DP07

Treasury

5 OCTOBER 2004

1.	Time allowed	: Three (3) hours
2.	Total number of questions	: Six (6) questions
3.	Number of questions to be answered	: Five (5) questions [20 marks each]
4.	Show details of workings where appropriate. Silent, non-programmable calculators may be used.	
5.	Begin each answer to a new question on a fresh page.	
6.	Answer **all** questions in **English**.	
7.	A blank page is provided at the end of the question papers for rough work.	

ANSWER FIVE (5) QUESTIONS ONLY

1. (a) Briefly explain the following terms in the context of foreign exchange and money market dealings:

(i) Cross rate [1]

(ii) Delivery date [1]

(iii) Indicative quote [1]

(iv) Interbank rate [1]

(b) If the JPY is appreciating strongly against the USD, explain how the Central Bank of Japan may stabilise the JPY value and sterilise the effect of the Japanese money market at the same time. [3]

(c) Briefly explain the role of the following major participants in the foreign exchange market:

(i) The central bank [2]

(ii) Commercial banks [2]

(iii) Money brokers [2]

(d) Furnix Corporation Berhad (Furnix) operates a furniture factory. Furnix imports leather from Italy in EUR and exports finished leather sofa sets to buyers in Australia in USD.

Over the last three months, the EUR has appreciated against the USD and the MYR, and this trend is expected to continue for the next six months.

Over the same three months period, the AUD has also appreciated against the USD and MYR.

(i) Describe the effect of the EUR appreciation on the cost of Furnix's imports. [1]

(ii) Would you recommend Furnix to invoice the buyers in Australia in AUD instead of USD? Why? [1]

(iii) Briefly explain whether you would recommend the use of fixed forward delivery contracts to protect against movements in exchange rates for Furnix's:

(aa) imports. [1]

(bb) exports. [1]

(iv) State **three** reasons that might have contributed to the strengthening of the EUR and the AUD against the USD. [3]

(Total:20 marks)

2. The following rates are quoted:

Item	USD/MYR	NZD/USD	USD/JPY
Spot (5 October 2004)	3.7995/05	0.6468/78	108.00/10
1-month	36/46	27/20	15/10
2-month	73/83	50/40	30/20
3-month	83/93	75/65	45/35
4-month	95/105	95/85	65/55
5-month	105/115	115/105	85/75
6-month	115/125	140/130	110/100

Based on the above rates, calculate the following (assume no margins or charges are imposed and all exchange controls/regulations are complied with):

(a) Bank sells USD/JPY value spot [1]

(b) Bank sells NZD/USD value spot [1]

(c) Bank buys JPY/MYR value 6-month fixed delivery [2]

(d) Bank sells JPY/MYR option 2-month to 3-month [2]

(e) Bank sells NZD/MYR option spot to 1-month [2]

(f) Bank buys NZD/MYR 3-month fixed delivery [2]

(g) Price quoted to exporter for NZD/MYR option 5-month to 6-month [3]

(h) Price quoted to importer for JPY/MYR option 4-month to 5-month [3]

(i) A local importer had earlier entered into a USD250,000 fixed delivery foreign exchange contract for its imports maturing spot date at the rate of 3.8050. Due to a delay in shipment by its supplier, the importer requested the bank to extend the contract for another one month. The bank required the importer to close out the contract at the bank's bid rate and then enter into a new contract.

(i) What was the close-out rate? [1]

(ii) How much profit or loss would the importer incur when the bank closes out the original contract? [1]

(iii) What would be the new fixed delivery contract rate? [1]

(iv) How much would the importer be required to pay in MYR at the maturity date? [1]

(Total:20 marks)

3. (a) An interbank dealer started the day long USD2,000,000 against CHF at 1.2310. At the close of the day, he squared his position at 1.2290.

(i) What was the profit or loss from the above transaction, in MYR? (Use the USD/MYR rate of 3.8000 as the close-out rate for your calculation.) [2]

(ii) At what rate would the interbank dealer need to square his position to make a profit of CHF3,800? [2]

(b) Star Corporation Berhad (STAR) is a multinational pharmaceutical company based in Malaysia. At present, STAR has two transactions that face foreign exchange risks. STAR owes a German supplier EUR100,000 due in 90 days for intermediate goods imported. At the same time, a buyer in Italy owes STAR EUR200,000 due in 60 days for finished goods exported to the buyer.

You are given the following information:

Item	EUR/MYR	LIBOR (EUR)
Spot	4.7050/4.7115	-
30-day	4.7070/4.7175	1.90/2.00
60-day	4.7090/4.7200	2.00/2.10
90-day	4/7100/4.7280	2.50/2.60

Note:

- EUR/MYR forward rates are quoted on an outright basis.

- Assume LIBOR (EUR) will remain steady for the next 90 days.
- Assume no margins or charges are imposed and all exchange controls/ regulations are complied with.

Required:

(i) State the forward fixed delivery exchange rate and calculate the MYR equivalent if STAR does the following:

(aa) Hedge only the imports [1]

(bb) Hedge only the exports [1]

(cc) Hedge only the net amount for 90 days [2]

(ii) State your views and recommendations for the following hedging strategies for STAR:

(aa) Hedge only the imports [1]

(bb) Hedge only the exports [1]

(cc) Hedge both the imports and exports [2]

(dd) Hedge only the net amount [2]

(ee) Borrow EUR100,000 for 60 days. Repay borrowing using EUR100,000 from the export proceeds and deposit the remaining export proceeds of EUR100,000 for 30 days to pay for the imports. [3]

(c) Assume that you received a 1-year MYR deposit from a customer and at the same time, your bank made a 1-year USD loan to another customer.

What are **two** options available to you to "cover" both positions? [3]

(Total:20 marks)

4. (a) (i) What does a "Euro Yen deposit" mean? [1]

(ii) State **two** distinct features of a Euro Yen deposit. [2]

(b) On 1 July 2004 (Thursday), Faith Bank transacted a spot/next (S/N) placement of USD5million in the Euro-currency market at a rate of 1.0% per annum.

(i) What were the value dates of this S/N placement? [2]

(ii) What was the maturity amount of this transaction? [1]

(c) The following is a comparison of the rates quoted by Phil Bank against the standard market quotation for a 1-month deposit:

	Bid	**Offer**
Phil Bank	7.0% per annum	7.5% per annum
Standard market	7.3% per annum	7.8% per annum

(i) What can you say about Phil Bank's transaction preference from the comparison of the quotations shown above? [1]

(ii) If Silky Bank decides to borrow RM3million for one month, who should Silky Bank borrow from and at what rate, in order to minimise the cost of borrowing? [2]

(iii) What would be the maturity amount of the transaction in (c)(ii)? (Assume that there are 12 months in a year.) [1]

(iv) After closing the transaction in (c)(ii), what is the breakeven 1-month rate Silky Bank can use to lend to its customers if the reserve requirement (zero-interest bearing) is 10%? [2]

(v) If Silky Bank is required to make a 50 basis point profit on a 1-month customer loan, what is the loan rate that Silky Bank must now quote? [1]

(d) Norshah Bank sold RM20million nominal value of Malaysian Government Securities (MGS) with a remaining tenor of five years to a fixed income investor at a clean price of 100.80. The MGS carries a coupon of 4.65% per annum paid semi-annually.

(i) What does the term "clean price" mean? [1]

(ii) Based solely on the information provided above, comment on the level of the 5-year interest rate compared to the coupon rate. [2]

(iii) Calculate the total settlement proceeds that Norshah Bank will receive if the settlement date is 100 days since the last coupon payment date and the coupon period in which settlement takes place is 182 days. [2]

(iv) Following Norshah Bank's sale of the MGS, the Governor of Bank Negara Malaysia announced monetary tightening measures to combat rising inflation. As a result, MGS prices declined all-round. Norshah Bank's Head Trader noted that if the bank had not sold all the RM20million nominal bonds as per above, it would have incurred a loss of RM80,000 from the transacted price of 100.80.

What price did the 5-year MGS drop to? [2]

(Total:20 marks)

5. (a) The main task of managing a money market book is said to involve both an understanding of yield curves and a management of gapping activities.

(i) What is a yield curve? [1]

(ii) Draw a positive yield curve graph. [1]

(iii) What is a flat yield curve? [1]

(iv) What does a flat yield curve tell us about the market expectations on interest rates? [2]

(v) What are gapping activities? [2]

(vi) What would be the immediate revenue impact if a bank adopts a positive gapping strategy under a negative yield curve environment? [2]

(vii) Why would a bank choose the gapping strategy in (a)(vi) above? [1]

(b) Derivative instruments in Malaysia can be traded in an organised exchange or over-the-counter.

(i) What are derivative instruments? [2]

(ii) State **two** major differences between exchange traded derivative transactions and over-the-counter derivative transactions. [2]

(c) LWS Bank sold 100 DEC04 3-month KLIBOR futures contracts on Bursa Malaysia Derivatives Berhad (formerly known as Kuala Lumpur Options and Financial Futures Exchange) at 97.05 on 2 July 2004.

(i) What was the implied 3-month KLIBOR rate at which LWS Bank sold the 100 DEC04 contracts? [1]

(ii) If LWS Bank bought 100 DEC04 3-month KLIBOR futures contracts at 96.70 on 16 July 2004 to square off its earlier position, how much gain or loss did LWS Bank make? [2]

(d) It has been reported that the failure to manage liquidity risk in banks was one of the factors that accounted for the 1997/98 Asian financial crisis.

(i) What is a liquidity risk? [1]

(ii) What controls or measures can a bank apply to manage its liquidity risk? [2]

(Total:20 marks)

6. (a) An international corporation is exposed to the following currency exposure risks:

- Transaction risk
- Translation risk
- Economic risk

(i) Explain each of the **three** types of risks stated above. [6]

(ii) Briefly explain which of the above risks is the most appropriate to be hedged. [2]

(b) State **two** advantages of using each of the following treasury products:

(i) Foreign currency options [2]

(ii) Interest rate swaps [2]

(iii) KLIBOR futures [2]

(c) Explain and illustrate with an example any **two** of the following internal hedging techniques employed by corporations:

(i) Cross currency matching [3]

(ii) Switching currency base [3]

(iii) Leading and lagging [3]

(Total:20 marks)

OUTLINE ANSWERS

The comments given in the boxes below indicate the areas of weaknesses the examiners have identified and their advice to future candidates.

Question 1

Candidates did not answer the analytical questions or provided irrelevant answers.

1. (a) (i) The exchange rate between two currencies.

(ii) The date of maturity.

(iii) A market-maker/broker/dealer's price which is not firm.

(iv) The bid and offer rate at which banks deal/place deposits with each other. The basis of interbank market.

(b) Buy USD against JPY
This will result in the increase in the money supply of Japanese Yen in the market. To sterilise the foreign exchange operation, the Central Bank of Japan would need to "drain" the money supply via monetary policies, e.g. issues of bonds. The net effect is that the interest rates will not be affected.

(c) (i) The central bank
- Foreign exchange intervention to bring about the "desired" level of exchange rate for the country.
- Managing reserves.
- Regulations/supervision

(ii) Commercial banks
- Investment/management of assets/liabilities
- Transact on behalf of customers

(iii) Money brokers
- Financial middleman – matching of deals between buyers and sellers.

(d) (i) Higher cost of imports due to EUR strengthening.

(ii) **No:** USD is currently pegged – rate more certain. AUD future volatility uncertain.
Yes: Take advantage of short-term appreciation but face volatility risk

(iii) (aa) Yes, to minimise the exchange rate risk. Certainty of cost.

(bb) **Yes:** If forward is a premium – i.e. to take advantage of swaps points.
No: MYR is pegged to the USD, risk is minimised – hedging may not be desirable.

(iv) Any **three** factors: political, economic, commercial, market, etc.

Question 2

- Candidates made careless mistakes in calculations.
- Candidates should always check that their answers are logical, i.e. not out of the possible range.

2. (a) USD/JPY value spot = 108.10

(b) NZD/USD value spot = 0.6478

(c) JPY/MYR value 6-month fixed
= (3.7995 + 115) / (108.10 - 100) = 3.5583/84 (100 units)

(d) JPY/MYR value 2-month
= (3.8005 + 83) / (108.00 - 30) = 3.5364/65 (100 units)

JPY/MYR value 3-month
= (3.8005 + 93) / (108.00 - 45) = 3.5423/24 (100 units)

Option rate = 3-month = 3.5423/24

(e) NZD/MYR value spot
= (3.8005) x (0.6478) = 2.4619/20

NZD/MYR value 1-month
= (3.8005 + 46) x (0.6478 - 20) = 2.4573

Option rate = spot rate = 2.4619/20

(f) NZD/MYR value 3-month
= (3.7995 + 83) x (0.6468 - 75) = 2.4343

(g) NZD/MYR value 5-month
= (3.7995 + 105) x (0.6468 -115) = 2.4204/5

NZD/MYR value 6-month
= (3.7995 +115) x (0.6468 - 140) = 2.4116

Option rate = 6-month = 2.4116

(h) JPY/MYR value 4-month
= (3.8005 + 105) / (108.00 - 65) = 3.5500/1 (100 units)

JPY/MYR value 5-month
= (3.8005 + 115) / (108.00 - 85) = 3.5576/7 (100 units)

Option rate = 5-month = 3.5576

(i) (i) 3.7995

(ii) USD250,000 x (3.8050 – 3.7995) = 250,000 x 0.0055 = MYR1,375

(iii) 3.7995 + 46 = 3.8041

(iv) USD250,000 x 3.8041 = MYR951,025

Question 3

Candidates have difficulty applying hedging strategies to answers.

3. (a) (i) 1.2310 – 1.2290 = 0.0020

Loss
= 0.0020 x 2,000,000
= CHF4,000 (= 4,000 x 3.8000/1.2290 = MYR12,367.78)

(ii) 3800/2,000,000 = 0.0019

Rate = 1.2310 + 0.0019 = 1.2329

(b) (i) (aa) 4.7280. 100,000 x 4.7280 = MYR472,820

(bb) 4.7090. 200,000 x 4.7090 = MYR941,800

(cc) 4.7100. 100,000 x 4.7100 = MYR471,000

(ii) (aa) Hedge only the imports

- Forward premium more expensive
- Lock in costs. However only partially offset forex exposure. Major forex exposure still not covered.
- Recommended if company wish to take on trading risk

(bb) Hedge only the exports

- Forward only a slight premium – little forex gain
- Lock in profit – reduce significant forex risk leaving only the imports risk. As premium for imports is expensive – may wish to take on trading risk.
- Recommended if company is of the view that the EURO will decline and wish to take on trading risk.

(cc) Hedge both the imports and exports

- Minimum gain in premium for exports. Higher premium for imports.
- Lock in profit and costs. No more forex exposure.
- Recommended if company is risk adverse.

(dd) Hedge only the net amount

- Unilateral netting.
- Still leave an exposure of EUR100,000 for exports.
- However, match is not perfect due to timing difference. Only offset risk partially.
- Recommended if company wish to take on trading risk.

(ee) Borrow EUR100,000 at 2.10% for 60 days.
Convert to MYR at the prevailing spot rate.
Costs for 60 days = 100,000 x 2.10 x 2/12 = EUR350
Deposits EUR100,000 from exports proceed for 30 days
Gain = 100,000 x 1.90 x 1/12 = EUR 158.33

Net cost is EUR191.67 (before offsetting any MYR interest gain/loss for MYR equivalent of loan/exports amount)

Recommended if the overall cost is less than the costs of forward premiums/swaps.

(c) Options available to cover both positions:

- Lend out the MYR at the prevailing market bid rate
  - Borrow USD at the prevailing market rate
- By entering into a 1-year buy/sell USD swap.

Question 4

- Candidates tend to regurgitate facts and not answer the questions directly.
- Candidates showed poor understanding of all concepts tested as evident in the poor answers given, especially the application type of questions.
- Candidates should provide precise answers and try not to regurgitate the facts. It is important to note that questions will also test candidates' understanding through application of principles.

4. (a) (i) A Euro Yen deposit is a Yen deposit that is traded outside its country of origin or home country, i.e. outside Japan. It is an offshore Yen deposit.

(ii) A Euro Yen deposit will have the following features (any **two**):
- The Euro Yen deposit will not be subjected to any regulatory reserve requirements.
- The Euro Yen deposit will not be subjected to any deposit insurance requirements.
- The rate of interest paid for Euro Yen deposits will most likely be higher than domestic Yen deposits as no additional cost is incurred either in reserve requirements or deposit insurance.

(b) (i) Monday July 5, 2004 and Tuesday July 6, 2004.

(ii) Maturity amount
= 5,000,000+ (5,000,000 x 1% x 1/360)
= USD 5,000,138.89

(c) (i) Phil Bank's transaction preference is to lend or offer money rather than to borrow or bid for money as its offer rate is lower than the standard market offer rate by 30 basis point.

(ii) Silky Bank should borrow from Phil Bank as Phil bank is offering a lower 1-month deposit rate at 7.5%p.a. compared to the standard market offer of 7.8%p.a. Silky Bank will borrow at 7.5%p.a. from Phil Bank.

(iii) The maturity amount will be
= 3,000,000 [1 +(7.5 % x 1/12)]
= RM3,018,750.00

(iv) The breakeven rate
= Rate / (1 – Reserve requirement)
= 7.5% / (1 – 0.10)
= 8.33%p.a.

(v) Loan rate SILKY BANK must quoted to make 50 basis point profit
= 8.33 + 0.50 = 8.83%p.a.

(d) (i) "Clean price" means the price of the bond excluding any accrued interest due to the bond.

(ii) As the 5-year MGS is trading at a premium of 100.80, the 5-year interest rate is trading at a level lower than the coupon rate of 4.65%p.a.

(iii) The settlement proceeds that Norshah Bank will receive
= (100.80/100 x 20,000,000) + [20,000,000 x 4.65% x 100/(182 x2)]
= 20,160,000.00 + 255,494.50/51
= RM 20,415,494.50/51

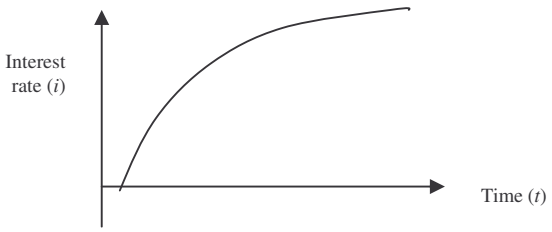
(iv) The settlement amount at transacted price
= 100.80/100 x 20,000,000
= RM20,160,000
If a loss of 80,000 was incurred, settlement amount will be
= 20,160,000 – 80,000
= RM20,080,000
Therefore, the 5-year MGS price would be
= 20,080,000/20,000,000 x 100
= RM100.40

Question 5

Candidates performed poorly in all sections, even on topics like yield curves and gapping strategies, tested almost every examination sitting.

5. (a) (i) A yield curve is a graphic representation showing the relationship between interest rates/yields and maturities of a particular instrument at a given point in time.

(ii)



(iii) A flat yield curve is one where the interest level is the same across different maturities.

(iv) A flat yield curve indicates that the market is currently in a consolidating phase and is not sure where rates are heading. The market is said to be "directionless" or at times, the phrase "moving sideways" is used to describe the market expectations.

(v) Gapping activities in a bank are activities arising from the deliberate mismatch of assets and liabilities in a bank's books. Through gapping activities, the bank's objective is to improve or gain interest spreads arising from the deliberate mismatch of assets and liabilities, within given acceptable price and liquidity risks.

(vi) To adopt a positive gapping strategy requires a bank to borrow long and lend short. A negative yield curve environment is one where rates on shorter end maturities are higher than rates on longer end maturities. Given this set of conditions, the immediate revenue impact would be a gain, as the bank would be borrowing at a lower rate on the longer end and lending at a higher rate on the shorter end.

(vii) The bank would choose such a strategy if it views that the inverted negative yield curve would remain in place for a considerable period of time and it will stand to gain from adopting the positive gapping strategy.

(b) (i) Derivative instruments are instruments where the values of such instruments depend on the values of some other basic underlying instruments such as commodity prices, exchange rates, interest rates or share prices.

(ii)

	Exchange Traded	Over the Counter
Amount	Standard size of contract	Flexible/Variable
Delivery	Fixed date, seldom taken up	Flexible, usually taken up
Price fluctuation	Established limits to daily fluctuations	No restrictions
Currency	Limited	Varies
Credit risk	To exchange	Full risk to counter-party
Counter-party	Not known	Always full knowledge
Financial requirement	Margin	FX/MM/counter-party lines
Commission	Fees payable	No fees
Trading day	Limited to Bourse	**Almost 24 hours**
Market place	Exchange	Over the counter
Cost/earnings	Daily cost	Realised upon maturity

(c) (i) The implied 3-month KLIBOR rate
= 100 – 97.05 = 2.95 %

(ii) Gain made by LWS Bank per contract
= 97.05 – 96.70 = 0.35
= 35 ticks
As 1 tick = RM 25, LWS Bank would have made
= 100 x 35 x 25
= RM 87,500.00

(d) (i) Liquidity risk is the risk that one would be unable to have funds available to meet its financial commitments (commercial and trading) when they are contractually due.

(ii) Banks in managing liquidity risk can apply the following controls (any **two**):

- Limit the outflow of funds per time bucket through the institution of maximum cumulative cash outflow limits (MCO) for each time bucket, placing more emphasis on impending maturity time buckets like overnight and 1-week maturity.
- Instituting liquidity ratios and triggers to allow diversification of sources of funding and tenor of funding and in so doing avoid concentrations in sources of funding and maturity tenors.
- Ensure that the bank's balance sheet is structurally balanced, i.e. customer liabilities are sufficiently funding customer assets creation.
- Ensure that there are sufficient assets on the Balance Sheet that is liqudifiable and this can be aided through a securitisation programme.
- Run various what if scenario contingency funding plans to test the liquidity preparedness and the liquidity condition of the bank and strengthen controls or institute new liquidity measures where necessary.

Question 6

Candidates were unable to provide detailed answers or explanation as required by the question.

6. (a) (i) Transaction risk
When there is a commitment to pay or receive a foreign currency immediately or at some future date, e.g. exports of goods to Australia.

Translation risk
When a company has assets and liabilities which are denominated in foreign currencies, movements in the exchange rates between the values of the foreign currencies and the home currency between two reporting balance sheet periods will alter the value of the company's balance sheet, e.g. investments in shares of Australian companies.

Economic risk
When changes in exchange rates over a period of time affect the competitiveness of a company via its pricing and expenditure structure, e.g. the appreciation of the EUR increases the cost of Mercedes Benz which is imported from Germany.

(ii) Transaction risk
This risk is more short term in nature and identifiable. Therefore, it is most appropriate to hedge this business exposure risk.

For info:
Translation risk
This is accounting exposure risk and therefore hedging is not appropriate.
Economic risk
Economic risk is more "strategic" in nature and therefore, any hedging would depend on the decisions of senior management.

(b) (i) Foreign currency options
- Customer can chose strike price and option period
- More flexible than forwards
- Take advantage if the rate move in customer's favour
- If underlying commercial deals fall through, customer can cancel option. Only pay the premium.
- Maximum costs known

(ii) Interest rates swaps
- Reduce funding costs
- Take advantage of interest rate movement/differentials
- Manage interest rate effectively

(iii) KLIBOR futures
- Less risk of default – guaranteed by the exchange
- Can extend at maturity
- Can closed out contract by purchasing an equal and opposite contract.

(c) Candidates to choose any **two**:

(i) Cross currency matching
Usage of one foreign currency receivable to hedge against another foreign currency payable. Both currencies need to be highly correlated, e.g. using a Singapore receivable to hedge against a Brunei payable.

(ii) Switching currency base

Company attempts to switch its base of manufacturing so that costs are incurred in the same currencies as revenues, e.g. a furniture company exporting leather sofa set to Australia tries to source its leather supply from Australia knowing that it has AUD receivables.

(iii) Leading and lagging

- Try to receive strong currencies and at the same time owe the weak currencies.
- Altering the timing of receivables and payables to match certain of the company's cash flow profile or take advantage of depreciation/appreciation.
- E.g. a company exports to Indonesia in IDR and to Europe in EUR. Based on the market trend that the IDR will weaken and the EUR will strengthen, the company will attempt to accelerate the collection of IDR and delay the collection of the EUR receivables.