$1.12	S\$1.15
31 December 20x1	S\$1.23	S\$1.25
31 December 20x2	S\$1.30	S\$1.30

The relevant interest rate is 5% per annum.

On 31 December 20x2, the land is purchased for US\$120 million (to be accounted for as *property, plant and equipment* under IAS 16 under the cost model), and the forward foreign exchange contract settled.

Solution

The journal entries (in S\$ million) to record the above transactions and events are as follows:

31 Dec x1	Dr Hedging instrument	9.52	
	Cr Cash flow hedge gain (OCI)		9.52
	(Change in fair value of forward exchange contract)		
	[(1.25 - 1.15) x US\$100 x (1/(1.05)) = S\$9.52]		
31 Dec x2	Dr Hedging instrument	5.48	
	Cr Cash flow hedge gain (OCI)		5.48
	(Change in fair value of forward foreign exchange contract)		
	[(1.30 - 1.15) x US\$100 - S\$9.52 = S\$5.48]		
	Dr Land	156	
	Cr Cash		156
	(Purchase of land)		
	Dr Cash	15	
	Cr Hedging instrument		15
	(Net settlement of forward foreign exchange contract)		

Notes to the solutions

- (1) In this case, the company uses the fair value of the hedging instrument in its entirety (and does not choose the "split" exception) under paragraph 74 for hedge accounting purposes. The hedged item, being a highly probable forecast transaction, is not accounted for. Since the hedged item is designated to be measured based on forward rate for hedge accounting purposes, the entire fair value of the hedging instrument (based on forward rate) should be used, so as to ensure the effectiveness of the hedging relationship.
- (2) The journal entry for the subsequent recycling of the "Cash flow hedge reserve" (accumulated through gains or losses taken to OCI) will be discussed in the later part of section 2.5.
- (3) If the company does not wish to apply hedge accounting, the gain or loss on the forward exchange contract will be recognised as profit or loss, as shown below:

31 Dec 20x1		
Dr Forward exchange contract	9.52	
Cr Gain on derivative (P/L)		9.52
(Change in fair value of forward exchange contract)		
[(1.25 - 1.15) x US\$100 x (1/(1.05)) = S\$9.52]		

considered an expiry or termination if such replacement or rollover is part of the entity's hedging strategy as stated in the hedging documentation (para 91(a)).

When an entity discontinues cash flow hedge accounting under paragraph 101 (a), (b) and (d), IAS 39 provides that the cash flow hedge reserve shall continue to remain separately in equity in the Statement of Financial Position until the forecast transaction occurs (in which case, the cash flow hedge reserve will be dealt with in accordance with the requirements of paragraphs 97, 98 and 100 accordingly), or until the hedge accounting is discontinued under paragraph 101(c) (in which case, the cash flow hedge reserve shall be immediately reclassified from equity to profit or loss).

As mentioned in Section 2.4 above, if hedge effectiveness is not met in one period but is met in a subsequent period, IASB does permit redesignation of the hedging relationship in that subsequent period (see IAS 39.IG Para F.6.2), and Illustration 2.16).

2.6 Hedge of a Net Investment

For hedge of a net investment in a foreign operation, IAS 39 provides that it should be accounted for similar to cash flow hedge, as follows (para 102):

- The portion of the gain or loss on the hedging instrument that is determined to be an effective hedge shall be recognised in OCI and subsequently as part of cash flow hedge reserve in the Statement of Financial Position; and
- The ineffective portion of the gain or loss on the hedging instrument shall be recognised in profit or loss.

IAS 39 further provides that the net investment hedge reserve shall be reclassified from equity to profit or loss upon the disposal or partial disposal of the foreign operation (para 102).

Note that net investment includes monetary items that is accounted for as part of the investment.

Illustration 2.27

S Ltd (a company incorporated in Singapore, with S\$ as its functional and presentation currency) acquired a 100% interest in M Bhd (a company incorporated in Malaysia, with Ringgit Malaysia (RM) as its functional and presentation currency) in 20x1. Assume that for the year 20x8, the net assets of M Bhd at the beginning of the year were RM10,000,000, and that the foreign exchange rate had changed from RM1.00 = S\$0.70 at the beginning of the year to RM1.00 = S\$0.60 at the end of the year.

From the translation of the financial statements of M Bhd, there would be a translation loss of S\$1,000,000 ($\text{RM}10,000,000 \times (0.70 - 0.60)$) which would have to be recognised in OCI in the S\$ Statement of Comprehensive Income (and subsequently as "translation reserve" in the S\$ Statement of Financial Position) of M Bhd, in accordance with the provisions of IAS 21.

To hedge this translation loss, S Ltd could enter into a forward foreign exchange contract at the beginning of the year to sell RM10,000,000 to the foreign exchange dealer at the end of the year. Given the change in the exchange rate as indicated, there would be a foreign exchange gain of S\$1,000,000 ($\text{RM}10,000,000 \times (0.70 - 0.60)$) arising from the forward foreign exchange contract.

This foreign exchange gain of S\$1,000,000 shall be accounted for as follows:

- In S Ltd's separate Statement of Profit or Loss and Other Comprehensive Income, the forward foreign exchange contract is accounted for as a derivative. Hence, the foreign exchange gain shall be recognised in profit or loss in accordance with accounting for derivatives; and
- In S Ltd's consolidated Statement of Profit or Loss and Other Comprehensive Income, the forward foreign exchange contract (based on spot rate) could be designated as a hedge of the net investment in M Bhd as at the beginning of the year. Hence, the foreign exchange gain shall be recognised in OCI (reclassified from profit or loss to OCI as part of the consolidation adjustments) as required by the "net investment" hedge accounting rule under IAS 39.

On consolidation, the translation loss and the foreign exchange gain would exactly offset each other in the OCI. Thus, the aim of entering into the forward foreign exchange contract to hedge the net investment in the foreign subsidiary would be achieved.

When S Ltd disposes of M Bhd, the net investment hedge reserve (together with the translation reserve) will be recycled and recognised as part of the profit or loss on disposal of M Bhd.

To hedge a net investment in a foreign operation, IFRIC 16 *Hedges of a Net Investment in a Foreign Operation* provides that an entity should hedge the functional currency exposure.

Illustration 2.28

A Ltd has a foreign subsidiary B Ltd.

A Ltd is incorporated in Singapore. Its functional and presentation currencies are S\$. B Ltd is incorporated in Australia. Its functional currency is USD and its presentation currency is AUD.

In this case, if A Ltd wishes to use forward foreign exchange contract to hedge its net investment in B Ltd, it should enter into a forward foreign exchange contract to sell USD, the functional currency of the foreign subsidiary. This is because the net foreign currency exposure in this case for A Ltd is USD against the SGD.

Required:

Prepare all the relevant journal entries (in S\$'000) for AAA Ltd to record the transactions and events from 1 January 20x1 to 31 December 20x5. Record the fair value gain or loss and the foreign exchange gain or loss separately and indicate clearly whether the gain or loss is recognised in "profit or loss" or in "other comprehensive income".

Suggested solution to Problem 2.3*Journal entries (in S\$'000)*

1 January 20x1

No journal entry required for entering into the forward foreign exchange contract.

31 December 20x1

Dr Loss on derivative trading (P/L)	100	
Dr Cash flow hedge loss (OCI)	500	
Cr Cash		600

(Settlement of forward foreign exchange contract)

[Held for trading: $RM5,000,000 \times (0.52 - 0.50) = S\$100,000$]

[Hedging: $RM25,000,000 \times (0.52 - 0.50) = S\$500,000$]

Dr Investment in AFS securities	12,500	
Cr Cash		12,500

(Investment in shares) [$RM25,000,000 \times 0.50 = S\$12,500,000$]

1 January 20x2

No journal entry required for entering into the forward foreign exchange contract.

Dr Put option	10	
Cr Cash		10

(Purchase of put option)

31 December 20x2

Dr Foreign exchange loss (P/L)	1,250	
Cr Mark-to-market gain (OCI)		450
Cr Investment in AFS securities		800

(Gain/loss on investment in shares)

[Foreign exchange loss: $(0.45 - 0.50) \times RM25,000,000 = S\$1,250,000$]

[Mark-to-market gain: $(RM26,000,000 - RM25,000,000) \times 0.45 = S\$450,000$]

[Note: No hedge accounting for mark-to-market gain because the hedging relationship is not effective]

Dr Fair value loss (P/L)	10	
Cr Put option		10

(Change in fair value of put option: $[S\$10,000 - 0]$)

[Note: No hedge accounting for put option because the hedging relationship is not effective]

No settlement of put option, as it expires out-of-the-money.

Dr Forward foreign exchange contract	1,000	
Cr Fair value gain (P/L)		1,000

(Change in fair value of forward foreign exchange contract)
 $[(0.49 - 0.45) \times RM25,000 = S\$1,000,000]$

Dr Cash	1,000	
Cr Foreign exchange contract		1,000

(Settlement of foreign exchange contract)

31 December 20x3

Dr Investment in AFS securities	770	
Dr Foreign exchange loss (OCI)	520	
Cr Mark-to-market gain (OCI)		1,290

(Gain/loss on investment in shares)

[Foreign loss: $(0.43 - 0.45) \times RM26,000,000 = S\$520,000$]

[Mark-to-market (MTM) gain: $(RM29,000,000 - RM26,000,000) \times 0.43 = S\$1,290,000$]

Dr Cash ($RM29,000,000 \times 0.43$)	12,470	
Dr Fair value (MTM) reserve	1,740	
Cr Foreign exchange reserve		520

 Cr Investment in AFS securities 12,470

 Cr Cash flow hedge reserve 500

 Cr Gain on disposal of AFS securities 720

(Disposal of investment in shares)

1 January 20x4

Dr Investment in HTM	10,750	
Cr Cash		10,750

(Investment in HTM bonds)

$[RM25,000,000 \times 0.43 = S\$10,750,000]$

No journal entry required for entering into the forward foreign exchange contract.

The hedge is effective throughout the life of the futures contract.

It is not a perfect hedge because the critical terms are not matched exactly (future price of crude oil vs spot price of jet fuel).

(b) *Journal entries – Cash flow hedge (in \$)*

30 April 20x8

Dr Loss on hedging instrument (P/L)	10,000	
Dr Loss on hedging instrument (OCI)	40,000	
Cr Future contract		50,000

(Change in fair value of hedging instrument)

[Note: As the cumulative loss in the fair value of the hedging instrument is more than the cumulative gain in the hedged item, the effective portion is recognised in OCI, the ineffective portion is recognised in profit or loss.]

30 May 20x8

Dr Loss on hedging instrument (OCI)	20,000	
Cr Futures contract		20,000

(Change in fair value of hedging instrument)

30 June 20x8

Dr Loss on hedging instrument (OCI)	30,000	
Cr Beginning retained profit		10,000
Cr Futures contract		20,000

(Change in fair value of hedging instrument)

[Note: A part of the ineffective portion in the previous period shall be “written back”].

Dr Futures contracts	90,000	
Cr Cash		90,000

(Settlement of the hedging instrument)

Dr Cash	1,200,000	
Cr Sales		1,200,000

(Sales of inventory)

Dr Cost of sales	1,000,000	
Cr Inventory		1,000,000

(Cost of sales)

Dr Sales	90,000	
Cr Cash flow hedge reserve		90,000

(“Recycle” “Cash flow hedge reserve” to Sales)

(c) *Journal entries – Fair Value Hedge (in \$)*

30 April 20x8

Dr Loss on hedging instrument (P/L)	50,000	
Cr Futures contract		50,000

(“Fair value through profit or loss” of hedging instrument)

Dr Inventory	40,000	
Cr Gain on hedged item (P/L)		40,000

(“Fair value through profit or loss” of hedged item)

31 May 20x8

Dr Loss on hedging instrument (P/L)	20,000	
Cr Futures contract		20,000

(“Fair value through profit or loss” of hedging instrument)

Dr Inventory	20,000	
Cr Gain on hedged item (P/L)		20,000

(“Fair value through profit or loss” of hedged item)

30 June 20x8

Dr Loss on hedging instrument (P/L)	20,000	
Cr Futures contract		20,000

(“Fair value through profit or loss” of hedging instrument)

Dr Inventory	40,000	
Cr Gain on hedged item (P/L)		40,000

(“Fair value through profit or loss” of hedged item)

Dr Futures contracts	90,000	
Cr Cash		90,000

(Settlement of hedging instrument)

Dr Cash	1,200,000	
Cr Sales		1,200,000

(Sales of inventory)

Dr Cost of sales	1,100,000	
Cr Inventory		1,100,000

(Cost of sales)

the requirements of IFRS 9 when the entity first applies IFRS 9. Accordingly, the new hedge accounting rules in IFRS 9 are optional for the time being.

3.3 Why the need for new Hedge Accounting Rules under IFRS 9?

Ever since the introduction of IAS 39 way back in 1998, there have been much criticisms over the hedge accounting requirements in IAS 39 for having too many rules which are not connected with an entity's risk management activities. The complex rules in IAS 39 made it difficult for an entity to apply hedge accounting and to explain the results of hedge accounting application in the context of the entity's business and risk management activities.

This disconnect is largely due to IAS 39 approaching hedge accounting as an exception to the relevant applicable recognition and measurement requirements in IFRSs rather than as a means to portraying how an entity manages risk.

With the new hedge accounting rules under IFRS 9, the IASB believes that this will help hedge accounting serves as a means for entities to communicate the purpose and effect of hedging instruments and the entities' risk management activities.

3.4 Hedging and Hedge Accounting

Hedging is a management strategy to manage risks that an entity is exposed to (see also Chapter 1).

Hedge accounting is a special accounting treatment that aims to minimise accounting mismatch with the objective of reducing income (profit or loss) volatility arising from hedging.

When an entity hedges its exposure to risks, and applies the relevant applicable IAS/IFRS (instead of hedge accounting), an accounting mismatch with its consequent volatility in income may arise in the financial statements. However, when an entity hedges and chooses to apply hedge accounting (assuming it is a perfect hedge), then, there should be no income volatility arising from the hedging relationship.

Using the same case facts from the illustrations in Chapter 2, this section discusses the economic and accounting impacts of hedging and hedge accounting under IFRS 9.

Illustration 3.1

AAA Ltd's functional currency is Singapore Dollar (S\$). On 1 April 20x4, AAA Ltd borrows a two-year bank loan of US\$10 million.

It may be appreciated that if the foreign exchange rate increases or decreases at its year end on 31 December 20x4, AAA Ltd will be exposed to foreign exchange gain or loss.

If AAA Ltd does not wish to be exposed to foreign exchange gain or loss, it could, of course, hedge its exposure to foreign exchange risk by, for example, entering into a forward foreign exchange contract on 1 April 20x4 to buy US\$10 million on 31 December 20x4.

After AAA Ltd has hedged the exposure, it may be appreciated that economically, at its year-end on 31 December 20x4, regardless of the change in foreign exchange rate, AAA Ltd will not be exposed to foreign exchange gain or loss.

Accounting-wise, it may be appreciated that the foreign exchange gain or loss on the bank loan and the foreign exchange gain or loss on the forward foreign exchange contract will exactly offset each other. Also, the increase or decrease arising from re-measurement of foreign currency monetary item in accordance with IAS 21 *The Effects of Changes in Foreign Exchange* of the bank loan in S\$ will be exactly offset by the increase or decrease arising from accounting for derivatives in accordance with IFRS 9 of the forward foreign exchange contract.

(This is a good example on hedging, but not a good example on hedge accounting. It is because in this case, there is no need to apply hedge accounting to achieve the objective of reducing income volatility. Both the foreign exchange gain or loss on the bank loan and forward foreign exchange contract are recognised in profit or loss in accordance with the relevant applicable IAS 21 and IFRS 9 respectively and they will exactly offset each other. This type of hedging relationship where income volatility will be reduced or eliminated by simply applying the relevant applicable IAS/IFRS and without having to apply hedge accounting, is usually referred to as a "natural hedge".)

Illustration 3.2

BBB Ltd acquires 10% of XYZ Ltd's issued share capital on 1 April 20x4 with the intention of establishing long-term strategic alliance with the investee company. BBB Ltd has designated the investment as fair value through other comprehensive income ("FVOCI") under IFRS 9.

It may be appreciated that if the fair value of XYZ Ltd's shares increases or decreases at its year-end on 31 December 20x4, BBB Ltd will be exposed to fair value gain or loss.

If BBB Ltd is concerned with its exposure to fair value loss, it could, of course, hedge the exposure by, for example, buying a put option on the shares on 1 April 20x4 with maturity date of 31 December 20x4.

hedged item shall be recognised in profit or loss. However, if the hedged item is an equity instrument for which an entity has elected to present changes in fair value in OCI, those amounts shall remain in OCI. When a hedged item is an unrecognised firm commitment (or a component thereof), the cumulative change in the fair value of the hedged item subsequent to its designation is recognised as an asset or a liability with a corresponding gain in profit or loss.

It may be noted that fair value hedge accounting attempts to minimise accounting mismatch and reduce income volatility by requiring fair value gain or loss from both the hedging instrument and the hedged item to be recognised in profit or loss during the financial accounting period(s) for which the hedge is designated. Hence, achieving the objective of hedge accounting. In the case of a hedged item being an equity instrument at FVOCI, this accounting mismatch is reduced by having the gain or loss on the hedging instrument to be recognised in other comprehensive income.

Fair value hedge accounting basically changes the accounting treatment for the hedged item and the hedging instrument. Regardless of their nature and the otherwise-applicable IAS/IFRS, the carrying amount of all hedged items under fair value hedge shall generally be adjusted for gain or loss attributable to the hedged risks and such gain or loss are recognised in profit or loss. The exception is in the case of a hedged item being an equity instrument accounted for at FVOCI whereby under such a scenario, the accounting treatment for the hedging instrument is changed by allowing the hedging instrument to be fair valued through other comprehensive income. These changes in accounting treatment will ensure proper accounting matching and thereby, reduce income volatility in the financial statements.

The accounting consequences of applying fair value hedge in accordance with paragraph 6.5.8 (and assuming it is a perfect hedge) is that (i) there will be no profit or loss, and (ii) there will be no fair value exposure (the net carrying amount of the hedging instrument and the hedged item will also remain the same).

In all subsequent illustrations, unless otherwise stated, it is assumed that the entity has chosen to apply hedge accounting for its hedging transactions and has also complied with the requirements with respect to hedge accounting in accordance with IFRS 9. To simplify the discussion, ignore tax effects arising from hedging transactions and time value of money unless otherwise stated.

Illustration 3.7

On 1 April 20x8, ABC Mining Ltd (the company) has 1 million barrels of crude oil inventory, carried at cost of \$100 per barrel under IAS 2.

Due to the volatility of crude oil prices in recent months, the company decides to hedge the fair value of its crude oil inventory by entering into futures contracts to sell 1 million barrels of crude oil at \$120 per barrel. The maturity date of the contracts is 30 June 20x8.

In its documentation for hedge accounting, the company has designated the change in fair value (based on spot rate) of futures contracts as a hedge against the change in fair value (based on spot rate) of its crude oil inventory. Ignore margin deposit on the futures contracts.

The following table shows the price movements of crude oil per barrel:

Date	Spot price	Futures price on 30 June 20x8
1 April 20x8	\$115	\$120
30 April 20x8	\$124	\$130
31 May 20x8	\$133	\$136
30 June 20x8	\$140	\$140

On 30 June 20x8, the futures contracts are settled, and the company sells its 1 million barrels of crude oil at \$140 per barrel to a third party.

Solution**Hedging relationship**

The hedged risk is the price (fair value) exposure of the inventory.

The hedged item is the 1 million barrels of crude oil (a recognised asset).

The hedging instrument is the futures contracts.

It is therefore a fair value hedge.

Effectiveness test

The hedge effectiveness test (delta ratio)

$$= \frac{\text{gain or loss (based on spot rate) of hedging instrument}}{\text{loss or gain (based on spot rate) of hedged item}}$$

It does not matter whether it is assessed on period-by-period (monthly) basis or cumulative basis, it will be 100% effective, because the critical terms are exactly the same (and assuming there is no liquidity or other credit risk).

Journal entries (in \$ million)

30 April 20x8

Dr Loss on spot element (P/L)	9	
Dr Loss on interest element (P/L)	1	
Cr Futures contracts		10
(Change in fair value of hedging instrument)		

The following is another illustration on fair value hedge.

Illustration 3.9

ABC Ltd (with 31 December accounting year-ends) purchases a fixed-interest debt security at its par value of \$100,000 on 1 January 20x1 and classifies it as FVOCI under IFRS 9.

Due to decline in the market interest rate, the fair value of the debt security increases to \$110,000 as at 31 December 20x1.

To protect the value of \$110,000, ABC Ltd enters into a hedge by acquiring an interest rate swap on 1 January 20x2.

Due to increase in the market interest rate, the fair value of the debt security declines by \$6,000, and the fair value of the interest rate swap increases by \$6,000 as at 31 December 20x2.

ABC Ltd has decided to apply hedge accounting under IFRS 9, and has complied with all the requirements of IFRS 9 for hedge accounting.

Solution

Journal entries (in \$)

(ignoring the interest component of the debt security)

1 January 20x1

Dr Investment in debt security	100,000	
Cr Cash		100,000
(Investment in FVOCI debt security)		

31 December 20x1

Dr Investment in debt security	10,000	
Cr Fair value gain (OCI)		10,000
(Mark-to-market gain of FVOCI investment)		

31 December 20x2

Dr Interest rate swap	6,000	
Cr Gain on hedging instrument (P/L)		6,000
(Fair value through profit or loss of hedging instrument)		
Dr Loss on hedged item (P/L)	6,000	
Cr Investment in debt security		6,000
(Fair value through profit or loss of hedged item)		

Notes to the solution

- (1) The unrealised mark-to-market gain of \$10,000 on the investment in FVOCI debt security in 20x1 is recognised in OCI in the Statement of Profit or Loss and Other Comprehensive Income and subsequently in "Fair value reserve" in the Statement of Financial Position, in accordance with the relevant applicable accounting rules for FVOCI under IFRS 9.

- (2) The unrealised mark-to-market loss of \$6,000 on the investment in FVOCI debt security in 20x2 is recognised in profit or loss in the Statement of Profit or Loss and Other Comprehensive Income, as the investment is now hedged, and accounted for in accordance with the fair value hedge accounting rules under IFRS 9.
- (3) It may be noted that, under the fair value hedge:
- in 20x2 Statement of Profit or Loss and Other Comprehensive Income, there is no gain or loss on fair value exposure; and
 - in 31 December 20x2 Statement of Financial Position, the investment in debt security will be carried at \$104,000, and the derivative asset will be carried at \$6,000, giving a total balance of \$110,000.
- (4) In all subsequent financial periods (as long as the fair value hedge is in effect), there will be no gain or loss on fair value exposure in the Statement of Profit or Loss and Other Comprehensive Income, and the total balance of investment in debt security and derivative asset in the Statements of Financial Position will be \$110,000.
- (5) Without applying hedge accounting, the change in the fair value of the interest rate swap will be recognised in profit or loss, whereas the change in the fair value of the FVOCI debt security will be recognised in OCI, resulting in an accounting mismatch and volatility in profit or loss in the financial statements.

The following illustration assumes the same case facts as the earlier Illustration 3.9 except that ABC Ltd purchases an equity instrument instead of a fixed-interest debt security.

Illustration 3.10

ABC Ltd (with 31 December accounting year-ends) purchases an equity instrument at its par value of \$100,000 on 1 January 20x1 and classifies it as "fair value through other comprehensive income" ("FVOCI") under IFRS 9.

As at 31 December 20x1, the fair value of the equity instrument increases to \$110,000.

To protect the value of \$110,000, ABC Ltd enters into a hedge by acquiring a put option on 1 January 20x2.

Due to market movements, the fair value of the equity instrument declines by \$6,000, and the fair value of the derivative put option increases by \$6,000 as at 31 December 20x2.

ABC Ltd has decided to apply hedge accounting under IFRS 9, and has complied with all the requirements of IFRS 9 for hedge accounting.

	Not applying hedge accounting	Applying hedge accounting
OCI for quarter 31 March 20x1	<ul style="list-style-type: none"> • Nil 	<ul style="list-style-type: none"> • Intrinsic value gain: \$35,000 • Time value loss: \$5,000 • Exchange gain (spot): \$25,000 • Exchange loss (interest): \$10,000 • Net OCI gain on financial derivatives = \$45,000 • Net OCI loss on FVOCI = \$60,000
P/L for subsequent quarters	<p>Nil</p> <p>Note: Reclassification of all amounts recognised in equity is made within equity.</p>	<ul style="list-style-type: none"> • Time value loss: \$5,000 • Exchange loss (interest): \$10,000 <p>Note: Reclassification of other amounts recognised in equity is made within equity. Please also see point (3) below.</p>

- (3) The time value of the option and the interest element of the forward foreign exchange contract are deferred in equity through OCI over the term of the hedge as shown above. These are then removed from equity to profit or loss depending on the categorisation of the hedged item as a 'transaction related' or 'time-period related' hedged item. In this case, the underlying hedged item of FVOCI investment is a "time-period related" hedged item and hence the time value of the option and the interest element is deferred in equity through OCI and "released" to the profit or loss over the time period of the underlying hedged item. The above journal entries have not incorporated this release to profit or loss. Refer to Section 3.10 where we discuss the accounting for the time value of an option or interest element of a forward contract which have not been designated as hedging instruments.

In the illustration above, the option (hedging instrument) is entered into at-the-money. Options may, of course, also be entered into in-the-money or out-of-the-money and used as the hedging instrument. At inception, an out-of-the-money option has no intrinsic value but would have time value (see also Chapter 1).

The following illustrates a case where an out-of-the-money option is used as the hedging instrument.

Illustration 3.12

On 1 August 20x9, DEF Ltd (with 31 December year-ends and prepares quarterly financial statements) purchases 200,000 shares of Ababa Ltd at \$1.50 per share. The investment is classified as FVOCI under IFRS 9.

On the same date, DEF Ltd purchases an out-of-the-money put option on 200,000 shares of Ababa Ltd at a premium of \$5,000. The put option has an exercise price of \$1.47 and will expire on 30 September 20x9.

DEF Ltd designates the change in the intrinsic value of the put option as the hedging instrument. The time value of the option contract is excluded from hedge accounting.

On 30 September 20x9, the put option position was closed and net-settled. DEF Ltd continues to hold the 200,000 shares of Ababa Ltd.

The prices of the shares of Ababa Ltd and the put option were as follows:

	Share price of Ababa Ltd	Price per unit of put option
On 31 August 20x9	\$1.35	\$0.16
On 30 September 20x9	\$1.26	\$0.21
On 31 December 20x9	\$1.20	-

Solution

This is a fair value hedge of the possible decline in fair value of the FVOCI investment in Ababa Ltd's shares below the exercise price of \$1.47 per share (i.e. DEF Ltd does not hedge the risk of fall in price of FVOCI shares from \$1.50 to \$1.47).

Given that the critical terms are the same (and assuming there is no liquidity and other credit risk), the hedge is expected to be 100% effective.

The hedge effectiveness may be calculated as shown below:

	31 July 20x9	31 August 20x9	30 September 20x9
Hedged item			
Price of FVOCI shares	\$1.50	\$1.35	\$1.26
Less amount not hedged	\$0.03	-	-
	\$1.47	\$1.35	\$1.26
Quantity	200,000	200,000	200,000
Hedged fair value	\$294,000	\$270,000	\$252,000
Change in hedged fair value		(\$24,000)	(\$18,000)
Cumulative change		(\$24,000)	(\$42,000)

30 June 20x1		
Dr Foreign exchange loss (P/L)	18,000	
Cr Investment in FVOCI bonds		18,000
(Foreign exchange loss on investment)		
[(0.30 – 0.33) × RM600,000]		
Dr Investment in FVOCI bonds	15,000	
Cr Mark-to-market gain (OCI)		15,000
(Mark-to-market gain on investment)		
[(RM650,000 – RM600,000) × 0.30]		

It may be noted the journal entries for the quarter ended March 20x1 for both cases where hedge accounting is applied and where hedge accounting is not applied are exactly the same. This is because, as mentioned earlier, this is a case of natural hedge.

3.7 Cash Flow Hedge

For cash flow hedge, IFRS 9 provides (para 6.5.11(b) and (c)):

- The portion of the gain or loss on the hedging instrument that is determined to be effective hedge shall be recognised in other comprehensive income and subsequently as part of cash flow hedge reserve in the Statement of Financial Position; and
- The ineffective portion of the gain or loss on the hedging instrument shall be recognised in profit or loss.

Essentially, what paragraph 6.5.11(b) and (c) require is that the effective portion of the gain/loss on the hedging instrument should be retained in the equity (to be dealt with subsequently under paragraph 6.5.11(d), which will be discussed later), and the ineffective portion (mainly the over-hedged portion, and is therefore, not permitted for hedge accounting purposes) should be immediately “written off” in profit or loss.

It should be noted that in a cash flow hedge, the hedged item is a highly probable forecast transaction (or the foreign currency risk of a firm commitment) which has not been transacted, and therefore, there is no gain/loss on hedged item to be accounted for.

Unlike in the case of fair value hedge (as discussed in section 3.6) where both the gain/loss on hedging instrument and gain/loss on hedged item have to be accounted for, in the case of cash flow hedge, only the gain/loss on hedging instrument has to be accounted for (there is no gain/loss on hedged item to be accounted for as it has not occurred).

Although the hedged item is not recognised under cash flow hedge accounting, there is still a need to calculate the present value of cash flows arising from the hedged item for the purpose of measuring hedge effectiveness.

Thus, there are two levels of effectiveness testing to be done in the case of cash flow hedge, (i) the hedge effectiveness test, and (ii) the effective/ineffective test. The hedge effectiveness test is performed to assess if hedge accounting is allowed under paragraph 6.4.1. The effective/ineffective test is performed to ascertain the amount of hedge that is to be recognised in other comprehensive income in accordance with cash flow hedge accounting (the effective portion) and the amount (if any) that is not required for cash flow hedge accounting and is to be written off in profit or loss (the ineffective portion). (Note that in the case of fair value hedge, there is no need for the “effective/ineffective” test as all the gains/losses on hedging instruments are recognised in profit or loss or in OCI in the case of the hedged item being an equity instrument classified as FVOCI.)

Illustration 3.18

On 10 November 20x1, ABC Ltd (with 31 December accounting year-end) enters into a cash flow hedge by acquiring a derivative (hedging instrument) to hedge the cash flow risk in a highly probably forecast transaction (hedged item) expected to occur on April 20x2.

At the inception of the hedging relationship, ABC Ltd has complied with all the requirements of IFRS 9 for hedge accounting.

Scenario A

Assume that the qualitative assessment concludes that the hedge effectiveness criteria is met.

The fair value calculation of the hedging instrument and hedged item as at 31 December 20x1 reveals the following quantitative measurement of the hedge effectiveness:

Gain in value of the hedging instrument: \$100

Loss in expected cash flow of hedged item: \$90

Under the cash flow hedge, the second level effectiveness test of “effective/ineffective” portions of the hedge has to be dealt with in accordance with paragraph 6.5.11(a).

The effective portion of the gain on the hedging instrument, that is \$90, should be recognised in OCI in the Statement of Profit or Loss and Other Comprehensive Income (and subsequently as “Cash flow hedge reserve” in the Statement of Financial Position); and the ineffective portion of the gain, that is the \$10 arising from “over-hedging”, will be immediately written off in profit or loss.