

SAMPLE EXTRACT

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For demonstration purposes

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Derivatives

Accounting Principles

Using this eWorkbook

This eWorkbook contains interactivity that is best viewed on a computer. If you print this eWorkbook, some elements may not print.

This eWorkbook contains core learning and extension learning. We recommend using the navigation buttons at the bottom page which will guide you through the learning. However, you can use your keyboard or the built-in navigation in your PDF Reader if you prefer.

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Home: Click this icon to go back to the main course menu.

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Menu: Click this icon to go to the content menu for this module.

Glossary: Click this icon to go to the glossary.



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Key learning points: Click this icon to see the key ideas covered in this module.

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Contents Menu: Derivatives

Here are the topics that we will cover in this module.

We estimate that this module will take 45 minutes to complete.

TOPICS

Derivatives on the Balance Sheet

Credit Valuation Adjustments and Other Fair Value Adjustments

Derivative Risk Mitigations

Hedge Accounting for Derivatives

Hedge Versus Trading Derivatives

Click on each **TOPIC** heading to go straight to the relevant page

KEY AIMS

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- Understand in-the-money versus out-ofthe-money transactions
- Understand credit valuation (CVA) and other fair value adjustments
- Understand mitigation techniques: central clearing, netting and collateral
- Understand hedge accounting

Derivatives on the Balance Sheet

Derivative transactions will appear on the balance sheet at fair value with any changes in value usually going through the profit and loss account (except for certain derivatives accounted for as hedges).

The notional principal is *not* on the balance sheet as this full amount is not usually at risk but is used just as a means of calculating the cash flows. The notional is, however, disclosed in the footnotes to the accounts.



VALUING A DERIVATIVE - Derivative contracts are usually agreed at the prevailing market price on that day e.g., the fixed rate part of an interest rate swap locks in the current market SOFR (5% in the example). The value of the swap on the day of contract is therefore zero as the bank is both paying and receiving 5%. However, if the SOFR rate moves, to say 4%, the bank is receiving 5% and paying 4%. This gain must be reflected in the income statement.

Derivative contracts where the bank is making money are known as **in-the-money** transactions. In-the-money transactions appear on the ASSET side of the balance sheet.

A derivative contract where the bank is losing money is called an **out-of-the-money** transaction. Out-of-the-money transactions appear on the LIABILITIES side of the balance sheet.

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CASE STUDY: STANDARD CHARTERED BANK



Example: Standard Chartered Derivatives

		2022	
Derivatives	Notional principal amounts \$million	Assets \$million	Liabilities \$million
Foreign exchange derivative contracts:			
Forward foreign exchange contracts	3,154,440	38,162	39,376
Currency swaps and options	1,168,026	16,010	17,447
	4,322,466	54,172	56,823
Interest rate derivative contracts:			
Swaps	3,516,310	62,001	64,005
Forward rate agreements and options	98,465	2,214	2,380
Exchange traded futures and options	324,702	279	258
	3,939,477	64,494	67,143
Credit derivative contracts	249,082	411	941
Equity and stock index options	6,788	100	246
Commodity derivative contracts	90,952	1,622	1,791
Gross total derivatives	8,608,765	120,799	126,944
Offset	_	(57,082)	(57,082)
Net Total derivatives	8,608,765	63,717	69,862
		in-the- money	out-the-

Notional principal is not on the balance sheet - only the fair value.

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2022 \$million Assets Cash and balances at central banks 58,263 Financial assets held at fair value through profit or loss 105,812 63,717 Derivative financial instruments Loans and advances to banks 39,519 Loans and advances to customers 310,647 172,448 Investment securities 50,383 Other assets 503 Current tax assets Prepayments and accrued income 3,149 Interests in associates and joint ventures 1,631 Goodwill and intangible assets 5,869 Property, plant and equipment 5,522 834 Deferred tax assets Assets classified as held for sale 1.625 Total assets 819,922 Liabilities Deposits by banks 28,789 Customer accounts 461,677 Repurchase agreements and other similar secured borrowing 2,108 Financial liabilities held at fair value through profit or loss 79,903 Derivative financial instruments 69,862 Debt securities in issue 61,242 Other liabilities 43,527 Current tax liabilities 583 Accruals and deferred income 5.895 Subordinated liabilities and other borrowed funds 13,715 Deferred tax liabilities 769 383 Provisions for liabilities and charges Retirement benefit obligations 146 Liabilities included in disposal groups held for sale 1,307 Total liabilities 769,906

Extracted from the footnotes in Standard Chartered Bank's Annual Report 2022, page 398.

Credit Valuation Adjustments and Other Fair Value Adjustments

When valuing derivatives in the balance sheet at fair value, financial institutions have to adjust both for movements in underlying prices (e.g., FX) and other changes to the fair value.

The table below shows a number of risk and model related fair value adjustments.

HSBC	2022 US\$m	2021 US\$m	Credit Valuation Adjustments (CVA) arise from the market's perception of changes in the creditworthiness of counterparties
Type of adjustment			will fall.
Risk-related	650	868	
– bid-offer	426	412	
– uncertainty	86	66	Debit Valuation Adjustments (DVA) arise from the market's
 credit valuation adjustment 	245	228 🔶	creditworthiness.
 debit valuation adjustment 	(175)	(92) 🔶	
– funding fair value adjustment	68	254 🔸	
Model-related	61	57	Funding Valuation Adjustments (FVA) are an adjustment to
– model limitation	61	57	reflect the funding cost of collateralizing an out of the money derivative position
Inception profit (Day 1 P&L reserves)	97	106	
At 31 December	808	1,031	
			Amount deducted from in the money derivative assets on the balance sheet to reflect non price related fair value adjustments

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Extracted from HSBC's Annual Report 2022, page 365.

Derivative Risk Mitigations

Amounts owing between parties on derivatives contracts can be very significant and volatile and so the financial institutions usually reduce the risk using a variety of mitigations as shown below:

Cli	ick on each MITIGANT below or more information.
\bigcirc	CENTRAL CLEARING
	PAYMENT NETTING
	CLOSE-OUT NETTING
	CASH COLLATERAL
♀	SECURITIES COLLATERAL
<i>"</i> ?©	HEDGE

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Test Your Understanding

CHOOSE ONE: Which of the following best describes the valuation technique(s) applied to derivatives in the balance sheet of a financial firm?

	Fair value.					
	Notional p	principal.				
	Fair value	for trading derivatives, am	nortized cost for h	nedging derivatives.		
	Fair value	but after applicable dedu	ctions such as CV	/A, DVA and FVA?	\checkmark	All derivatives are valued in the balance sheet at fair value after applicable deductions such as CVA, DVA and FVA.
		When you are ready has				
		mouse over 'reveal answ	rer'.	veal answer		
© Adeva	a Partners 2024					\mathcal{O} $\langle \rangle$

Accounting for Derivative Risk Mitigations

IFRS and US GAAP have very different policies for the recognition of derivative risk mitigations in the balance sheet.



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Extracted from Citigroup's Annual Report 2022, page 255.

NATWEST (GBP millions)

	Gross	IFRS offset	Balance sheet	Effect of master netting & similar arrangements	Cash collateral	Other financial collateral	Non-netted Derivatives	Net amount after the effect of netting arrangements and related collateral
Assets								
Derivatives	117,606	(18,730)	98,876	(77,365)	(14,079)	(4,571)	669	2,861
Extracted from NatWe	est's Annual Repo	rt 2022, page 338.	If re GBI	ported under P 8 billion (GB	US GAAP, th P 4.57m + GE	e derivative 3P 2.86m +	e assets wou GBP 0.669n	ld be approx. n).
			_					

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NOTE: IFRS permits the bank to deduct central clearing and payment netting (shown here as IFRS offset) but NOT cash collateral received and close out netting. In calculations of capital, IFRS firms are given credit for netting and cash collateral in a similar way as US GAAP firms.



Test Your Understanding

CHOOSE ONE: If a US financial firm under US GAAP and a European competitor adopting IFRS had identical portfolios of derivatives, with the same clearing, close-out and collateral arrangements, which one would have the largest derivative assets on its balance sheet?

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They would be the same.		
The firm adopting US GAAP.		
The firm adopting IFRS.	\checkmark	Only payment netting is deducted under IFRS, whereas US GAAP allows the deduction of payment petting, close-out petting and cash
Derivatives are off balance sheet items and therefore there would be no impact upon the balance sheet of either.		collateral. Therefore, one would expect the derivative assets to be larger in the IFRS firm.
When you are ready, hover your Reveal answer		

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mouse over 'reveal answer'.



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Hedge Accounting for Derivatives

Where derivatives are used to hedge banking book items such as loans or deposits, the fair value treatment of derivatives can lead to timing differences in the recognition of the hedging benefits. To get around this problem, hedge accounting treatment allows the benefit of the hedge to be recognized against the underlying hedged item.

US GAAP and IFRS both recognize three types of hedge for accounting purposes:

Type of hedge	Examples	REALIZED gain and loss	UNREALIZED gain and loss
CASH FLOW HEDGE	 Floating rate assets and liabilities (e.g., receivables, investments) Highly probably forecast sales and purchases 	Profit and lossSet off against underlying exposure	• Other comprehensive income - cash flow hedging reserve
FAIR VALUE HEDGE	 Fixed rate investments and liabilities (e.g., holdings in fixed rate bonds Firm commitments to buy or sell 	Profit and lossSet off against underlying exposure	Profit and lossSet off against underlying exposure
NET INVESTMENT HEDGE	 Net assets (equity) of foreign subsidiaries 	 Profit and loss 	 Other comprehensive income - Net investment in foreign subsidiaries

Broadly speaking, hedge accounting treatment works in two ways:

- 1. Offsetting of the movements on the derivatives against the hedged item.
- 2. Delaying recognition of gains or losses on the derivative until any gains or losses on the hedged item are recognized.

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IFRS9 Hedge Accounting Treatment

Click to find out more

Hedge Versus Trading Derivatives

Many derivative transactions entered into by financial institutions are for risk management purposes but are not necessarily eligible for hedge accounting treatment.



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Derivatives: Self-Test

Answer the following questions by typing your answers in the boxes.

How are derivatives r balance sheet? What represent and where principal shown?	eflected on the does the asset is notional			Derivatives are shown at fair va sheet less valuation adjustmen The asset is the fair value of all firm is in the money. The notion the balance sheet but usually o	lue on the balance ts such as CVA/DVA. positions where the nal principal is not on disclosed in the notes.
What is CVA and DVA they reflected in the	A and where are accounts?			CVA is a credit valuation adjust changes in the credit standing owe money to the firm. It is de derivative asset and any gain o P&L. DVA is a debit valuation a bank's own derivative liabilities similarly reflected in the P&L.	ment reflecting of counterparties who ducted from the r loss reflected in the djustment on the with gains and losses
What is the difference between US GAAP and IFRS treatment of netting and collateral and how does this impact balance sheet size?				US GAAP allows deduction of cash collateral but IFRS does n firms with significant derivative significantly larger balance she	close out netting and ot, meaning IFRS activities have ets.
What are the three ty hedge?	pes of derivative			Fair value, cash flow and net in	vestment.
	When you are read mouse over 'revea	dy, hover your I answer'.	Reveal answer		
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Derivatives: Key Learning Points

1	Derivatives: Are valued at fair value through the profit and loss (unless treated as a hedge). Notional principal is not on the balance sheet but disclosed in the footnotes. In the money derivatives where the counterparty owes money to the financial institution are shown as an asset; out of the money derivatives where the firm owes money are shown as a liability.
2	In the money derivatives are stated net of credit valuation adjustments (CVA) to reflect any movement in the credit standing of the counterparty. Out of the money derivative liabilities are stated net of debit valuation adjustments (DVA) reflecting the firm's own credit standing.
3	Netting and collateral: US GAAP permits firms to deduct, payment netting, close out netting and cash collateral from derivative positions on balance sheet, and so balances are much lower than for firms reporting under IFRS. Under IFRS only payment netting agreement is recognized in the balance sheet.
4	Hedging derivatives: There are three types of hedge derivative – fair value, cashflow and net investment hedge and these permit the firm to match gains and losses on the derivative against the underlying. Despite a loosening of hedge accounting criteria under IFRS9, the requirements to recognize a derivative as a hedge are often inconsistent with the way that banks hedge risks, and therefore many firms include portfolio and other hedges within trading assets and liabilities.

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