

DP07

Treasury

9 OCTOBER 2001

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) Answer "True" or "False" for each of the following:
- (i) Interbank dealers only trade with currency brokers. [1]
 - (ii) The following price quoted by a currency broker means that the bid price is only good for USD3million.
"JPY: 107.00-03, 2 by 3" [1]
 - (iii) Money brokers cannot reveal the names of the parties to a transaction in any circumstances. [1]
 - (iv) With rising interest rates, borrowers should borrow long and increase their fixed rate liabilities. [1]
- (b) "Expectation of US interest rate decline continues to weigh heavily on the dollar. The dollar continued to drop against the Euro and other major currencies. The Euro has recovered from the recent lows of below 0.9000 to close yesterday at 0.9210-15. Dealers anticipated the Euro to regain its strength and will touch the 1.0000 level within the next **three** months. The Ringgit remains pegged at RM3.8000 to the USD.
- Despite the market sentiments, money market dealers, however, expect the US interest rates currently at 5.00% to remain unchanged, at least for the next quarter. Meanwhile, the local money market was rather active with 3-month money quoted at 3.25% - 3.75%. Dealers expect the local interest rates to rise due to increase in economic activities as a result of the government's fiscal policies."
- From the above report, answer the following questions:
- (i) What would be the effect of the strengthening Euro on a local exporter exporting furniture to European countries with export proceeds denominated in Euro? [2]
 - (ii) What would be the effect of the strengthening Euro on a local importer importing machinery from Germany with import payments denominated in USD? [2]
 - (iii) How would the declining US interest rates affect a counterparty to an interest swap agreement who is now paying floating interest rate as opposed to fixed interest rate earlier? [2]
 - (iv) How would the changes in the local interest rates affect the direction of the 3-month Kuala Lumpur Interbank Offer Rates (KLIBOR) futures index? [2]
- (c) Describe briefly any **two** of the following financial markets:
- (i) Capital or fixed income market [2]
 - (ii) Foreign exchange market [2]
 - (iii) Derivative market [2]
- (d) Briefly describe any **two** of the following Exchange Control Notices issued by Bank Negara Malaysia:
- (i) ECM 2 [2]
 - (ii) ECM 5 [2]
 - (iii) ECM 15 [2]
- (Total:20 marks)

2. The following rates are quoted:

	USD/MYR	NZD/USD	USD/JPY
O/N	5-3	-	-
T/N	5-3	-	-
Spot (17 October 2001)	3.7995/05	0.4390/00	115.10/20
1-month	80-70	5-0	10-15
2-month	150-140	10-5	25-30
3-month	200-190	20-10	40-45
6-month	340-310	40-30	80-90

Calculate the following (to show full workings):

- (a) Bank sells USD/MYR value today. [1]
- (b) Bank sells JPY/MYR value spot (express your answer in 100 units). [1]
- (c) Bank buys NZD/USD value spot. [1]
- (d) Bank buys USD/MYR 6-month fixed delivery. [2]
- (e) Bank sells NZD/MYR option spot to 1-month. [3]
- (f) Bank sells JPY/MYR 3-month fixed delivery (express your answer in 100 units). [2]
- (g) Price quoted to exporter for NZD/MYR option spot to 3-month. [3]
- (h) Price quoted to importer for JPY/MYR option 1-month to 2-month (express your answer in 100 units). [3]
- (i) What is the loss/profit (in MYR) to the customer if a forward fixed delivery USD/MYR contract transacted by the customer **four** months earlier for its USD100,000 imports at the rate of 3.8030 maturing on 17 October 2001, is cancelled **today** (15 October 2001). (Assume no other cost imposed and all approvals obtained) [2]
- (j) What is the swap points to be added or deducted from the forward delivery contract in (i) above, should the customer decide to extend the contract for an additional **one** month? (Assume no other cost imposed and all approvals obtained.) [2]
- (Total:20 marks)
3. (a) As an interbank GBP dealer, you have been advised by your GBP correspondent bank that your GBP account is overdrawn by GBP1million today. Upon checking, you found that you have maintained a square position for your spot GBP speculative trades for the last **one** week.
- Explain how it is possible for your GBP account to be overdrawn. [2]
- (b) A local interbank dealer was long 3,000,000 USD/SGD at 1.7550 and decided to leave the following order with an overseas correspondent bank, which agreed to monitor the order for him:
- “Good day to you friends, here is a spot USD/SGD order for you good until done. This is an either or order. We are sellers of 3,000,000 USD at 1.7620 (take profit) or at 1.7530 (stop loss). Kindly return the order back to us tom if not executed. Thanks, Have a nice day.”
- (i) If the dealer wants to limit his loss to USD5,000, would he be protected with the above order? (Provide calculations to support your answer.) [3]
- (ii) How much profit or loss (in MYR) would the dealer make if the above order was executed at 1.7620? Assume USD/MYR rate is 3.8000. [4]

(c) You are given the following information:

Spot USD/MYR	3.8000
6-month USD interest rates	5.00% (181 days)
6-month MYR interest rates	3.00% (181 days)

Required:

- (i) State the general formula for calculating swap points. [1]
- (ii) Determine the 6-month USD/MYR swap points using the general formula. [2]
- (iii) Assume your bank receives a USD1million 6-month deposit from a customer at value spot and you would like to swap the USD into MYR to fund a 6-month MYR asset.

To do this, you can either do the following operations:

- **Money market lending or borrowing** - lend out the USD for **six** months at the above USD interest rates and borrow the MYR for **six** months at the above MYR interest rates.
- **Foreign exchange swap** - perform a 6-month sell/buy USD/MYR swap with another bank.

Assume the 6-month swap points is quoted at 350/340.

Explain with calculations, which operation i.e. money market lending or borrowing, or foreign exchange swap, will give a better return to the bank. [6]

- (d) State **two** advantages of using foreign exchange swap operations compared to money market lending or borrowing operations. [2]
(Total:20 marks)

4. (a) At a recent meeting of the Asset Liability Committee (ALCO) of FAITH Bank, the Treasurer informed the ALCO that FAITH Bank has moved itself into a "long funding position."

- (i) Explain the term "long funding position". [2]
- (ii) Why is the bank taking such a funding strategy? [2]
- (iii) What are the potential risks associated with taking such a funding strategy? [3]

- (b) (i) What is a "yield curve"? [2]
- (ii) Name and illustrate graphically the **three** common types of yield curves. [3]

- (c) SHAH Bank charges 13.5% per annum discount for a **one**-year loan while STAN Bank charges 15.5% per annum with interest payable at the end of the **one**-year period.

If you are a borrower, from which bank will you borrow? (Provide calculations to **two** decimal places in support of your answer.) [2]

- (d) The 3-month domestic interest rate in KULLAND is 8.0% per annum. The non-interest bearing statutory reserve requirement set by the central bank of KULLAND is set at 5.5% of deposits.

Calculate the break-even 3-month Eurorate for KULLAND's currency. (Provide your answer to **two** decimal places.) [2]

- (e) Bank VANKIM purchases a secondary market Negotiable Certificate of Deposit (NCD) at a yield of 5.00% per annum with details as follows:

Nominal value	RM10million
Original tenor	180 days
Issued coupon rate	6% per annum
Remaining tenor	90 days

Calculate the purchase proceeds that Bank VANKIM needs to pay. [4]
(Total:20 marks)

5. (a) (i) What are Malaysian Government Securities (MGS)? [2]
(ii) Describe any **four** principal features of MGS. [4]
- (b) TOM Bank buys RM5million nominal value of MGS with a remaining tenor of **five** years, bearing a coupon rate of 4.5% from the secondary market at a clean price of RM101.50.
- (i) Based solely on the information above, comment on the level of the **five**-year interest rates compared to the coupon rate. [2]
(ii) Calculate the total proceeds that TOM Bank would have to pay if the settlement date was **91** days since the last coupon date, and the coupon period in which the settlement takes place is **182** days. [4]
(iii) TOM Bank decides to resell the same bond above for the same settlement date. If the only dealing price in the market for that bond is RM101.25/75, at what price would TOM Bank have to sell the bond? [1]
(iv) How much profit/loss would TOM Bank incur in the transaction in (b)(iii) above? [1]
- (c) (i) What is a Repurchase Agreement (REPO)? [2]
(ii) Why would a bank enter into a REPO? [2]
(iii) VOON Bank has surplus liquid financial assets consisting of Bankers' Acceptances (BAs) and Negotiable Instruments of Deposit (NIDs). It decides to REPO RM25million of Bank ABC Short-term Negotiable Certificate of Deposit (SNCD) which carries a 7.00% per annum coupon rate and RM30million Bank XYZ SNCD which carries a 5.00% per annum coupon rate.
- If the REPO transaction for RM55million was agreed at 8.00% per annum for **50** days, what REPO proceeds would VOON Bank have to pay on maturity of the REPO? [2]
(Total:20 marks)

6. (a) Explain with an example, any **two** of the following risks:
- (i) Trading exposure risk [2]
(ii) Pre-settlement risk [2]
(iii) Liquidity risk [2]
- (b) Briefly explain on any **two** of the following:
- (i) Government Investment Certificates [2]
(ii) Islamic Acceptance Bills [2]
(iii) Notes Issuance Facility [2]
(iv) Forward Rate Agreement [2]

- (c) Describe with an example, the following:
- (i) Forward option delivery contracts [3]
 - (ii) Currency options [3]
- (d) Explain and illustrate with an example, any **two** of the following principal techniques available for managing exchange rate risks:
- (i) Leading and lagging [3]
 - (ii) Cross currency matching [3]
 - (iii) Foreign exchange risk shifting [3]
- (Total:20 marks)

- END OF QUESTION PAPER -

OUTLINE ANSWERS

Question 1

Candidates were able to interpret the treasury reports but had problems differentiating KLIBOR rate and KLIBOR futures index. Some candidates were also not able to describe the relevant Exchange Control Notices questioned.

1. (a) (i) False
(ii) False
(iii) False
(iv) True
- (b) (i) Benefit to exporter – due to higher exchange rates.
(ii) Importer unaffected by the exchange rates as payment denominated in USD is pegged at 3.8000.
(iii) Expect to gain due to lower interest rates.
(iv) KLIBOR futures index expects to move down.
- (c) (i) Market for dealing in medium to long-term government, bank and corporate securities. Include debt instruments like government and corporate notes and bonds.
(ii) Market whereby participants buy and sell convertible currencies, both on a spot and forward delivery basis.
(iii) Market offers both hedgers and traders to deal in a wide range of over-the-counter and exchange-traded financial futures.
- (d) (i) ECM 2 – Dealings in Gold and Foreign Currency.
(ii) ECM 5 – Exports of Goods.
(iii) ECM 15 – Labuan International Offshore Financial Centre.

Question 2

This question on basic forex calculations was well answered.

2. (a) $\text{USD/MYR value today} = 3.8005 + 5 + 5 = 3.8015$
- (b) $\text{JPY/MYR spot} = 3.8005/115.10 \times 100 = 3.3019$
- (c) $\text{NZD/USD value spot} = 0.4390$
- (d) $\text{USD/MYR value 6-month} = 3.7995 - 340 = 3.7655$
- (e) $\text{NZD/MYR value spot} = (3.8005) \times (0.4400) = 1.6722$
 $\text{NZD/MYR value 1-month} = (3.8005 - 70) \times (0.4400 - 0) = 1.6691$
Option rate = spot rate = 1.6722
- (f) $\text{JPY/MYR 3-month fixed delivery}$
 $= (3.8005 - 190) / (115.10 + 40) \times 100 = 3.2740$

- (g) NZD/MYR value spot = $(3.7995) \times (0.4390) = 1.6680$
 NZD/MYR value 3-month = $(3.7995 - 200) \times (0.4390 - 20) = 1.6516$
 Option rate = 3-month rate = 1.6516
- (h) JPY/MYR value 1-month
 = $(3.8005 - 70) / (115.10 + 10) \times 100 = 3.2930$ or 3.2929
 JPY/MYR value 2-month
 = $(3.8005 - 140) / (115.10 + 25) \times 100 = 3.2826$
 Option rate = 1-month rate = 3.2930 or 3.2929
- (i) Contracted Rate 3.8030
 Today's Rate 3.7995
 Difference 0.0035
 Loss = $0.0029 \times 100,000 = \text{MYR}290$
 Loss = $0.0035 \times 100,000 = \text{MYR}350$
- (j) Swap points to be deducted = 70

Question 3

Candidates were able to provide correct answers for calculations relating to swap.

3. (a) - Swap transactions
 - Contracts by customers not hedged
 - Settlement error
- (b) (i) Yes.
 Long at: 1.7550
 Stop Loss at: 1.7530
 0.0020
 Potential Loss = $3,000,000 \times 0.0020 = \text{SGD}6000 = \text{USD}3,422.70$ only
- (ii)
 Long at: 1.7550
 Take Profit at: 1.7620
 0.0070
 Profit = $3,000,000 \times 0.0070 = \text{SGD}21000$
 Profit in MYR = $3.8000 / 1.7620 \times 21,000 = \text{MYR}45,289.44$
- (c) (i) Swap points = $\frac{\# \times \text{spot rate} \times \text{days}}{36,000}$
 where # = interest differential
- (ii) 6 months swap points = $\frac{(5.00 - 3.00) \times 3.8000 \times 181}{36,000} = 0.0382$

- (iii) The bank can sell/buy USD/MYR at 340 points discount. In this case, the bank sells the USD1million spot at 3.8000 and buys back the one million USD 6-month forward at a discount of 3.7660 thereby gaining 340 points.

Cost of producing the 6-month MYR through the swap is determine as follows:

$$\text{MYR interest rate} = \frac{(\text{Swap points} \times 36,000)}{(\text{Spot rate} \times \text{Days})} + \text{USD interest rates}$$

Substituting the variables, we have:

$$\frac{(-0.0340 \times 36000)}{(3.8000 \times 181)} + 5.00 = 3.22\%$$

In this case, if the bank does the 6-month sell/buy USD/MYR swap at 340 points discount, it would have indirectly lend out the USD at 5.00% and at the same time be able to borrow the 6-month MYR at a cost of 3.22%.

Should the bank borrow from the money market, the cost would be 3.00%, which is cheaper than the swap operation of 3.22%. Hence, borrowing from the money market would give a better return to the bank.

- (d)
- Reduction of credit risk;
 - Minimal impact on the bank's balance sheet; and
 - Possible tax advantages.

Question 4

- Candidates did poorly when asked to apply the theories/concepts as they only memorised the facts without understanding the concepts in this question based on the money market.
- Candidates also probably had insufficient practice as they derived wrong answers even with the right formula in the financial mathematics question.

4. (a) (i) A long funding position is one where a bank has longer-term liabilities and shorter-term assets, i.e. the bank borrows long and lends short.
- (ii) The bank is taking a long funding position because it expects interest rates to move up sharply higher within a short period of time. Further, running a long book gives the bank an added advantage of having liquidity.
- (iii) While the bank would be covered in terms of its liquidity risk because of the longer-term funding, the bank would, however, suffer a loss if interest rates fail to move up, or worse, decline as the bank suffers funding losses from typically more expensive longer term liabilities which it has to re-lend at lower rates.
- (b) (i) A yield curve is a graphic representation showing the relationship between the yield and the maturities of a particular instrument at a given point in time.
- (ii) Positive: {Show diagram}
 Negative: {Show Diagram}
 Flat: {Show Diagram}
- (c) Effective rate of interest charged by SHAH Bank
 = $13.5\% / (1 - 13.5\%)$
 = 15.61% or 15.60%

Effective rate of interest charged by STAN Bank

= 15.5%

As STAN Bank charges a lower effective rate of interest, the borrower should borrow from STAN Bank.

(d) Non-interest bearing reserve requirement = 5.5%

Break-even 3-month Eurorate for Kulland's currency

= (Nominal 3-month domestic interest rates) / (1 - reserve requirement)

= 8% / (1 - 5.5%)

= 8.47% or 8.46%

The break-even 3-month Eurorate should be equivalent to the 3-month domestic effective interest rates after taking into account the cost of maintaining reserves.

(e) Purchase proceeds that Bank Vankim needs to pay

= $P \times [36,500 + (\text{Coupon} \times \text{OT})] / [36,500 + (\text{Yield} \times \text{RT})]$ where Original Tenor = OT and Remaining Tenor = RT.

= RM10million x $[36,500 + (6 \times 180)] / [36,500 + (5 \times 90)]$

= RM10million x 1.0170500676

= RM10,170,500.68 or RM10,170,500.67

Question 5

- Few candidates attempted this question, and those who did fared badly as they lacked understanding on areas pertaining to fixed income instrument and repurchase agreement (REPO) transactions.
- None were able to define Malaysian Government Securities (MGS) and its major features.

5. (a) (i) MGS are Ringgit denominated interest-bearing bonds issued by the Malaysian Government to tap domestic long-term funds to finance development projects.

(ii) The principal features of the MGS are:

- Coupon bearing debt obligation of the Government of Malaysia.
- Interest is paid semi annually.
- It is a scripless security and is settled in RENTAS.
- Original maturities range from 3 – 21 years.
- Benchmark issues have the benefit of continuous two-way prices from PDs.
- Minimum retail amount is RM1,000.00 but standard secondary trading lot size is RM5million nominal value.
- Prices are quoted in price terms per RM100 nominal value.

(b) (i) Since the MGS carrying a coupon of 4.5% with a remaining maturity of 5 years is trading at a premium, this suggests that the overall 5 years interest rates prevailing in the economy is lower than 4.5%.

(ii) Total Proceeds

= Face Value x Price/100 + Face Value (C/200 x t/E)

$$= 5,000,000 \times 101.50/100 + 5,000,000 \times (4.5/200 \times 91/182)$$

$$= 5,075,000 + 56,250.00$$

$$= \text{RM}5,131,250.00$$

(iii) Tom Bank has to sell at the market bid price of 101.25.

(iv) Total Loss = FV * (Purchase Sale – Purchase Price)/100
 $= 5,000,000 * (101.25 - 101.50)/100$
 $= - \text{RM} 12,500.00$ (i.e. loss of RM12,500.00)

(b) (i) A REPO is an undertaking by a financial institution to repurchase money market instruments initially sold to a REPO customer at an agreed price on a specified future date.

(ii) A bank would enter into a REPO agreement as a source of funding during temporary liquidity shortfalls where securities are available on bankbooks.

REPO can also be used for gapping opportunities against longer dated securities.

(iii) Interest paid by Voon Bank on REPO = $(P \times T \times R)/36,500$, where

P = REPO Amount, T = Tenor of REPO and R = REPO Rate

$$= (55,000,000 \times 50 \times 8) / 36,500$$

$$= 602,739.73$$

Therefore, REPO proceeds on maturity

$$= \text{RM}55,000,000 + \text{RM} 602,739.73$$

$$= \text{RM}55,602,739.73$$

Question 6

Although candidates' understanding on the concept of risks has improved significantly, some continued to display poor knowledge of treasury products and were not able to explain them clearly.

6. (a) (i) Trading exposure risk
- Arises when an institution deliberately takes on a currency exposure with the intention of profiting from it.
 - Example: Local importer of machinery in JPY decided not to hedge its exposure until maturity date of L/C.
- (ii) Pre-settlement risk
- Exist whenever a contract is entered into for which settlement occurs at a forward date.
 - A loss would occur if the counterparty were to default and the contract had to be replaced at a higher cost.
 - Example: Bankruptcy of a bank.
- (iii) Liquidity risk
- Risk that one is unable to have easy access to funds in the market to meet its commercial and trading requirements.

- Example: During the Asian monetary crisis – some Indonesian banks had difficulties borrowing from the inter-bank money markets.
- (b) (i) Government Investment Certificate (GICs)
- Dividend bearing government bills issued by Bank Negara Malaysia (BNM) on behalf of the Government.
 - Cater to the needs of Bank Islam Malaysia Bhd and the interest free banking units.
 - Issued under the concept of Qard Hassan.
 - Returns are declared by BNM on annualised basis. No predetermined return is specified.
 - Issued with minimum RM10,000 and in multiples of the same amount.
- (i) Islamic Acceptance Bills (IAB)
- Objective: to promote both domestic and foreign trade as an alternative Islamic financing product.
 - Similar to the BAs.
 - Formulated on the principals of Al-Murabahah and Bai' Al-Dayn.
- (ii) Notes Issuance Facility
- A legally binding agreement between the arranger (bank) of the facility and the issuer.
 - The facility involves the issue of short-term notes to raise funds.
- (iii) Forward Rate Agreement
- Agreement between two counterparties.
 - One party wishing to protect itself against a future rise in interest rates and the other against a future fall.
 - Without any commitment to lend or borrow the principal amount, the parties agree to an interest rate for, say, a 3-month period beginning six months hence.
 - At maturity, they settle by paying only the difference between the interest rate agreed earlier and the current interest rate.
- (c) (i) Forward Option Delivery Contracts
- Contracts whereby both counterparties agreed on a specific future period to exchange their currency obligations.
 - 'Tailor-made' as customers can hedge the exact amount of its requirement.
 - A corporation is able to "lock in" the forward exchange rate in advance thereby ascertaining its future receivable and payables cash flows.
 - Example: ABC company has a committed receivables of JPY1million within the next three months. To hedge this exposure the company can enter into a 3-month forward option delivery JPY/MYR contract for value spot to 3-month.
- (ii) Currency Options
- A contract that gives the owner the right, but not the obligation, to buy or sell a specified amount of currency at a specified strike price on or before a specific date in the future.
 - Example: A company wishes to tender for a specific project but do not wish to take on the currency risks. The company could purchase a currency option by paying the premium quoted.

- (d) (i) Leading and lagging
- Reduce exposure risk by altering the timing of receivables either to match certain of the company's cash flow profile or to take advantage of potential currency depreciation or appreciation.
 - Example: In the case of receivables, the company will try to accelerate collection of the weaker currencies so that it can sell off earlier before they weaken.
- (ii) Cross currency matching
- Involves the usage of one foreign currency receivable to hedge against another foreign currency payable.
 - Example: Using DEM receivables to hedge against NLG payables.
- (iii) Foreign exchange risk shifting
- Company attempts to avoid currency exposure risks all together by trying to bill all its receivables and payables in its home currency.
 - Example: Company ABC in Japan export proceeds is denominated only in JPY.