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CLASSES
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FINAL CA
MAY '19
REVISION NOTES
Strategic Financial Management

**Currency Options
& Swaps**

CURRENCY OPTIONS & SWAPS

Question 1:

It is around February end and the spot \$/ £ rate is \$1.4/1. You are convinced that the £ will weaken by May end to about \$ 1.3 / £ 1. Sterling December put options with a strike price of \$ 1.39 are being traded at a premium of £ 500 per contract. The sterling contract size is £ 25000. You are required to work out possible pay offs if the spot rate at expiration is (a) \$1.3 (b) \$1.5 and (c) \$1.39

Question 2:

A company is tendering for the sale of equipment's to a US company for \$ 3 million, settlement due in 3 months' time. The current spot rate is \$ 1.58 per 1 £. However the company is worried about the dollar weakening against the Pound thus making the sale less profitable. The company has been offered a 3 month put option on US dollar at \$1.60 per £ 1 costing 2 cents per Pound. What is the total premium outflow?

Question 3:

Hessey international plc has recently purchased a consignment of cleaning fluid from a United States supplier for \$3,00,000 payable in 3 months' time. Recently the company has experienced foreign exchange losses on similar deals and the financial director has decided that henceforth all transaction exposure will be covered. After discussion with the bank the following data have been made available:

Foreign exchange market

	\$ / £
Spot rate	1.5000 - 1.5050
3 month forward premium on \$	1.00 - 0.80 cents

Money Market

Base rates are 18% per annum both in UK and USA.

Hessey can borrow at 2% above and deposit at 2% below the relevant base rate in either countries

Option

The Bank has offered a call option on \$300000 at an exercise price of \$ 1.49 / £ at a cost of £ 3000 payable in arrears.

The financial director is also aware that transaction exposure may be hedged by the use of financial futures exchanges but is uncertain of the advantages they offer as exposed to services offered by banks.

You are required:

- (a) To calculate the net cost of the transaction assuming it was covered in:
 - (i) The forward foreign exchange market.
 - (ii) The money market
- (b) To explain to the financial director the nature of the foreign exchange risk cover provided by the call option and calculate the exact future spot rate at which the option would start to give a cheaper cost than the forward contract

Question 4:

XYZ Ltd a US firm will need £ 3,00,000 in 180 days. In this connection the following information is available:

Spot 1 £ = \$2.00

180 day forward rate of £ as of today = \$1.96

Interest rates are as follows:

	UK	US
180 day deposit rate	4.5%	5%
180 day borrowing rate	5%	5.5%

A call option of £ that expires in 180 days has an exercise price of \$1.97 and a premium of \$0.04. XYZ Ltd has forecast the spot rates 180 days hence as below:

Future rate	Probability
\$1.91	25%
\$1.95	60%
\$2.05	15%

Which of the following strategy would be most preferable to XYZ Ltd :

- (a) forward market
- (b) Money market hedge
- (c) Option contract
- (d) No hedging

Show calculation in each case.

Question 5:

On 19th April following are the spot rates:

Spot EUR / \$ 1.20000; USD / INR = 44.8000

Following are the quotes of European Options:

Currency Pair	Call / Put	Strike Price	Premium	Expiry Date
EUR / USD	Call	1.2000	\$ 0.0375	July 19
EUR / USD	Put	1.2000	\$ 0.04	July 19
USD / INR	Call	44.8000	• 0.12	Sep 19
USD / INR	Put	44.8000	• 0.04	Sep 19

- (i) A trader sells an at the money spot straddle expiring at 3 months (July 19). Calculate gain or loss if 3 months later the spot rate is EUR / USD = 1.2900.
- (ii) Which strategy gives a profit to the dealer if 5 months later (Sep 19) expected spot rate is USD / INR = 45.00. Also calculate the profit for a transaction of USD 1.5 million.

Question 6:

Apple Inc, a US based Company wishes to lend \$500,000 to its Japanese subsidiary. At the same time Toyota Motors, a Japan based company, is interested in making a medium term loan of approximately the same amount to its USA subsidiary. The two parties are brought together by an investment bank for the purpose of making parallel loans. Apple Inc will lend \$500,000 to the US subsidiary of Toyota Motors for 4 years at 13%. Principal and interest are payable only at the end of the fourth year with interest compounding annually. Toyota motors will lend the Japanese subsidiary of Apple Inc 70 million Yen for 4 years at 10%. Again the principal and interest (annual compounding) are payable at the end. The current exchange rate is 140 Yen to the \$.

However the dollar is expected to decline by 5 Yen to the Dollar per year over the next 4 years.

- a. If these expectations prove to be correct what will be the dollar equivalent of principal and interest payments to Toyota Motors at the end of 4 years .
- b. What total dollars will Apple Inc receive at the end of 4 years from the payment of principal and interest on its loan by the US subsidiary of Toyota Motors .
- c. Which party is better off with the parallel loan arrangement. What would happen if the yen did not change in value.

Question 7:

A German firm buys a call on \$ 10,00,000 with a strike of DM 1.60 / \$ and a premium of DM 0.03 / \$. The interest opportunity cost is 6% per annum and the maturity is 180 days.

- (a) What is the break even maturity spot rate beyond with the firm makes a net gain?
- (b) Suppose the 6 month forward rate at the time the option was bought was DM 1.62 / \$, What is the range of maturity spot rate for which the option would prove better than the forward cover? For what range of values would the forward cover be better?