Derivatives,
Embedded Derivatives
&
Hedging

Derivatives

Definitions

IFRS 9 says that a derivative is a financial instrument with the following characteristics:

(a) Its value changes in response to the change in a specified interest rate, security price, commodity price, foreign exchange rate, index of prices or rates, a credit rating or credit index or similar variable (called the 'underlying').

(b) It requires little or no initial net investment relative to other types of contract that have a similar response to changes in market conditions.

(c) It is settled at a future date.

A contract to buy or sell a non-financial item (such as inventory or property, plant and equipment) is only a derivative if:

- it can be settled net in cash (or using another financial asset), and
- the contract was not entered into for the purpose of receipt or delivery of the item to meet the entity's operating requirements.

IFRS 9 says that a contract to buy or sell a non-financial item is considered to be settled net in cash when:

- the terms of the contract permit either party to settle the contract net
- the entity has a practice of settling similar contracts net

- the entity, for similar contracts, has a practice of taking delivery of the item and then quickly selling it in order to benefit from fair value changes
- the non-financial item is readily convertible to cash.

If the contract is not a derivative then it is a simple executory contract (a contract where neither party has yet performed its obligations). Such contracts are not normally accounted for until the sale or purchase date.

Measurement of derivatives

On initial recognition, derivatives should be measured at fair value. Transaction costs are expensed to the statement of profit or loss.

At the reporting date, derivatives are remeasured to fair value. Movements in fair value are recognised in profit or loss.

Tea exporter

1. Believe LKR will appreciate, therefore, will enter in to **an agreement** with bank to **sell USD** at a fixed price

2. Believe tea price will decrease, therefore, will enter in to **an agreement** to **sell tea packets** to JKH at a fixed price.
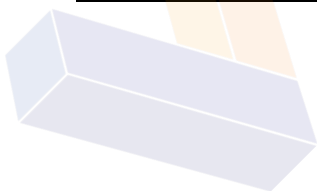
Accounting for derivatives

Entity A has a reporting date of 30 September. It enters into an option on 1 June 20X5, to purchase 10,000 shares in another entity on 1 November 20X5 for $10 per share. The purchase price of each option is $1. This is recorded as follows:

Debit	Option (10,000 × $1)	$10,000
Credit	Cash	$10,000

By 30 September the fair value of each option has increased to $1.30.

This increase is recorded as follows:

Debit	Option (10,000 × ($1.30 – 1))	$3,000
Credit	Profit or loss	$3,000

On 1 November, the fair value per option increases to $1.50. The share price on the same date is $11.50. A exercises the option on 1 November and the shares are classified at fair value through profit or loss. Financial assets are recognised at their fair value so the shares are initially measured at $115,000 (10,000 × $11.50):

Debit	Investment in shares (at fair value)	$115,000
Credit	Cash (10,000 × $10)	$100,000
Credit	Option ($10,000 + $3,000)	$13,000
Credit	Profit or loss (gain on option)	$2,000

Derivatives

Individual

- Derivative & host item are two separated contracts
- Only derivative will consider
- Host item can be Financial instrument or non-financial asset
- If financial asset- IFRS 09
- If not a financial asset –only IFRS 09 if, host item immediately converting to cash
- FVTPL

Embedded - ED

- Derivative & host in a single contract. Ex. Convertible debenture
- ED will measure at FVTPL/FVTOCI /AMC if host is a financial instrument
- ED will separate and derivative will measure at FVTPL if it satisfied separation criteria

Embedded derivatives

Definition

An embedded derivative is a **'component of a hybrid contract that also includes a non-derivative host, with the effect that some of the cash flows of the combined instrument vary in a way similar to a stand-alone derivative'** (IFRS 9, para 4.3.3).

Accounting treatment

With regards to the accounting treatment of an embedded derivative, if the host contract is within the scope of IFRS 9 then the entire contract must be classified and measured in accordance with that standard.

If the host contract is not within the scope of IFRS 9 (i.e. it is not a financial asset or liability), then the embedded derivative can be separated out and measured at fair value through profit or loss if:

(i) **'the economic risks and characteristics of the embedded derivative are not closely related to those of the host contract**

(ii) **a separate instrument with the same terms as the embedded derivative would meet the definition of a derivative, and**

(iii) **the entire instrument is not measured at fair value with changes in fair value recognised in profit or loss'** (IFRS 9, para 4.3.3).

Because of the complexity involved in splitting out and measuring an embedded derivative, IFRS 9 permits a hybrid contract where the host element is outside the scope of IFRS 9 to be measured at fair value through profit or loss in its entirety.

For the vast majority of embedded derivatives, the whole contract will simply be measured at fair value through profit or loss.

An investment in a convertible bond

An entity has an investment in a convertible bond, which can be converted into a fixed number of equity shares at a specified future date. The bond is a non-derivative host contract and the option to convert to shares is therefore a derivative element.

The host contract, the bond, is a financial asset and so is within the scope of IFRS 9. This means that the rules of IFRS 9 must be applied to the entire contract.

The bond would fail the contractual cash flow characteristics test and therefore the entire contract should be measured at fair value through profit or loss.

Hedge accounting

Definitions

Hedge accounting is a method of managing risk by designating one or more hedging instruments so that their change in fair value is offset, in whole or in part, by the change in fair value or cash flows of a hedged item.

A **hedged item** is an asset or liability that exposes the entity to risks of changes in fair value or future cash flows (and is designated as being hedged). There are 3 types of hedged item:

- A recognised asset or liability
- An unrecognised firm commitment – a binding agreement for the exchange of a specified quantity of resources at a specified price on a specified future date
- A highly probable forecast transaction – an uncommitted but anticipated future transaction.

A **hedging instrument** is a designated derivative, or a non-derivative financial asset or financial liability, whose fair value or cash flows are expected to offset changes in fair value or future cash flows of the hedged item.

(1) **'Fair value hedge: a hedge of the exposure to changes in fair value of a recognised asset or liability or an unrecognised firm commitment that is attributable to a particular risk and could affect profit or loss (or other comprehensive income for equity investments measured at fair value through other comprehensive income).**

(2) **Cash flow hedge: a hedge of the exposure to variability in cash flows that is attributable to a particular risk associated with a recognised asset or liability or a highly probable forecast transaction and that could affect profit or loss'** (IFRS 9, para 6.5.2).

As you can see, the key difference between a cash flow hedge and a fair value hedge is the hedged item. With a cash flow hedge, you're hedging the changes in cash inflow and outflow from assets and liabilities, whereas fair value hedges help to mitigate your exposure to changes in the value of assets or liabilities.

Criteria for hedge accounting

Under IFRS 9, hedge accounting rules can only be applied if the hedging relationship meets the following criteria:

(1) The hedging relationship consists only of eligible hedging instruments and hedged items.

(2) At the inception of the hedge there must be formal documentation identifying the hedged item and the hedging instrument.

(3) The hedging relationship meets all effectiveness requirements (see latter section for more details).

Accounting treatment of a fair value hedge

At the reporting date:

- The hedging instrument will be remeasured to fair value.
- The carrying amount of the hedged item will be adjusted for the change in fair value since the inception of the hedge.

The gain (or loss) on the hedging instrument and the loss (or gain) on the hedged item will be recorded:

- in profit or loss in most cases, but
- in other comprehensive income if the hedged item is an investment in equity that is measured at fair value through other comprehensive income.

Investor perspective – hedge accounting

An entity has inventories of gold that cost $8m but whose value has increased to $10m. The entity is worried that the fair value of this inventory will fall, so it enters into a futures contract on 1 October 20X1 to sell the inventory for $10m in 6 months' time. This was designated as a fair value hedge.

By the reporting date of 31 December 20X1, the fair value of the inventory had fallen from $10m to $9m. There was a $1m increase in the fair value of the derivative.

The entity believes that all effectiveness criteria have been met.

Under a fair value hedge, the movement in the fair value of the item and instrument since the inception of the hedge are accounted for. The gains and losses will be recorded in profit or loss.

The $1m gain on the future and the $1m loss on the inventory will be accounted for as follows:

Dr Derivative	$1m
Cr Profit or loss	$1m
Dr Profit or loss	$1m
Cr Inventory	$1m

By applying hedge accounting, the profit impact of remeasuring the derivative to fair value has been offset by the movement in the fair value of the inventory. Volatility in profits and 'earnings per share' has, in this example, been eliminated. This may make the entity look less risky to current and potential investors.

Note that the inventory will now be held at $7m (cost of $8m – $1m fair value decline). This is neither cost nor NRV. The normal accounting treatment of inventory has been changed by applying hedge accounting rules.

Accounting treatment of a cash flow hedge

For cash flow hedges, the hedging instrument will be remeasured to fair value at the reporting date. The gain or loss is recognised in other comprehensive income.

However, if the gain or loss on the hedging instrument since the inception of the hedge is greater than the loss or gain on the hedged item then the **excess** gain or loss on the instrument must be recognised in profit or loss.

A company enters into a derivative contract in order to protect its future cash inflows relating to a recognised financial asset. At inception, when the fair value of the hedging instrument was nil, the relationship was documented as a cash flow hedge.

By the reporting date, the loss in respect of the future cash flows amounted to $9,100 in fair value terms. It has been determined that the hedging relationship meets all effectiveness criteria.

Required:

Explain the accounting treatment of the cash flow hedge if the fair value of the hedging instrument at the reporting date is:

(a) **$8,500**
(b) **$10,000.**

(a) The movement on the hedging instrument is less than the movement on the hedged item. Therefore, the instrument is remeasured to fair value and the gain is recognised in other comprehensive income.

Dr Derivative	$8,500
Cr OCI	$8,500

(b) The movement on the hedging instrument is more than the movement on the hedged item. The excess movement of $900 ($10,000 – $9,100) is recognised in the statement of profit or loss.

Dr Derivative	$10,000
Cr Profit or loss	$900
Cr OCI	$9,100

- If the hedged item eventually results in the recognition of a financial asset or a financial liability, the gains or losses that were recognised in equity shall be reclassified to profit or loss as a reclassification adjustment in the same period during which the hedged forecast cash flows affect profit or loss (e.g. in the period when the hedged forecast sale occurs).

- If the hedged item eventually results in the recognition of a non-financial asset or liability, the gain or loss held in equity must be adjusted against the carrying amount of the non-financial asset/liability. This is not a reclassification adjustment and therefore it does not affect other comprehensive income.

In January, Grayton, whose functional currency is the dollar ($), decided that it was highly probable that it would buy an item of plant in one year's time for KR 200,000. As a result of being risk averse, it wished to hedge the risk that the cost of buying KRs would rise and so entered into a forward rate agreement to buy KR 200,000 in one year's time for the fixed sum of $100,000. The fair value of this contract at inception was zero and it was designated as a hedging instrument.

At Grayton's reporting date of 31 July, the KR had depreciated and the value of KR 200,000 was $90,000. The fair value of the derivative had declined by $10,000. These values remained unchanged until the plant was purchased.

Required:

How should this be accounted for?

The forward rate agreement has no fair value at its inception so is initially recorded at $nil.

This is a cash flow hedge. The derivative has fallen in value by $10,000 but the cash flows have increased in value by $10,000 (it is now $10,000 cheaper to buy the asset).

Because it has been designated a cash flow hedge, the movement in the value of the hedging instrument is recognised in other comprehensive income:

Dr	Other comprehensive income	$10,000
Cr	Derivative	$10,000

(Had this not been designated a hedging instrument, the loss would have been recognised immediately in profit or loss.)

The forward contract will be settled and closed when the asset is purchased.

Property, plant and equipment is a non-financial item. The loss on the hedging instrument held within equity is adjusted against the carrying amount of the plant.

The following entries would be posted:

Dr	Liability – derivative	$10,000
Dr	Plant	$90,000
Cr	Cash	$100,000

Being the settlement of the derivative and the purchase of the plant.

Dr	Plant	$10,000
Cr	Cash flow hedge reserve	$10,000

Being the recycling of the losses held within equity against the carrying amount of the plant. Notice that the plant will be held at $100,000 ($90,000 + $10,000) and the cash spent in total was $100,000. This was the position that the derivative guaranteed.

To mitigate this risk, Bling entered into a futures contract on 31 October 20X1 to sell the gold for $7.7m. The contracts mature on 31 March 20X2. The hedging relationship was designated and documented at inception as a cash flow hedge. All effectiveness criteria are complied with.

On 31 December 20X1, the fair value of the gold was $8.6m. The fair value of the futures contract had fallen by $0.9m.

There is no change in fair value of the gold and the futures contract between 31 December 20X1 and 31 March 20X2. On 31 March 20X2, the inventory is sold for its fair value and the futures contract is settled net with the bank.

Required:

(a) **Discuss the accounting treatment of the hedge in the year ended 31 December 20X1.**

(b) **Outline the accounting treatment of the inventory sale and the futures contract settlement on 31 March 20X2.**

(a) Between 1 October 20X1 and 31 December 20X1, the fair value of the futures contract had fallen by $0.9m. Over the same time period, the hedged item (the estimated cash receipts from the sale of the inventory) had increased by $0.9m ($8.6m – $7.7m).

Under a cash flow hedge, the movement in the fair value of the hedging instrument is accounted for through other comprehensive income. Therefore, the following entry is required:

Dr Other comprehensive income	$0.9m
Cr Derivative	$0.9m

The loss recorded in other comprehensive income will be held within equity.

(b)   The following entries are required:

Dr Cash	$8.6m
Cr Revenue	$8.6m

Dr Cost of sales	$6.4m
Cr Inventory	$6.4m

To record the sale of the inventory at fair value

Dr Derivative	$0.9m
Cr Cash	$0.9m

To record the settlement of the futures contract

Dr Profit or loss	$0.9m
Cr OCI	$0.9m

To recycle the losses held in equity through profit or loss in the same period as the hedged item affects profit or loss.

Hedge effectiveness

Hedge accounting can only be used if the hedging relationship meets all effectiveness requirements. In the examples so far, it has been assumed that this is the case.

According to IFRS 9, an entity must assess at the inception of the hedging relationship, and at each reporting date, whether a hedging relationship meets the hedge effectiveness requirements. The assessment should be **forward-looking.**

The hedge effectiveness requirements are as follows

(1) **'There must be an economic relationship between the hedged item and the hedging instrument'** (IFRS 9, para 6.4.1).

  – For example, if the price of a share falls below $10, the fair value of a futures contract to sell the share for $10 rises.

(2) **'The effect of credit risk does not dominate the value changes that result from that economic relationship'** (IFRS 9, para 6.4.1).

  – Credit risk may lead to erratic fair value movements in either the hedged item or the hedging instrument. For example, if the counterparty of a derivative experiences a decline in credit worthiness, the fair value of the derivative (the hedging instrument) may fall substantially. This movement is unrelated to changes in the fair value of the item and would lead to hedge ineffectiveness.

(3) **'The hedge ratio of the hedging relationship is the same as that resulting from the quantity of the hedged item that the entity actually hedges and the quantity of the hedging instrument that the entity actually uses to hedge that quantity of hedged item'** (IFRS 9, para 6.4.1).

Example: Hedge efficiency

You are given the following details about the results of a hedge by an American company for a payment of SFr 650,000 in 30 days' time under two scenarios. In each case, compute the hedge efficiency. Assume today's spot rate is SFr1 = $1.03

The price quoted on the futures market for contracts expiring in two months time is $1.0162. Contract size is SFr125,000, and tick size is $12.50.

Number of contracts = 650,000/125,000 = 5.2, round to 5.

	Scenario 1		Scenario 2	
Futures hedge (5 contracts)	$/SFr	$	$/SFr	$
Today: buy 5 at	1.0162		1.0162	
In 30 days: sell 5 at	1.0467		1.0047	
Gain/(loss) per contract in ticks	305		(115)	
Total gain/(loss) on 5 contracts:				
5 × $12.50 × no. of ticks		19,063		(7,187)
Cash transaction				
In 30 days: SFr 650,000 are				
actually bought at	1.0609	(689,585)	1.0177	(661,505)
Net cost of the Swiss francs		(670,522)		(668,692)

Solutions

The futures hedge gives slightly more or less than the target payment of $669,500 (SFr 650,000 × 1.03) because of hedge inefficiency. To compute the hedge efficiency in each case, compute gain/loss as a percentage. In scenario 1 the gain comes from the futures market. In scenario 2 the gain comes from the cash market.

Hedge efficiency

	$	$
Target payment (650,000 × 1.03)	669,500	669,500
Actual cash payment	689,585	661,505
Gain/(loss) on spot market	(20,085)	7,995
Futures gain/(loss)	19,063	(7,187)
Hedge efficiency	94.9%	111.2%

The hedge efficiency can be further analysed as follows.

In scenario 1, the futures market gave a gain of 305 ticks on 5 contracts. The spot market price lost 309 ticks on the equivalent of 5.2 contracts.

$$\text{Hedge efficiency} = \frac{305 \times 5}{309 \times 5.2} = 94.9\%$$

In scenario 2, the spot market gained 123 ticks on 5.2 contracts. The futures price lost 115 ticks on 5 contracts.

$$\text{Hedge efficiency} = \frac{123 \times 5.2}{115 \times 5} = 111.2\%$$

An alternative measure of the hedge efficiency on the futures market might be its success measured against the **results of using a forward contract**.

Thank you