INTERNATIONAL TRADE AND FINANCE MASTERCLASS

PART 10 OF 25 · SECTION IV: FOREIGN EXCHANGE

PART 10

FX RISK MANAGEMENT — HEDGING

The CFO's complete toolkit for managing currency risk — from the decision to hedge to the choice of instrument, from forward contracts to options to cross-currency swaps, with full calculations and hedge accounting under ASC 815.

IN THIS PART

- The hedging decision — should you hedge and how much?
- Forward contracts — the complete mechanics with math
- FX options — how they work, what they cost, when to use them
- Cross-currency swaps for long-term debt
- Hedge accounting under ASC 815 and IFRS 9
- Writing the CFO's hedging policy

CASE STUDIES

Each part includes fully worked case studies with detailed calculations, real-world context, and practical lessons for CFOs and finance leaders.

THE HEDGING DECISION

Should You Hedge? The Framework for Making the Decision

The decision to hedge foreign currency exposure is one of the most misunderstood and most debated topics in corporate finance. At one extreme, there are CFOs who hedge nothing — arguing that currency movements are random in the long run and that hedging costs money without adding value. At the other extreme, there are CFOs who hedge everything — sometimes using financial instruments that are more complex than the underlying risk they are trying to manage. Neither extreme is generally correct, and the right answer depends on the specific characteristics of the business.

The economic case for hedging rests on three pillars. The first is the protection of profit margins. If a company's profit margin on an international contract is twelve percent and the relevant currency moves eight percent adversely, hedging is the only way to protect the margin. The second is the reduction of financial distress costs. Companies with high leverage face real financial consequences if a large currency loss pushes them toward covenant breach or debt distress — costs that hedging can prevent. The third is the creation of planning certainty. A company that has hedged

its foreign currency exposures can plan its business with greater confidence, invest in the right projects, and manage its workforce more effectively.

Natural Hedges: The Cheapest Form of Protection

Before considering financial hedging instruments, every CFO should first exhaust the available natural hedges — operational structures that reduce FX exposure without the use of financial derivatives. The most powerful natural hedge is matching revenues and costs in the same currency. A US company that earns euros and also has euro-denominated costs — a European manufacturing facility, a European workforce, European-currency debt — has a natural hedge between the two. If the euro weakens, revenues fall in dollar terms, but so do costs. The net impact on profit may be minimal.

Forward Contracts: The Workhorse of FX Hedging

A forward contract is an agreement between two parties to exchange a specific amount of one currency for another currency at a specific rate on a specific future date. It is the most widely used FX hedging instrument and, for most corporate hedging needs, the most appropriate. The forward contract is simple to understand, straightforward to execute, and provides complete certainty about the exchange rate that will be received or paid on a future transaction.

◆ FORWARD CONTRACT MECHANICS

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FORWARD CONTRACT — COMPLETE WORKED EXAMPLE
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SCENARIO: US exporter expects to receive EUR 2,000,000
in six months from a German customer
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TODAY (Day 1):
Spot EUR/USD: 1.0843
6-month forward rate: 1.0889 (as calculated in Part 9)
Exporter sells EUR 2,000,000 forward at 1.0889
Locked-in USD proceeds: EUR 2,000,000 x 1.0889 = $2,177,800
No cash changes hands today
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SIX MONTHS LATER (Maturity Date):
Exporter receives EUR 2,000,000 from German customer
Exporter delivers EUR 2,000,000 to the bank
Bank pays exporter USD 2,177,800 (at locked forward rate)
This happens regardless of where spot rate is on maturity date
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SCENARIO A: EUR weakens to 1.0200 by maturity
Unhedged USD proceeds: EUR 2M x 1.0200 = $2,040,000
Forward contract proceeds: $2,177,800
HEDGE BENEFIT: $2,177,800 - $2,040,000 = $137,800
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SCENARIO B: EUR strengthens to 1.1600 by maturity
Unhedged USD proceeds: EUR 2M x 1.1600 = $2,320,000
Forward contract proceeds: $2,177,800
OPPORTUNITY COST: $2,320,000 - $2,177,800 = $142,200
The hedge protected against downside but gave up upside
This is the fundamental tradeoff of a forward contract
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FX Options: Paying for the Right to Choose

An FX option gives the buyer the right — but not the obligation — to exchange currencies at a specified rate on or before a specified date. Unlike a forward contract, which locks in a rate and requires both parties to transact at that rate regardless of where the market goes, an option allows the buyer to exercise the right if the option is favorable, or simply let it expire if the spot market is more attractive. This flexibility has a cost — the premium paid upfront for the option.

There are two basic types of FX option. A put option gives the holder the right to sell a currency at the strike price. A call option gives the holder the right to buy a currency at the strike price. For an exporter who expects to receive

foreign currency, the appropriate hedge is a put option — the right to sell the foreign currency at a minimum rate. For an importer who expects to pay foreign currency, the appropriate hedge is a call option — the right to buy the foreign currency at a maximum rate.

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◆ FX OPTION — PAYOFF ANALYSIS

FX OPTION — PREMIUM CALCULATION AND PAYOFF ANALYSIS
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SCENARIO: US importer needs to buy EUR 1,000,000 in 6 months
(to pay a European supplier)
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TODAY:
Spot EUR/USD: 1.0843
6-month forward: 1.0889
At-the-money call option (strike = 1.0889): premium 1.8%
Option premium: EUR 1,000,000 x 1.8% x 1.0889 = $19,600
(Premium paid today in USD)
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SIX MONTHS LATER — THREE SCENARIOS:
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SCENARIO A: EUR rises to 1.2000 (EUR more expensive)
Importer EXERCISES the option at strike 1.0889
Cost of EUR 1M: 1,000,000 x 1.0889 = $1,088,900
Add option premium: $19,600
Total cost: $1,088,900 + $19,600 = $1,108,500
Unhedged cost at 1.2000: $1,200,000
OPTION SAVED: $1,200,000 - $1,108,500 = $91,500
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SCENARIO B: EUR falls to 0.9800 (EUR cheaper)
Importer LETS option EXPIRE — spot is better
Buys EUR 1M at spot: 1,000,000 x 0.9800 = $980,000
Add option premium (sunk cost): $19,600
Total cost: $980,000 + $19,600 = $999,600
Forward contract would have cost: $1,088,900
OPTION SAVED vs. FORWARD: $1,088,900 - $999,600 = $89,300
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SCENARIO C: EUR stays at 1.0889 (at-the-money)
Option expires worthless
Cost: spot rate $1,088,900 + $19,600 premium = $1,108,500
vs. forward: $1,088,900
Option COSTS $19,600 more than forward when rate unchanged
This is the cost of flexibility — the option premium
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Hedge Accounting Under ASC 815

Companies that use derivative instruments — forward contracts, options, swaps — to hedge FX exposure face an accounting challenge. Without hedge accounting, the derivative is marked to market at every balance sheet date, and the fair value changes flow through the income statement, creating volatility in earnings that does not reflect the economic reality of the hedge. Hedge accounting — governed by ASC 815 in the United States and IFRS 9 internationally — allows companies to offset the fair value changes on the derivative against the changes in value of the hedged item, reducing or eliminating the P&L; volatility.

There are three types of hedging relationships under ASC 815. A fair value hedge protects against changes in the fair value of an asset or liability — for example, hedging the USD value of a fixed-rate EUR-denominated bond. A cash flow hedge protects against variability in future cash flows — for example, hedging a highly probable future EUR sale. A net investment hedge protects against the translation risk of a foreign subsidiary's net assets. Each type has different accounting treatment and different documentation requirements.

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CASE STUDY 1

Continental Machinery Corp.

Rolling Forward Hedge Program — Twelve Months of EUR Revenue Protected

Background

Continental Machinery Corp. exports industrial equipment to European buyers and invoices in euros. Annual EUR revenue is approximately fifteen million euros, spread relatively evenly across the year. The company's CFO has established a policy of hedging sixty percent of forecast EUR revenue on a rolling twelve-month basis using monthly forward contracts. This case study walks through the complete annual hedge program for a single year.

◆ ROLLING FORWARD HEDGE PROGRAM

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CONTINENTAL — ROLLING FORWARD HEDGE PROGRAM
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Annual EUR revenue forecast: EUR 15,000,000
Hedge ratio: 60%
Amount to hedge: EUR 15,000,000 x 60% = EUR 9,000,000
Monthly hedge amount: EUR 9,000,000 / 12 = EUR 750,000
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FORWARD RATES LOCKED AT START OF YEAR (Jan 1):
1-month forward: 1.0820
3-month forward: 1.0856
6-month forward: 1.0889
9-month forward: 1.0922
12-month forward: 1.0958
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LOCKED USD REVENUE (60% of annual EUR revenue):
Jan-Mar (avg 1.0838): EUR 2.25M x 1.0838 = $2,438,550
Apr-Jun (avg 1.0889): EUR 2.25M x 1.0889 = $2,450,025
Jul-Sep (avg 1.0922): EUR 2.25M x 1.0922 = $2,457,450
Oct-Dec (avg 1.0958): EUR 2.25M x 1.0958 = $2,465,550
Total hedged USD revenue (60%): $9,811,575
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UNHEDGED 40% (at actual spot rates — assumes EUR at 1.0200):
EUR 6,000,000 x 1.0200 = $6,120,000
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TOTAL USD REVENUE:
Hedged portion: $9,811,575
Unhedged portion: $6,120,000
Total: $15,931,575
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FULLY UNHEDGED RESULT (if all EUR at 1.0200):
EUR 15,000,000 x 1.0200 = $15,300,000
HEDGE BENEFIT: $15,931,575 - $15,300,000 = $631,575
The hedge delivered $631,575 of additional USD revenue
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CASE STUDY 2

Pacific Imports LLC

Zero-Cost Collar — Capping Cost Without Paying an Option Premium

Background

Pacific Imports LLC imports consumer goods from Japan and pays its Japanese suppliers in yen. Annual JPY payables are approximately one billion yen. The company wants to protect against a yen strengthening — which would increase the USD cost of its imports — but the CFO is reluctant to pay an option premium. The solution is a zero-cost collar: simultaneously buying a call option at a strike that caps the USD/JPY cost if the yen strengthens, and selling a put option at a lower strike that partially offsets the premium. The two premiums cancel out, creating a zero-net-cost hedge.

◆ ZERO-COST COLLAR MECHANICS

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PACIFIC IMPORTS — ZERO-COST COLLAR STRUCTURE
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JPY payables: JPY 1,000,000,000
Spot USD/JPY: 149.50 (i.e., 1 USD = 149.50 JPY)
Current cost in USD: JPY 1B / 149.50 = $6,688,963
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COLLAR STRUCTURE:
BUY call option on JPY at strike 145.00
(Protection if JPY strengthens beyond 145)
Call premium: 1.4% of notional
SELL put option on JPY at strike 155.00
(Give up benefit if JPY weakens beyond 155)
Put premium received: 1.4% of notional
NET PREMIUM COST: 1.4% - 1.4% = ZERO
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PAYOFF SCENARIOS:
SCENARIO A: USD/JPY moves to 138 (JPY strengthens sharply)
Without hedge: JPY 1B / 138 = $7,246,377 (cost UP $557K)
With collar: exercise call at 145
Hedged cost: JPY 1B / 145 = $6,896,552
Collar SAVES: $7,246,377 - $6,896,552 = $349,825
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SCENARIO B: USD/JPY moves to 160 (JPY weakens)
Without hedge: JPY 1B / 160 = $6,250,000 (cost DOWN $439K)
Put holder (counterparty) exercises at 155
Forced to transact at 155: JPY 1B / 155 = $6,451,613
Opportunity cost: $6,451,613 - $6,250,000 = $201,613
But: gave up this upside in exchange for zero premium cost
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COLLAR RESULT: USD cost stays within $6,896,552 - $6,451,613
regardless of where USD/JPY trades
ZERO upfront cost for this protection band
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CASE STUDY 3

Atlas Group Treasury

Net Investment Hedge — Protecting a EUR 80M German Subsidiary

Background

Atlas Group is a US multinational with a German subsidiary that has net assets of approximately eighty million euros. Translation risk — the risk that a weaker euro will reduce the dollar value of those net assets — creates volatility in the consolidated balance sheet and in Other Comprehensive Income. Atlas's CFO decided to designate a EUR-denominated debt instrument as a net investment hedge, which under ASC 815 allows the translation gains and losses on both the debt and the subsidiary's net assets to offset each other in OCI.

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◆ NET INVESTMENT HEDGE ACCOUNTING

ATLAS — NET INVESTMENT HEDGE ACCOUNTING
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German subsidiary net assets: EUR 80,000,000
USD/EUR spot rate (year start): 1.0843
USD carrying value of net assets: EUR 80M x 1.0843 = $86,744,000
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HEDGING INSTRUMENT: EUR 70,000,000 Eurobond (designated hedge)
(The company issued a EUR bond — this is the natural hedge)
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YEAR END: EUR weakens to 1.0200
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WITHOUT HEDGE ACCOUNTING:
Subsidiary net assets translated at 1.0200:
EUR 80M x 1.0200 = $81,600,000
CTA loss in OCI: $86,744,000 - $81,600,000 = ($5,144,000)
Eurobond retranslated at 1.0200:
EUR 70M x 1.0200 = $71,400,000 (was $75,901,000)
Eurobond gain in P&L;: $75,901,000 - $71,400,000 = $4,501,000
MISMATCH: $4.5M gain in P&L;, $5.1M loss in OCI
P&L; volatility created — earnings appear inflated
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WITH NET INVESTMENT HEDGE ACCOUNTING (ASC 815):
Both CTA loss AND Eurobond gain reported in OCI
Eurobond gain in OCI: +$4,501,000
CTA loss in OCI: ($5,144,000)
Net OCI impact: ($643,000) — the residual unhedged portion
P&L; IMPACT: ZERO from the hedge
Earnings are clean; balance sheet shows true economic position
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