# Corporate Finance

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## TRANSACTION RISK STRATEGIES

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# Transaction risk strategies

- Invoice in home currency
- Do nothing
- Netting
- Matching
- Leading and lagging
- Forward market hedge
- Money market hedge
- Future hedge
- Options hedge

# Transaction risk strategies (continued)

Suppose a UK company exports £1m of goods to a Canadian firm when the spot rate of exchange is C$2.20/£. The Canadian firm is given three months to pay. What can the firm do?

- **Invoice the customer in the home currency**
- **Do nothing**
- **Netting**
  - Bilateral netting
  - Multilateral netting

# Transaction risk strategies (continued)

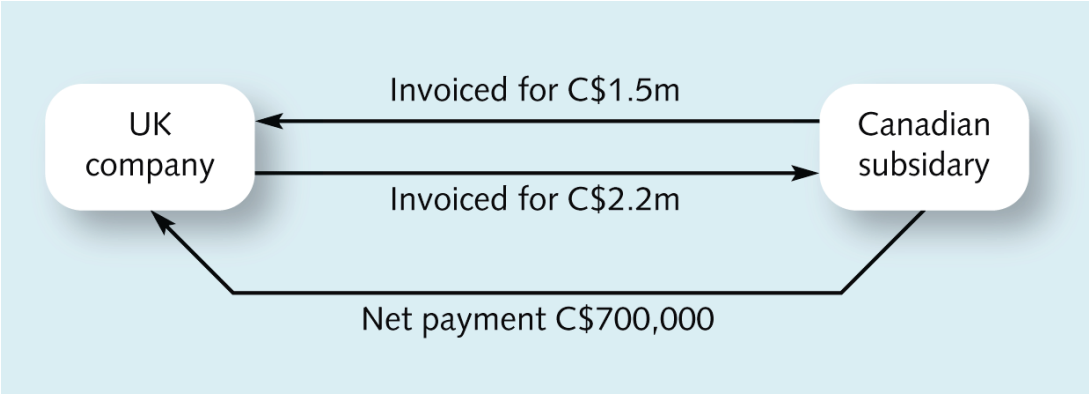
- **Invoice the customer in the home currency**
  - One easy way to bypass exchange-rate risk is to insist that all foreign customers pay in your currency and your firm pays for all imports in your home currency
  - In the case of this example the Canadian importer will be required to send £1m in three months
  - However, the exchange-rate risk has not gone away, it has just been passed on to the customer
  - This policy has an obvious drawback: your customer may dislike it, the marketability of your products is reduced and your customers look elsewhere for supplies
  - If you are a monopoly supplier you might get away with the policy but for most firms this is a non-starter

# Transaction risk strategies (continued)

- **Do nothing**
  - The UK firm invoices the Canadian firm for C$2.2m, waits three months and then exchanges into sterling at whatever spot rate is available then
  - **Perhaps an exchange-rate gain will be made, perhaps a loss will be made. Many firms adopt this policy and take a 'win some, lose some' attitude - Given the fees and other transaction costs of some hedging strategies this can make sense**
  - There are two considerations for managers here
    1) Their degree of risk aversion to higher cash flow variability, coupled with the sensitivity of shareholders to reported fluctuations of earnings due to foreign exchange gains and losses
    2) The size of the transaction: If £1m is a large proportion of annual turnover, and greater than profit, then the managers may be more worried about forex risk - If, however, £1m is a small fraction of turnover and profit, and the firm has numerous forex transactions, it may choose to save on hedging costs
  - There is an argument that it would be acceptable to do nothing if it was anticipated that the Canadian dollar will appreciate over the three months - **Predicting exchange rates is a dangerous game and more than one 'expert' has made serious errors of judgement**

# Transaction risk strategies (continued)

- **Netting**
  - Multinational companies often have subsidiaries in different countries selling to other members of the group
  - **Netting is where the subsidiaries settle intra-organisational currency debts for the net amount owed in a currency rather than the gross amount**
  - For example, if a UK parent owned a subsidiary in Canada and sold C$2.2m of goods to the subsidiary on credit while the Canadian subsidiary is owed C$1.5m by the UK company, instead of transferring a total of C$3.7m the intra-group transfer is the net amount of C$700,000



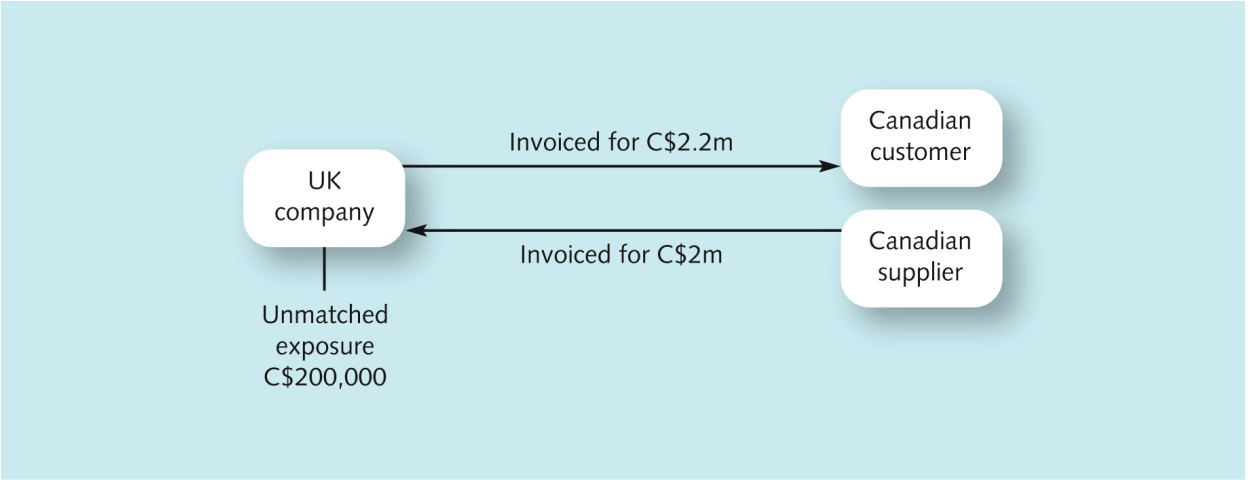
# Transaction risk strategies (continued)

- **The reduction in the size of the currency flows by offsetting inflows and outflows in the same currency diminishes the net exposure which may have to be hedged**
- It also reduces the transaction costs of currency transfers in terms of fees and commissions
- **Bilateral netting:**

  Involves two companies within a group and is simple to operate without the intervention of a central treasury
- **Multilateral netting:**
  - For organisations with a matrix of currency liabilities between numerous subsidiaries in different parts of the world, a central treasury is usually needed so that there is knowledge at any particular time of the overall exposure of the firm and its component parts
  - Subsidiaries will be required to inform the group treasury about their overseas dealings which can then co-ordinate payments after netting out intra-company debts
  - The savings on transfer costs levied by banks can be considerable

# Transaction risk strategies (continued)

- **Matching**
  - It can be used for both intra-group transactions and those involving third parties, while **netting** only applies to transfers within a group of companies
  - The company matches the inflows and outflows in different currencies caused by trade, etc., so that it is only necessary to deal on the forex markets for the unmatched portion of the total transactions
  - So if, say, the Canadian importer is not a group company and the UK firm also imported a raw material from another Canadian company to the value of C$2m it is necessary only to hedge the balance of C$200,000



# Transaction risk strategies (continued)

- **Leading and lagging**
  - **Leading** is the bringing forward from the original due date of the payment of a debt
  - **Lagging** is the postponement of a payment beyond the due date
- This speeding up or delaying of payments is particularly useful if you are convinced exchange rates will shift significantly between now and the due date
- So, if the UK exporter which has invoiced a Canadian company for C$2.2m on three months' credit expects that the Canadian dollar will fall over the forthcoming three months it may try to obtain payment immediately and then exchange for sterling at the spot rate - Naturally the Canadian firm will need an incentive to pay early and this may be achieved by offering a discount for immediate settlement
- An importer of goods with an obligation to pay in a currency which is anticipated to fall in value may attempt to delay payment as long as possible - This may be achieved either by agreement or by exceeding credit terms

# Forward market hedge

- A contract is agreed to exchange two currencies at a fixed time in the future at a predetermined rate
- If the three-month forward rate is C$2.25/£ the UK exporter could lock in the receipt of £977,778 in three months by selling forward C$2.2m

$$\frac{\text{C\$2.2m}}{2.25} = \text{£977,778}$$

# Money market hedge

- The exporter at the time of the export, borrows in Canadian dollars on the money markets for a three-month period
- If the interest rate charged over three months is 2 per cent then the appropriate size of the loan is

$$C\$2.2m = C\$?\ (1 + 0.02) \qquad C\$? = \frac{C\$2.2m}{1.02} = C\$2{,}156{,}863$$

$$\frac{C\$2{,}156{,}863}{2.2} = £980{,}392$$

$$C\$2{,}156{,}863 + C\$2{,}156{,}863 \times 0.02 = C\$2.2m$$

1. Invoice customer for C$2.2m
2. Borrow C$2,156,863
3. Sell C$2,156,863 at spot to receive pounds now
4. In three months receive C$2.2m from customer
5. Pay lender C$2.2m

# Futures hedge

- A foreign currency futures contract is an agreement to exchange a specific amount of a currency for another at a fixed future date for a predetermined price
  - Chicago Mercantile Exchange (CME) and ICE Futures USA
  - A single futures contract is for a fixed amount of currency - for example, a sterling contract is for £62,500
  - To buy a sterling futures contract is to make a commitment to deliver a quantity of US dollars and receive in return £62,500

# Currency futures

## CURRENCY FUTURES

| Dec 7 | | Open | Sett | Change | High | Low | Est. vol. | Open int. |
|---|---|---|---|---|---|---|---|---|
| $-Can $ † | Dec | 0.9899 | 0.9890 | –0.0019 | 0.9936 | 0.9865 | 67,772 | 118,875 |
| $-Euro € † | Dec | 1.3403 | 1.3396 | –0.0014 | 1.3453 | 1.3350 | 245,781 | 250,788 |
| $-Euro € † | Mar | 1.3414 | 1.3402 | –0.0016 | 1.3460 | 1.3357 | 10,690 | 31,396 |
| $-Sw Franc † | Dec | 1.0803 | 1.0819 | 0.0016 | 1.0839 | 1.0766 | 22,066 | 39,325 |
| $-Yen † | Dec | 1.2868 | 1.2878 | 0.0007 | 1.2884 | 1.2856 | 42,006 | 148,459 |
| $-Yen † | Mar | 1.2896 | 1.2904 | 0.0003 | 1.2911 | 1.2883 | 3,893 | 30,121 |
| $-Sterling † | Mar | 1.5589 | 1.5680 | 0.0091 | 1.5711 | 1.5581 | 3,207 | 32,680 |
| $-Aust $ † | Dec | 1.0226 | 1.0266 | 0.0020 | 1.0288 | 1.0220 | 83,231 | 107,008 |
| $-Mex Peso † | Feb | – | 73450 | –425.00 | – | – | – | 4,000 |

Sources: *NYBOT; Sterling €100,000 and Yen: €100,000. †CME: Australian $: A$100,000, Canadian $: C$100,000, Euro: €125,000; Mexican Peso: 500,000, Swiss Franc: SFr125,000; Yen: ¥12,5m ($ per ¥100); Sterling: £62,500. CME volume, high & low for pit & electronic trading at settlement. Contracts shown are based on the volumes traded in 2004.

# Futures example

- A US firm exports €125,000 worth of goods to a German firm on 7 December 2011 on three and one half months' credit for payment in late March and the current spot exchange rate is US$1.3391/€
- If the March future is trading at a price of US$1.3402 per euro the exporter's position could be hedged by selling one euro futures contract on CME
- Value of €125,000 received from customer when converted to dollars at spot in March

  (€125,000 × 1.10) = US$137,500
- Amount if exchange rate was constant at US$1.3391/€

  US$167,388
- Forex loss

  US$29,888

# Futures example (continued)

- An offsetting gain is made on the futures contract

| | |
|---|---|
| Sold at US$1.3402/€ (€125,000 × 1.3402) | US$167,525 |
| Bought in March to close position | |
| at US$1.10/€ (€125,000 × 1.10) | US$137,500 |
| Futures gain | US$30,025 |

- Alternatively the exporter could simply deliver the €125,000 received from the importer to CME in return for US$167,525
- Perfect hedging is frequently unobtainable with futures

# Currency option hedge

- A currency option is a contract giving the buyer (that is, the holder) the right, but not the obligation, to buy or sell a specific amount of currency at a specific exchange rate (the strike price), on or before a specified future date
- A call option gives the right to buy a particular currency
- A put option gives the right to sell a particular currency
- The option writer (usually a bank) guarantees, if the option buyer chooses to exercise the right, to exchange the currency at the predetermined rate
- Premium payable

# Currency options displayed on CME website
## (GBP/USD option for March 2012 as quoted on 8 December 2011)

Type: American Options

Expiration: MAR 2012

| Strike Price | Type | Last | Change | Prior Settle |
|---|---|---|---|---|
| 15500 | CALL | 0.0420 b | -0.0040 | 0.0460 |
| 15500 | PUT | 0.0306 b | +0.0026 | 0.0280 |
| 15600 | CALL | 0.0360 a | -0.0040 | 0.0400 |
| 15600 | PUT | 0.0348 b | +0.0028 | 0.0320 |
| 15700 | CALL | 0.0306 a | -0.0039 | 0.0345 |
| 15700 | PUT | 0.0395 b | +0.0030 | 0.0365 |
| 15800 | CALL | 0.0258 a | -0.0036 | 0.0294 |
| 15800 | PUT | 0.0444 b | +0.0030 | 0.0414 |
| 15900 | CALL | 0.0214 b | -0.0034 | 0.0248 |
| 15900 | PUT | 0.0500 a | +0.0032 | 0.0468 |

# Currency options contract

- The treasurer of the UK firm hedges by buying a three-month sterling call option giving the right but not the obligation to deliver Canadian dollars in exchange for pounds with a strike price of C$2.25/£ when C$2.2m of goods are delivered to the Canadian firm
- A premium, paid up front, of 2 per cent of the amount covered

$$0.02 \times C\$2{,}200{,}000 = C\$44{,}000$$

# Currency options contract (Continued)

- *Three months later*

  **Scenario 1** The dollar has strengthened against the pound to C$1.9/£

  - If the treasurer exercises the right to exchange at C$2.25/£ the UK firm will receive

    C$2,200,000/2.25 = £977,778

  - If the treasurer lets the option lapse

    C$2,200,000/1.9 = £1,157,895

# Currency options contract (Continued)

***Scenario 2*** The dollar has weakened against sterling to C$2.5/£

- Exercise the option:

  C$2,200,000/2.25 = £977,778

- Abandon the option:

  C$2,200,000/2.5 = £880,000

- With the option, the worst that could happen is that the exporter receives £977,778, less the premium
- The upside potential is unconstrained