

**DP07**

# **Treasury**

**4 SEPTEMBER 2007**

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) Explain the following:
- (i) Spot rate [2]
  - (ii) Forward rate [2]
  - (iii) Square [2]
  - (iv) Yours and mine [2]
- (b) "It was reported that foreign direct investment worth USD40billion is expected to flow into the Iskandar Development Region in Johor over the short term."
- (i) Describe the expected effect of the foreign direct investment on the MYR exchange rates in the short term. [3]
  - (ii) State **two** factors that influence the movement of foreign exchange rate. [2]
- (c) (i) Name **three** major participants in the foreign exchange market. [3]
- (ii) State **two** actions that a central bank can take in a free floating exchange rate regime to stabilise the country's currency exchange rate. [2]
- (d) State **two** disadvantages of entering into an optional forward delivery contract with a local bank. [2]
- (Total:20 marks)

2. The following rates are quoted:

Item	USD/MYR	EUR/USD	USD/SGD
Spot (4 September 2007)	3.4020/30	1.3345/55	1.5170/80
1-month	75/65	10/20	15/05
2-month	110/100	15/25	25/15
3-month	170/160	30/40	45/35
4-month	220/210	45/55	65/55
5-month	285/275	65/75	75/65
6-month	330/320	85/95	100/90

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 EUR/USD value spot. [1]
- (b) Bank buys USD/SGD value spot. [1]
- (c) Bank sells EUR/MYR value 6-month fixed delivery. [2]
- (d) Bank buys EUR/MYR option 2-month to 3-month. [3]
- (e) Bank buys SGD/MYR option spot to 1-month. [2]
- (f) Bank sells SGD/MYR 2-month fixed delivery. [2]
- (g) Price quoted to exporter for USD/MYR option 4-month to 5-month. [2]
- (h) Price quoted to importer for SGD/MYR option 1-month to 2-month. [3]

- (i) Your customer received a USD1,500,000 telegraphic transfer value spot. His instructions to convert the USD are as follows:
- USD1,000,000 to his EUR foreign currency account with your bank.
  - USD500,000 into MYR and credit his current account with your bank.
- (aa) What is the amount of EUR credited to his EUR foreign currency account? [2]
- (bb) What is the MYR amount credited to his current account? [2]
- (Total:20 marks)

3. (a) Today is 4 September 2007 and you are given the following quotation:

- Spot USD/CHF = 1.2270/75

State or calculate the following:

- (i) Deal currency [1]
- (ii) Big figure [1]
- (iii) Offer rate [1]
- (iv) Spot value date [1]
- (b) Your customer has an outstanding fixed foreign exchange contract for his export of USD100,000 at 3.4800 maturing 3 months on 3 December 2007. Due to the cancellation of orders, he would like to cancel his foreign exchange contract.

You are given the following information:

Spot (3 September 2007)	3.4230/40
1-month	75/65
2-month	110/100
3-month	170/160

How much profit/loss will the customer incur if the bank closes out the foreign exchange contract? [2]

- (c) A trader who trades in AUD/USD has executed the following trades:

Transaction	Amount	Currency	Rate
Sold	5,000,000	AUD/USD	0.8120
Sold	3,000,000	AUD/USD	0.8135
Purchased	5,000,000	AUD/USD	0.8145
Purchased	4,000,000	AUD/USD	0.8115

The revaluation rate for USD/MYR is 3.5000 and AUD/USD is 0.8115.

- (i) From the above trades, determine the net open position of the dealer in AUD and USD. [2]
- (ii) The trader wished to square his position without suffering any loss or profit.  
What rate must the open position be squared at? [2]
- (iii) The trader only managed to square his position at 0.8110.  
What was the loss suffered by the trader in AUD? [2]
- (d) You are given the following information:

Spot USD/MYR	3.4080
6-month USD interest rate	6.50% (181 days)
6-month MYR interest rate	4.50% (181 days)

- (i) State the general formula for calculating forward swap points. [1]
- (ii) Explain whether the forward rate for USD/MYR is at a premium or discount. [1]
- (iii) Determine the 6-month USD swap points using the general formula. [3]
- (iv) What is the 6-month forward USD/MYR rate? [1]
- (v) Name **two** advantages of using foreign exchange swaps as compared to money market lending or borrowing. [2]
- (Total:20 marks)
4. (a) Over the past five years, the Malaysian money market yield curves have moved from that of a positive yield curve to a yield curve that is flatter.
- (i) Draw a positive yield curve and explain what this yield curve means. [2]
- (ii) Define "gapping". [1]
- (iii) What implications will a flatter yield curve have on traders who are involved in gapping? [2]
- (b) "Euro deposit rates" is used to describe deposits that are traded outside the country or home country of the respective currencies.
- (i) In general, will the interest rates of "Euro deposit rates" be higher or lower than domestic deposit rates? [1]
- (ii) Explain the reason to your answer in (b)(i) above. [2]

- (iii) If a domestic currency is faced with devaluation pressures, what would be the impact of Euro deposit interest rates of that currency vis-à-vis the domestic interest rates? Explain your answer. [2]
- (c) Loans to non-bank customers in Malaysia are subject to reserve costs based on the reserve requirements imposed by Bank Negara Malaysia (BNM).
- (i) Why does BNM impose reserve requirements on financial institutions? [2]
- (ii) If a two-way quote for a 1-month money market placement is 3.00% - 3.25% per annum in the interbank market, what is the best deposit rate a bank can quote to a deposit customer for a 1-month money so that the bank can make a profit of 50 basis points? [2]
- (iii) If the reserve requirements are 4.0% (non-interest bearing), what breakeven all-in loan rate can a bank quote to a non-bank loan customer for a 1-month loan? Assume the two-way 1-month money market placement rates are 3.00% - 3.25% per annum as quoted in (c)(ii) above. Answer to two decimal places. [2]
- (d) For each of the following transactions, state the maturity date and briefly explain your answer:
- (i) A 3-month MYR money market placement transacted to start on value date 9 March 2007 if the maturity date is a Saturday. [1]
- (ii) A 1-month USD money market placement transacted to start on value date 28 February 2007 if the maturity date is a Saturday. [1]
- (iii) A 6-month SGD money market borrowing transacted to start on value date 5 April 2007 if the maturity date is a holiday in Malaysia. [1]
- (iv) A 2-month MYR money market placement transacted to start on value date 6 April 2007 if the maturity date is an unexpected holiday in Malaysia. [1]
- (Total:20 marks)
5. (a) One of the factors that is accounted for the 1997/98 Asian financial crisis is the failure of banks to manage liquidity risk.
- (i) What is liquidity risk? [2]
- (ii) Describe **two** controls or measures that banks can apply to manage liquidity risk. [2]
- (b) LWS Bank bought 200 contracts of September 2007 3-month KLIBOR futures contract on the Bursa Malaysia Derivatives at 96.80 on 9 April 2007.
- (i) Calculate the implied 3-month KLIBOR rate when LWS Bank bought the 200 contracts of September 2007. [1]
- (ii) What is the contract size of the 3-month KLIBOR futures contract? [1]
- (iii) The minimum movement for the 3-month KLIBOR futures contract is a "tick".  
What is the Ringgit value of a "tick"? [1]
- (iv) If LWS Bank decides to sell the 200 contracts of September 2007 3-month KLIBOR futures contract at 97.40 to square off its earlier position, how much gain or loss did LWS Bank make? [2]
- (c) Phil Bank bought Cagamas Notes of nominal value RM5.0million for value spot from Faith Bank. Faith Bank quoted a two-way price of 2.8% - 2.7% per annum for the Cagamas Notes that had 45 days remaining to maturity on transaction date.
- (i) What are Cagamas Notes? [2]
- (ii) What will be the tenor of the Cagamas Notes on settlement date? [1]

- (iii) Apart from credit and interest rate risks, what risk does Phil Bank face on transaction date when Phil Bank purchased the Cagamas Notes? [1]
- (iv) Calculate the proceeds that Phil Bank has to pay on value date for the purchase of the Cagamas Notes. Answer to two decimal places. [2]
- (d) Interest rate is defined as the price of money. Explain the following:
- (i) Nominal interest rates [1]
- (ii) Real interest rates [1]
- (iii) The following are the rates scenario prevailing in the two countries, Philland and Faithland:

Item	Philland	Faithland
GDP growth (annual)	7.0%	4.0%
Money supply growth (annual)	18.0%	6.0%
Inflation (annual)	8.0%	2.0%
Nominal interest fee	7.0%	3.0%

Calculate the real interest rate in Philland and Faithland. [2]

- (iv) Describe the relative strength and attractiveness of the currency in Philland, as against the currency in Faithland, based on the real interest rate in each country. [1]  
(Total:20 marks)

6. (a) Explain, with **one** example, the following:
- (i) Country risk [2]
- (ii) Pre-settlement risk [2]
- (b) Explain briefly the following treasury products:
- (i) Floor (Interest rate options) [3]
- (ii) Green Banker's Acceptance [3]
- (iii) Forward Rate Agreement [3]
- (iv) Currency options [3]
- (c) Explain, with **one** example, the following internal hedging techniques employed by corporations:
- (i) Netting of receivables and payables [2]
- (ii) Centralised invoicing [2]
- (Total:20 marks)

**- END OF QUESTION PAPER -**

## **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 understand the impact of foreign direct investment on exchange rates, the actions of a central bank in stabilising exchange rates and the disadvantages of an optional delivery contract.
- Candidates need to revise widely on all aspects of foreign exchange topics and also understand the theory and application of the subject matter.

1. (a) (i) Spot rate: The rate for buying and selling of currencies, with delivery normally two business days after the date of contract.
- (ii) Forward rate: The rate for buying and selling of currencies for delivery at a future dates and at a pre-agreed price.
- (iii) Square: Zero open position.
- (iv) Yours and mine: Sell and buy.
- (b) (i) The MYR would strengthen as a result of inflow of funds.
- (ii) Factors that influence the movement of the foreign exchange rate:  
(Choose any **two** of the following)
- Economic Factors
  - Political factors
  - Technical factors
  - Market speculation and hedging
- (c) (i) The major participants in the foreign exchange markets:  
(Choose any **three** of the following)
- Central banks
  - Commercial banks
  - Corporations
  - Non-banking financial institutions
  - Money brokers
  - Individuals
- (ii) **Two** actions that a central bank can take to stabilise the country's currency exchange rate
- Direct foreign exchange intervention
  - Monetary measures e.g. interest rates adjustments
- (d) **Two** disadvantages of entering into an optional forward delivery contract
- Lose the opportunity to take advantage of favourable foreign exchange rate movements
  - Higher costs/swap points incurred

**Question 2**

- Candidates did well in the calculation of spot and forward rates, including optional forward rates.
- Candidates failed to understand the difference between direct and indirect quotation of foreign exchange rates.
- Candidates need to work on exercises on both direct and indirect quotation of foreign exchange rates.

2. (a) EUR/USD value spot = 1.3355
- (b) USD/SGD value spot = 1.5170
- (c) EUR/MYR value 6-month fixed =  $(3.4030 - 320) \times (1.3355 + 95) = 4.5339/40$
- (d) EUR/MYR value 2-month =  $(3.4020 - 110) \times (1.3345 + 15) = 4.5303/4$   
EUR/MYR value 3-month =  $(3.4020 - 170) \times (1.3345 + 30) = 4.5274$   
Option rate = 3-month = 4.5274
- (e) SGD/MYR value spot =  $(3.4020) / (1.5180) = 2.2411$   
SGD/MYR value 1-month =  $(3.4020 - 75) / (1.5180 - 5) = 2.2369$   
Option rate = 1-month = 2.2369
- (f) SGD/MYR value 2-month =  $(3.4030 - 100) / (1.5170 - 25) = 2.2403$
- (g) USD/MYR value 4-month =  $3.4020 - 220 = 3.3800$   
USD/MYR value 5-month =  $3.4020 - 285 = 3.3735$   
Option rate = 5-month = 3.3735
- (h) SGD/MYR value 1-month =  $(3.4030 - 65) / (1.5170 - 15) = 2.2411/2$   
SGD/MYR value 2-month =  $(3.4030 - 100) / (1.5170 - 25) = 2.2403$   
Option rate = 1-month = 2.2411/2
- (i) (aa)  $(\text{USD}1,000,000 / 1.3355) = \text{EUR}748,783.22/3$
- (bb)  $\text{USD}500,000 \times 3.4020 = \text{MYR}1,701,000$

**Question 3**

- Candidates failed to understand the concepts of cancellation of foreign exchange contracts, swap rates and calculation of outright forward rates.
- Candidates need to understand both the theory and application of the subject matter.

3. (a) (i) USD  
(ii) 1.225  
(iii) 1.2275  
(iv) 6 September 2007

- (b) (i) The contract is closed out as follows:

Current bid rate	3.4230
3-month swap point	0.0170
Closing out rate	3.4400
Original contract rate	3.4800
Difference	0.0400

Amount gained = 0.0400 x 100,000 = MYR4,000

- (c) (i) Jobber

AUD	Rate	USD
-5,000,000	0.8120	+ 4,060,000
-3,000,000	0.8135	+ 2,440,500
+5,000,000	0.8145	- 4,072,500
+4,000,000	0.8115	- 3,246,000
Open Position +1,000,000	0.8180	-818,000

Open position = AUD1,000,000  
= AUD1,000,000 x 0.8115 = USD811,500

- (ii) Rate = 0.8180.  
(iii) 0.8110 - 0.8180 = (0.0070)  
Loss = (0.0070) x 1,000,000 = (AUD7,000)  
(d) (i) Swap points =  $\frac{\dots \# \times \text{spot rate} \times \text{days} \dots}{360000}$

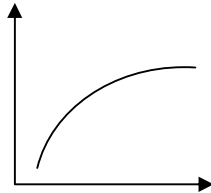
where # = interest differential

- (ii) Discount. The USD interest rate is higher than the MYR interest rate.  
(iii) Swap points =  $\frac{\dots (6.50 - 4.50) \times 3.4080 \times 18 \dots}{360000}$  = 0.0343 = 343 swap points  
(iv) 6-month forward USD/MYR rate = 3.4080 - 0.0343 = 2.3737  
(v) Advantages of using forex swaps:  
(Choose any **two** of the following)
- Costs may be lower
  - Minimal impact on balance sheet
  - Possible tax advantages

#### Question 4

- Candidates did well in the calculation of maturity value dates and the theoretical aspects of gapping and Euro deposit rates.
- Candidates did not understand the concept of reserve requirements and the application of Euro deposit rates.
- Candidates need to understand both the theory and application of money market concepts.

4. (a) (i)



A positive yield curve is an upward sloping yield curve where the interest rates on the longer tenors are higher than the interest rates on the shorter tenors.

- (ii) Gapping is the deliberate mismatch between the maturities of assets and liabilities in a bank's banking book.
- (iii) A flatter yield curve would mean that the opportunities for gapping by traders are significantly diminished as there are smaller or no gaps. This has an impact on trading profitability.
- (b) (i) In general, Euro deposit interest rates will be higher than domestic deposit rates.
- (ii) Eurocurrency markets are not subject to regulatory reserve requirements or deposit insurance and are therefore able to pay higher interest rates than domestic deposit rates.
- (iii) If a currency faces devaluation pressure, the domestic regulators would prevent currency speculators from borrowing the currency concerned in the domestic money market in order to short the currency. As such, speculators will borrow the targeted currency in the offshore or Eurocurrency markets in order to short the currency and this pushes the interest rate of the said currency upwards in the offshore or Eurocurrency markets.
- (c) (i) Bank Negara Malaysia imposes reserve requirements on financial institutions to control the money supply in the banking system as part of its monetary policy objectives.
- (ii) The breakeven rate will be 3.00%, i.e., the market bid rate for 1-month money.
- In order to make 50 basis points profit, a bank will have to quote 3.00% minus 0.50% = 2.50% per annum
- (iii) Reserve requirements = 4.0% (non-interest bearing)  
1-month money market offer rate = 3.25% per annum  
Breakeven all-in loan rate =  $0.0325 / (1 - 0.04)$   
= 0.03385  
= 3.38% per annum or 3.39% per annum

- (d) (i) The maturity date will be Monday, 11 June 2007, the next business day.
- (ii) The maturity date will be Friday, 30 March 2007, the “no-crossing-over the month” for month-end to month-end maturities.
- (iii) The maturity date will be 5 October 2007. The maturity date is not affected by the holidays in Malaysia.
- (iv) The maturity date will be 7 June 2007, the next business day.

**Question 5**

- Candidates were weak in their understanding of the concepts of liquidity risk, KLIBOR futures contracts and settlement proceeds calculations for Cagamas Notes.
- Candidates need to understand both the theory and application of money market concepts.

5. (a) (i) Liquidity risk is the risk that a bank would be unable to meet its financial commitments (commercial and funding) when they are contractually due because it does not have the available funds.
- (ii) Banks in managing liquidity risk can apply the following controls:  
(Choose any **two** of the following)
- Limit the outflow of funds per time period 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 doing so, 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 there are sufficient liquidifiable assets on the balance sheet through a securitisation programme.
  - Run various “what if” scenario contingency plans to test the bank’s liquidity preparedness and condition and strengthen controls or institute new liquidity measures where necessary.
- (b) (i) The implied 3-month KLIBOR rate =  $100 - 96.80$ .  
= 3.2%
- (ii) The contract size is based on a Ringgit inter-bank time deposit of RM1,000,000 with a 3-month maturity on a 360-day year.
- (iii) The Ringgit value of a tick is RM25.  
Note: 1 tick is  $0.01\% \times 1,000,000 \times 3/12$
- (iv) Selling Price = 97.40  
Buying price = 96.80  
Gain =  $97.40 - 96.80$   
= 60 ticks
- Gain = 200 contract x 60 x RM25  
= RM300,000

- (c) (i) Cagamas Notes are unsecured short-term debt obligations issued by Cagamas Berhad, the National Mortgage Corporation. Such notes are issued on a discounted basis.
- (ii) The tenor of the Cagamas Notes will be:  
= 45 – 2 = 43 days since transaction is dealt value spot.
- (iii) Phil Bank also faces pre-settlement risk, the risk that the counterparty to the transaction may fail before settlement date.
- (iv) Settlement Proceeds  
= Nominal Value {1-(discount rate of Cagamas Notes x no. of days to maturity/365)}  
= RM5,000,000 x {1 – (2.7% x 43/365)}  
= RM4,984,095.89
- (d) (i) The interest rate prevailing in the country before taking into account the rate of inflation.
- (ii) The interest rate prevailing in the country after deducting the annual rate of inflation.
- (iii) Philland : -1%  
Faithland: 1%
- (iv) The currency in Faithland should have a higher relative strength and attractiveness compared to Philland, due to the higher real interest rates in Faithland.

**Question 6**

- No comments were provided for this question as no candidate attempted this question.

6. (a) (i) Country or sovereign risk is the risk of the borrower's or the counterparty of a foreign country's inability to fulfill his/her obligations due to government-imposed controls in that foreign country or because of political reasons.
- Example: Due to the war in Iraq, Iraqi Banks faced the inability to transfer funds.
- (ii) Pre-settlement risk exists whenever a contract is entered into, for which settlement occurs at a forward date. For such contracts, a loss would occur if the counterparty were to default and the contract had to be replaced at a cost higher than the originally incurred cost.
- Example: Default due to bank insolvency or bankruptcy.
- (b) (i) Floor  
A floor is an over-the-counter interest rate option which allows the buyer to set a minimum rate of interest for a specified future period. The floor is used as protection against a decline in rates below the strike or floor rate.
- (ii) Green Banker's Acceptance (Green BA)  
Green BAs and conventional BAs share the same features. Green and conventional BAs are different in that Green BAs do not deal with products not listed in the BNM guidelines on BAs. Green BAs originate from the conventional bank's "halal" trade transactions.
- (iii) Forward Rate Agreement (FRA)  
An FRA is a contractual agreement between two parties to fix the interest rate for a future period on a specified notional principal, such as a loan or deposit. An FRA is used to hedge an asset or liability. It is also a widely used instrument for investment, trading and arbitrage.

- (iv) **Currency options**  
Currency options can be either a “call” or a “put”. A call option gives the holder the right but not the obligation to buy an underlying asset at an agreed price on or before the expiration date. Whereas, a put option gives the holder the right, but not the obligation, to sell at the strike price, on or before the expiration date.
  
- (c) (i) **Netting of receivable and payables**  
This internal hedging technique requires the company to net off receivables and payables in the same currencies.  
  
Example: A 3-month forward USD5million receivable is netted off against a 3-month forward USD3million payable. The company, in this instance, needs only to sell a 3-month forward net amount of USD2million.
  
- (ii) **Centralised Invoicing**  
In the case of highly centralised risk management, the head office or a designated centre acts as a foreign exchange banker to its group of subsidiaries and affiliates by taking over and standing in at any time to buy or sell currencies at a rate close to the prevailing market rates. The head office manages the overall currency exposure and decides on the various internal and external hedging strategies.  
  
Example: The Treasury Department at the head office of a big corporation manages all foreign exchange exposures of the corporation’s group of subsidiaries and affiliates, rather than individual units.