

## Chapter 11 Managing Transaction Exposure to Currency Risk

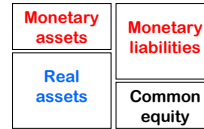
- 11.1 An Example of Transaction Exposure to Currency Risk
- 11.2 Managing Transaction Exposure Internally
- 11.3 Managing Transaction Exposure in the Financial Markets
- 11.4 Treasury Management in Practice
- 11.5 Summary

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## Exposures to currency risk

Change in firm value due to unexpected changes in foreign exchange rates

- **Transaction exposure**
  - change in the value of contractual cash flows arising from the firm's **monetary assets and liabilities**
- **Operating exposure**
  - change in the value of noncontractual cash flows arising from the firm's real assets



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## A survey of corporate treasurers

**Do you agree or disagree with the following?**

Mean score

- |  |     |
|--|-----|
| Managing transaction exposure is important | 1.4 |
| Managing operating exposure is important   | 1.8 |
| Managing translation exposure is important | 2.4 |
- 1= strongly agree, ... 5= strongly disagree

➤ **Transaction exposure** is viewed as the most important currency risk exposure

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## A US exporter's exposure to fx risk (Receivables of £1 million)

Expected receipt in pounds at $E[S_1, \$/\pounds] = \$1.50/\pounds$	+£1,000,000 = +\$1,500,000 ?
Actual exchange at $S_1, \$/\pounds = \$1.25/\pounds$	+£1,000,000 = +\$1,250,000 !
Net loss from original position	-\$250,000

**Risk (or payoff) profile** of underlying exposure

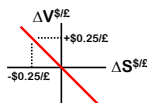


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## Currency hedging with forwards (contract price £1 million)

Short pound forward at $F_1, \$/\pounds = \$1.50/\pounds$	+\$1,500,000 -£1,000,000
Market exchange at $S_1, \$/\pounds = \$1.25/\pounds$	+\$1,250,000 -£1,000,000
Net gain on forward	+\$250,000

**Risk (or payoff) profile** of forward contract

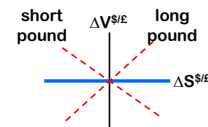


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## Net currency exposure

Underlying pound exposure	+£1,000,000
Short forward position	+\$1,500,000 -£1,000,000
Net position	+\$1,500,000

**Net exposure**

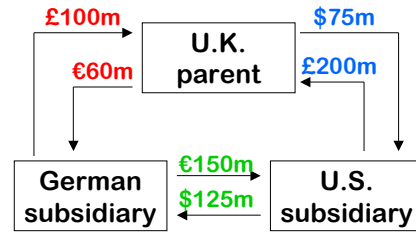


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## Managing transaction exposure

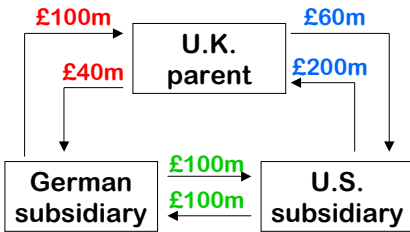
- > Managing transaction exposure internally
  - multinational netting (currency diversification)
  - leading and lagging
- > Managing transaction exposure in financial markets
  - currency forwards
  - money market hedges
  - futures
  - options
  - swaps

## Multinational netting

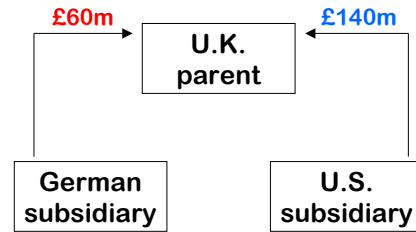


Cross rates  
 €1.5000/£  
 \$1.2500/€  
 \$0.8333/£

## Cash flows before netting



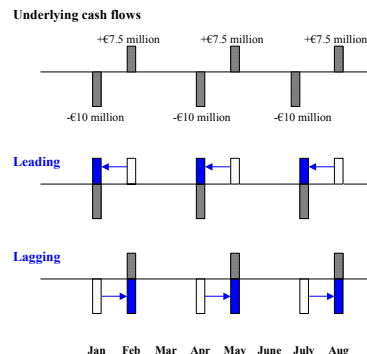
## Cash flows after netting



## Leading and lagging

- > Refers to altering the timing of cash flows within the corporation to offset foreign exchange exposures
- **Leading** - If a parent firm is short euros, it can accelerate euro payments from its subsidiaries
- **Lagging** - If a parent firm is long euros, it can accelerate euro payments to its subsidiaries

## Leading and lagging



## Currency forward contracts

- > **Advantages**
  - Forwards can provide a **perfect hedge** of transactions of known size and timing
- > **Disadvantages**
  - **Bid-ask spreads** can be large on small transactions, long-dated contracts, or infrequently traded currencies
  - A pure credit instrument, so currency forward contracts have **credit risk**

## Currency futures contracts

- > The **futures contract** solution to the default risk of forward contracts
  - An **exchange clearinghouse** takes one side of every transaction
  - Futures contracts are **marked-to-market** on a daily basis
  - Initial and maintenance **margins** are required on futures contracts

## FX forwards versus futures contracts

	<u>Forwards</u>	<u>Futures</u>
Counter-party	Bank	Futures exchange clearinghouse
Maturity	Negotiated	Standardized
Amount	Negotiated	Standardized
Fees	Bid-ask	Commissions
Collateral	Negotiated	Margin account

## Currency futures contracts

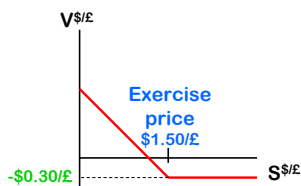
- > **Advantages**
  - **Low cost** if the size, currency and maturity match the underlying exposure
  - **Low credit risk** with daily marking-to-market
- > **Disadvantages**
  - Costs increase linearly with transaction size
  - Exchange-traded futures come in **limited currencies and maturities**
  - **Daily marking-to-market** can cause a cash flow mismatch

## Money market hedges

- > **Advantages**
  - **Synthetic forward positions** can be built in currencies for which there are no forward currency markets
- > **Disadvantages**
  - Relatively **expensive** hedge
  - Might not be **feasible** if there are constraints on borrowing or lending

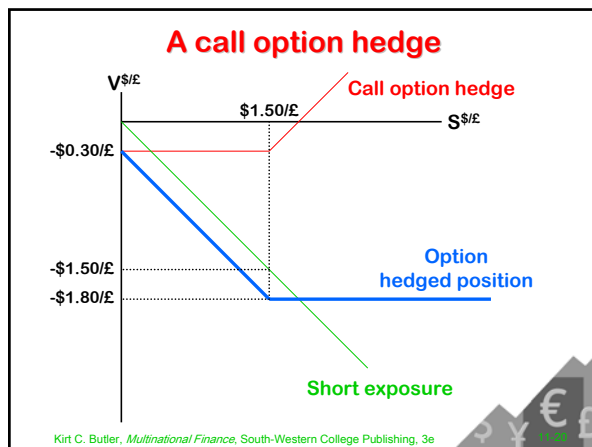
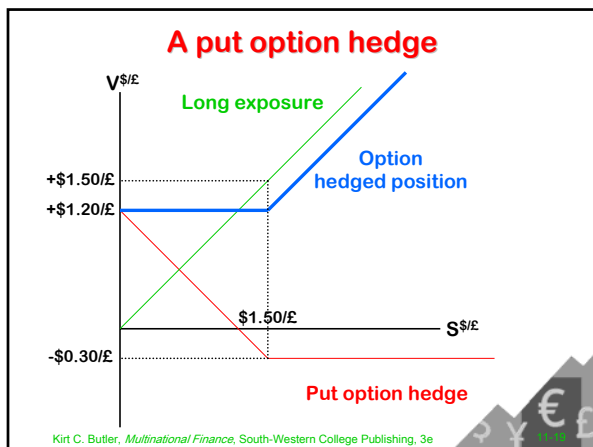
## Currency option hedges

- > A pound **put** is an **option to sell** pounds
  - the option holder gains if pound sterling falls
  - the option holder does not lose if pound rises



**Long pound put**  
an **option to sell**  
pounds sterling  
at a contractual  
**exercise price**

**Option premium = \$.30/£**



- ### Currency option hedges
- **Advantages**
    - **Disaster hedge** insures against unfavorable currency movements
  - **Disadvantages**
    - **Option premiums** reflect option values, so option hedges can be expensive in volatile currencies and at distant expiration dates
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- ### Currency swaps... "I'll pay yours if you pay mine"
- **Currency swap**
    - An agreement to exchange a principal amount of two currencies and, after a pre-arranged length of time, re-exchange the original principal
    - Interest payments are also usually swapped during the life of the contract
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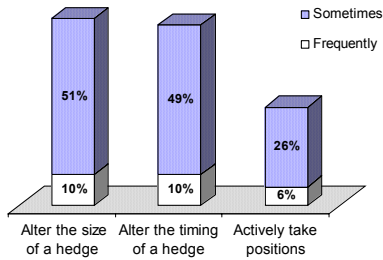
- ### Currency swap contracts
- **Advantages**
    - **Quickly transforms liabilities** into other currencies or payout structures, such as fixed-for-floating
    - **Low cost** for plain vanilla swaps in actively traded currencies
    - Able to hedge **long-term exposures**
  - **Disadvantages**
    - Not the best choice for **near-term exposures**
    - Innovative or exotic swaps can be **expensive**
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### Financial market hedges

<u>Vehicles</u>	<u>Advantages</u>	<u>Disadvantages</u>
<b>Forward</b>	Exact hedge; Small bid-ask spread for large deals	Large bid-ask spreads on small or long-dated deals & thinly traded currencies
<b>Future</b>	Low cost for small deals; low risk with mark-to-market	Only a few currencies & maturities; mark-to-market can cause a CF mismatch
<b>Money market hedge</b>	Synthetic forward	Relatively expensive; not always possible
<b>Swap</b>	Quick & low-cost switch of payoff structures	Innovative swaps costly; may not be best for near-term exposures
<b>Option</b>	Disaster hedge provides insurance	Option premiums can be expensive

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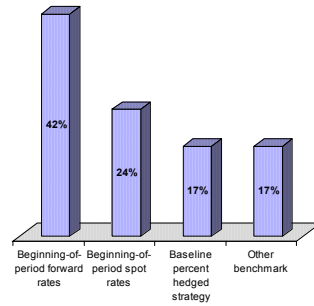
### Active management of fx risk



Bodnar, Hayt, and Marston, "1998 Wharton Survey of Derivatives Usage by U.S. Non-Financial Firms," *Financial Management* (1998).

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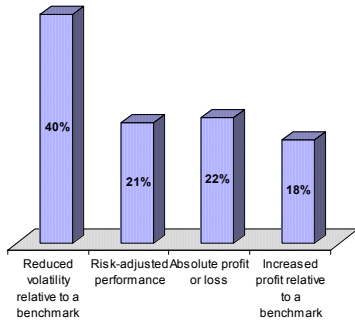
### Risk management benchmarks



Bodnar, Hayt, and Marston, "1998 Wharton Survey."

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### Performance evaluation



Bodnar, Hayt, and Marston, "1998 Wharton Survey."

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### Corporate use of derivatives

Type of product	Used often	Total usage
Currency forwards	72.3%	93.1%
Currency swaps	16.4	52.6
OTC currency options	18.8	48.8
Cylinder options	7.0	28.7
Synthetic forwards	3.0	22.0
Currency futures	4.1	20.1
Exchange-traded (spot) options	3.6	17.3
Exchange-traded futures options	1.8	8.9

Jesswein, Kwok & Folks, "What New Currency Risk Products Are Companies Using and Why?" *Journal of Applied Corporate Finance* (1995)

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