

INTERNATIONAL FINANCE – MBA 926

1. Give a full definition of the market for foreign exchange.

Answer: Broadly defined, the *foreign exchange (FX) market* encompasses the conversion of purchasing power from one currency into another, bank deposits of foreign currency, the extension of credit denominated in a foreign currency, foreign trade financing, and trading in foreign currency options and futures contracts.

2. What is the difference between the retail or client market and the wholesale or interbank market for foreign exchange?

Answer: The market for foreign exchange can be viewed as a two-tier market. One tier is the *wholesale or interbank market* and the other tier is the *retail or client market*. International banks provide the core of the FX market. They stand willing to buy or sell foreign currency for their own account. These international banks serve their retail clients, corporations or individuals, in conducting foreign commerce or making international investment in financial assets that requires foreign exchange. Retail transactions account for only about 14 percent of FX trades. The other 86 percent is interbank trades between international banks, or non-bank dealers large enough to transact in the interbank market.

3. Who are the market participants in the foreign exchange market?

Answer: The market participants that comprise the FX market can be categorized into five groups: international banks, bank customers, non-bank dealers, FX brokers, and central banks.

International banks provide the core of the FX market. Approximately 100 to 200 banks worldwide make a market in foreign exchange, i.e., they stand willing to buy or sell foreign currency for their own account.

4. How are foreign exchange transactions between international banks settled?

Answer: The interbank market is a network of *correspondent banking relationships*, with large commercial banks maintaining demand deposit accounts with one another, called correspondent bank accounts. The correspondent bank account network allows for the efficient functioning of the foreign exchange market. As an example of how the network of correspondent bank accounts facilitates international foreign exchange transactions, consider a U.S. importer desiring to purchase merchandise invoiced in guilders from a Dutch exporter. The U.S. importer will contact his bank and inquire about the exchange rate. If the U.S. importer accepts the offered exchange rate, the bank will debit the U.S. importer's account for the purchase of the Dutch guilders. The bank will instruct its correspondent bank in the Netherlands to debit its correspondent bank account the appropriate amount of guilders and to credit the Dutch exporter's bank account. The importer's bank will then debit its books to offset the debit of U.S. importer's account, reflecting the decrease in its correspondent bank account balance.

5. What is meant by a currency trading at a discount or at a premium in the forward market?

Answer: The forward market involves contracting today for the future purchase or sale of foreign exchange. The forward price may be the same as the spot price, but usually it is higher (at a premium) or lower (at a discount) than the spot price.

6. Why does most interbank currency trading worldwide involve the U.S. dollar?

Answer: Trading in currencies worldwide is against a common currency that has international appeal. That currency has been the U.S. dollar since the end of World War II. However, the euro and Japanese yen have started to be used much more as international currencies in recent years.

More importantly, trading would be exceedingly cumbersome and difficult to manage if each trader made a market against all other currencies.

7. Banks find it necessary to accommodate their clients' needs to buy or sell FX forward, in many instances for hedging purposes. How can the bank eliminate the currency exposure it has created for itself by accommodating a client's forward transaction?

Answer: Swap transactions provide a means for the bank to mitigate the currency exposure in a forward trade. A **swap transaction** is the simultaneous sale (or purchase) of spot foreign exchange against a forward purchase (or sale) of an approximately equal amount of the foreign currency. To illustrate, suppose a bank customer wants to buy dollars three months forward against British pound sterling. The bank can handle this trade for its customer and simultaneously neutralize the exchange rate risk in the trade by selling (borrowed) British pound sterling spot against dollars. The bank will lend the dollars for three months until they are needed to deliver against the dollars it has sold forward. The British pounds received will be used to liquidate the sterling loan.

8. A CD/\$ bank trader is currently quoting a *small figure* bid-ask of 35-40, when the rest of the market is trading at CD1.3436-CD1.3441. What is implied about the trader's beliefs by his prices?

Answer: The trader must think the Canadian dollar is going to appreciate against the U.S. dollar and therefore he is trying to increase his inventory of Canadian dollars by discouraging purchases of U.S. dollars by standing willing to buy \$ at only CD1.3435/\$1.00 and offering to sell from inventory at the slightly lower than market price of CD1.3440/\$1.00.

9. What is triangular arbitrage? What is a condition that will give rise to a triangular arbitrage opportunity?

Answer: *Triangular arbitrage* is the process of trading out of the U.S. dollar into a second currency, then trading it for a third currency, which is in turn traded for U.S. dollars. The purpose is to earn an arbitrage profit via trading from the second to the third currency when the direct exchange between the two is not in alignment with the cross exchange rate.

Most, but not all, currency transactions go through the dollar. Certain banks specialize in making a direct market between non-dollar currencies, pricing at a narrower bid-ask spread than the cross-rate spread. Nevertheless, the implied cross-rate bid-ask quotations impose a discipline on the non-dollar market makers. If their direct quotes are not consistent with the cross exchange rates, a triangular arbitrage profit is possible.

10. Over the past six years, the exchange rate between Swiss franc and U.S. dollar, SFr/\$, has changed from about 1.30 to about 1.60. Would you agree that over this six-year period, the Swiss goods have become cheaper for buyers in the United States? (UPDATE? SF has gone from SF1.67/\$ to SF1.04/\$ over the last six years.)

Answer:

The value of the dollar in Swiss francs has gone up from about 1.30 to about 1.60. Therefore, the dollar has appreciated relative to the Swiss franc, and the dollars needed by Americans to purchase Swiss goods have decreased. Thus, the statement is correct.

1. Using Exhibit 5.4, calculate a cross-rate matrix for the euro, Swiss franc, Japanese yen, and the British pound. Use the most current American term quotes to calculate the cross-rates so that the triangular matrix resulting is similar to the portion above the diagonal in Exhibit 5.6.

Solution: The cross-rate formula we want to use is:

$$S(j/k) = S(\$/k)/S(\$/j).$$

The triangular matrix will contain $4 \times (4 + 1)/2 = 10$ elements.

	¥	SF	£	\$
Euro	159.91	1.6317	.7478	1.4744
Japan (100)		1.0204	.4676	.9220
Switzerland			.4583	.9036
U.K				1.9717

11. Using Exhibit 5.4, calculate the one-, three-, and six-month forward cross-exchange rates between the Canadian dollar and the Swiss franc using the most current quotations. State the forward cross-rates in “Canadian” terms.

Solution: The formulas we want to use are:

$$F_N(CD/SF) = F_N(\$/SF)/F_N(\$/CD)$$

or

$$F_N(CD/SF) = F_N(CD/\$)/F_N(SF/\$).$$

We will use the top formula that uses American term forward exchange rates.

$$F_1(CD/SF) = .9052/.9986 = .9065$$

$$F_3(CD/SF) = .9077/.9988 = .9088$$

$$F_6(CD/SF) = .9104/.9979 = .9123$$

12. A foreign exchange trader with a U.S. bank took a short position of £5,000,000 when the \$/£ exchange rate was 1.55. Subsequently, the exchange rate has changed to 1.61. Is this movement in the exchange rate good from the point of view of the position taken by the trader? By how much has the bank's liability changed because of the change in the exchange rate? **UPDATE TO CURRENT EX-RATES?**

Answer:

The increase in the \$/£ exchange rate implies that the pound has appreciated with respect to the dollar.

This is unfavorable to the trader since the trader has a short position in pounds.

Bank's liability in dollars initially was $5,000,000 \times 1.55 =$

$\$7,750,000$ Bank's liability in dollars now is $5,000,000 \times 1.61 =$

$\$8,050,000$

13. Restate the following one-, three-, and six-month outright forward European term bid-ask quotes in forward points.

Spot 1.3431-1.3436

One-Month 1.3432-1.3442

Three-Month 1.3448-1.3463

Six-Month 1.3488-1.3508

Solution:

One-Month 01-06

Three-Month 17-27

Six-Month 57-72

14. Using the spot and outright forward quotes in problem 3, determine the corresponding bid-ask spreads in points.

Solution:

Spot	5
One-Month	10
Three-Month	15
Six-Month	20

15. Using Exhibit 5.4, calculate the one-, three-, and six-month forward premium or discount for the Canadian dollar versus the U.S. dollar using American term quotations. For simplicity, assume each month has 30 days. What is the interpretation of your results?

Solution: The formula we want to use is:

$$f_{N,CD} = [(F_N(\$ / CD) - S(\$ / CD / \$)) / S(\$ / CD)] \times 360 / N$$

$$f_{1,CD} = [(.9986 - .9984) / .9984] \times 360 / 30 = .0024$$

$$f_{3,CD} = [(.9988 - .9984) / .9984] \times 360 / 90 = .0048$$

$$f_{6,CD} = [(.9979 - .9984) / .9984] \times 360 / 180 = -.0060$$

The pattern of forward premiums indicates that the Canadian dollar is trading at a premium versus the U.S. dollar for maturities up to three months into the future and then it trades at a discount.

16. Using Exhibit 5.4, calculate the one-, three-, and six-month forward premium or discount for the U.S. dollar versus the British pound using European term quotations. For simplicity, assume each month has 30 days. What is the interpretation of your results?

Solution: The formula we want to use is:

$$f_{N,\$} = [(F_N (\text{£/\$}) - S(\text{£/\$})) / S(\text{£/\$})] \times 360 / N$$

$$f_{1,\$} = [(.5076 - .5072) / .5072] \times 360 / 30 = .0095$$

$$f_{3,\$} = [(.5086 - .5072) / .5072] \times 360 / 90 = .0331$$

$$f_{6,\$} = [(.5104 - .5072) / .5072] \times 360 / 180 = .0757$$

The pattern of forward premiums indicates that the dollar is trading at a premium versus the British pound. That is, it becomes more expensive to buy a U.S. dollar forward for British pounds (in absolute and percentage terms) the further into the future one contracts.

BOOKS:

- P. G. Apte, International Financial Management, Tata McGraw-Hill, New Delhi.
- Alan C. Shapiro, Multinational Financial Management, Prentice Hall India Private Ltd,
- Jeff Madura, International Financial Management, Thomson Publications.
- Maurice D. Levi, International Finance, Tata McGraw-Hill, New Delhi.
- S. Eun Choel and Risnick Bruce, International Financial Management, Tata McGraw Hill