Quiz 2 Solutions
International Finance Management
C45.0030.001

Total points: 20

Q I. (4 points) (please answer **only one** of the two questions):

1. As we have seen in past crises, sometimes exchange rate of a country gets devalued by more than one would predict based on parity condition. This is referred to as overshooting devaluation of exchange rate. Why overshooting is higher/ more important for currencies of countries w/ lots of foreign debt?

Overshooting of the depreciation/devaluation of the exchange rate is the result of the stickiness of the prices of goods, so that prices of assets, such as the currency, would have to adjust by more as compared to the case where prices of goods were flexible.

When depreciation / devaluation takes place, and the country has substantial foreign debt outstanding, the country can technically become bankrupt. Why? Because the value in domestic currency of the foreign currency denominated debt increases post depreciation, and there is a possibility that in terms of local currency the liquid assets of that country are less than the value of the debt. If that happens, the currency of that country is likely to depreciate even further, since now investors will try to leave that currency, and in the process of doing so, they will increase the supply of the currency, thus dumping its price (value) even further.

2. If we are to use the monetary approach to exchange rate determination, what will be the predicted effect on the exchange rate of domestic currency if domestic real income increases? Why? Using the same theory, what would be the effect on exchange rate if domestic interest rate increases? Why?

When the real domestic income increases local investors become richer and so money demand for financial assets in local currency would increase, so the local currency would appreciate (2 points).

When domestic interest rate increases, the money demand for local currency decreases since the cost of money (the interest rate) is higher. So, the local currency will depreciate (2 points).

Q II. (4 points) (please answer **only one** of the two questions):

1.
   a. List three participants in the foreign exchange market. Briefly say why are they in the forex market (e.g. profit, hedging, etc).
   b. What is a non-deliverable forward? Is this a spot, forward, or swap transaction?

a. *(2 points)*
The main participants in the forex market are:
   1. *Bank and Non-bank Dealers (they are in the market trading for profit through the bid-ask spread)*
   2. *Businesses & individuals (they enter the market to facilitate underlying investment or commercial transactions).*
   3. *Speculators & arbitrageurs (they are in the market seeking to profit from the volatility of exchange rates).*
   4. *Treasuries & Central Banks (they use the market to acquire or spend their country's foreign exchange reserves as well as to influence the price at which their own currency is traded).*
   5. *Brokers (facilitate trade between dealers without themselves becoming principals in the transaction).*

b. *(2 points)*
A non-deliverable forward is a swap transaction. It possesses the same characteristics as the forward contract, expect that this derivative contract is settled only in US$ and the foreign currency being sold/ bought forward is not delivered.

2.
   a. According to the flow (BOP) approach to exchange rate determination, what can a country w/ managed floating exchange rate regime do in order to cope w/ a deficit in its BOP?
   b. Do governments in countries w/ fixed exchange rate regimes have the responsibility to maintain BOP close to 0? What will happen if they run persistent BOP deficits?

a. (2 points)
A country with managed float can increase interest rates to attract an inflow of capital on its capital account, so it can offset some of the deficit on its BOP.

b. (2 points)
Yes, governments in countries w/ fixed exchange rate regimes have the responsibility to maintain BOP close to 0. If there is a deficit on the BOP, then the central bank has to use its currency reserves to intervene and protect the value of the currency.

Q III. (4 points) (please answer **only one** of the two questions):

1. Suppose you have the following quotations

Bank	***Quotation***
Sumitomo Bank, Tokyo	¥120/$
Bank of New York, New York	RUR 30/ $
Mosbank, Moscow	¥ 4.5 / RUR

Assume that you have Russian Rubles RUR 1,000,000. What is the cross-rate of ¥/RUR? Compare it w/ the Mosbank's ¥/ RUR quote. Is there any triangular arbitrage opportunity? If yes, sketch it briefly, if no, explain why.

The cross rate is ¥120/$ / RUR 30/ $ = ¥4/RUR *(1 point). There is an arbitrage opportunity, the basic idea is to sell RUR at* ¥4.5/RUR *and then buy it at* ¥4/RUR *(1 point). Here is a sketch of the arbitrage (2 points):*

1. *Sell RUR at* ¥4.5/RUR to receive ¥4,500,000.
2. *Sell the Yen to Sumitomo for US$, to receive $37,500.*
3. *Buy RUR (in NY) at RUR 30/ $ to receive RUR 1,125,000. So the arbitrage profit is RUR 125,000.*

2.

a. What is the difference between a call and a put option?
b. If a 3-month European put on the British pound has a strike price of $ 1.59/Pound, and current spot price is $ 1.48/ Pound, is this option in-the-money, out-of-money, or at-the-money?

a. *(2 points) Call gives you a right to buy, while put gives you the right to sell.*
b. *(2 points) In-the-money.*

Q IV. (4 points) (please answer **only one** of the two questions)

Please answer only one of the two questions.

1.

a. List three differences b/n futures and forward contracts.
b. Briefly, what is the difference between futures contracts and option contracts?

a. (2 points) Any three of the following:

Forex Futures vs. Forwards

Characteristic	*Foreign Currency Futures*	*Forward*
Contract Size	Standardized	any size desired
Maturity	fixed maturities	any maturity up up to a year
Location	organized exchange	b/n individuals & banks
Pricing	open outcry	bid/ask quotes
Margin/Collateral	daily marked to market	no collateral
Settlement	rarely delivered, settlement through offsetting	contract delivered, can offset position
Fees	single commission for purchase& sell	bid/ask spread
Trading hours	exchange hours	24 hours
Counterparties	through clearing house	direct contact
Liquidity	very liquid	liquid, relatively large market

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b. (2 points) For futures contracts, basically you have agreed to deliver on the contract. The only way to back out is if you offset it. In the case of options, you have the right but not the obligation to deliver on the contract.

2. Suppose you wish to speculate on the Australian dollar (A$) futures, traded @ Chicago Mercantile Exchange. The following quotations are available:

Australian Dollar Futures, US$/ A$ *Contract =100,000 Australian $*

Maturity	**Settlement price (10/06/03)**
Dec'03	$ 0.6792/ A$
Mar'04	$ 0.6728/ A$

a. If you are long ten (10) Dec'03 A$ futures contracts, and the spot rate @ maturity is $0.69/A$, what is the value of your position at maturity?
b. If you are short fifteen (15) Mar'04 A$ futures contracts, and the spot price @ maturity is $0.66/A$, what is the value of your position at maturity?

a. (2 points) The value of the position is
$10 \times (\$0.69 - \$0.6792) \times 100{,}000 = \$10{,}800$.

b. (2 points) The value of the position is
$15 \times (\$0.6728 - \$0.66) \times 100{,}000 = \$19{,}200$.

Q V. (4 points) (please answer **only one** of the two questions)

For the following questions you may use the formulas for forward premium/discount: For direct quotes, $f^{FOREIGN} = \frac{Forward - Spot}{Spot} \times \frac{360}{days} \times 100$. *For indirect quotes,* $f^{FOREIGN} = \frac{Spot - Forward}{Forward} \times \frac{360}{days} \times 100$.

1. You receive the following quotes on the Swiss franc against US $ for the spot, and 3 month forward rate:

	Bid	***Ask***
Spot	SF 1.6075/$	SF 1.6085/$
3-month forward	14	22

Note that forward rate is expressed in points quote, where 1 point is equal to SF 0.0001/$.

a. What is the outright bid and ask 3-month forward quote?
b. Using the mid-rate (i.e. the average of the bid & ask rate) for spot and 3-month forward, compute the percentage forward premium or discount on Swiss Franc.

a. *(2 points) Outright 3-month forward bid: SF 1.6089/$*
Outright 3-month forward bid: SF 1.6107/$
b. *(2 points) The 3-month forward midrate is*

$$(SF1.6089 + SF1.6107)/2 = SF1.6098/\$$$

The spot midrate is

$$(SF1.6075 + SF1.6085)/2 = SF1.608/\$$$

The forward premium/ discount on SF is given by

$$f^{SF} = \frac{S-F}{F} \times \frac{360}{90} \times 100 = \frac{1.608 - 1.6098}{1.6098} \times \frac{360}{90} \times 100 = -0.45\%$$ *forward discount.*

2. Suppose you have $ 1,000,000 and wish to speculate on the Swiss Franc. Current 90-day forward rate is SF 1.60/$. You believe that spot in 90-days will be SF 1.65/$.

a. Can you make an arbitrage profit? If yes, show how. If no, explain why.
b. Is the Swiss franc traded at a 90-day forward premium or discount? Show how to compute forward premium/ discount.

a. (2 points) Difficult question ☹. The answer is that Arbitrage strategy exists ☺. Buy forward $ at SF 1.60/$, so that in 3 months you have the right & obligation to purchase $ 1,000,000 for SF1,600,000. At maturity, if spot is SF 1.65/$, you can make profit by selling the $1,000,000 you initially had @ spot SF 1.65/$ to receive SF1,650,000 and then use SF1,600,000 of the proceeds to honor the forward contract obligation to get $1,000,000. So you started w/ $1,000,000 and ended w/ $1,000,000 plus SF 50,000!

b. (2 points) The correct formula to use is for indirect quotations, $f^{SF} = \frac{F - S}{S} \times \frac{360}{90} \times 100$. *However, since I have not given you the current exchange rate (for which I apologize ☺), one cannot compute the forward premium/ discount. So, for that part of the question, I have given everyone who did it full credit ☺.*