3: International Financial Markets

Due to growth in international business over the last 30 years, various international financial markets have been developed. Financial managers of MNCs must understand the various international financial markets that are available so that they can use those markets to facilitate their international business transactions.

The specific objectives of this chapter are to describe the background and corporate use of the following international financial markets:

- foreign exchange market,
- international money market,
- international credit market,
- international bond market, and
- international stock markets.

Foreign Exchange Market

The **foreign exchange market** allows for the exchange of one currency for another. Large commercial banks serve this market by holding inventories of each currency, so that they can accommodate requests by individuals or MNCs. Individuals rely on the foreign exchange market when they travel to foreign countries. People from the United States exchange dollars for Mexican pesos when they visit Mexico, or euros when they visit Italy, or Japanese yen when they visit Japan. Some MNCs based in the United States exchange dollars for Mexican pesos when they purchase supplies in Mexico that are denominated in pesos, or euros when they purchase supplies from Italy that are denominated in euros. Other MNCs based in the United States receive Japanese yen when selling products to Japan and may wish to convert the yen to dollars.

For one currency to be exchanged for another currency, there needs to be an exchange rate that specifies the rate at which one currency can be exchanged for another. The exchange rate of the Mexican peso will determine how many dollars you need to stay in a hotel in Mexico City that charges 500 Mexican pesos per night. The exchange rate of the Mexican peso will also determine how many dollars an MNC will need to purchase supplies that are invoiced at 1 million pesos. The system for establishing exchange rates has changed over time, as described below.

History of Foreign Exchange

The system used for exchanging foreign currencies has evolved from the gold standard, to an agreement on fixed exchange rates, to a floating rate system.

Gold Standard. From 1876 to 1913, exchange rates were dictated by the **gold standard.** Each currency was convertible into gold at a specified rate. Thus, the exchange rate between two currencies was determined by their relative convertibility rates per ounce of gold. Each country used gold to back its currency.

When World War I began in 1914, the gold standard was suspended. Some countries reverted to the gold standard in the 1920s but abandoned it as a result of a banking panic in the United States and Europe during the Great Depression. In the 1930s, some countries attempted to peg their currency to the dollar or the British pound, but there were frequent revisions. As a result of the instability in the foreign exchange market and the severe restrictions on international transactions during this period, the volume of international trade declined.

Agreements on Fixed Exchange Rates. In 1944, an international agreement (known as the **Bretton Woods Agreement**) called for fixed exchange rates between currencies. This agreement lasted until 1971. During this period, governments would intervene to prevent exchange rates from moving more than 1 percent above or below their initially established levels.

By 1971, the U.S. dollar appeared to be overvalued; the foreign demand for U.S. dollars was substantially less than the supply of dollars for sale (to be exchanged for other currencies). Representatives from the major nations met to discuss this dilemma. As a result of this conference, which led to the **Smithsonian Agreement,** the U.S. dollar was devalued relative to the other major currencies. The degree to which the dollar was devalued varied with each foreign currency. Not only was the dollar's value reset, but exchange rates were also allowed to fluctuate by 2.25 percent in either direction from the newly set rates. This was the first step in letting market forces (supply and demand) determine the appropriate price of a currency. Although boundaries still existed for exchange rates, they were widened, allowing the currency values to move more freely toward their appropriate levels.

Floating Exchange Rate System. Even after the Smithsonian Agreement, governments still had difficulty maintaining exchange rates within the stated boundaries. By March 1973, the more widely traded currencies were allowed to fluctuate in accordance with market forces, and the official boundaries were eliminated.

Foreign Exchange Transactions

The "foreign exchange market" should not be thought of as a specific building or location where traders exchange currencies. Companies normally exchange one currency for another through a commercial bank over a telecommunications network.

HTTP://

http://www.oanda.com
Historical exchange rate movements. Data are available on a daily basis for most currencies.

Spot Market. The most common type of foreign exchange transaction is for immediate exchange at the so-called **spot rate.** The market where these transactions occur is known as the **spot market.** The average daily foreign exchange trading by banks around the world now exceeds $1.5 trillion. The average daily foreign exchange trading in the United States alone exceeds $200 billion.

Spot Market Structure. Hundreds of banks facilitate foreign exchange transactions, but the top 20 handle about 50 percent of the transactions. Deutsche Bank (Germany), Citibank (a subsidiary of Citigroup, U.S.), and J.P. Morgan Chase are the largest traders of foreign exchange. Some banks and other financial institutions have formed alliances (one example is FX Alliance LLC) to offer currency transactions over the Internet.

Banks in London, New York, and Tokyo, the three largest foreign exchange trading centers, conduct much of the foreign exchange trading. Yet, many foreign exchange transactions occur outside these trading centers. Banks in virtually every major city facilitate foreign exchange transactions between MNCs. Commercial transactions

between countries are often done electronically, and the exchange rate at the time determines the amount of funds necessary for the transaction.

EXAMPLE Indiana Co. purchases supplies priced at 100,000 euros (€) from Belgo, a Belgian supplier, on the first day of every month. Indiana instructs its bank to transfer funds from its account to the supplier's account on the first day of each month. It only has dollars in its account, whereas Belgo's account is in euros. When payment was made one month ago, the euro was worth $1.08, so Indiana Co. needed $108,000 to pay for the supplies (€100,000 × $1.08 = $108,000). The bank reduced Indiana's account balance by $108,000, which was exchanged at the bank for €100,000. The bank then sent the €100,000 electronically to Belgo by increasing Belgo's account balance by €100,000. Today, a new payment needs to be made. The euro is currently valued at $1.12, so the bank will reduce Indiana's account balance by $112,000 (€100,000 × $1.12 = $112,000) and exchange it for €100,000, which will be sent electronically to Belgo.

The bank not only executes the transactions but also serves as the foreign exchange dealer. Each month the bank receives dollars from Indiana Co. in exchange for the euros it provides. In addition, the bank facilitates other transactions for MNCs in which it receives euros in exchange for dollars. The bank maintains an inventory of euros, dollars, and other currencies to facilitate these foreign exchange transactions. If the transactions cause it to buy as many euros as it sells to MNCs, its inventory of euros will not change. If the bank sells more euros than it buys, however, its inventory of euros will be reduced. ■

If a bank begins to experience a shortage in a particular foreign currency, it can purchase that currency from other banks. This trading between banks occurs in what is often referred to as the **interbank market.** Within this market, banks can obtain quotes, or they can contact brokers who sometimes act as intermediaries, matching one bank desiring to sell a given currency with another bank desiring to buy that currency. About 10 foreign exchange brokerage firms handle much of the interbank transaction volume.

Other intermediaries also serve the foreign exchange market. Some other financial institutions such as securities firms can provide the same services described in the previous example. In addition, most major airports around the world have foreign exchange centers, where individuals can exchange currencies. In many cities, there are retail foreign exchange offices where tourists and other individuals can exchange currencies.

Some MNCs rely on an online currency trader that serves as an intermediary between the MNC and member banks. One popular online currency trader is Currenex, which conducts more than $300 million in foreign exchange transactions per day. If an MNC needs to purchase a foreign currency, it logs on and specifies its order. Currenex relays the order to various banks that are members of its system and are allowed to bid for the orders. When Currenex relays the order, member banks have a very short time (such as 25 seconds) to specify a quote online for the currency that the customer (the MNC) desires. Then, Currenex displays the quotes on a screen, ranked from highest to lowest. The MNC has about 5 seconds to select one of the quotes provided, and the deal is completed. This process is much more transparent than traditional foreign exchange market transactions because the MNC can review quotes of many competitors at one time. By enabling the MNC to make sure that it does not overpay for a currency, this system enhances the MNC's value.

Use of the Dollar in the Spot Market. Many foreign transactions do not require an exchange of currencies but allow a given currency to cross country borders. For example, the U.S. dollar is commonly accepted as a medium of exchange by merchants in many countries, especially in countries such as Bolivia, Indonesia,

Russia, and Vietnam where the home currency is either weak or subject to foreign exchange restrictions. Many merchants accept U.S. dollars because they can use them to purchase goods from other countries. The U.S. dollar is the official currency of Ecuador, Liberia, and Panama. Yet, the U.S. dollar is not part of every transaction. Foreign currencies can be traded for each other. For example, a Japanese firm may need British pounds to pay for imports from the United Kingdom.

Spot Market Time Zones. Although foreign exchange trading is conducted only during normal business hours in a given location, these hours vary among locations due to different time zones. Thus, at any given time on a weekday, somewhere around the world a bank is open and ready to accommodate foreign exchange requests.

When the foreign exchange market opens in the United States each morning, the opening exchange rate quotations are based on the prevailing rates quoted by banks in London and other locations where the foreign exchange markets have opened earlier. Suppose the quoted spot rate of the British pound was $1.80 at the previous close of the U.S. foreign exchange market, but by the time the market opens the following day, the opening spot rate is $1.76. News occurring in the morning before the U.S. market opened could have changed the supply and demand conditions for British pounds in the London foreign exchange market, reducing the quoted price for the pound.

With the newest electronic devices, foreign currency trades are negotiated on computer terminals, and a push of a button confirms the trade. Traders now use electronic trading boards that allow them to instantly register transactions and check their bank's positions in various currencies. Also, several U.S. banks have established night trading desks. The largest banks initiated night trading to capitalize on foreign exchange movements at night and to accommodate corporate requests for currency trades. Even some medium-sized banks now offer night trading to accommodate corporate clients.

Spot Market Liquidity. The spot market for each currency can be described by its liquidity, which reflects the level of trading activity. The more willing buyers and sellers there are, the more liquid a market is. The spot markets for heavily traded currencies such as the euro, the British pound, and the Japanese yen are very liquid. Conversely, the spot markets for currencies of less developed countries are less liquid. A currency's liquidity affects the ease with which an MNC can obtain or sell that currency. If a currency is illiquid, the number of willing buyers and sellers is limited, and an MNC may be unable to quickly purchase or sell that currency at a reasonable exchange rate.

Attributes of Banks That Provide Foreign Exchange. The following characteristics of banks are important to customers in need of foreign exchange:

1. *Competitiveness of quote.* A savings of 1¢ per unit on an order of one million units of currency is worth $10,000.
2. *Special relationship with the bank.* The bank may offer cash management services or be willing to make a special effort to obtain even hard-to-find foreign currencies for the corporation.
3. *Speed of execution.* Banks may vary in the efficiency with which they handle an order. A corporation needing the currency will prefer a bank that conducts the transaction promptly and handles any paperwork properly.

4. *Advice about current market conditions.* Some banks may provide assessments of foreign economies and relevant activities in the international financial environment that relate to corporate customers.
5. *Forecasting advice.* Some banks may provide forecasts of the future state of foreign economies and the future value of exchange rates.

This list suggests that a corporation needing a foreign currency should not automatically choose a bank that will sell that currency at the lowest price. Most corporations that often need foreign currencies develop a close relationship with at least one major bank in case they ever need favors from a bank.

HTTP://
http://www.everbank.com
Individuals can open an FDIC-insured CD account in a foreign currency.

Foreign Exchange Quotations

HTTP://
http://www.xe.com/fx
Allows individuals to buy and sell currencies.

Spot Market Interaction among Banks. At any given point in time, the exchange rate between two currencies should be similar across the various banks that provide foreign exchange services. If there is a large discrepancy, customers or other banks will purchase large amounts of a currency from whatever bank quotes a relatively low price and immediately sell it to whatever bank quotes a relatively high price. Such actions cause adjustments in the exchange rate quotations that eliminate any discrepancy.

Bid/Ask Spread of Banks. Commercial banks charge fees for conducting foreign exchange transactions. At any given point in time, a bank's **bid** (buy) quote for a foreign currency will be less than its **ask** (sell) quote. The **bid/ask spread** represents the differential between the bid and ask quotes and is intended to cover the costs involved in accommodating requests to exchange currencies. The bid/ask spread is normally expressed as a percentage of the ask quote.

EXAMPLE To understand how a bid/ask spread could affect you, assume you have $1,000 and plan to travel from the United States to the United Kingdom. Assume further that the bank's bid rate for the British pound is $1.52 and its ask rate is $1.60. Before leaving on your trip, you go to this bank to exchange dollars for pounds. Your $1,000 will be converted to 625 pounds (£), as follows:

$$\frac{\text{Amount of U.S. dollars to be converted}}{\text{Price charged by bank per pound}} = \frac{\$1{,}000}{\$1.60} = £625$$

HTTP://
http://www.sonnetfinancial.com/rates/full.asp
Bid and ask quotations for all major currencies. This website provides exchange rates for many currencies. The table can be customized to focus on the currencies of interest to you.

Now suppose that because of an emergency you cannot take the trip, and you reconvert the £625 back to U.S. dollars, just after purchasing the pounds. If the exchange rate has not changed, you will receive

$$£625 \times (\text{Bank's bid rate of } \$1.52 \text{ per pound}) = \$950$$

Due to the bid/ask spread, you have $50 (5 percent) less than what you started with. Obviously, the dollar amount of the loss would be larger if you originally converted more than $1,000 into pounds. ■

Comparison of Bid/Ask Spread among Currencies. The differential between a bid quote and an ask quote will look much smaller for currencies that have a smaller value. This differential can be standardized by measuring it as a percentage of the currency's spot rate.

EXAMPLE Charlotte Bank quotes a bid price for yen of $.007 and an ask price of $.0074. In this case, the nominal bid/ask spread is $.0074 − $.007, or just four-hundredths of a penny. Yet, the bid/ask spread in percentage terms is actually slightly higher for the yen in this example

than for the pound in the previous example. To prove this, consider a traveler who sells $1,000 for yen at the bank's ask price of $.0074. The traveler receives about ¥135,135 (computed as $1,000/$.0074). If the traveler cancels the trip and converts the yen back to dollars, then, assuming no changes in the bid/ask quotations, the bank will buy these yen back at the bank's bid price of $.007 for a total of about $946 (computed by ¥135,135 × $.007), which is $54 (or 5.4 percent) less than what the traveler started with. This spread exceeds that of the British pound (5 percent in the previous example). ■

A common way to compute the bid/ask spread in percentage terms follows:

$$\text{Bid/ask spread} = \frac{\text{Ask rate} - \text{Bid rate}}{\text{Ask rate}}$$

Using this formula, the bid/ask spreads are computed in Exhibit 3.1 for both the British pound and the Japanese yen.

Notice that these numbers coincide with those derived earlier. Such spreads are common for so-called retail transactions serving consumers. For larger so-called wholesale transactions between banks or for large corporations, the spread will be much smaller. The bid/ask spread for small retail transactions is commonly in the range of 3 to 7 percent; for wholesale transactions requested by MNCs, the spread is between .01 and .03 percent. The spread is normally larger for illiquid currencies that are less frequently traded. Commercial banks are normally exposed to more exchange rate risk when maintaining these currencies.

The bid/ask spread as defined here represents the discount in the bid rate as a percentage of the ask rate. An alternative bid/ask spread uses the bid rate as the denominator instead of the ask rate and measures the percentage markup of the ask rate above the bid rate. The spread is slightly higher when using this formula because the bid rate used in the denominator is always less than the ask rate.

In the following discussion and in examples throughout much of the text, the bid/ask spread will be ignored. That is, only one price will be shown for a given currency to allow you to concentrate on understanding other relevant concepts. These examples depart slightly from reality because the bid and ask prices are, in a sense, assumed to be equal. Although the ask price will always exceed the bid price by a small amount in reality, the implications from examples should nevertheless hold, even though the bid/ask spreads are not accounted for. In particular examples where the bid/ask spread can contribute significantly to the concept, it will be accounted for.

Various websites, including bloomberg.com, provide bid/ask quotations. To conserve space, some quotations show the entire bid price followed by a slash and then only the last two or three digits of the ask price.

EXAMPLE Assume that the prevailing quote for wholesale transactions by a commercial bank for the euro is $1.0876/78. This means that the commercial bank is willing to pay

Exhibit 3.1 Computation of the Bid/Ask Spread

Currency	Bid Rate	Ask Rate	$\frac{\text{Ask Rate} - \text{Bid Rate}}{\text{Ask Rate}}$	=	Bid/Ask Percentage Spread
British pound	$1.52	$1.60	$\frac{\$1.60 - \$1.52}{\$1.60}$	=	.05 *or* 5%
Japanese yen	$.0070	$.0074	$\frac{\$.0074 - \$.007}{\$.0074}$	=	.054 *or* 5.4%

$1.0876 per euro. Alternatively, it is willing to sell euros for $1.0878. The bid/ask spread in this example is:

$$\text{Bid/ask spread} = \frac{\$1.0878 - \$1.0876}{\$1.0878}$$
$$= \text{about } .000184 \text{ or } .0184\% \quad \blacksquare$$

Factors That Affect the Spread. The spread on currency quotations is influenced by the following factors:

$$\text{Spread} = f(\text{Order costs, Inventory costs, Competition, Volume, Currency risk})$$
$$\qquad\qquad +\qquad\qquad +\qquad\qquad -\qquad\qquad -\qquad\qquad +$$

- *Order costs.* Order costs are the costs of processing orders, including clearing costs and the costs of recording transactions.
- *Inventory costs.* Inventory costs are the costs of maintaining an inventory of a particular currency. Holding an inventory involves an opportunity cost because the funds could have been used for some other purpose. If interest rates are relatively high, the opportunity cost of holding an inventory should be relatively high. The higher the inventory costs, the larger the spread that will be established to cover these costs.
- *Competition.* The more intense the competition, the smaller the spread quoted by intermediaries. Competition is more intense for the more widely traded currencies because there is more business in those currencies.
- *Volume.* More liquid currencies are less likely to experience a sudden change in price. Currencies that have a large trading volume are more liquid because there are numerous buyers and sellers at any given time. This means that the market has sufficient depth that a few large transactions are unlikely to cause the currency's price to change abruptly.
- *Currency risk.* Some currencies exhibit more volatility than others because of economic or political conditions that cause the demand for and supply of the currency to change abruptly. For example, currencies in countries that have frequent political crises are subject to abrupt price movements. Intermediaries that are willing to buy or sell these currencies could incur large losses due to an abrupt change in the values of these currencies.

Interpreting Foreign Exchange Quotations

Exchange rate quotations for widely traded currencies are published in *The Wall Street Journal* and in business sections of many newspapers on a daily basis. With some exceptions, each country has its own currency. In 1999, several European countries (including Germany, France, and Italy) adopted the euro as their new currency for commercial transactions, replacing their own currencies. Their own currencies were phased out in 2002.

Direct versus Indirect Quotations. The quotations of exchange rates for currencies normally reflect the ask prices for large transactions. Since exchange rates change throughout the day, the exchange rates quoted in a newspaper reflect only one specific point in time during the day. Quotations that represent the value of a foreign currency in dollars (number of dollars per currency) are referred to as **direct quotations.** Conversely, quotations that represent the number of units of a foreign currency per dollar are referred to as **indirect quotations.** The indirect quotation is the reciprocal of the corresponding direct quotation.

EXAMPLE The spot rate of the euro is quoted this morning at $1.031. This is a direct quotation, as it represents the value of the foreign currency in dollars. The indirect quotation of the euro is the reciprocal of the direct quotation:

$$\begin{aligned}\text{Indirect quotation} &= 1/\text{Direct quotation}\\ &= 1/\$1.031\\ &= .97, \text{ which means } .97 \text{ euros} = \$1\end{aligned}$$

If you initially received the indirect quotation, you can take the reciprocal of it to obtain the direct quote. Since the indirect quotation for the euro is $.97, the direct quotation is:

$$\begin{aligned}\text{Direct quotation} &= 1/\text{Indirect quotation}\\ &= 1/.97\\ &= \$1.031\end{aligned}$$ ■

A comparison of direct and indirect exchange rates for two points in time appears in Exhibit 3.2. Columns 2 and 3 provide quotes at the beginning of the semester, while columns 4 and 5 provide quotes at the end of the semester. For each currency, the indirect quotes at the beginning and end of the semester (columns 3 and 5) are the reciprocals of the direct quotes at the beginning and end of the semester (columns 2 and 4).

The exhibit illustrates how the indirect quotation adjusts in response to changes in the direct quotation.

EXAMPLE Based on Exhibit 3.2, the Canadian dollar's direct quotation changed from $.66 to $.70 over the semester. This change reflects an appreciation of the Canadian dollar, as the currency's value increased over the semester. Notice that the Canadian dollar's indirect quotation decreased from 1.51 to 1.43 over the semester. This means that it takes fewer Canadian dollars to obtain a U.S. dollar at the end of the semester than it took at the beginning. This change also confirms that the Canadian dollar's value has strengthened, but it can be confusing because the decline in the indirect quote over time reflects an appreciation of the currency.

Notice that the Mexican peso's direct quotation changed from $.12 to $.11 over the semester. This reflects a depreciation of the peso. The indirect quotation increased over the semester, which means that it takes more pesos at the end of the semester to obtain a U.S. dollar than it took at the beginning. This change also confirms that the peso has depreciated over the semester. ■

Exhibit 3.2 Direct and Indirect Exchange Rate Quotations

(1) Currency	(2) Direct Quotation as of Beginning of Semester	(3) Indirect Quotation (number of units per dollar) as of Beginning of Semester	(4) Direct Quotation as of End of Semester	(5) Indirect Quotation (number of units per dollar) as of End of Semester
Canadian dollar	$.66	1.51	$.70	1.43
Euro	$1.031	.97	$1.064	.94
Japanese yen	$.009	111.11	$.0097	103.09
Mexican peso	$.12	8.33	$.11	9.09
Swiss franc	$.62	1.61	$.67	1.49
U.K. pound	$1.50	.67	$1.60	.62

The examples illustrate that the direct and indirect quotations for a given currency move in opposite directions over a particular period. This relationship should be obvious by now: As one quotation moves in one direction, the reciprocal of that quotation must move in the opposite direction. If you are doing any extensive analysis of exchange rates, you should first convert all exchange rates into direct quotations. In this way, you can more easily compare currencies and are less likely to make a mistake in determining whether a currency is appreciating or depreciating over a particular period.

Discussions of exchange rate movements can be confusing if some comments refer to direct quotations while others refer to indirect quotations. For consistency, this text uses direct quotations unless an example can be clarified by the use of indirect quotations. Direct quotations are easier to link with comments about any foreign currency.

Cross Exchange Rates. Most tables of exchange rate quotations express currencies relative to the dollar, but in some instances, a firm will be concerned about the exchange rate between two nondollar currencies. For example, if a Canadian firm needs Mexican pesos to buy Mexican goods, it wants to know the Mexican peso value relative to the Canadian dollar. The type of rate desired here is known as a **cross exchange rate,** because it reflects the amount of one foreign currency per unit of another foreign currency. Cross exchange rates can be easily determined with the use of foreign exchange quotations. The value of any nondollar currency in terms of another is its value in dollars divided by the other currency's value in dollars.

EXAMPLE If the peso is worth $.07, and the Canadian dollar is worth $.70, the value of the peso in Canadian dollars (C$) is calculated as follows:

$$\text{Value of peso in C\$} = \frac{\text{Value of peso in \$}}{\text{Value of C\$ in \$}} = \frac{\$.07}{\$.70} = \text{C\$.10}$$

Thus, a Mexican peso is worth C$.10. The exchange rate can also be expressed as the number of pesos equal to one Canadian dollar. This figure can be computed by taking the reciprocal: .70/.07 = 10.0, which indicates that a Canadian dollar is worth 10.0 pesos according to the information provided. ■

HTTP://

http://www.bloomberg.com
Cross exchange rates for several currencies.

Forward, Futures, and Options Markets

Forward Contracts. In addition to the spot market, a forward market for currencies enables an MNC to lock in the exchange rate (called a **forward rate**) at which it will buy or sell a currency. A **forward contract** specifies the amount of a particular currency that will be purchased or sold by the MNC at a specified future point in time and at a specified exchange rate. Commercial banks accommodate the MNCs that desire forward contracts. MNCs commonly use the forward market to hedge future payments that they expect to make or receive in a foreign currency. In this way, they do not have to worry about fluctuations in the spot rate until the time of their future payments.

EXAMPLE Memphis Co. has ordered supplies from European countries that are denominated in euros. It expects the euro to increase in value over time and therefore desires to hedge its payables in euros. Memphis buys forward contracts on euros to lock in the price that it will pay for euros at a future point in time. Meanwhile, it will receive Mexican pesos in the future and wants to hedge these receivables. Memphis sells forward contracts on pesos to lock in the dollars that it will receive when it sells the pesos at a specified point in the future. ■

The liquidity of the forward market varies among currencies. The forward market for euros is very liquid because many MNCs take forward positions to hedge their future payments in euros. In contrast, the forward markets for Latin American and Eastern European currencies are less liquid because there is less international trade with those countries and therefore MNCs take fewer forward positions. For some currencies, there is no forward market.

Some quotations of exchange rates include forward rates for the most widely traded currencies. Other forward rates are not quoted in business newspapers but are quoted by the banks that offer forward contracts in various currencies.

Currency Futures Contracts. Futures contracts are somewhat similar to forward contracts except that they are sold on an exchange whereas forward contracts are offered by commercial banks. A **currency futures contract** specifies a standard volume of a particular currency to be exchanged on a specific settlement date. Some MNCs involved in international trade use the currency futures markets to hedge their positions. Additional details on futures contracts, including other differences from forward contracts, are provided in Chapter 5.

Currency Options Contracts. Currency options contracts can be classified as calls or puts. A **currency call option** provides the right to buy a specific currency at a specific price (called the **strike price** or **exercise price**) within a specific period of time. It is used to hedge future payables. A **currency put option** provides the right to sell a specific currency at a specific price within a specific period of time. It is used to hedge future receivables.

Currency call and put options can be purchased on an exchange. They offer more flexibility than forward or futures contracts because they do not require any obligation. That is, the firm can elect not to exercise the option.

Currency options have become a popular means of hedging. The Coca-Cola Co. has replaced about 30 to 40 percent of its forward contracting with currency options. FMC, a U.S. manufacturer of chemicals and machinery, now hedges its foreign sales with currency options instead of forward contracts. While most MNCs commonly use forward contracts, many of them also use currency options. Additional details about currency options, including other differences from futures and forward contracts, are provided in Chapter 5.

International Money Market

In most countries, local corporations commonly need to borrow short-term funds to support their operations. Country governments may also need to borrow short-term funds to finance their budget deficits. Individuals or local institutional investors in those countries provide funds through short-term deposits at commercial banks. In addition, corporations and governments may issue short-term securities that are purchased by local investors. Thus, a domestic money market in each country serves to transfer short-term funds denominated in the local currency from local surplus units (savers) to local deficit units (borrowers).

The growth in international business has caused corporations or governments in a particular country to need short-term funds denominated in a currency that is different from their home currency. First, they may need to borrow funds to pay for imports denominated in a foreign currency. Second, even if they need funds to support local operations, they may consider borrowing in a currency in which the interest rate is lower. This strategy is especially desirable if the firms will have receivables denominated in that currency in the future. Third, they may consider borrowing in a cur-

rency that will depreciate against their home currency, as they would be able to repay the loan at a more favorable exchange rate over time. Thus, the actual cost of borrowing would be less than the interest rate of that currency.

Meanwhile, there are some corporations and institutional investors that have motives to invest in a foreign currency rather than their home currency. First, the interest rate that they would receive from investing in their home currency may be lower than what they could earn on short-term investments denominated in some other currencies. Second, they may consider investing in a currency that will appreciate against their home currency because they would be able to convert that currency into their home currency at a more favorable exchange rate at the end of the investment period. Thus, the actual return on their investment would be higher than the quoted interest rate on that foreign currency.

The preferences of corporations and governments to borrow in foreign currencies and of investors to make short-term investments in foreign currencies resulted in the creation of the international money market.

Origins and Development

The international money market includes large banks in countries around the world. Two other important components of the international money market are the European money market and the Asian money market.

European Money Market. The origins of the European money market can be traced to the Eurocurrency market that developed during the 1960s and 1970s. As MNCs expanded their operations during that period, international financial intermediation emerged to accommodate their needs. Because the U.S. dollar was widely used even by foreign countries as a medium for international trade, there was a consistent need for dollars in Europe and elsewhere. To conduct international trade with European countries, corporations in the United States deposited U.S. dollars in European banks. The banks were willing to accept the deposits because they could lend the dollars to corporate customers based in Europe. These dollar deposits in banks in Europe (and on other continents as well) came to be known as **Eurodollars,** and the market for Eurodollars came to be known as the **Eurocurrency market.** ("Eurodollars" and "Eurocurrency" should not be confused with the "euro," which is the currency of many European countries today.)

The growth of the Eurocurrency market was stimulated by regulatory changes in the United States. For example, when the United States limited foreign lending by U.S. banks in 1968, foreign subsidiaries of U.S.-based MNCs could obtain U.S. dollars from banks in Europe via the Eurocurrency market. Similarly, when ceilings were placed on the interest rates paid on dollar deposits in the United States, MNCs transferred their funds to European banks, which were not subject to the ceilings.

The growing importance of the Organization of Petroleum Exporting Countries (OPEC) also contributed to the growth of the Eurocurrency market. Because OPEC generally requires payment for oil in dollars, the OPEC countries began to use the Eurocurrency market to deposit a portion of their oil revenues. These dollar-denominated deposits are sometimes known as **petrodollars.** Oil revenues deposited in banks have sometimes been lent to oil-importing countries that are short of cash. As these countries purchase more oil, funds are again transferred to the oil-exporting countries, which in turn create new deposits. This recycling process has been an important source of funds for some countries.

Today, the term *Eurocurrency market* is not used as often as in the past because several other international financial markets have been developed. The European money market is still an important part of the network of international money markets, however.

Asian Money Market. Like the European money market, the Asian money market originated as a market involving mostly dollar-denominated deposits. Hence, it was originally known as the **Asian dollar market.** The market emerged to accommodate the needs of businesses that were using the U.S. dollar (and some other foreign currencies) as a medium of exchange for international trade. These businesses could not rely on banks in Europe because of the distance and different time zones. Today, the Asian money market, as it is now called, is centered in Hong Kong and Singapore, where large banks accept deposits and make loans in various foreign currencies.

The major sources of deposits in the Asian money market are MNCs with excess cash and government agencies. Manufacturers are major borrowers in this market. Another function is interbank lending and borrowing. Banks that have more qualified loan applicants than they can accommodate use the interbank market to obtain additional funds. Banks in the Asian money market commonly borrow from or lend to banks in the European market.

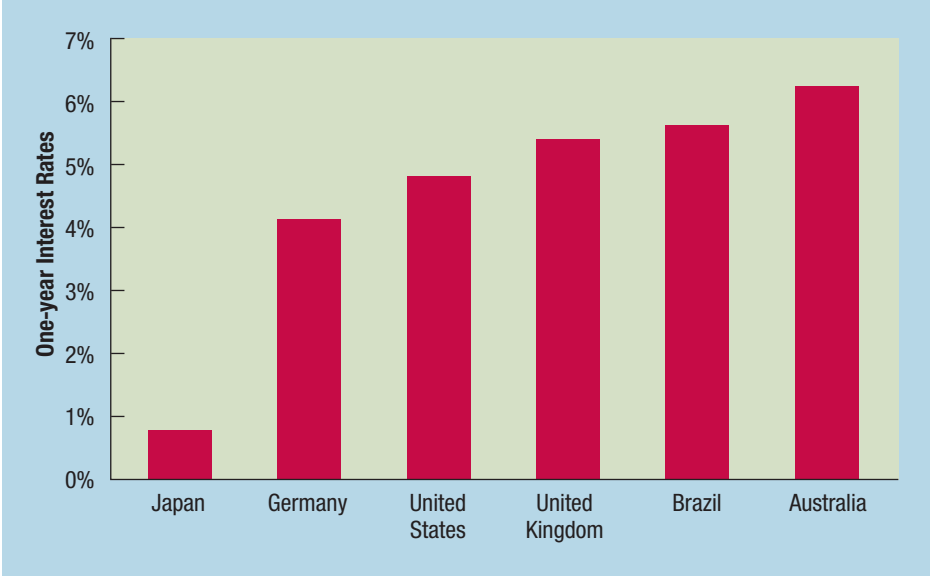
Money Market Interest Rates among Currencies

The quoted money market interest rates for various currencies are shown for a recent point in time in Exhibit 3.3. Notice how the money market rates vary substantially among some currencies. This is due to differences in the interaction of the total supply of short-term funds available (bank deposits) in a specific country versus the total demand for short-term funds by borrowers in that country. If there is a large supply of savings relative to the demand for short-term funds, the interest rate for that country will be relatively low. Japan's short-term interest rates are typically very low for this reason. Conversely, if there is a strong demand to borrow a currency, and a low supply of savings in that currency, the interest rate will be relatively high. Interest rates in developing countries are typically higher than rates in other countries.

Standardizing Global Bank Regulations

Regulations contributed to the development of the international money market because they imposed restrictions on some local markets, thereby encouraging local investors and borrowers to circumvent the restrictions in local markets. Differences

Exhibit 3.3 Comparison of International Money Market Interest Rates



in regulations among countries allowed banks in some countries to have comparative advantages over banks in other countries. Over time, international banking regulations have become more standardized, which allows for more competitive global banking. Three of the more significant regulatory events allowing for a more competitive global playing field are (1) the Single European Act, (2) the Basel Accord, and (3) the Basel II Accord.

Single European Act. One of the most significant events affecting international banking was the **Single European Act,** which was phased in by 1992 throughout the European Union (EU) countries. The following are some of the more relevant provisions of the Single European Act for the banking industry:

- Capital can flow freely throughout Europe.
- Banks can offer a wide variety of lending, leasing, and securities activities in the EU.
- Regulations regarding competition, mergers, and taxes are similar throughout the EU.
- A bank established in any one of the EU countries has the right to expand into any or all of the other EU countries.

As a result of this act, banks have expanded across European countries. Efficiency in the European banking markets has increased because banks can more easily cross countries without concern for country-specific regulations that prevailed in the past.

Another key provision of the act is that banks entering Europe receive the same banking powers as other banks there. Similar provisions apply to non-U.S. banks that enter the United States.

Basel Accord. Before 1987, capital standards imposed on banks varied across countries, which allowed some banks to have a comparative global advantage over others. As an example, suppose that banks in the United States were required to maintain more capital than foreign banks. Foreign banks would grow more easily, as they would need a relatively small amount of capital to support an increase in assets. Despite their low capital, such banks were not necessarily perceived as too risky because the governments in those countries were likely to back banks that experienced financial problems. Therefore, some non-U.S. banks had globally competitive advantages over U.S. banks, without being subject to excessive risk. In December 1987, 12 major industrialized countries attempted to resolve the disparity by proposing uniform bank standards. In July 1988, in the **Basel Accord,** central bank governors of the 12 countries agreed on standardized guidelines. Under these guidelines, banks must maintain capital equal to at least 4 percent of their assets. For this purpose, banks' assets are weighted by risk. This essentially results in a higher required capital ratio for riskier assets. Off–balance sheet items are also accounted for so that banks cannot circumvent capital requirements by focusing on services that are not explicitly shown as assets on a balance sheet.

Basel II Accord. Banking regulators that form the so-called Basel Committee are completing a new accord (called Basel II) to correct some inconsistencies that still exist. For example, banks in some countries have required better collateral to back their loans. The Basel II Accord is attempting to account for such differences among banks. In addition, this accord will account for operational risk, which is defined by the Basel Committee as the risk of losses resulting from inadequate or failed internal processes or systems. The Basel Committee wants to encourage banks to improve their techniques for controlling operational risk, which could reduce failures in the banking system. The Basel Committee also plans to require banks to provide more

information to existing and prospective shareholders about their exposure to different types of risk.

International Credit Market

Multinational corporations and domestic firms sometimes obtain medium-term funds through term loans from local financial institutions or through the issuance of notes (medium-term debt obligations) in their local markets. However, MNCs also have access to medium-term funds through banks located in foreign markets. Loans of one year or longer extended by banks to MNCs or government agencies in Europe are commonly called Eurocredits or **Eurocredit loans.** These loans are provided in the so-called **Eurocredit market.** The loans can be denominated in dollars or many other currencies and commonly have a maturity of 5 years.

Because banks accept short-term deposits and sometimes provide longer-term loans, their asset and liability maturities do not match. This can adversely affect a bank's performance during periods of rising interest rates, since the bank may have locked in a rate on its longer-term loans while the rate it pays on short-term deposits is rising over time. To avoid this risk, banks commonly use floating rate loans. The loan rate floats in accordance with the movement of some market interest rate, such as the **London Interbank Offer Rate (LIBOR),** which is the rate commonly charged for loans between banks. For example, a Eurocredit loan may have a loan rate that adjusts every 6 months and is set at "LIBOR plus 3 percent." The premium paid above LIBOR will depend on the credit risk of the borrower. The LIBOR varies among currencies because the market supply of and demand for funds vary among currencies. Because of the creation of the euro as the currency for several European countries, the key currency for interbank transactions in most of Europe is the euro. Thus, the term "euribor" is widely used to reflect the interbank offer rate on euros.

The international credit market is well developed in Asia and is developing in South America. Periodically, some regions are affected by an economic crisis, which increases the credit risk. Financial institutions tend to reduce their participation in those markets when credit risk increases. Thus, even though funding is widely available in many markets, the funds tend to move toward the markets where economic conditions are strong and credit risk is tolerable.

Syndicated Loans

Sometimes a single bank is unwilling or unable to lend the amount needed by a particular corporation or government agency. In this case, a **syndicate** of banks may be organized. Each bank within the syndicate participates in the lending. A lead bank is responsible for negotiating terms with the borrower. Then the lead bank organizes a group of banks to underwrite the loans. The syndicate of banks is usually formed in about 6 weeks, or less if the borrower is well known, because then the credit evaluation can be conducted more quickly.

Borrowers that receive a syndicated loan incur various fees besides the interest on the loan. Front-end management fees are paid to cover the costs of organizing the syndicate and underwriting the loan. In addition, a commitment fee of about .25 or .50 percent is charged annually on the unused portion of the available credit extended by the syndicate.

Syndicated loans can be denominated in a variety of currencies. The interest rate depends on the currency denominating the loan, the maturity of the loan, and the creditworthiness of the borrower. Interest rates on syndicated loans are commonly adjustable according to movements in an interbank lending rate, and the adjustment may occur every 6 months or every year.

Syndicated loans not only reduce the default risk of a large loan to the degree of participation for each individual bank, but they can also add an extra incentive for the borrower to repay the loan. If a government defaults on a loan to a syndicate, word will quickly spread among banks, and the government will likely have difficulty obtaining future loans. Borrowers are therefore strongly encouraged to repay syndicated loans promptly. From the perspective of the banks, syndicated loans increase the probability of prompt repayment.

International Bond Market

Although MNCs, like domestic firms, can obtain long-term debt by issuing bonds in their local markets, MNCs can also access long-term funds in foreign markets. MNCs may choose to issue bonds in the international bond markets for three reasons. First, issuers recognize that they may be able to attract a stronger demand by issuing their bonds in a particular foreign country rather than in their home country. Some countries have a limited investor base, so MNCs in those countries seek financing elsewhere. Second, MNCs may prefer to finance a specific foreign project in a particular currency and therefore may attempt to obtain funds where that currency is widely used. Third, financing in a foreign currency with a lower interest rate may enable an MNC to reduce its cost of financing, although it may be exposed to exchange rate risk (as explained in later chapters). Institutional investors such as commercial banks, mutual funds, insurance companies, and pension funds from many countries are major participants in the international bond market. Some institutional investors prefer to invest in international bond markets rather than their respective local markets when they can earn a higher return on bonds denominated in foreign currencies.

International bonds are typically classified as either foreign bonds or Eurobonds. A **foreign bond** is issued by a borrower foreign to the country where the bond is placed. For example, a U.S. corporation may issue a bond denominated in Japanese yen, which is sold to investors in Japan. In some cases, a firm may issue a variety of bonds in various countries. The currency denominating each type of bond is determined by the country where it is sold. These foreign bonds are sometimes specifically referred to as **parallel bonds.**

Eurobond Market

Eurobonds are bonds that are sold in countries other than the country of the currency denominating the bonds. The emergence of the Eurobond market was partially the result of the **Interest Equalization Tax (IET)** imposed by the U.S. government in 1963 to discourage U.S. investors from investing in foreign securities. Thus, non-U.S. borrowers that historically had sold foreign securities to U.S. investors began to look elsewhere for funds. Further impetus to the market's growth came in 1984 when the U.S. government abolished a withholding tax that it had formerly imposed on some non-U.S. investors and allowed U.S. corporations to issue bearer bonds directly to non-U.S. investors.

Eurobonds have become very popular as a means of attracting funds, perhaps in part because they circumvent registration requirements. U.S.-based MNCs such as McDonald's and Walt Disney commonly issue Eurobonds. Non-U.S. firms such as Guinness, Nestlé, and Volkswagen also use the Eurobond market as a source of funds.

In recent years, governments and corporations from emerging markets such as Croatia, Ukraine, Romania, and Hungary have frequently utilized the Eurobond market. New corporations that have been established in emerging markets rely on the Eurobond market to finance their growth. They have to pay a risk premium of at least three percentage points annually above the U.S. Treasury bond rate on dollar-denominated Eurobonds.

Features of Eurobonds. Eurobonds have several distinctive features. They are usually issued in bearer form, which means that there are no records kept regarding ownership. Coupon payments are made yearly. Some Eurobonds carry a convertibility clause allowing them to be converted into a specified number of shares of common stock. An advantage to the issuer is that Eurobonds typically have few, if any, protective covenants. Furthermore, even short-maturity Eurobonds include call provisions. Some Eurobonds, called **floating rate notes (FRNs),** have a variable rate provision that adjusts the coupon rate over time according to prevailing market rates.

Denominations. Eurobonds are commonly denominated in a number of currencies. Although the U.S. dollar is used most often, denominating 70 to 75 percent of Eurobonds, the euro will likely also be used to a significant extent in the future. Recently, some firms have issued debt denominated in Japanese yen to take advantage of Japan's extremely low interest rates. Because interest rates for each currency and credit conditions change constantly, the popularity of particular currencies in the Eurobond market changes over time.

Underwriting Process. Eurobonds are underwritten by a multinational syndicate of investment banks and simultaneously placed in many countries, providing a wide spectrum of fund sources to tap. The underwriting process takes place in a sequence of steps. The multinational managing syndicate sells the bonds to a large underwriting crew. In many cases, a special distribution to regional underwriters is allocated before the bonds finally reach the bond purchasers. One problem with the distribution method is that the second- and third-stage underwriters do not always follow up on their promise to sell the bonds. The managing syndicate is therefore forced to redistribute the unsold bonds or to sell them directly, which creates "digestion" problems in the market and adds to the distribution cost. To avoid such problems, bonds are often distributed in higher volume to underwriters that have fulfilled their commitments in the past at the expense of those that have not. This has helped the Eurobond market maintain its desirability as a bond placement center.

Secondary Market. Eurobonds also have a secondary market. The market makers are in many cases the same underwriters who sell the primary issues. A technological advance called **Euro-clear** helps to inform all traders about outstanding issues for sale, thus allowing a more active secondary market. The intermediaries in the secondary market are based in 10 different countries, with those in the United Kingdom dominating the action. They can act not only as brokers but also as dealers that hold inventories of Eurobonds. Many of these intermediaries, such as Bank of America International, Smith Barney, and Citicorp International, are subsidiaries of U.S. corporations.

Before the adoption of the euro in much of Europe, MNCs in European countries commonly preferred to issue bonds in their own local currency. The market for bonds in each currency was limited. Now, with the adoption of the euro, MNCs from many different countries can issue bonds denominated in euros, which allows for a much larger and more liquid market. MNCs have benefited because they can more easily obtain debt by issuing bonds, as investors know that there will be adequate liquidity in the secondary market.

Development of Other Bond Markets

Bond markets have developed in Asia and South America. Government agencies and MNCs in these regions use international bond markets to issue bonds when they believe they can reduce their financing costs. Investors in some countries use international bond markets because they expect their local currency to weaken in the future and

prefer to invest in bonds denominated in a strong foreign currency. The South American bond market has experienced limited growth because the interest rates in some countries there are usually high. MNCs and government agencies in those countries are unwilling to issue bonds when interest rates are so high, so they rely heavily on short-term financing.

International Stock Markets

HTTP://

http://www.stockmarkets.com
Information about stock markets around the world.

MNCs and domestic firms commonly obtain long-term funding by issuing stock locally. Yet, MNCs can also attract funds from foreign investors by issuing stock in international markets. The stock offering may be more easily digested when it is issued in several markets. In addition, the issuance of stock in a foreign country can enhance the firm's image and name recognition there.

Issuance of Stock in Foreign Markets

Some U.S. firms issue stock in foreign markets to enhance their global image. The existence of various markets for new issues provides corporations in need of equity with a choice. This competition among various new-issues markets should increase the efficiency of new issues.

The locations of an MNC's operations can influence the decision about where to place its stock, as the MNC may desire a country where it is likely to generate enough future cash flows to cover dividend payments. The stocks of some U.S.-based MNCs are widely traded on numerous stock exchanges around the world. This enables non-U.S. investors easy access to some U.S. stocks.

MNCs need to have their stock listed on an exchange in any country where they issue shares. Investors in a foreign country are only willing to purchase stock if they can easily sell their holdings of the stock locally in the secondary market. The stock is denominated in the currency of the country where it is placed. For example, Coca-Cola stock issued to investors in Germany is denominated in euros. Investors in Germany can easily sell their shares of Coca-Cola stock locally in the German secondary market.

Impact of the Euro. The recent conversion of many European countries to a single currency (the euro) has resulted in more stock offerings in Europe by U.S.- and European-based MNCs. In the past, an MNC needed a different currency in every country where it conducted business and therefore borrowed currencies from local banks in those countries. Now, it can use the euro to finance its operations across several European countries and may be able to obtain all the financing it needs with one stock offering in which the stock is denominated in euros. The MNCs can then use a portion of the revenue (in euros) to pay dividends to shareholders who have purchased the stock.

Issuance of Foreign Stock in the United States

Non-U.S. corporations that need large amounts of funds sometimes issue stock in the United States (these are called **Yankee stock offerings**) due to the liquidity of the new-issues market there. In other words, a foreign corporation may be more likely to sell an entire issue of stock in the U.S. market, whereas in other, smaller markets, the entire issue may not necessarily sell.

When a non-U.S. firm issues stock in its own country, its shareholder base is quite limited, as a few large institutional investors may own most of the shares. By issuing stock in the United States, such a firm diversifies its shareholder base, which can reduce share price volatility caused when large investors sell shares.

The U.S. investment banks commonly serve as underwriters of the stock targeted for the U.S. market and receive underwriting fees representing about 7 percent of the value of stock issued. Since many financial institutions in the United States purchase non-U.S. stocks as investments, non-U.S. firms may be able to place an entire stock offering within the United States.

Many of the recent stock offerings in the United States by non-U.S. firms have resulted from privatization programs in Latin America and Europe. Thus, businesses that were previously government owned are being sold to U.S. shareholders. Given the large size of some of these businesses, the local stock markets are not large enough to digest the stock offerings. Consequently, U.S. investors are financing many privatized businesses based in foreign countries.

Firms that issue stock in the United States typically are required to satisfy stringent disclosure rules on their financial condition. However, they are exempt from some of these rules when they qualify for a Securities and Exchange Commission guideline (called Rule 144a) through a direct placement of stock to institutional investors.

American Depository Receipts. Non-U.S. firms also obtain equity financing by using **American depository receipts (ADRs),** which are certificates representing bundles of stock. The use of ADRs circumvents some disclosure requirements imposed on stock offerings in the United States, yet enables non-U.S. firms to tap the U.S. market for funds. The ADR market grew after businesses were privatized in the early 1990s, as some of these businesses issued ADRs to obtain financing.

Since ADR shares can be traded just like shares of a stock, the price of an ADR changes each day in response to demand and supply conditions. Over time, however, the value of an ADR should move in tandem with the value of the corresponding stock that is listed on the foreign stock exchange, after adjusting for exchange rate effects. The formula for calculating the price of an ADR is:

$$P_{ADR} = P_{FS} \times S$$

where P_{ADR} represents the price of the ADR, P_{FS} represents the price of the foreign stock measured in foreign currency, and S is the spot rate of the foreign currency.

EXAMPLE A share of the ADR of the French firm Pari represents one share of this firm's stock that is traded on a French stock exchange. The share price of Pari was 20 euros when the French market closed. As the U.S. stock market opens, the euro is worth $1.05, so the ADR price should be:

$$\begin{aligned} P_{ADR} &= P_{FS} \times S \\ &= 20 \times \$1.05 \\ &= \$21 \end{aligned}$$

■

HTTP://

http://www.wall-street.com/foreign.html
Provides links to many stock markets.

If there is a discrepancy between the ADR price and the price of the foreign stock (after adjusting for the exchange rate), investors can use arbitrage to capitalize on the discrepancy between the prices of the two assets. The act of arbitrage should realign the prices.

EXAMPLE Assume no transaction costs. If $P_{ADR} < (P_{FS} \times S)$, then ADR shares will flow back to France. They will be converted to shares of the French stock and will be traded in the French market. Investors can engage in arbitrage by buying the ADR shares in the United States, converting them to shares of the French stock, and then selling those shares on the French stock exchange where the stock is listed.

The arbitrage will (1) reduce the supply of ADRs traded in the U.S. market, thereby putting upward pressure on the ADR price, and (2) increase the supply of the French shares traded in

the French market, thereby putting downward pressure on the stock price in France. The arbitrage will continue until the discrepancy in prices disappears. ■

The preceding example assumed a conversion rate of one ADR share per share of stock. Some ADRs are convertible into more than one share of the corresponding stock. Under these conditions, arbitrage will occur only if:

$$P_{ADR} = Conv \times P_{FS} \times S$$

where *Conv* represents the number of shares of foreign stock that can be obtained for the ADR.

EXAMPLE If the Pari ADR from the previous example is convertible into two shares of stock, the ADR price should be:

$$P_{ADR} = 2 \times 20 \times \$1.05$$
$$= \$42$$

In this case, the ADR shares will be converted into shares of stock only if the ADR price is less than $42. ■

In reality, some transaction costs are associated with converting ADRs to foreign shares. Thus, arbitrage will occur only if the potential arbitrage profit exceeds the transaction costs.

Listing of Stock by Non-U.S. Firms on U.S. Stock Exchanges

Non-U.S. firms that issue stock in the United States have their shares listed on the New York Stock Exchange, the American Stock Exchange, or the Nasdaq market. By listing their stock on a U.S. stock exchange, the shares placed in the United States can easily be traded in the secondary market.

GOVERNANCE

Effect of Sarbanes-Oxley Act on Foreign Stock Offerings

In 2002, the Sarbanes-Oxley Act was passed in the United States. This act requires that firms whose stock is listed on U.S. stock exchanges provide more complete financial disclosure. The Sarbanes-Oxley Act is the result of financial scandals involving U.S.-based MNCs such as Enron and WorldCom that used misleading financial statements to hide their weak financial condition from investors. Investors overestimated the value of the stocks of these companies and lost most or all of their investment. The Sarbanes-Oxley Act was intended to ensure that financial reporting was more accurate and complete. The cost to firms for complying with the act was estimated to be more than $1 million per year for some firms. Consequently, many non-U.S. firms that issued new shares of stock decided to place their stock in the United Kingdom instead of in the United States so that they would not have to comply with the law. Furthermore, some U.S. firms that went public decided to place their stock in the United Kingdom so that they would not have to comply with the law. ■

HTTP://

http://finance.yahoo.com/?
Access to various domestic and international financial markets and financial market news, as well as links to national financial news servers.

Investing in Foreign Stock Markets

Just as some MNCs issue stock outside their home country, many investors purchase stocks outside of the home country. First, they may expect that economic conditions will be very favorable in a particular country and invest in stocks of the firms in that country. Second, investors may consider investing in stocks denominated in currencies that they expect will strengthen over time, since that would enhance the return on their investment. Third, some investors invest in stocks of other countries as a means of diversifying their portfolio. Thus, their investment is less sensitive to possi-

Exhibit 3.4 Comparison of Global Stock Exchanges

Country	Market Capitalization (in millions of $)	Number of Listed Domestic Companies	Country	Market Capitalization (in millions of $)	Number of Listed Domestic Companies
Argentina	61,478	101	Italy	789,563	269
Australia	776,403	1,515	Japan	3,678,262	3,220
Austria	85,815	99	Jamaica	37,639	39
Belgium	768,377	170	Malaysia	180,346	1,020
Brazil	474,647	381	Mexico	239,128	151
Canada	1,177,518	3,597	Netherlands	622,284	234
Chile	136,446	245	Poland	93,873	248
China	780,763	1,387	Singapore	171,555	489
Czech Republic	38,345	36	Spain	940,673	3,272
Finland	183,765	134	Sweden	376,781	256
Germany	1,194,517	660	Switzerland	825,849	282
Hong Kong	861,463	1,086	Thailand	123,539	468
India	553,074	4,763	U.K.	2,815,928	2,486
Ireland	114,085	53	U.S.	16,323,726	5,231
Israel	120,114	572			

Source: World Development Indicators, World Bank.

ble adverse stock market conditions in their home country. More details about investing in international stock markets are provided in the appendix to this chapter.

HTTP://

http://www.worldbank.org/data
Information about the market capitalization, stock trading volume, and turnover for each stock market.

Comparison of Stock Markets. Exhibit 3.4 provides a summary of the major stock markets, but there are numerous other exchanges. Some foreign stock markets are much smaller than the U.S. markets because their firms have relied more on debt financing than equity financing in the past. Recently, however, firms outside the United States have been issuing stock more frequently, which has resulted in the growth of non-U.S. stock markets. The percentage of individual versus institutional ownership of shares varies across stock markets. Financial institutions and other firms own a large proportion of the shares outside the United States, while individual investors own a relatively small proportion of shares.

Large MNCs have begun to float new stock issues simultaneously in various countries. Investment banks underwrite stocks through one or more syndicates across countries. The global distribution of stock can reach a much larger market, so greater quantities of stock can be issued at a given price.

In 2000, the Amsterdam, Brussels, and Paris stock exchanges merged to create the Euronext market. Since then, the Lisbon stock exchange has joined as well. In 2007, the NYSE joined Euronext to create NYSE Euronext, the largest global exchange. It represents a major step in creating a global stock exchange and will likely lead to more consolidation of stock exchanges across countries in the future. Most of the largest firms based in Europe have listed their stock on the Euronext market. This market is likely to grow over time as other stock exchanges may join it. A single

European stock market with similar guidelines for all stocks regardless of their home country would make it easier for those investors who prefer to do all of their trading in one market.

In recent years, many new stock markets have been developed. These so-called emerging markets enable foreign firms to raise large amounts of capital by issuing stock. These markets may enable U.S. firms doing business in emerging markets to raise funds by issuing stock there and listing their stock on the local stock exchanges. Market characteristics such as the amount of trading relative to market capitalization and the applicable tax rates can vary substantially among emerging markets.

How Stock Market Characteristics Vary among Countries. The degree of trading activity in each stock market is influenced by legal and other characteristics of the country. Shareholders in some countries have more rights than in other countries. For example, shareholders have more voting power in some countries than others. They can have influence on a wider variety of management issues in some countries.

Second, the legal protection of shareholders varies substantially among countries. Shareholders in some countries may have more power to effectively sue publicly traded firms if their executives or directors commit financial fraud. In general, common law countries such as the United States, Canada, and the United Kingdom allow for more legal protection than civil law countries such as France or Italy.

Third, the government enforcement of securities laws varies among countries. A country could have laws to protect shareholders but no enforcement of the laws, which means that shareholders are not protected. Fourth, some countries tend to have less corporate corruption than others. Shareholders in these countries are less susceptible to major losses due to agency problems whereby managers use shareholder money for their own benefits.

Fifth, the degree of financial information that must be provided by public companies varies among countries. The variation may be due to the accounting laws set by the government for public companies or reporting rules enforced by local stock exchanges. Shareholders are less susceptible to losses due to a lack of information if the public companies are required to be more transparent in their financial reporting.

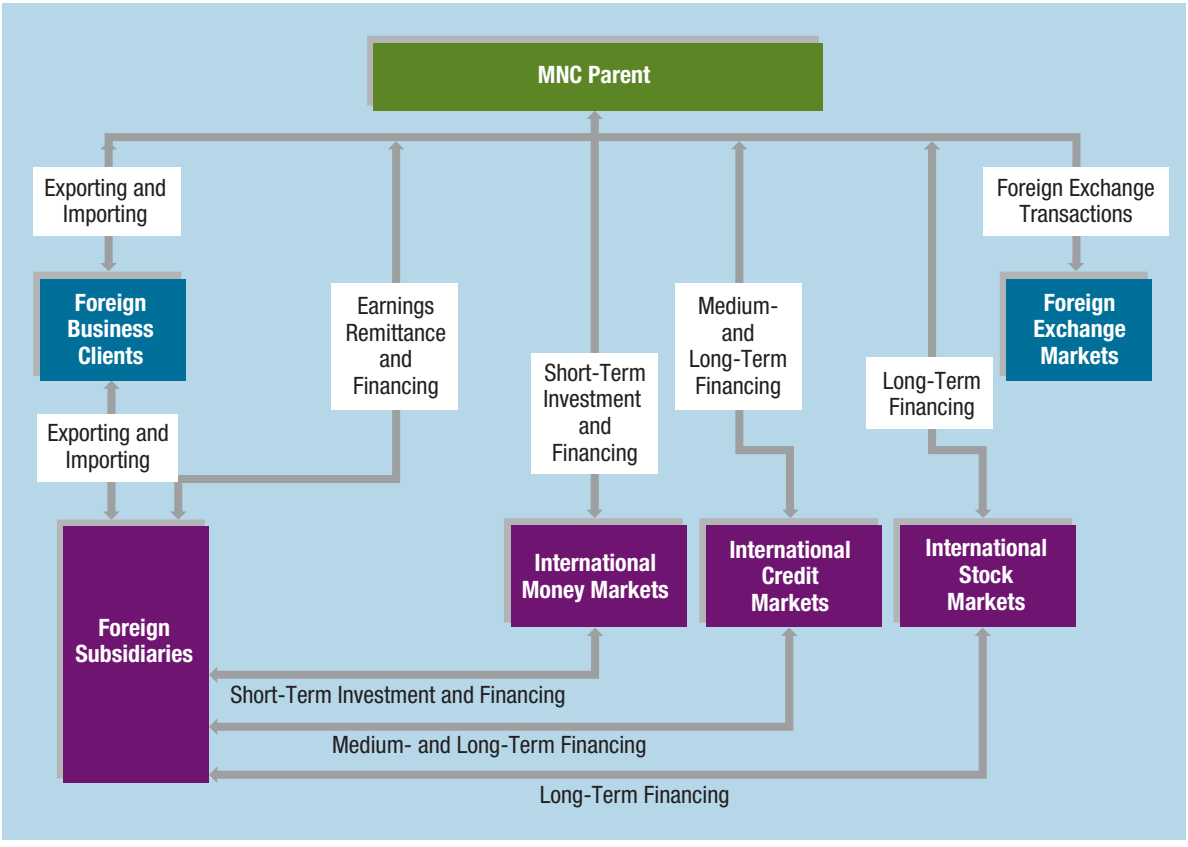
In general, stock markets that allow more voting rights for shareholders, more legal protection, more enforcement of the laws, less corruption, and more stringent accounting requirements attract more investors who are willing to invest in stocks. This allows for more confidence in the stock market and greater pricing efficiency (since there is a large enough set of investors who monitor each firm). In addition, companies are attracted to the stock market when there are many investors because they can easily raise funds in the market under these conditions. Conversely, if a stock market does not attract investors, it will not attract companies that need to raise funds. These companies will either need to rely on stock markets in other countries or credit markets (such as bank loans) to raise funds.

How Financial Markets Facilitate MNC Functions

Exhibit 3.5 illustrates the foreign cash flow movements of a typical MNC. These cash flows can be classified into four corporate functions, all of which generally require use of the foreign exchange markets. The spot market, forward market, currency futures market, and currency options market are all classified as foreign exchange markets.

The first function is foreign trade with business clients. Exports generate foreign cash inflows, while imports require cash outflows. A second function is direct foreign

Exhibit 3.5 Foreign Cash Flow Chart of an MNC



investment, or the acquisition of foreign real assets. This function requires cash outflows but generates future inflows through remitted earnings back to the MNC parent or the sale of these foreign assets. A third function is short-term investment or financing in foreign securities. A fourth function is longer-term financing in the international bond or stock markets. An MNC's parent may use international money or bond markets to obtain funds at a lower cost than they can be obtained locally.

SUMMARY

- The foreign exchange market allows currencies to be exchanged in order to facilitate international trade or financial transactions. Commercial banks serve as financial intermediaries in this market. They stand ready to exchange currencies for immediate delivery in the spot market. In addition, they are also willing to negotiate forward contracts with MNCs that wish to buy or sell currencies at a future point in time.
- The international money markets are composed of several large banks that accept deposits and provide short-term loans in various currencies. This market is used primarily by governments and large corporations. The European market is a part of the international money market.
- The international credit markets are composed of the same commercial banks that serve the international money market. These banks convert some of

the deposits received into loans (for medium-term periods) to governments and large corporations.

■ The international bond markets facilitate international transfers of long-term credit, thereby enabling governments and large corporations to borrow funds from various countries. The international bond market is facilitated by multinational syndicates of investment banks that help to place the bonds. Institutional investors such as mutual funds, banks, and pension funds are the major purchasers of bonds in the international bond market.

■ International stock markets enable firms to obtain equity financing in foreign countries. Thus, these markets have helped MNCs finance their international expansion. Institutional investors such as pension funds and mutual funds are the major purchasers of newly issued stock.

POINT COUNTER-POINT

Should Firms That Go Public Engage in International Offerings?

Point Yes. When a U.S. firm issues stock to the public for the first time in an initial public offering (IPO), it is naturally concerned about whether it can place all of its shares at a reasonable price. It will be able to issue its stock at a higher price by attracting more investors. It will increase its demand by spreading the stock across countries. The higher the price at which it can issue stock, the lower is its cost of using equity capital. It can also establish a global name by spreading stock across countries.

Counter-Point No. If a U.S. firm spreads its stock across different countries at the time of the IPO, there will be less publicly traded stock in the United States. Thus, it will not have as much liquidity in the secondary market. Investors desire stocks that they can easily sell in the secondary market, which means that they require that the stocks have liquidity. To the extent that a firm reduces its liquidity in the United States by spreading its stock across countries, it may not attract sufficient U.S. demand for the stock. Thus, its efforts to create global name recognition may reduce its name recognition in the United States.

Who Is Correct? Use the Internet to learn more about this issue. Which argument do you support? Offer your own opinion on this issue.

SELF TEST

Answers are provided in Appendix A at the back of the text.

1. Stetson Bank quotes a bid rate of $.784 for the Australian dollar and an ask rate of $.80. What is the bid/ask percentage spread?
2. Fullerton Bank quotes an ask rate of $.190 for the Peruvian currency (new sol) and a bid rate of $.188. Determine the bid/ask percentage spread.
3. Briefly explain how MNCs can make use of each international financial market described in this chapter.

QUESTIONS AND APPLICATIONS

1. **Motives for Investing in Foreign Money Markets.** Explain why an MNC may invest funds in a financial market outside its own country.
2. **Motives for Providing Credit in Foreign Markets.** Explain why some financial institutions prefer to provide credit in financial markets outside their own country.
3. **Exchange Rate Effects on Investing.** Explain how the appreciation of the Australian dollar against the U.S. dollar would affect the return to a U.S.

firm that invested in an Australian money market security.

4. **Exchange Rate Effects on Borrowing.** Explain how the appreciation of the Japanese yen against the U.S. dollar would affect the return to a U.S. firm that borrowed Japanese yen and used the proceeds for a U.S. project.
5. **Bank Services.** List some of the important characteristics of bank foreign exchange services that MNCs should consider.
6. **Bid/Ask Spread.** Utah Bank's bid price for Canadian dollars is $.7938 and its ask price is $.81. What is the bid/ask percentage spread?
7. **Bid/Ask Spread.** Compute the bid/ask percentage spread for Mexican peso retail transactions in which the ask rate is $.11 and the bid rate is $.10.
8. **Forward Contract.** The Wolfpack Corp. is a U.S. exporter that invoices its exports to the United Kingdom in British pounds. If it expects that the pound will appreciate against the dollar in the future, should it hedge its exports with a forward contract? Explain.
9. **Euro.** Explain the foreign exchange situation for countries that use the euro when they engage in international trade among themselves.
10. **Indirect Exchange Rate.** If the direct exchange rate of the euro is worth $1.25, what is the indirect rate of the euro? That is, what is the value of a dollar in euros?
11. **Cross Exchange Rate.** Assume Poland's currency (the zloty) is worth $.17 and the Japanese yen is worth $.008. What is the cross rate of the zloty with respect to yen? That is, how many yen equal a zloty?
12. **Syndicated Loans.** Explain how syndicated loans are used in international markets.
13. **Loan Rates.** Explain the process used by banks in the Eurocredit market to determine the rate to charge on loans.
14. **International Markets.** What is the function of the international money markets? Briefly describe the reasons for the development and growth of the European money market. Explain how the international money, credit, and bond markets differ from one another.
15. **Evolution of Floating Rates.** Briefly describe the historical developments that led to floating exchange rates as of 1973.
16. **International Diversification.** Explain how the Asian crisis would have affected the returns to a U.S. firm investing in the Asian stock markets as a means of international diversification. (See the chapter appendix.)
17. **Eurocredit Loans.**

    a. With regard to Eurocredit loans, who are the borrowers?

    b. Why would a bank desire to participate in syndicated Eurocredit loans?

    c. What is LIBOR, and how is it used in the Eurocredit market?
18. **Foreign Exchange.** You just came back from Canada, where the Canadian dollar was worth $.70. You still have C$200 from your trip and could exchange them for dollars at the airport, but the airport foreign exchange desk will only buy them for $.60. Next week, you will be going to Mexico and will need pesos. The airport foreign exchange desk will sell you pesos for $.10 per peso. You met a tourist at the airport who is from Mexico and is on his way to Canada. He is willing to buy your C$200 for 1,300 pesos. Should you accept the offer or cash the Canadian dollars in at the airport? Explain.
19. **Foreign Stock Markets.** Explain why firms may issue stock in foreign markets. Why might U.S. firms issue more stock in Europe since the conversion to a single currency in 1999?
20. **Financing with Stock.** Chapman Co. is a privately owned MNC in the United States that plans to engage in an initial public offering (IPO) of stock, so that it can finance its international expansion. At the present time, world stock market conditions are very weak but are expected to improve. The U.S. market tends to be weak in periods when the other stock markets around the world are weak. A financial manager of Chapman Co. recommends that it wait until the world stock markets recover before it issues stock. Another manager believes that Chapman Co. could issue its stock now even if the price would be low, since its stock price should rise later once world stock markets recover. Who is correct? Explain.

Advanced Questions

21. **Effects of September 11.** Why do you think the terrorist attack on the United States was expected to cause a decline in U.S. interest rates? Given the expectations for a decline in U.S. interest rates and stock prices, how were capital flows between the United States and other countries likely affected?
22. **International Financial Markets.** Recently, Wal-Mart established two retail outlets in the city of Shanzen, China, which has a population of 3.7 million. These outlets are massive and contain products purchased locally as well as imports. As Wal-Mart generates earnings beyond what it needs in Shanzen, it may remit those earnings back to the United States.

Wal-Mart is likely to build additional outlets in Shanzen or in other Chinese cities in the future.

a. Explain how the Wal-Mart outlets in China would use the spot market in foreign exchange.

b. Explain how Wal-Mart might utilize the international money markets when it is establishing other Wal-Mart stores in Asia.

c. Explain how Wal-Mart could use the international bond market to finance the establishment of new outlets in foreign markets.

23. **Interest Rates.** Why do interest rates vary among countries? Why are interest rates normally similar for those European countries that use the euro as their currency? Offer a reason why the government interest rate of one country could be slightly higher than the government interest rate of another country, even though the euro is the currency used in both countries.

24. **Interpreting Exchange Rate Quotations.** Today you notice the following exchange rate quotations: (a) $1 = 3.00 Argentine pesos and (b) 1 Argentine peso = .50 Canadian dollars. You need to purchase 100,000 Canadian dollars with U.S. dollars. How many U.S. dollars will you need for your purchase?

Discussion in the Boardroom

This exercise can be found in Appendix E at the back of this textbook.

Running Your Own MNC

This exercise can be found on the Xtra! website at http://maduraxtra.swlearning.com.

BLADES, INC. CASE

Decisions to Use International Financial Markets

As a financial analyst for Blades, Inc., you are reasonably satisfied with Blades' current setup of exporting "Speedos" (roller blades) to Thailand. Due to the unique arrangement with Blades' primary customer in Thailand, forecasting the revenue to be generated there is a relatively easy task. Specifically, your customer has agreed to purchase 180,000 pairs of Speedos annually, for a period of 3 years, at a price of THB4,594 (THB = Thai baht) per pair. The current direct quotation of the dollar-baht exchange rate is $0.024.

The cost of goods sold incurred in Thailand (due to imports of the rubber and plastic components from Thailand) runs at approximately THB2,871 per pair of Speedos, but Blades currently only imports materials sufficient to manufacture about 72,000 pairs of Speedos. Blades' primary reasons for using a Thai supplier are the high quality of the components and the low cost, which has been facilitated by a continuing depreciation of the Thai baht against the U.S. dollar. If the dollar cost of buying components becomes more expensive in Thailand than in the United States, Blades is contemplating providing its U.S. supplier with the additional business.

Your plan is quite simple; Blades is currently using its Thai-denominated revenues to cover the cost of goods sold incurred there. During the last year, excess revenue was converted to U.S. dollars at the prevailing exchange rate. Although your cost of goods sold is not fixed contractually as the Thai revenues are, you expect them to remain relatively constant in the near future. Consequently, the baht-denominated cash inflows are fairly predictable each year because the Thai customer has committed to the purchase of 180,000 pairs of Speedos at a fixed price. The excess dollar revenue resulting from the conversion of baht is used either to support the U.S. production of Speedos if needed or to invest in the United States. Specifically, the revenues are used to cover cost of goods sold in the U.S. manufacturing plant, located in Omaha, Nebraska.

Ben Holt, Blades' CFO, notices that Thailand's interest rates are approximately 15 percent (versus 8 percent in the United States). You interpret the high interest rates in Thailand as an indication of the uncertainty resulting from Thailand's unstable economy. Holt asks you to assess the feasibility of investing Blades' excess funds from Thailand operations in Thailand at an interest rate of 15 percent. After you express your opposition to his plan, Holt asks you to detail the reasons in a detailed report.

1. One point of concern for you is that there is a trade-off between the higher interest rates in Thailand and the delayed conversion of baht into dollars. Explain what this means.
2. If the net baht received from the Thailand operation are invested in Thailand, how will U.S. operations be affected? (Assume that Blades is currently paying 10 percent on dollars borrowed and needs more financing for its firm.)
3. Construct a spreadsheet to compare the cash flows resulting from two plans. Under the first plan, net baht-denominated cash flows (received today) will

be invested in Thailand at 15 percent for a one-year period, after which the baht will be converted to dollars. The expected spot rate for the baht in one year is about $.022 (Ben Holt's plan). Under the second plan, net baht-denominated cash flows are converted to dollars immediately and invested in the United States for one year at 8 percent. For this question, assume that all baht-denominated cash flows are due today. Does Holt's plan seem superior in terms of dollar cash flows available after one year? Compare the choice of investing the funds versus using the funds to provide needed financing to the firm.

SMALL BUSINESS DILEMMA

Use of the Foreign Exchange Markets by the Sports Exports Company

Each month, the Sports Exports Company (a U.S. firm) receives an order for footballs from a British sporting goods distributor. The monthly payment for the footballs is denominated in British pounds, as requested by the British distributor. Jim Logan, owner of the Sports Exports Company, must convert the pounds received into dollars.

1. Explain how the Sports Exports Company could utilize the spot market to facilitate the exchange of currencies. Be specific.
2. Explain how the Sports Exports Company is exposed to exchange rate risk and how it could use the forward market to hedge this risk.

INTERNET/EXCEL EXERCISES

The Bloomberg website provides quotations of various exchange rates and stock market indexes. Its website address is **http://www.bloomberg.com**.

1. Go to the section on currencies within the website. First, identify the direct exchange rates of foreign currencies from the U.S. perspective. Then, identify the indirect exchange rates. What is the direct exchange rate of the euro? What is the indirect exchange rate of the euro? What is the relationship between the direct and indirect exchange rates of the euro?
2. Use this website to determine the cross exchange rate between the Japanese yen and the Australian dollar. That is, determine how many yen must be converted to an Australian dollar for Japanese importers that purchase Australian products today. How many Australian dollars are equal to a Japanese yen? What is the relationship between the exchange rate measured as number of yen per Australian dollar and the exchange rate measured as number of Australian dollars per yen?

APPENDIX 3

Investing in International Financial Markets

HTTP://

http://money.cnn.com
Current national and international market data and analyses.

The trading of financial assets (such as stocks or bonds) by investors in international financial markets has a major impact on MNCs. First, this type of trading can influence the level of interest rates in a specific country (and therefore the cost of debt to an MNC) because it affects the amount of funds available there. Second, it can affect the price of an MNC's stock (and therefore the cost of equity to an MNC) because it influences the demand for the MNC's stock. Third, it enables MNCs to sell securities in foreign markets. So, even though international investing in financial assets is not the most crucial activity of MNCs, international investing by individual and institutional investors can indirectly affect the actions and performance of an MNC. Consequently, an understanding of the motives and methods of international investing is necessary to anticipate how the international flow of funds may change in the future and how that change may affect MNCs.

Background on International Stock Exchanges

HTTP://

http://123world.com/stockexchanges
Summary of links to stock exchanges around the world.

The international trading of stocks has grown over time but has been limited by three barriers: transaction costs, information costs, and exchange rate risk. In recent years, however, these barriers have been reduced as explained here.

Reduction in Transaction Costs

Most countries tend to have their own stock exchanges, where the stocks of local publicly held companies are traded. In recent years, exchanges have been consolidated within a country, which has increased efficiency and reduced transaction costs. Some European stock exchanges now have extensive cross-listings so that investors in a given European country can easily purchase stocks of companies based in other European countries.

In particular, because of its efficiency, the stock exchange of Switzerland may serve as a model that will be applied to many other stock exchanges around the world. The Swiss stock exchange is now fully computerized, so a trading floor is not needed. Orders by investors to buy or sell flow to financial institutions that are certified members of the Swiss stock exchange. These institutions are not necessarily based in Switzerland. The details of the orders, such as the name of the stock, the number of shares to be bought or sold, and the price at which the investor is willing to buy or sell, are fed into a computer system. The system matches buyers and sellers and then sends information confirming the transaction to the financial institution, which informs the investor that the transaction is completed.

When there are many more buy orders than sell orders for a given stock, the computer is unable to accommodate all orders. Some buyers will then increase the price they are willing to pay for the stock. Thus, the price adjusts in response to the demand (buy orders) for the stock and the supply (sell orders) of the stock for sale recorded by the computer system. Similar dynamics occur when a trading floor is used, but the computerized system has documented criteria by which it prioritizes the execution of orders; traders on a trading floor may execute some trades in ways that favor themselves at the expense of investors.

HTTP://

http://www.sec.gov/investor/pubs/ininvest.htm
Information from the Securities and Exchange Commission about international investing.

In recent years, electronic communications networks (ECNs) have been created in many countries to match orders between buyers and sellers. Like the Swiss stock exchange, ECNs do not have a visible trading floor: the trades are executed by a computer network. Examples of popular ECNs include Archipelago, Instinet, and Tradebook. With an ECN, investors can place orders on their computers that are then executed by the computer system and confirmed through the Internet to the investor. Thus, all parts of the trading process from the placement of the order to the confirmation that the transaction has been executed are conducted by computer. The ease with which such orders can occur, regardless of the locations of the investor and the stock exchange, is sure to increase the volume of international stock transactions in the future.

Impact of Alliances. Several stock exchanges have created international alliances with the stock exchanges of other countries, thereby enabling firms to more easily cross-list their shares among various stock markets. This gives investors easier and cheaper access to foreign stocks. The alliances also allow greater integration between markets. At some point in the future, there may be one global stock market in which any stock of any country can be easily purchased or sold by investors around the world. A single global stock market would allow U.S. investors to easily purchase any stock, regardless of where the corporation is based or the currency in which the stock is denominated. The international alliances are a first step toward a single global stock market. The costs of international stock transactions have already been substantially reduced as a result of some of the alliances.

Reduction in Information Costs

The Internet provides investors with access to much information about foreign stocks, enabling them to make more informed decisions without having to purchase information about these stocks. Consequently, investors should be more comfortable assessing foreign stocks. Although differences in accounting rules still limit the degree to which financial data about foreign companies can be interpreted or compared to data about firms in other countries, there is some momentum toward making accounting standards uniform across some countries.

Exchange Rate Risk

When investing in a foreign stock that is denominated in a foreign currency, investors are subject to the possibility that the currency denominating the stock may depreciate against the investor's currency over time.

The potential for a major decline in the stock's value simply because of a large degree of depreciation is more likely for emerging markets, such as Indonesia or Russia, where the local currency can change by 10 percent or more on a single day.

Measuring the Impact of Exchange Rates. The return to a U.S. investor from investing in a foreign stock is influenced by the return on the stock itself

(R), which includes the dividend, and the percentage change in the exchange rate (e), as shown here:

$$R_{\$} = (1 + R)(1 + e) - 1$$

EXAMPLE A year ago, Rob Grady invested in the stock of Vopka, a Russian company. Over the last year, the stock increased in value by 35 percent. Over this same period, however, the Russian ruble's value declined by 30 percent. Rob sold the Vopka stock today. His return is:

$$\begin{aligned} R_{\$} &= (1 + R)(1 + e) - 1 \\ &= (1 + .35)[1 + (-.30)] - 1 \\ &= -.055 \text{ or } -5.5\% \end{aligned}$$

Even though the return on the stock was more pronounced than the exchange rate movement, Rob lost money on his investment. The reason is that the exchange rate movement of −30 percent wiped out not only 30 percent of his initial investment but also 30 percent of the stock's return. ■

As the preceding example illustrates, investors should consider the potential influence of exchange rate movements on foreign stocks before investing in those stocks. Foreign investments are especially risky in developing countries, where exchange rates tend to be very volatile.

Reducing Exchange Rate Risk of Foreign Stocks. One method of reducing exchange rate risk is to take short positions in the foreign currencies denominating the foreign stocks. For example, a U.S. investor holding Mexican stocks who expects the stocks to be worth 10 million Mexican pesos one year from now could sell forward contracts (or futures contracts) representing 10 million pesos. The stocks could be liquidated at that time, and the pesos could be exchanged for dollars at a locked-in price.

Although hedging the exchange rate risk of an international stock portfolio can be effective, it has three limitations. First, the number of foreign currency units to be converted to dollars at the end of the investment horizon is unknown. If the units received from liquidating the foreign stocks are more (less) than the amount hedged, the investor has a net long (short) position in that foreign currency, and the return will be unfavorably affected by its depreciation (appreciation). Nevertheless, though the hedge may not be perfect for this reason, investors normally should be able to hedge most of their exchange rate risk.

A second limitation of hedging exchange rate risk is that the investors may decide to retain the foreign stocks beyond the initially planned investment horizon. Of course, they can create another forward contract after the initial forward contract is completed. If they ever decide to liquidate the foreign stocks prior to the forward delivery date, the hedge will be less effective. They could use the proceeds to invest in foreign money market securities denominated in that foreign currency in order to postpone conversion to dollars until the forward delivery date. But this prevents them from using the funds for other opportunities until that delivery date.

A third limitation of hedging is that forward rates for currencies that are less widely traded may not exist or may exhibit a large discount.

International Stock Diversification

A substantial amount of research has demonstrated that investors in stocks can benefit by diversifying internationally. The stocks of most firms are highly influenced by the

countries where those firms reside (although some firms are more vulnerable to economic conditions than others).

Since stock markets partially reflect the current and/or forecasted state of their countries' economies, they do not move in tandem. Thus, particular stocks of the various markets are not expected to be highly correlated. This contrasts with a purely domestic portfolio in which most stocks often move in the same direction and by a somewhat similar magnitude.

The risk of a stock portfolio can be measured by its volatility. Investors prefer a stock portfolio that has a lower degree of volatility because the future returns of a less volatile portfolio are subject to less uncertainty. The volatility of a single stock is commonly measured by its standard deviation of returns over a recent period. The volatility of a stock portfolio can also be measured by its standard deviation of returns over a recent period. The standard deviation of a stock portfolio is determined by the standard deviation of returns for each individual stock along with the correlations of returns between each pair of stocks in the portfolio, as shown below for a two-stock portfolio:

$$\sigma_p = \sqrt{w_X^2\sigma_X^2 + w_Y^2\sigma_Y^2 + 2w_X w_Y \sigma_X \sigma_Y (CORR_{XY})}$$

where w_X is the proportion of funds invested in stock X, w_Y is the proportion of funds invested in stock Y, σ_X is the standard deviation of returns for stock X, σ_Y is the standard deviation of returns for stock Y, and $CORR_{XY}$ is the correlation coefficient of returns between stock X and stock Y. From this equation, it should be clear that the standard deviation of returns (and therefore the risk) of a stock portfolio is positively related to the standard deviation of the individual stocks included within the portfolio and is also positively related to the correlations between individual stock returns.

Much research has documented that stock returns are driven by their country market conditions. Therefore, individual stocks within a given country tend to be highly correlated. If country economies are segmented, their stock market returns should not be highly correlated, so the individual stocks of one country are not highly correlated with individual stocks of other countries. Thus, investors should be able to reduce the risk of their stock portfolio by investing in stocks among different countries.

Limitations of International Diversification

HTTP://

http://finance.yahoo.com/intlindices?u
Charts showing recent stock market performance for each market. The prevailing stock index level is shown for each country, as well as the performance of each market during the previous day. For some markets, you can assess the performance over the last year by clicking on Chart next to the country's name.

In general, correlations between stock indexes have been higher in recent years than they were several years ago. The general increase in correlations among stock market returns may have implications for MNCs that attempt to diversify internationally. To the extent that stock prices in each market reflect anticipated earnings, the increased correlations may suggest that more highly correlated anticipated earnings are expected among countries. Thus, the potential risk-reduction benefits to an MNC that diversifies its business may be limited.

One reason for the increased correlations among stock market returns is increased integration of business between countries. Increased integration results in more intercountry trade flows and capital flows, which causes each country to have more influence on other countries. In particular, many European countries have become more integrated as regulations have been standardized throughout Europe to facilitate trade between countries. In addition, the adoption of the euro has removed exchange rate risk due to trade between participating countries.

The conversion to the euro also allows portfolio managers in European countries to invest in stocks of other participating European countries without concern for exchange rate risk because these stocks are also denominated in euros. This facilitates a more regional approach for European investors, who are not restricted to stocks within their respective countries.

Since some stock market correlations may become more pronounced during a crisis, international diversification will not necessarily be as effective during a downturn as it is during more favorable conditions. An event that had an adverse effect on many markets was the Asian crisis, which is discussed next.

Market Movements during Crises. In the summer of 1997, Thailand experienced severe economic problems, which were followed by economic downturns in several other Asian countries. Investors revalued stocks downward because of weakened economic conditions, more political uncertainty, and a lack of confidence that the problems would be resolved. The effects during the first year of the Asian crisis are summarized in Exhibit 3A.1. This crisis demonstrated how quickly stock prices could adjust to changing conditions and how adverse market conditions could spread across countries. Thus, diversification across Asia did not effectively insulate investors during the Asian crisis. Diversification across all continents would have been a more effective method of diversification during the crisis.

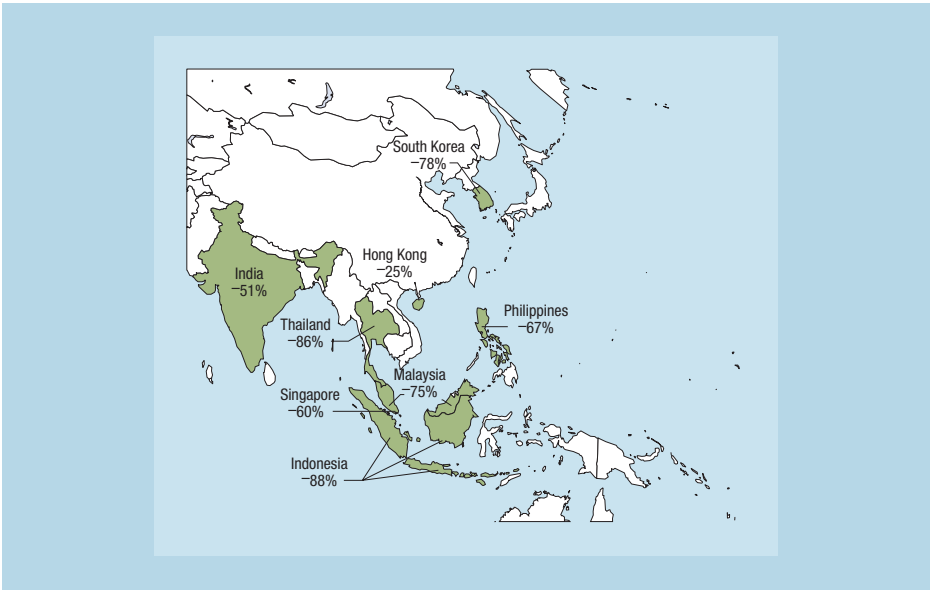
On August 27, 1998 (referred to as "Bloody Thursday"), Russian stock and currency values declined abruptly in response to severe financial problems in Russia, and most stock markets around the world experienced losses on that day. U.S. stocks declined by more than 4 percent on that day. The adverse effects extended beyond stocks that would be directly affected by financial problems in Russia as paranoia caused investors to sell stocks across all markets due to fears that all stocks might be overvalued.

In response to the September 11, 2001, terrorist attacks on the United States, many stock markets experienced declines of more than 10 percent over the following week. Diversification among markets was not very effective in reducing risk in this case.

Valuation of Foreign Stocks

When investors consider investing in foreign stocks, they need methods for valuing those stocks.

Exhibit 3A.1 How Stock Market Levels Changed during the Asian Crisis from a U.S. Perspective



Dividend Discount Model

One possibility is to use the dividend discount model with an adjustment to account for expected exchange rate movements. Foreign stocks pay dividends in the currency in which they are denominated. Thus, the cash flow per period to U.S. investors is the dividend (denominated in the foreign currency) multiplied by the value of that foreign currency in dollars. The dividend can normally be forecasted with more accuracy than the value of the foreign currency. Because of exchange rate uncertainty, the value of the foreign stock from a U.S. investor's perspective is subject to much uncertainty.

Price-Earnings Method

An alternative method of valuing foreign stocks is to apply price-earnings ratios. The expected earnings per share of the foreign firm are multiplied by the appropriate price-earnings ratio (based on the firm's risk and industry) to determine the appropriate price of the firm's stock. Although this method is easy to use, it is subject to some limitations when applied to valuing foreign stocks. The price-earnings ratio for a given industry may change continuously in some foreign markets, especially when the industry is composed of just a few firms. Thus, it is difficult to determine the proper price-earnings ratio that should be applied to a specific foreign firm. In addition, the price-earnings ratio for any particular industry may need to be adjusted for the firm's country, since reported earnings can be influenced by the firm's accounting guidelines and tax laws. Furthermore, even if U.S. investors are comfortable with their estimate of the proper price-earnings ratio, the value derived by this method is denominated in the local foreign currency (since the estimated earnings are denominated in that currency). Therefore, U.S. investors would still need to consider exchange rate effects. Even if the stock is undervalued in the foreign country, it may not necessarily generate a reasonable return for U.S. investors if the foreign currency depreciates against the dollar.

Other Methods

Some investors adapt these methods when selecting foreign stocks. For example, they may first assess the macroeconomic conditions of all countries to screen out those countries that are expected to experience poor conditions in the future. Then, they use other methods such as the dividend discount model or the price-earnings method to value specific firms within the countries that are appealing.

Why Perceptions of Stock Valuation Differ among Countries

A stock that appears undervalued to investors in one country may seem overvalued to investors in another country. Some of the more common reasons why perceptions of a stock's valuation may vary among investors in different countries are identified here.

Required Rate of Return. Some investors attempt to value a stock according to the present value of the future cash flows that it will generate. The dividend discount model is one of many models that use this approach. The required rate of return that is used to discount the cash flows can vary substantially among countries. It is based on the prevailing risk-free interest rate available to investors, plus a risk premium. For investors in the United States, the risk-free rate is typically below 10 percent. Thus, U.S. investors would apply a required rate of return of 12 to 15 percent in some cases. In contrast, investors in an emerging country that has a high risk-free rate would not be willing to accept such a low return. If they can earn a high return by investing in a risk-free asset, they would require a higher return than that to invest in risky assets such as stocks.

Exchange Rate Risk. The exposure of investors to exchange rate risk from investing in foreign stocks is dependent on their home country. Investors in the United States who invest in a Brazilian stock are highly exposed to exchange rate risk, as the Brazilian currency (the real) has depreciated substantially against the dollar over time. Brazilian investors are not as exposed to exchange rate risk when investing in U.S. stocks, however, because there is less chance of a major depreciation in the dollar against the Brazilian real. In fact, Brazilian investors normally benefit from investing in U.S. stocks because of the dollar's appreciation against the Brazilian real. Indeed, the appreciation of the dollar is often necessary to generate an adequate return for Brazilian investors, given their high required return when investing in foreign stocks.

Taxes. The tax effects of dividends and capital gains also vary among countries. The lower a country's tax rates, the greater the proportion of the pretax cash flows received that the investor can retain. Other things being equal, investors based in low-tax countries should value stocks higher.

The valuation of stocks by investors within a given country changes in response to changes in tax laws. Before 2003, dividend income received by U.S. investors was taxed at ordinary income tax rates, which could be nearly 40 percent for some taxpayers. Consequently, many U.S. investors may have placed higher valuations on foreign stocks that paid low or no dividends (especially if the investors did not rely on the stocks to provide periodic income). Before 2003, the maximum tax on long-term capital gains was 20 percent, a rate that made foreign stocks that paid no dividends but had high potential for large capital gains very attractive. In 2003, however, the maximum tax rate on both dividends and long-term capital gains was set at 15 percent. Consequently, U.S. investors became more willing to consider foreign stocks that paid high dividends.

Methods Used to Invest Internationally

HTTP://

http://www.investorhome.com/intl.htm
Links to many useful websites on international investing.

For investors attempting international stock diversification, five common approaches are available:

- Direct purchases of foreign stocks
- Investment in MNC stocks
- American depository receipts (ADRs)
- Exchange-traded funds (ETFs)
- International mutual funds (IMFs)

Each approach is discussed in turn.

Direct Purchases of Foreign Stocks

Foreign stocks can be purchased on foreign stock exchanges. This requires the services of brokerage firms that can execute the trades desired by investors at the foreign stock exchange of concern. However, this approach is inefficient because of market imperfections such as insufficient information, transaction costs, and tax differentials among countries.

An alternative method of investing directly in foreign stocks is to purchase stocks of foreign companies that are sold on the local stock exchange. In the United States, for example, Royal Dutch Shell (of the Netherlands), Sony (of Japan), and many other foreign stocks are sold on U.S. stock exchanges. Because the number of foreign stocks listed on any local stock exchange is typically quite limited, this method by itself may not be adequate to achieve the full benefits of international diversification.

Brokerage firms have expanded the list of non-U.S. stocks that are available to U.S. investors. For example, Fidelity now executes stock transactions in many different countries for its U.S. investors. The transaction cost of investing directly in foreign stocks is higher than purchasing stocks on U.S. stock exchanges. One reason for the higher cost is that the foreign shares purchased by U.S. investors typically remain in the foreign country, and there is a cost of storing the stocks and processing records of ownership. However, some brokerage firms such as Charles Schwab, Inc. have substantially reduced their fees for international stock transactions recently, but they may require a larger minimum transaction value (such as $5,000) to execute the transaction. The fees may even vary among foreign stocks at a given brokerage firm. For example, the fees charged by E-Trade for executing foreign stock transactions vary with the home country of the stock.

Investment in MNC Stocks

The operations of an MNC represent international diversification. Like an investor with a well-managed stock portfolio, an MNC can reduce risk (variability in net cash flows) by diversifying sales not only among industries but also among countries. In this sense, the MNC as a single firm can achieve stability similar to that of an internationally diversified stock portfolio.

If MNC stocks behave like an international stock portfolio, then they should be sensitive to the stock markets of the various countries in which they operate. The sensitivity of returns of MNCs based in a particular country to specific international stock markets can be measured as:

$$R_{MNC} = a_0 + a_1 R_L + b_1 R_{I,1} + b_2 R_{I,2} + \cdots + b_n R_{I,n} + u$$

where R_{MNC} is the average return on a portfolio of MNCs from the same country, a_0 is the intercept, R_L is the return on the local stock market, $R_{I,1}$ through $R_{I,n}$ are returns on foreign stock indices I_1 through I_n, and u is an error term. The regression coefficient a_1 measures the sensitivity of MNC returns to their local stock market, while coefficients b_1 through b_n measure the sensitivity of MNC returns to the various foreign stock markets. Studies have applied the time series regression model specified here and found that MNCs based in a particular country were typically affected only by their respective local stock markets and were not affected by other stock market movements. This suggests that the diversification benefits from investing in an MNC are limited.

American Depository Receipts

HTTP://

http://www.adr.com
Performance of ADRs.

Another approach is to purchase American depository receipts (ADRs), which are certificates representing ownership of foreign stocks. More than 1,000 ADRs are available in the United States, primarily traded on the over-the-counter (OTC) stock market. An investment in ADRs may be an adequate substitute for direct investment in foreign stocks.

Exchange-Traded Funds (ETFs)

HTTP://

http://finance.yahoo.com/etf
Performance of ETFs.

Although investors have closely monitored international stock indexes for years, they were typically unable to invest directly in these indexes. The index was simply a measure of performance for a set of stocks but was not traded. Exchange-traded funds (ETFs) represent indexes that reflect composites of stocks for particular countries; they were created to allow investors to invest directly in a stock index representing any one of several countries. ETFs are sometimes referred to as world equity benchmark shares (WEBS) or as iShares.

International Mutual Funds

A final approach to consider is purchasing shares of **international mutual funds (IMFs),** which are portfolios of stocks from various countries. Several investment firms, such as Fidelity, Vanguard, and Merrill Lynch, have constructed IMFs for their customers. Like domestic mutual funds, IMFs are popular due to (1) the low minimum investment necessary to participate in the funds, (2) the presumed expertise of the portfolio managers, and (3) the high degree of diversification achieved by the portfolios' inclusion of several stocks. Many investors believe an IMF can better reduce risk than a purely domestic mutual fund because the IMF includes foreign securities. An IMF represents a prepackaged portfolio, so investors who use it do not need to construct their own portfolios. Although some investors prefer to construct their own portfolios, the existence of numerous IMFs on the market today allows investors to select the one that most closely resembles the type of portfolio they would have constructed on their own. Moreover, some investors feel more comfortable with a professional manager managing the international portfolio.