



4-6 questions



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## 2. FX rates: Standards of Quotation

### **FX: Background**

- OTC market
- Major international banks
- Spot market and forward market
- London largest centre

## 2. FX rates: Standards of Quotation

### FX spot markets: introduction

- Standard settlement T+2
- FX: two-way prices



### Keeping on target

A company wishes to exchange \$25,000 for sterling at a spot rate of 1GBP = 1.5913/25 USD, how much will the company receive?

- A. £15,698.58
- B. £15,710.42
- C. £39,782.50
- D. £39,812.50



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## 2. FX rates: Standards of Quotation

### Forward FX rates

#### Example:

- A bank quotes a spot rate of 1.5020 and a forward adjustment of +15 pips (i.e. a 15 pip discount). The forward rate is calculated as follows:

<b>Spot rate</b>	GBP1 = USD 1.5020
Forward adjustment	+ 15 pips
<hr/>	
<b>Forward rate</b>	GBP1 = USD 1.5035

- It is referred to as a discount because dollars are cheaper for forward delivery (there are more dollars to one pound).

### Keeping on target

The pound spot is USD 1.5000 – 1.5010 and the six month forward rate is quoted as a 1.5¢/1.3¢ then the six month offer rate is:

- A. 1.5025
- B. 1.4997
- C. 1.4880
- D. 1.5012



### Keeping on target

The pound spot is USD 1.5000 – 1.5010 and the 3 month forward rate is quoted as a 10 pip premium. How many dollars would £150,000 deliver under this contract?

- A. \$224,850
- B. \$225,300
- C. \$99,867
- D. \$99,933



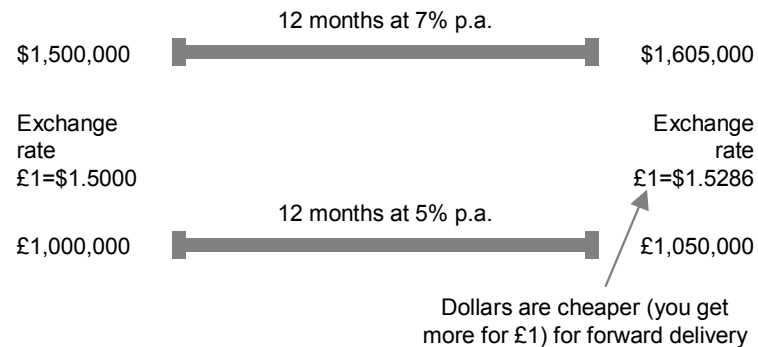
**Answer to the questions on the previous slide:**

$$A \ \$25,000 \div 1.5925 = \text{£}15,698.58$$

$$C \ \text{£}25,000 \times 1.5913 = \$39,782.50$$

### 3. Exchange Rate Determination

#### Interest rate parity (IRP)



#### Keeping on target

The pound spot is USD 1.5010 the UK interest rate is 4% and it is 6% in the US, what would the fair value for the one-year forward contract be?

- A. 1.4727
- B. 1.6322
- C. 1.5122
- D. 1.5299



#### Keeping on target

The US dollar/Japanese yen exchange rate is 1 USD = 100 JPY. The interest rate in the US is 2% pa and 0% pa in Japan. What will the 3-month forward rate be?

- A. 98.039
- B. 102.00
- C. 99.502
- D. 100.50



Answer to the questions on the previous slide:

C

$$1.5010 - 0.0130 = 1.4880$$

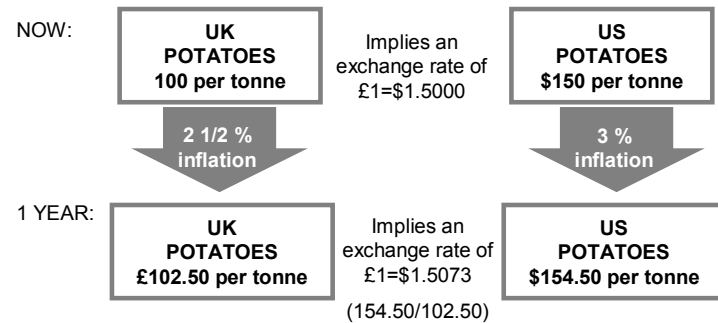
A

$$1.5000 - 0.0010 = 1.4990$$

$$£150,000 \times 1.4990 = \$224,850$$

### 3. Exchange Rate Determination

#### Purchasing power parity (PPP)



Answer to questions on the previous slide:

D

$$1.5010 \times \frac{1.06}{1.04} = 1.5299$$

C

Remember to deannualise the interest rates. The US interest rate is 2%, so is deannualised to 0.5% per quarter. Then use the formula:

$$F = (1 + rv) / (1 + rb) \times S$$

$$F = 1.00 / 1.005 \times 100$$

$$F = 99.502 \text{ JPY}$$

### 3. Exchange Rate Determination

#### The International Fisher effect

$$\frac{F}{S} = \frac{(1+i_{\text{variable}})}{(1+i_{\text{base}})} = \frac{(1+r_{\text{variable}})}{(1+r_{\text{base}})}$$

Where:

F = the forward rate.

S = the spot rate.

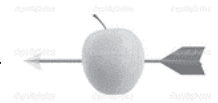
$i_{\text{variable}}$   $i_{\text{base}}$  = the inflation rates for each currency, variable and base.

$r_{\text{variable}}$   $r_{\text{base}}$  = the interest rates for each currency variable and base.

### Keeping on target

The UK interest rate is 6% p.a. and it is 4% p.a. in the US, if the expected inflation in the UK is 5% p.a. what is the expected inflation in the US?

- A. 2%
- B. 3%
- C. 4%
- D. 7%





## 4. Portfolio Measurement

### FX risk

Investing overseas exposes the investor to FX risk.

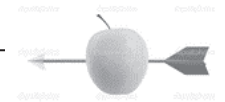
#### Example:

- A UK investor buys 1000 US shares at \$1.00 each when exchange rates were GBP 1:USD 1.5. Some time later the investor sells the shares for \$1.25 each when exchange rates are GBP 1:USD 1.65. Calculate the investor's return in sterling.
- Cost of shares (in sterling)
  - $(1000 \text{ shares} \times \$1) / 1.5 = \text{£}666.67$
- Proceeds from sale (in sterling)
  - $(1000 \text{ shares} \times \$1.25) / 1.65 = \text{£}757.58$
- Return on investment (in sterling)
  - $(757.58 / 666.67) - 1 = 13.6\%$

### Keeping on target

If Linda invests €120,000 in a German property when the exchange rate is £1:1.1800 and sells the property for €140,000 two years later when the exchange rate is £1:1.1850, what is her sterling profit/loss?

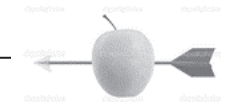
- A. £16,878
- B. €16,448
- C. €16,949
- D. £16,449



### Keeping on target

If the S&P falls from 1700 to 1650 at the same time as the exchange rate moves from \$1.50 per £1 to \$1.40 per £1, what is the holding period return in sterling?

- A. 4%
- B. 5%
- C. (3%)
- D. (6%)



### Answer to question on the previous slide:

The International Fisher effect equates the effects of both interest rates and inflation.

$$\text{Interest rate effect } 1.019 = 1.06 / 1.04$$

$$\text{Inflation effect } 1.019 = 1.05 / 1.?$$

$$1.05 / 1.019 = 1.03$$

$$1.03 - 1 = 3\%$$

## 5. Exchange Rate Regimes

### Exchange rate regimes

- Fixed exchange rate – where the currency is fixed (or pegged) to another currency
- Floating exchange rate – where there is no intervention into the foreign exchange
- Managed regime – some intervention to influence the foreign exchange rate (dirty floating)

### Optimal currency area

- Where a group of regions or countries share the same currency
  - Eurozone
  - United States of America
- Benefits
  - Reduced FX risk
  - Increased discipline in economic management
  - Speculation is discouraged
- Works best where there is also political union and share sovereignty

## Further information

### *Fixed exchange rates*

#### Benefits

- Reduced FX risk
- Increased government discipline in economic management
- Speculation discouraged

#### Disadvantages

- No automatic balance of payments adjustments
- Requires large foreign currency reserves
- Loss of freedom of economic policy



### Answer to the questions on the previous slide:

D

$$€120,000 / 1.1800 = £101,694.92$$

$$€140,000 / 1.1850 = £118,143.46$$

$$£118,143.46 - £101,694.92 = £16,448.54$$

A

$$1700 / 1.50 = 1133.33$$

$$1650 / 1.40 = 1178.57$$

$$(1178.57 / 1133.33) - 1 = 3.99\%$$