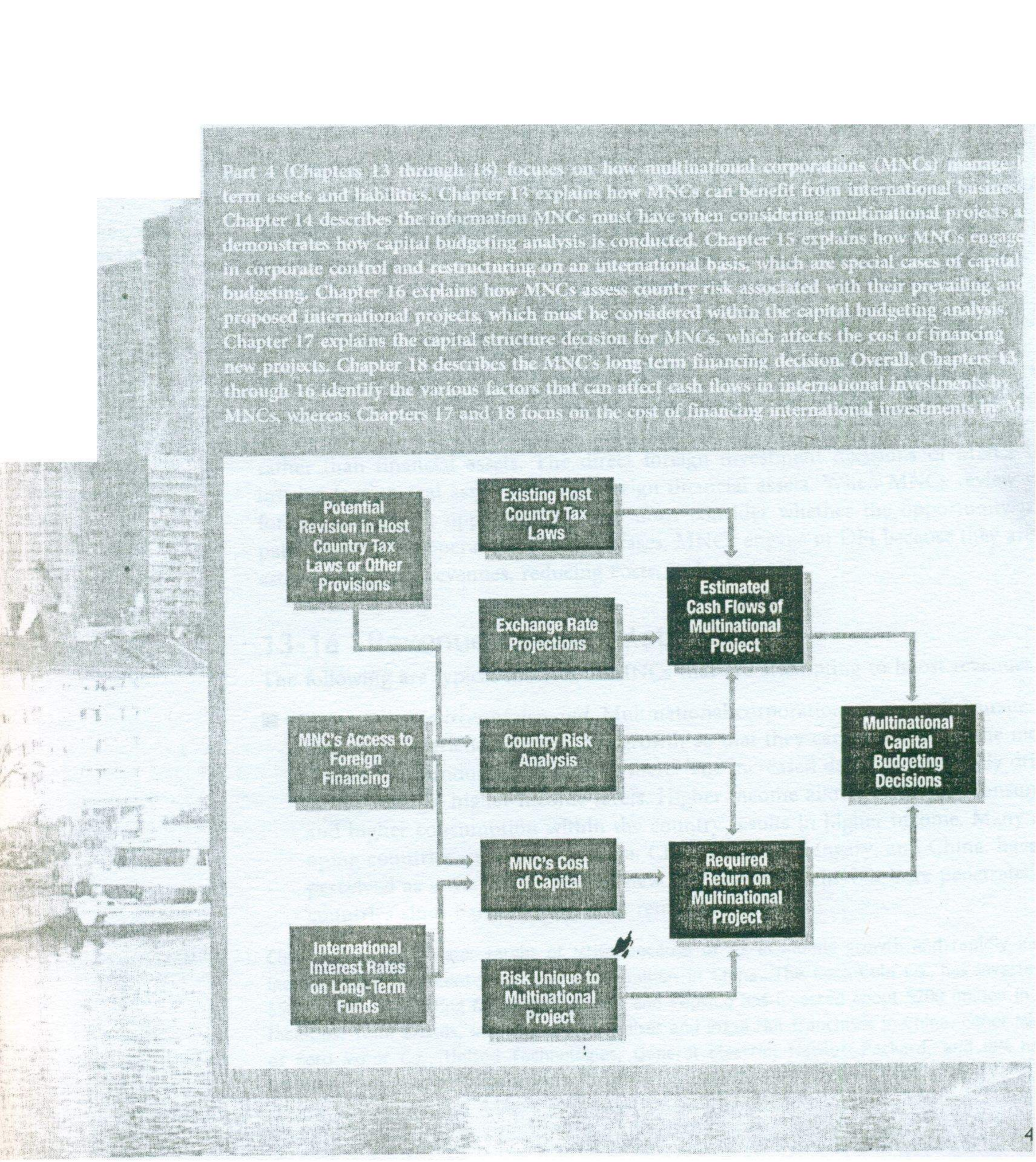
PART 4

Long-Term Asset and Liability Management

Part 4 (Chapters 13 through 18) focuses on how multinational corporations (MNCs) manage l
term assets and liabilities. Chapter 13 explains how MNCs can benefit from international busines
Chapter 14 describes the information MNCs must have when considering multinational projects a
demonstrates how capital budgeting analysis is conducted. Chapter 15 explains how MNCs engage
in corporate control and restructuring on an international basis, which are special cases of capital
budgeting. Chapter 16 explains how MNCs assess country risk associated with their prevailing and
proposed international projects, which must be considered within the capital budgeting analysis.
Chapter 17 explains the capital structure decision for MNCs, which affects the cost of financing
new projects. Chapter 18 describes the MNC's long-term financing decision. Overall, Chapters 13
through 16 identify the various factors that can affect cash flows in international investments by
MNCs, whereas Chapters 17 and 18 focus on the cost of financing international investments by M



13
Direct Foreign Investment

CHAPTER OBJECTIVES

The specific objectives of this chapter are to:

- describe common motives for initiating direct foreign investment and
- illustrate the benefits of international diversification.

Multinational corporations frequently capitalize on foreign business opportunities by engaging in direct foreign investment (DFI), which is investment in real assets (such as land, buildings, or even existing plants) in foreign countries. They engage in joint ventures with foreign firms, acquire foreign firms, and form new foreign subsidiaries. Financial managers must understand the potential return and risk associated with DFI so that they can make investment decisions that maximize the MNC's value.

13-1 Motives for Direct Foreign Investment

Multinational corporations often consider direct foreign investment because it can improve their profitability and enhance shareholder wealth. They are normally focused on investing in real assets such as machinery or buildings that can support operations, rather than financial assets. The direct foreign investment decisions of MNCs usually involve foreign real assets and not foreign financial assets. When MNCs review various foreign investment opportunities, they must consider whether the opportunity is compatible with their operations. In most cases, MNCs engage in DFI because they are interested in boosting revenues, reducing costs, or both.

13-1a Revenue-Related Motives

The following are typical motives of MNCs that are attempting to boost revenues.

- *Attract new sources of demand.* Multinational corporations commonly pursue DFI in countries experiencing economic growth so that they can benefit from the increased demand for products and services there. The increased demand is typically driven by local residents' higher income levels. Higher income allows for higher consumption, and higher consumption within the country results in higher income. Many developing countries, such as Argentina, Chile, Mexico, Hungary, and China, have been perceived as attractive sources of new demand. Many MNCs have penetrated these countries since barriers have been removed.

EXAMPLE China has been a major target of MNCs because of its economic growth and rapidly increasing income. Siemens recently invested $190 million in China. The Coca-Cola Co. has invested about $500 million in bottling facilities in China, and PepsiCo has invested about $200 million in bottling facilities. Yum! Brands, Inc. has KFC franchises and Pizza Hut franchises in China. Other MNCs such as Ford Motor Co., United Technologies, General Electric, Hewlett-Packard, and IBM have also invested more than $100 million in China to attract demand by consumers there. ●

- *Enter profitable markets.* When an MNC notices that other corporations in its particular industry are generating high earnings in a particular country, it may decide to sell its own products in those markets. If it believes that its competitors are charging excessively high prices in a particular country, it may penetrate that market and undercut those prices. A typical problem with this strategy is that previously established sellers in a new market may prevent a new competitor from taking away their business by lowering their prices just when the new competitor attempts to break into that market.
- *Exploit monopolistic advantages.* Firms may become internationalized if they possess resources or skills not available to competing firms. If a firm possesses advanced technology and has exploited this advantage successfully in local markets, then the firm may attempt to exploit it internationally as well. In fact, the firm may have a more distinct advantage in markets that have less advanced technology.

EXAMPLE In recent years, Google has acquired businesses in Canada, China, Finland, Greece, Israel, South Korea, Spain, and Sweden. The company is effective at using its technology to improve the capabilities of other businesses. In this way, it expands its technology internationally. ●

- *React to trade restrictions.* In some cases, MNCs use DFI as a defensive rather than an aggressive strategy. Specifically, MNCs may pursue DFI to circumvent trade barriers.

EXAMPLE Japanese automobile manufacturers established plants in the United States in anticipation that their exports to the United States would be subject to more stringent trade restrictions. Japanese companies recognized that trade barriers could be established that would limit or prohibit their exports. By producing automobiles in the United States, Japanese manufacturers could circumvent those barriers. ●

- *Diversify internationally.* Since economies of countries do not move perfectly in tandem over time, net cash flow from sales of products across countries should be more stable than comparable sales of the products in a single country. By diversifying sales (and possibly even production) internationally, a firm can make its net cash flows less volatile. Thus, the possibility of a liquidity deficiency is less likely. In addition, the firm may enjoy a lower cost of capital as shareholders and creditors perceive the MNC's risk to be lower because of the more stable cash flows. Potential benefits to MNCs that diversify internationally are examined more thoroughly later in the chapter.

EXAMPLE Several firms experienced weak sales because of reduced U.S. demand for their products. They responded by increasing their expansion in foreign markets. AT&T and Starbucks pursued new business in China. United Technologies and Wal-Mart expanded in Europe and Asia. IBM increased its presence in China, India, South Korea, and Taiwan. Cisco Systems expanded substantially in China, Japan, and South Korea. Foreign expansion diversifies an MNC's sources of revenue and thus reduces its reliance on the U.S. economy. ●

13-1b Cost-Related Motives

MNCs also engage in DFI in an effort to reduce costs. The following are typical motives of MNCs that are trying to cut costs.

- *Fully benefit from economies of scale.* A corporation that attempts to sell its primary product in new markets may increase its earnings and shareholder wealth due to **economies of scale** (lower average cost per unit resulting from increased production). Firms that utilize much machinery are most likely to benefit from economies of scale.

EXAMPLE Facebook benefits from economies of scale by allowing people outside the United States to access its platform. Its popularity spread to the United Kingdom in 2007, but its penetration into other non-English-speaking markets was limited because of language differences. The company therefore developed a tool that enables users to translate the service into their own language. This allowed Facebook to achieve substantial growth in many countries, including Brazil, Poland, and Turkey. Because much of its cost of operations is due to its platform, increasing the international access to that platform reduces the company's cost per customer. ●

WEB

www.cia.gov
The CIA's home page, which provides a link to the *World Factbook*, is a valuable resource for information about countries that MNCs might be considering for direct foreign investment.

- *Use foreign factors of production.* Labor and land costs can vary dramatically among countries. Multinational corporations often attempt to set up production in locations where land and labor are cheap. Because of market imperfections (as discussed in Chapter 1) such as imperfect information, relocation transaction costs, and barriers to industry entry, specific labor costs are seldom equal among markets. Thus, it is worthwhile for MNCs to survey markets to determine whether they can benefit from cheaper costs by producing in those markets.

EXAMPLE Mexico has been a major target for MNCs that are seeking to reduce their cost of production. Many U.S.-based MNCs, including Black & Decker, Eastman Kodak, Ford Motor Co., and General Electric, have established subsidiaries in Mexico to achieve lower labor costs.

Mexico has attracted almost $8 billion in DFI from firms in the automobile industry, primarily because of the country's low-cost labor. Mexican workers at subsidiaries of automobile plants who manufacture sedans and trucks earn daily wages that are less than the average hourly rate for similar workers in the United States. Ford produces trucks at subsidiaries based in Mexico. Baxter International has established manufacturing plants in Mexico to capitalize on lower costs of production (primarily wage rates).

Asia has also attracted much direct foreign investment. Honeywell has joint ventures in countries such as Korea and India, where production costs are low, and has also established subsidiaries in Malaysia. Genzyme Corp. recently invested about $100 million in China for research and development and biotechnology production. ●

- *Use foreign raw materials.* Because of transportation costs, a corporation may attempt to avoid importing raw materials from a given country, especially when it plans to sell the finished product back to consumers in that country. Under such circumstances, a more feasible solution may be to develop the product in the country where the raw materials are located.
- *Use foreign technology.* Corporations are increasingly establishing overseas plants or acquiring existing overseas plants to learn about unique technologies in foreign countries. This technology is then used to improve their own production processes and increase production efficiency at all subsidiary plants around the world.

EXAMPLE Cisco recently planned a $1 billion investment in Russia to create innovative business ideas. Cisco has previously invested heavily in India and other markets to tap into unique technologies and innovation. ●

- *React to exchange rate movements.* When a firm perceives that a foreign currency is undervalued, the firm may consider DFI in that country because the initial outlay should be relatively low.

EXAMPLE Wyoming Co. is a distributor of ski equipment that wants to expand its business into snowmobiles. Most of the production would be exported to Canadian retail stores and invoiced in dollars. It anticipates that the Canadian dollar will weaken against the U.S. dollar over the next several years, which would increase the cost to Canadian stores that purchase Wyoming Co.'s exports. Its main competitor of this new business would be a firm in Canada. Wyoming Co. decides to acquire the firm in Canada rather than export products to Canada. Consequently, it can avoid the adverse exchange rate effects and can actually benefit from the expected strength of the Canadian dollar, since the Canadian subsidiary it buys will periodically convert its Canadian earnings into U.S. dollars. ●

WEB

www.morganstanley.com/views/gef/index.html
Morgan Stanley's Global Economic Forum, which has analyses, discussions, statistics, and forecasts related to non-U.S. economies.

13-1c Comparing Benefits of DFI among Countries

Exhibit 13.1 summarizes the possible benefits of DFI and explains how MNCs can use DFI to achieve those benefits. Most MNCs pursue DFI based on their expectations of capitalizing on one or more of the potential benefits summarized in Exhibit 13.1.

The potential benefits from DFI vary with the country. Countries in Western Europe have well-established markets where the demand for most products and services is large. Thus, these countries may appeal to MNCs that want to penetrate markets because they have better products than those already being offered. Countries in Eastern Europe, Asia, and Latin America tend to have relatively low costs of land and labor. If an MNC desires to establish a low-cost production facility, it would also consider other factors such as the work ethic and skills of the local people, availability of labor, and cultural traits. Although most attempts to increase international business are motivated by one or more of the benefits listed here, some disadvantages are also associated with DFI.

EXAMPLE

Most of Nike's shoe production is concentrated in China, Indonesia, Thailand, and Vietnam. The government regulation of labor in these countries is limited. Thus, if Nike wants to ensure that employees receive fair treatment, it may have to govern the factories itself. Also, because Nike is such a large company, it receives much attention when employees in factories that produce shoes for Nike receive unfair treatment. Nike incurs additional costs of oversight to prevent unfair treatment of employees. Although its expenses from having products produced in Asia are still significantly lower than if produced in the United States, it needs to recognize these other expenses when determining where to have its products produced. A country with the lowest wages may not be the ideal location for production if the MNC will incur high expenses to ensure that the factories treat local employees fairly. ●

WEB

finance.yahoo.com/
Information about economic growth and other macroeconomic indicators used when considering direct foreign investment in a foreign country.

WEB

www.worldbank.org
Valuable updated country data that can be considered when making DFI decisions.

Exhibit 13.1 Summary of Motives for Direct Foreign Investment

BENEFIT	MEANS OF USING DFI TO ACHIEVE THIS BENEFIT
Revenue-Related Motives	
1. Attract new sources of demand.	Establish a subsidiary or acquire a competitor in a new market.
2. Enter markets where superior profits are possible.	Acquire a competitor that has controlled its local market.
3. Exploit monopolistic advantages.	Establish a subsidiary in a market where competitors are unable to produce the identical product; sell products in that country.
4. React to trade restrictions.	Establish a subsidiary in a market where tougher trade restrictions will adversely affect the firm's export volume.
5. Diversify internationally.	Establish subsidiaries in markets whose business cycles differ from those where existing subsidiaries are based.
Cost-Related Motives	
6. Fully benefit from economies of scale.	Establish a subsidiary in a new market that can sell products produced elsewhere; this allows for increased production and possibly greater production efficiency.
7. Use foreign factors of production.	Establish a subsidiary in a market that has relatively low costs of labor or land; sell the finished product to countries where the cost of production is higher.
8. Use foreign raw materials.	Establish a subsidiary in a market where raw materials are cheap and accessible; sell the finished product to countries where the raw materials are more expensive.
9. Use foreign technology.	Participate in a joint venture in order to learn about a production process or other operations.
10. React to exchange rate movements.	Establish a subsidiary in a new market where the local currency is weak but is expected to strengthen over time.

Exhibit 13.2 Steps Taken by MNCs to Determine Whether to Pursue Direct Foreign Investment

Identify Motives. Review the revenue and cost-related motives for DFI, and determine which motives may apply (as explained in this chapter).

Capital Budgeting. Identify a particular international project that may be feasible, and estimate the cash flows and the initial investment associated with that project. Apply a capital budgeting analysis in order to determine whether the proposed project is feasible (as explained in Chapter 14).

International Corporate Control. Assess existing corporate control within the firm and potential corporate control targets in foreign countries that could be acquired. Apply capital budgeting analysis of corporate control candidates and to any existing subsidiaries that could be sold (as explained in Chapter 15).

Country Risk Analysis. Analyze the country risk of countries where the MNC presently does business as well as in countries where the MNC plans to expand. Incorporate any conclusions from the country risk analysis into the capital budgeting analysis for those proposed projects in which the country risk may affect cash flows or the cost of financing projects (as explained in Chapter 16).

Capital Structure. Assess the existing capital structure, and determine whether it is suitable based on the MNC's existing operations and its ability to repay debt. Estimate the cost of capital that could be obtained to finance new international projects, and incorporate that estimate within the capital budgeting analysis (as explained in Chapter 17).

Long-Term Financing. Consider sources of long-term funds in foreign countries. Determine whether to revise the financing in order to hedge exchange rate risk (match loan repayment currency with cash inflow currency) or to reduce the cost of capital (as explained in Chapter 18).

13-1d Measuring an MNC's Benefits of DFI

Multinational corporations consider the motives explained previously when identifying direct foreign investment opportunities. However, this is only the first step. Exhibit 13.2 shows a set of steps that MNCs use when they consider DFI. The steps are listed in an orderly manner, whereby each is covered in a particular chapter. Yet in reality, MNCs consider all of these steps simultaneously when determining how to expand or restructure existing international operations. They apply a multinational capital budgeting process to compare the benefits and costs of international projects (as explained in Chapter 14). This capital budgeting analysis commonly involves international restructuring (Chapter 15) and an assessment of risk characteristics in the country where the proposed projects are to be implemented (Chapter 16). It also requires an assessment of the cost of capital (Chapter 17) and debt financing possibilities (Chapter 18) in order to determine the required rate of return on any international projects that are considered.

13-2 Benefits of International Diversification

An international project can reduce a firm's overall risk as a result of international diversification benefits. The key to international diversification is selecting foreign projects whose performance levels are not highly correlated over time. In this way, the various international projects should not experience poor performance simultaneously.

EXAMPLE Merrimack Co., a U.S. firm, plans to invest in a new project in either the United States or the United Kingdom. Once the project is completed, it will constitute 30 percent of the firm's total funds invested in itself. The remaining 70 percent of its investment in its business is exclusively in the United States. Characteristics of the proposed project are forecasted for a five-year period for both a U.S. and a British location, as shown in Exhibit 13.3.

Merrimack Co. plans to assess the feasibility of each proposed project based on expected risk and return and using a five-year time horizon. Its expected annual after-tax return on investment

Exhibit 13.3 Evaluation of Proposed Projects in Alternative Locations

		CHARACTERISTICS OF PROPOSED PROJECT	
	EXISTING BUSINESS	IF LOCATED IN THE UNITED STATES	IF LOCATED IN THE UNITED KINGDOM
Mean expected annual return on investment (after taxes)	20%	25%	25%
Standard deviation of expected annual after-tax returns on investment	.10	.09	.11
Correlation of expected annual after-tax returns on investment with after-tax returns of prevailing U.S. business	—	.80	.02

on its prevailing business is 20 percent, and its variability of returns (as measured by the standard deviation) is expected to be .10. The firm can assess its expected overall performance based on developing the project in the United States and in the United Kingdom. In doing so, it is essentially comparing two portfolios. In the first portfolio, 70 percent of its total funds are invested in its prevailing U.S. business, with the remaining 30 percent invested in a new project located in the United States. In the second portfolio, again 70 percent of the firm's total funds are invested in its prevailing business, but the remaining 30 percent are invested in a new project located in the United Kingdom. Therefore, 70 percent of the portfolios' investments are identical. The difference is in the remaining 30 percent of funds invested.

If the new project is located in the United States, the firm's overall expected after-tax return (r_p) is:

r_p =	[(70%)	×	(20%)]	+	[(30%)	×	(25%)]	=	21.5%
	% of funds invested in prevailing business		Expected return on prevailing business		% of funds invested in new U.S. project		Expected return on new U.S. project		Firm's overall expected return

This computation is based on weighting the returns according to the percentage of total funds invested in each investment.

If the firm calculates its overall expected return with the new project located in the United Kingdom instead of the United States, the results are unchanged. This is because the new project's expected return is the same regardless of the country of location. Therefore, in terms of return, neither new project has an advantage.

With regard to risk, the new project is expected to exhibit slightly less variability in returns during the five-year period if it is located in the United States (see Exhibit 13.3). Since firms typically prefer more stable returns on their investments, this is an advantage. However, estimating the risk of the individual project without considering the overall firm would be a mistake. The expected correlation of the new project's returns with those of the prevailing business must also be considered. Recall that portfolio variance is determined by the individual variability of each component as well as their pairwise correlations. The variance of σ_P^2 a portfolio comprising just two investments (A and B) is computed as

$$\sigma_P^2 = w_A^2\sigma_A^2 + w_B^2\sigma_B^2 + 2w_Aw_B\sigma_A\sigma_B(\text{CORR}_{AB})$$

Here w_A and w_B represent the percentage of total funds allocated to investments A and B, respectively; σ_A and σ_B are the standard deviations of returns on investments A and B; and CORR_{AB} is the correlation coefficient of returns between investments A and B. This equation for portfolio variance can be applied to the problem at hand. The portfolio reflects the overall firm. First, compute the

overall firm's variance in returns while assuming it locates the new project in the United States (based on the information provided in Exhibit 13.3). This variance is

$$\begin{aligned}\sigma_p^2 &= (.70)^2(.10)^2 + (.30)^2(.09)^2 + 2(.70)(.30)(.10)(.09)(.80)\\ &= (.49)(.01) + (.09)(.0081) + .003024\\ &= .0049 + .000729 + .003024\\ &= .008653\end{aligned}$$

If Merrimack Co. decides to locate the new project in the United Kingdom instead of the United States, its overall variability in returns will be different because that project differs from the new U.S. project in terms of individual variability in returns and correlation with the prevailing business. The overall variability of the firm's returns based on locating the new project in the United Kingdom is estimated by the variance in portfolio returns:

$$\begin{aligned}\sigma_p^2 &= (.70)^2(.10)^2 + (.30)^2(.11)^2 + 2(.70)(.30)(.10)(.11)(.02)\\ &= (.49)(.01) + (.09)(.0121) + .0000924\\ &= .0049 + .001089 + .0000924\\ &= .0060814\end{aligned}$$

Thus, Merrimack will generate more stable returns if the new project is located in the United Kingdom. The firm's overall variability in returns is almost 29.7 percent less if the new project is located in the United Kingdom rather than in the United States.

The variability is reduced when locating in a foreign country because of the correlation between the new project's expected returns and the expected returns of the prevailing business. If the new project is located in Merrimack's home country (the United States), its returns are expected to be more highly correlated with those of the prevailing business than they would be if the project were located in the United Kingdom. When economic conditions of two countries (such as the United States and the United Kingdom) are not highly correlated, a firm may reduce its risk by diversifying its business in both countries instead of concentrating in just one. ●

WEB

www.trade.gov/mas
Outlook of international trade conditions for each of several industries.

13-2a Diversification Analysis of International Projects

Like any investor, an MNC with investments positioned around the world is concerned with the risk and return characteristics of the investments. The portfolio of all investments reflects the MNC in aggregate.

EXAMPLE

Virginia, Inc., considers a global strategy of developing projects as shown in Exhibit 13.4. Each point on the graph reflects a specific project that either has been implemented or is being considered. The return (vertical axis) may be measured by potential return on assets or return on equity. The risk (horizontal axis) may be measured by potential fluctuation in the returns generated by each project.

Exhibit 13.4 shows that Project A has the highest expected return of all the projects. Although Virginia, Inc., could devote most of its resources to this project in attempting to achieve such a high return, its risk may be too high to invest in this project exclusively. In addition, such a project may not be able to absorb all the available capital if its potential market for customers is limited. Virginia, Inc., therefore develops a portfolio of projects. By combining Project A with several other projects, the company may decrease its expected return; on the other hand, it may also reduce its risk substantially.

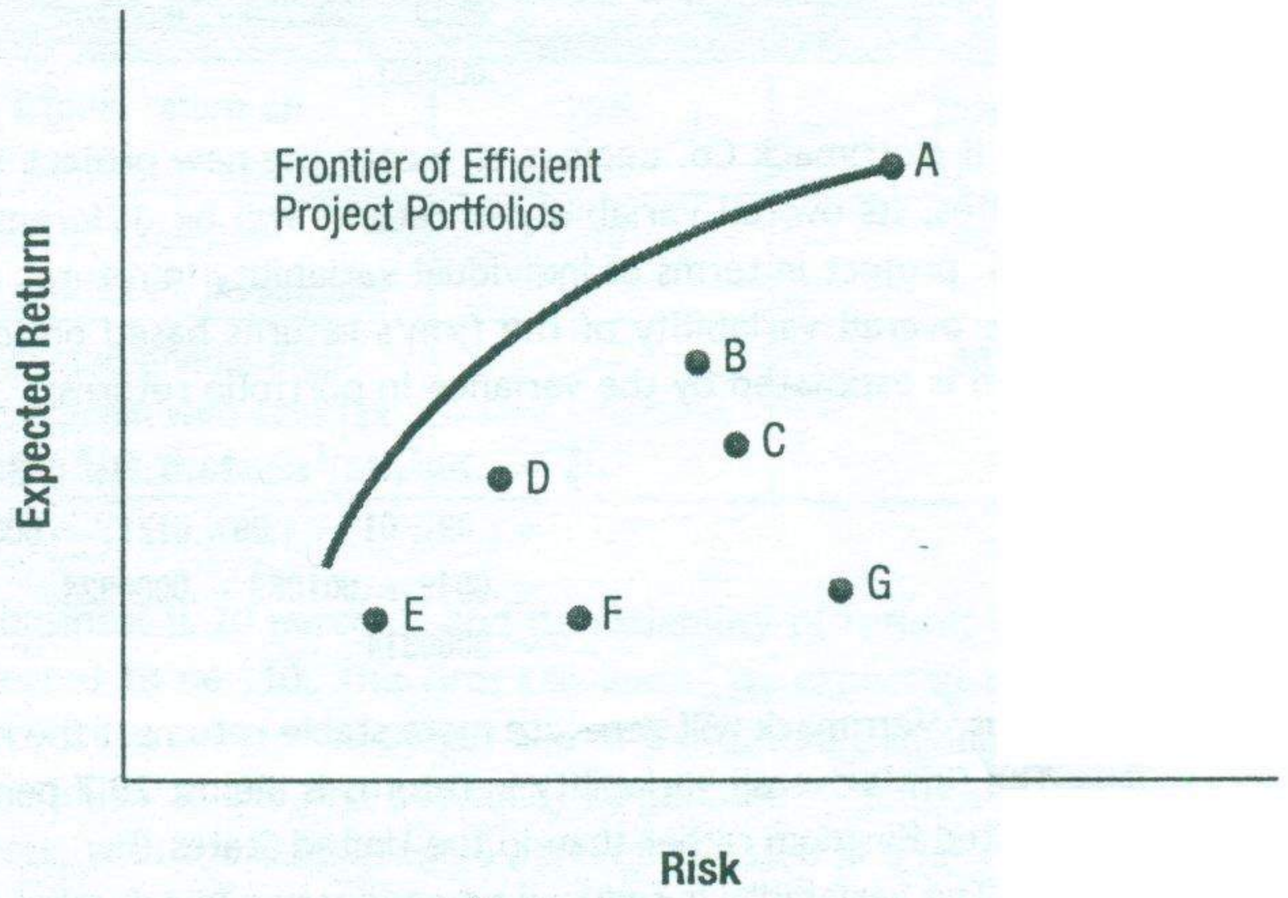
If Virginia, Inc., appropriately combines projects, then its project portfolio may be able to achieve the risk-return trade-off exhibited by any of the points on the curve in Exhibit 13.4. This curve represents a frontier of efficient project portfolios that exhibit desirable risk-return characteristics in that no single project could outperform any of these portfolios. The term *efficient* refers to a minimum risk for a given expected return. Project portfolios outperform the individual projects considered by Virginia, Inc., because of the diversification attributes discussed earlier. The lower (or more negative) the correlation in project returns over time, the lower will be the project portfolio risk. As new projects are proposed, the frontier of efficient project portfolios available to Virginia, Inc., may shift. ●

WEB

www.treasury.gov
Links to international information that should be considered by MNCs that are contemplating direct foreign investment.

Comparing Portfolios along the Frontier Along the frontier of efficient project portfolios, no portfolio can be singled out as "optimal" for all MNCs. This is because

Exhibit 13.4 Risk-Return Analysis of International Projects



MNCs vary in their willingness to accept risk. If the MNC is very conservative and has the choice of any portfolios represented by the frontier in Exhibit 13.4, it will probably prefer one that exhibits low risk (near the bottom of the frontier). In contrast, a more aggressive strategy would be to implement a portfolio of projects that exhibits risk–return characteristics such as those near the top of the frontier.

Comparing Frontiers among MNCs The actual location of the frontier of efficient project portfolios depends on the business in which the firm is involved. Some MNCs have frontiers of possible project portfolios that are more desirable than the frontiers of other MNCs.

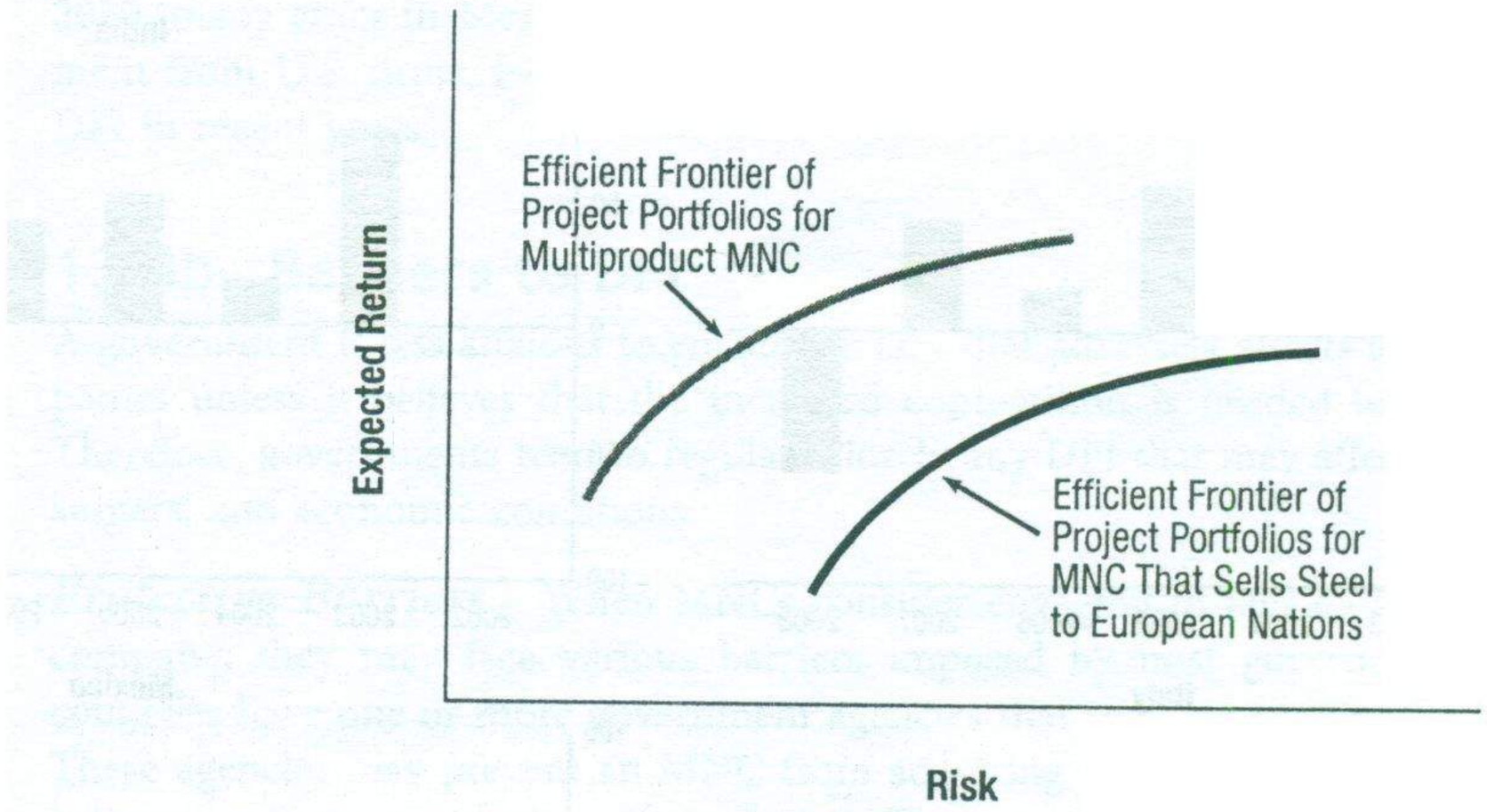
EXAMPLE Eurosteel, Inc., sells steel solely to European nations and is considering other related projects. Its frontier of efficient project portfolios exhibits considerable risk (because it sells just one product to countries whose economies move in tandem). In contrast, Global Products, Inc., which sells a wide range of products to countries all over the world, has a lower degree of project portfolio risk. Its frontier of efficient project portfolios is therefore closer to the vertical axis, as illustrated in Exhibit 13.5. Of course, this comparison assumes that Global Products, Inc., is knowledgeable about all of its products and the markets where it sells. ●

Our discussion suggests that MNCs can achieve more desirable risk–return characteristics from their project portfolios if they diversify sufficiently among products and geographic markets. This capacity also relates to the MNC's advantage over a purely domestic firm serving a strictly local market. The MNC may be able to develop a more efficient portfolio of projects than its domestic counterpart.

13-2b Diversification among Countries

Exhibit 13.6 shows how the stock market values of various countries have changed over time. A country's stock market value reflects the expectations of business opportunities and economic growth. Observe how the changes in stock market values vary among

Exhibit 13.5 Risk-Return Advantage of a Diversified MNC



countries, which suggests that business and economic conditions vary among countries. Therefore, when an MNC diversifies its business among countries rather than focusing on only one foreign country, it reduces its exposure to any single foreign country. However, since economic conditions are integrated among countries over time, the weakness of one country may spread to other countries. Notice that, during the financial crisis in 2008, all stock market levels in Exhibit 13.6 were weak, reflecting expectations of weak economic conditions in these countries. Thus, diversification across economies may be less effective when there are global economic conditions that adversely affect most countries.

13-3 Host Government Views of DFI

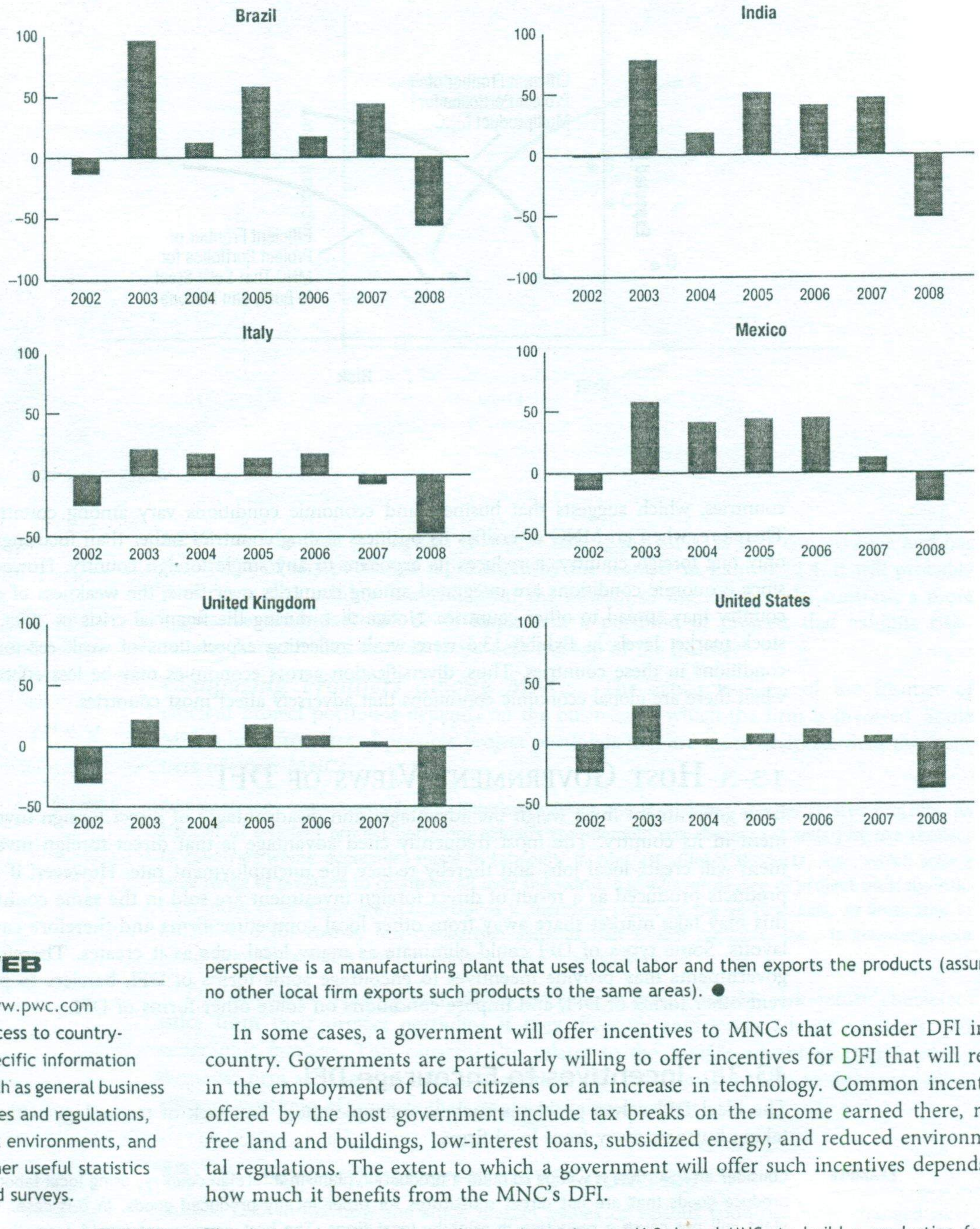
Each government must weigh the advantages and disadvantages of direct foreign investment in its country. The most frequently cited advantage is that direct foreign investment will create local jobs and thereby reduce the unemployment rate. However, if the products produced as a result of direct foreign investment are sold in the same country, this may take market share away from other local competitor firms and therefore cause layoffs. Some types of DFI could eliminate as many local jobs as it creates. Therefore, governments may provide incentives to encourage some forms of DFI, barriers to prevent other forms of DFI, and impose conditions on some other forms of DFI.

13-3a Incentives to Encourage DFI

The ideal DFI solves problems such as unemployment and lack of technology without taking business away from local firms.

EXAMPLE Consider an MNC that is willing to build a production plant in a foreign country, using local labor to produce goods that are not direct substitutes for other locally produced goods. In this case, the plant will not cause a reduction in sales by local firms. The host government would normally be receptive to this type of DFI. Another form of DFI that is desirable from the host government's

Exhibit 13.6 Comparison of Expected Economic Growth among Countries: Annual Stock Market Returns



WEB

www.pwc.com
Access to country-specific information such as general business rules and regulations, tax environments, and other useful statistics and surveys.

perspective is a manufacturing plant that uses local labor and then exports the products (assuming no other local firm exports such products to the same areas). ●

In some cases, a government will offer incentives to MNCs that consider DFI in its country. Governments are particularly willing to offer incentives for DFI that will result in the employment of local citizens or an increase in technology. Common incentives offered by the host government include tax breaks on the income earned there, rent-free land and buildings, low-interest loans, subsidized energy, and reduced environmental regulations. The extent to which a government will offer such incentives depends on how much it benefits from the MNC's DFI.

EXAMPLE The decision by Allied Research Associates, Inc., a U.S.-based MNC, to build a production facility and office in Belgium was highly motivated by Belgian government subsidies. The Belgian government

subsidized a large portion of the expenses incurred by Allied Research Associates and offered tax concessions and favorable interest rates on loans to Allied. ●

Many governments encourage DFI, and they use different types of incentives. France has periodically sold government land at a discount, whereas Finland and Ireland have attracted MNCs by imposing only a low corporate tax rate on specific businesses. In 2010, many cities in Mexico offered tax incentives to attract more direct foreign investment from U.S. firms. Ireland, Hungary, and Singapore have been successfully attracted DFI in recent years.

13-3b Barriers to DFI

A government is less anxious to encourage DFI that adversely affects locally owned companies unless it believes that the increased competition is needed to serve consumers. Therefore, governments tend to regulate closely any DFI that may affect local firms, consumers, and economic conditions.

Protective Barriers When MNCs consider engaging in DFI by acquiring a foreign company, they may face various barriers imposed by host government agencies. All countries have one or more government agencies that monitor mergers and acquisitions. These agencies may prevent an MNC from acquiring companies in their country if they believe it will attempt to lay off employees. They may even restrict foreign ownership of any local firms.

"Red Tape" Barriers An implicit barrier to DFI in some countries is the "red tape" involved, such as procedural and documentation requirements. An MNC pursuing DFI is subject to a different set of requirements in each country. Therefore, it is difficult for an MNC to become proficient at the process unless it concentrates on DFI within a single foreign country. The current efforts to make regulations uniform across Europe have simplified the process of acquiring European firms.

Industry Barriers The local firms of some industries in certain countries have substantial influence on the government and will likely use their influence to prevent competition from MNCs that attempt DFI. Multinational corporations that consider DFI need to recognize the influence that these local firms have on the local government.

Environmental Barriers Each country enforces its own environmental constraints. Some countries may enforce more of these restrictions on a subsidiary whose parent is based in a different country. Building codes, disposal of production waste materials, and pollution controls are examples of restrictions that force subsidiaries to incur additional costs. Many European countries have recently imposed tougher antipollution laws.

Regulatory Barriers Each country also enforces its own regulatory constraints pertaining to taxes, currency convertibility, earnings remittance, employee rights, and other policies that can affect cash flows of a subsidiary established there. Because these regulations can influence cash flows, financial managers must consider them when assessing policies. For example, Facebook has successfully expanded its service internationally. It would like to penetrate China, where the population exceeds 1.3 billion and there are about 500 million Internet users. The government of China grants online operating licenses yet can still restrict content and information. These restrictions have kept Facebook from penetrating China, which prevents the company from generating advertisement revenue there. Also, any change in a host country's regulations may require revision of existing financial policies, so financial managers should monitor those regulations to ensure the MNC's compliance.

Ethical Differences There is no consensus standard of business conduct that applies to all countries. A business practice that is perceived to be unethical in one country may be considered totally ethical in another. Most U.S.-based MNCs are well aware that certain business practices that are accepted in some less developed countries are illegal in the United States. For example, bribes to governments in order to receive special tax breaks or other favors are common in some countries.

The Securities and Exchange Commission has recently established a specialized unit to enforce the Foreign Corrupt Practices Act (FCPA). Some U.S.-based MNCs have recently been charged with violating the FCPA. The charges typically reflect illegal payments provided in order to pursue some types of international business. These MNCs would likely argue that they could not compete for specific international government contracts unless they offered bribes.

An MNC that does not engage in such practices may be at a competitive disadvantage when attempting DFI in some countries. Hence the firm may wish to forgo competing for some types of international business when it knows that illegal payments will be expected.

WEB

www.transparency.org
Offers extensive information about corruption in some countries.

Political Instability The governments of some countries may prevent DFI. If a country is susceptible to abrupt changes in government and political conflicts, the feasibility of DFI may depend on the outcome of those conflicts. Multinational corporations prefer to avoid direct investment in a foreign country whose government is likely to be removed after the DFI is made.

13-3c Government-Imposed Conditions on Engaging in DFI

Some governments allow international acquisitions but impose special requirements on MNCs that desire to acquire a local firm. For example, the MNC may be required to ensure pollution control for its manufacturing or to structure the business to export the products it produces so that it does not threaten the market share of other local firms. The MNC may even be required to retain all the employees of the target firm so that unemployment and general economic conditions in the country are not adversely affected.

EXAMPLE Mexico requires that a specified minimum proportion of parts used to produce automobiles there be made in Mexico. The proportion is lower for automobiles that are to be exported. Spain's government allowed Ford Motor Co. to set up production facilities in Spain only if it would abide by certain provisions, which included limiting Ford's local sales volume to 10 percent of the previous year's local automobile sales. In addition, two-thirds of the total volume of automobiles produced by Ford in Spain must be exported. The idea behind these provisions was to create jobs for workers in Spain without seriously affecting local competitors. Allowing a subsidiary that primarily exports its product achieved this objective. ●

Government-imposed conditions do not necessarily prevent an MNC from pursuing DFI in a specific foreign country, but they can be costly. Therefore, MNCs should not consider DFI that requires costly conditions unless the potential benefits outweigh the costs.

SUMMARY

- MNCs may be motivated to initiate direct foreign investment in order to attract new sources of demand or to enter markets where superior profits are possible. These two motives are normally based on opportunities to generate more revenue in foreign markets. Other motives for using DFI are typically related to cost efficiency, such as using foreign factors of production, raw materials, or technology. In addition MNCs may engage in DFI to protect their foreign market share, to react to exchange rate movements, or to avoid trade restrictions.

- International diversification is a common motive for direct foreign investment. It allows an MNC to reduce its exposure to domestic economic conditions. In this way, the MNC may be able to stabilize its cash flows and reduce its risk. Such a goal is desirable because it may reduce the firm's cost of financing. International projects may allow MNCs to achieve lower risk than is possible from only domestic projects without reducing their expected returns. International diversification tends to be better able to reduce risk when the DFI is targeted to countries whose economies are somewhat unrelated to an MNC's home country economy.

Point Counter-Point

Should MNCs Avoid DFI in Countries with Liberal Child Labor Laws?

Point Yes. An MNC should maintain its hiring standards, regardless of what country it is in. Even if a foreign country allows children to work, an MNC should not lower its standards. Although the MNC forgoes the use of low-cost labor, it maintains its global credibility.

Counter-Point No. An MNC will not only benefit its shareholders but also create employment for some children who need support. The MNC can provide reasonable working conditions and perhaps may even offer educational programs for its employees.

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. Offer some reasons why U.S. firms might prefer to engage in direct foreign investment (DFI) in Canada rather than Mexico.
2. Offer some reasons why U.S. firms might prefer to direct their DFI to Mexico rather than Canada.
3. One U.S. executive said that Europe was not considered as a location for DFI because of the euro's value. Interpret this statement.
4. Why do you think U.S. firms commonly use joint ventures as a strategy to enter China?
5. Why would the United States offer a foreign automobile manufacturer large incentives for establishing a production subsidiary in the United States? Isn't this strategy indirectly subsidizing the foreign competitors of U.S. firms?

Questions and Applications

1. **Motives for DFI** Describe some potential benefits to an MNC as a result of direct foreign investment (DFI). Elaborate on each type of benefit. Which motives for DFI do you think encouraged Nike to expand its footwear production in Latin America?

2. **Impact of a Weak Currency on Feasibility of DFI** Packer, Inc., a U.S. producer of computer disks, plans to establish a subsidiary in Mexico in order to penetrate the Mexican market. Packer's executives believe that the Mexican peso's value is relatively strong and will weaken against the dollar over time. If their expectations about the peso's value are correct, how will this affect the feasibility of the project? Explain.

3. **DFI to Achieve Economies of Scale** Bear Co. and Viking, Inc., are automobile manufacturers that desire to benefit from economies of scale. Bear Co. has decided to establish distributorship subsidiaries in various countries, while Viking, Inc., has decided to establish manufacturing subsidiaries in various countries. Which firm is more likely to benefit from economies of scale?

4. **DFI to Reduce Cash Flow Volatility** Raider Chemical Co. and Ram, Inc., had similar intentions to

reduce the volatility of their cash flows. Raider implemented a long-range plan to establish 40 percent of its business in Canada. Ram, Inc., implemented a long-range plan to establish 30 percent of its business in Europe and Asia, scattered among 12 different countries. Which company will more effectively reduce cash flow volatility once the plans are achieved?

5. Impact of Import Restrictions If the United States imposed long-term restrictions on imports, would the amount of DFI by non-U.S. MNCs in the United States increase, decrease, or be unchanged? Explain.

6. Capitalizing on Low-Cost Labor Some MNCs establish a manufacturing facility where there is a relatively low cost of labor, but they sometimes close the facility later because the cost advantage dissipates. Why do you think the relative cost advantage of these countries is reduced over time? (Ignore possible exchange rate effects.)

7. Opportunities in Less Developed Countries Offer your opinion on why economies of some less developed countries with strict restrictions on international trade and DFI are somewhat independent from economies of other countries. Why would MNCs desire to enter such countries? If these countries relaxed their restrictions, would their economies continue to be independent of other economies? Explain.

8. Effects of September 11 In August 2001, Ohio, Inc., considered establishing a manufacturing plant in central Asia, which would be used to cover its exports to Japan and Hong Kong. The cost of labor was very low in central Asia. On September 11, 2001, the terrorist attacks on the United States caused Ohio to reassess the potential cost savings. Why would the estimated expenses of the plant increase after the terrorist attacks?

9. DFI Strategy Bronco Corp. has decided to establish a subsidiary in Taiwan that will produce stereos and sell them there. It expects that its cost of producing these stereos will be one-third the cost of producing them in the United States. Assuming that its production cost estimates are accurate, is Bronco's strategy sensible? Explain.

10. Risk Resulting from International Business This chapter concentrates on possible benefits to a firm that increases its international business.

a. What are some risks of international business that may not exist for local business?

b. What does this chapter reveal about the relationship between an MNC's degree of international business and its risk?

11. Motives for DFI Starter Corp. of New Haven, Connecticut, produces sportswear that is licensed by professional sports teams. It recently decided to expand in Europe. What are the potential benefits for this firm from using DFI?

12. Disney's DFI Motives What potential benefits do you think were most important in the decision of the Walt Disney Co. to build a theme park in France?

13. DFI Strategy Once an MNC establishes a subsidiary, DFI remains an ongoing decision. What does this statement mean?

14. Host Government Incentives for DFI Why would foreign governments provide MNCs with incentives to undertake DFI there?

Advanced Questions

15. DFI Strategy JCPenney has recognized numerous opportunities to expand in foreign countries and has assessed many foreign markets, including Brazil, Greece, Mexico, Portugal, Singapore, and Thailand. It has opened new stores in Europe, Asia, and Latin America. In each case, the firm was aware that it did not have sufficient understanding of the culture of each country that it had targeted. Consequently, it engaged in joint ventures with local partners who knew the preferences of the local customers.

a. What comparative advantage does JCPenney have when establishing a store in a foreign country, relative to an independent variety store?

b. Why might the overall risk of JCPenney decrease or increase as a result of its recent global expansion?

c. JCPenney has been more cautious about entering China. Explain the potential obstacles associated with entering China.

16. DFI Location Decision Decko Co. is a U.S. firm with a Chinese subsidiary that produces cell phones in China and sells them in Japan. This subsidiary pays its wages and its rent in Chinese yuan, which is stable relative to the dollar. The cell phones sold to Japan are denominated in Japanese yen. Assume that Decko Co. expects that the Chinese yuan will continue to stay stable against the dollar. The subsidiary's main goal is to generate profits for itself and reinvest the profits. It does not plan to remit any funds to Decko, the U.S. parent.

a. Assume that the Japanese yen strengthens against the U.S. dollar over time. How would this be expected to affect the profits earned by the Chinese subsidiary?

b. If Decko Co. had established its subsidiary in Tokyo, Japan, instead of in China, would the subsidiary's profits be more exposed or less exposed to exchange rate risk?

c. Why do you think that Decko Co. established the subsidiary in China instead of Japan? Assume no major country risk barriers.

d. If the Chinese subsidiary needs to borrow money to finance its expansion and wants to reduce its exchange rate risk, should it borrow U.S. dollars, Chinese yuan, or Japanese yen?

17. Foreign Investment Decision Trak Co. (of the United States) presently serves as a distributor of products by purchasing them from other U.S. firms and selling them in Japan. It wants to purchase a manufacturer in India that could produce similar products at a low cost (due to low labor costs in India) and export the products to Japan. The operating expenses would be denominated in Indian rupees. The products would be invoiced in Japanese yen. If Trak Co. can acquire a manufacturer, it will discontinue its existing distributor business. If the yen is expected to appreciate against the dollar and the rupee is expected to depreciate against the dollar, how would this affect Trak's direct foreign investment?

18. Foreign Investment Strategy Myzo Co. (based in the United States) sells basic household products that many other U.S. firms produce at the same quality level, and these other U.S. firms have about the same production cost as Myzo. Myzo is considering direct foreign investment. It believes that the market in the United States is saturated and wants to pursue business in a foreign market where it can generate more revenue. It decides to create a subsidiary in Mexico that will produce household products and sell its products only in Mexico. This subsidiary would definitely not export its products to the United States because exports to the United States could reduce the parent's market share and Myzo wants to ensure that its U.S. employees remain employed. The labor costs in Mexico are very low. Myzo will comply with some international labor laws. By complying with the laws, the total costs of Myzo's subsidiary will be 20 percent higher than other Mexican producers of household products in Mexico that are of similar quality. However, Myzo's subsidiary will be able to produce household products at a cost that is 40 percent lower than its cost of producing household products in the United States. Briefly explain whether you think Myzo's strategy for direct foreign investment is feasible.

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 *International Financial Management* text companion website. Go to www.cengagebrain.com (students) or www.cengage.com/login (instructors) and search using **ISBN 9781133947837**.

Blades, Inc. Case

Consideration of Direct Foreign Investment

For the last year, Blades, Inc., has been exporting to Thailand in order to supplement its declining U.S. sales. Under the existing arrangement, Blades sells 180,000 pairs of roller blades annually to Entertainment Products, a Thai retailer, for a fixed price denominated in Thai baht. The agreement will last for another 2 years. Furthermore, to diversify internationally and to take advantage of an attractive offer by Jogs, Ltd., a British retailer, Blades has recently begun exporting to the United Kingdom. Under the resulting agreement, Jogs will purchase 200,000 pairs of Speedos, Blades' primary product, annually at a fixed price of £80 per pair.

Blades' suppliers of the needed components for its roller blade production are located primarily in the United States, where Blades incurs the majority of its cost of goods sold. Although prices for inputs needed to manufacture roller blades vary, recent costs have run approximately $70 per pair. Blades also imports components from Thailand because of the relatively low price of rubber and plastic components and because of their high quality. These imports are denominated in Thai baht, and the exact price (in baht) depends on prevailing market prices for these components in Thailand. Currently, inputs sufficient to manufacture a pair of roller blades cost approximately 3,000 Thai baht per pair of roller blades.

Although Thailand had been among the world's fastest growing economies, recent events in Thailand

have increased the level of economic uncertainty. Specifically, the Thai baht, which had been pegged to the dollar, is now a freely floating currency and has depreciated substantially in recent months. Furthermore, recent levels of inflation in Thailand have been very high. Hence, future economic conditions in Thailand are highly uncertain.

Ben Holt, Blades' chief financial officer (CFO), is seriously considering DFI in Thailand. He believes that this is a perfect time to either establish a subsidiary or acquire an existing business in Thailand because the uncertain economic conditions and the depreciation of the baht have substantially lowered the initial costs required for DFI. Holt believes the growth potential in Asia will be extremely high once the Thai economy stabilizes.

Although Holt has also considered DFI in the United Kingdom, he would prefer that Blades invest in Thailand as opposed to the United Kingdom. Forecasts indicate that the demand for roller blades in the United Kingdom is similar to that in the United States; since Blades' U.S. sales have recently declined because of the high prices it charges, Holt expects that DFI in the United Kingdom will yield similar results, especially since the components required to manufacture roller blades are more expensive in the United Kingdom than in the United States. Furthermore, both domestic and foreign roller blade manufacturers are relatively well established in the United Kingdom, so the growth potential there is limited. Holt believes the Thai roller blade market offers more growth potential.

Blades can sell its products at a lower price but generate higher profit margins in Thailand than it can in the United States. This is because the Thai customer has committed itself to purchase a fixed number of Blades' products annually only if it can purchase Speedos at a substantial discount from the U.S. price. Nevertheless, since the cost of goods sold incurred in Thailand is substantially below that incurred in the United States, Blades has managed to generate higher profit margins from its Thai exports and imports than in the United States.

As a financial analyst for Blades, Inc., you generally agree with Holt's assessment of the situation. However, you are concerned that Thai consumers have not been affected yet by the unfavorable economic conditions. You believe that they may reduce their spending on leisure products within the next year. Therefore, you think it would be beneficial to wait until next year, when the unfavorable economic conditions in Thailand may subside, to make a decision regarding DFI in Thailand. However, if economic conditions in Thailand improve over the next year, DFI may become more expensive both because target firms will be more expensive and because the baht may appreciate. You are also aware that several of Blades' U.S. competitors are considering expanding into Thailand in the next year.

If Blades acquires an existing business in Thailand or establishes a subsidiary there by the end of next year, it would fulfill its agreement with Entertainment Products for the subsequent year. The Thai retailer has expressed an interest in renewing the contractual agreement with Blades at that time if Blades establishes operations in Thailand. However, Holt believes that Blades could charge a higher price for its products if it establishes its own distribution channels.

Holt has asked you to answer the following questions:

1. Identify and discuss some of the benefits that Blades, Inc., could obtain from DFI.
2. Do you think Blades should wait until next year to undertake DFI in Thailand? What is the trade-off if Blades undertakes the DFI now?
3. Do you think Blades should renew its agreement with the Thai retailer for another 3 years? What is the trade-off if Blades renews the agreement?
4. Assume a high level of unemployment in Thailand and a unique production process employed by Blades, Inc. How do you think the Thai government would view the establishment of a subsidiary in Thailand by firms such as Blades? Do you think the Thai government would be more or less supportive if firms such as Blades acquired existing businesses in Thailand? Why?

Small Business Dilemma

Direct Foreign Investment Decision by the Sports Exports Company

Jim Logan's business, the Sports Exports Company, continues to grow. His primary product is the footballs he produces and exports to a distributor in the United Kingdom. However, his recent joint venture with a British firm has also been successful. Under this arrangement, a British firm produces other sporting goods for Logan's firm; these goods are then delivered to that distributor. Logan intentionally

started his international business by exporting because it was easier and cheaper to export than to establish a place of business in the United Kingdom. However, he is considering establishing a firm in the United Kingdom to produce the footballs there instead of in his garage (in the United States). This firm would also produce the other sporting goods that he now sells, so he would no longer have to rely on another British firm (through the joint venture) to produce those goods.

1. Given the information provided here, what are the advantages to Logan of establishing a firm in the United Kingdom?
2. Given the information provided here, what are the disadvantages to Logan of establishing a firm in the United Kingdom?

INTERNET/EXCEL EXERCISES

IBM has substantial operations in many countries, including the United States, Canada, and Germany. Go to finance.yahoo.com/q?s=ibm.

1. Click on Historical Prices. (Or apply this exercise to a different MNC.) Set the date range so that you can obtain quarterly values of the U.S. stock index for the last 20 quarters. Insert the quarterly data on a spreadsheet. Compute the percentage change in IBM's stock price for each quarter. Next go to finance.yahoo.com/intlindices?e=Americas and click (under "Americas") on ^GSPC, which represents the U.S. stock market index, so that you can derive the quarterly percentage change in the U.S. stock index over the last 20 quarters. Then run a regression analysis with IBM's quarterly return (percentage change in stock price) as the dependent variable and the quarterly percentage change in the U.S. stock market's value as the independent variable. (Appendix C explains how Excel can be used to run regression analysis.) The slope coefficient serves as an estimate of the sensitivity of IBM's value to the U.S. market returns. Also, check the fit of the relationship based on the *R*-squared statistic.
2. Go to finance.yahoo.com/intlindices?e=europe and click (under "Europe") on ^GDAXI, which represents the German stock market index. Repeat the process described in exercise 1 so that you can assess IBM's sensitivity to the German stock market. Compare the slope coefficient between the two analyses. Is IBM's value more sensitive to the U.S. market or the German market? Does the U.S. market or the German market explain a higher proportion of the variation in IBM's returns (check the R-squared statistic)? Offer an explanation of your results.

ONLINE ARTICLES WITH REAL-WORLD EXAMPLES

Find a recent article online that describes an actual international finance application or a real-world example about a specific MNC's actions that reinforces one or more of the concepts covered in this chapter.

If your class has an online component, your professor may ask you to post your summary there and provide the Web link of the article so that other students can access it. If your class is live, your professor may ask you to summarize your application in class. Your professor may assign specific students to complete this assignment for this chapter or may allow any students to do the assignment on a volunteer basis.

For recent online articles and real-world examples applied to this chapter, consider using the following search terms (and include the current year as a search term to ensure that the online articles are recent).

1. direct foreign investment AND motive
2. direct foreign investment AND production cost
3. direct foreign investment AND economies of scale
4. international expansion AND motive
5. international expansion AND production cost
6. international expansion AND economies of scale
7. direct foreign investment AND [name of an MNC]
8. direct foreign investment AND government incentives
9. direct foreign investment AND government barriers
10. direct foreign investment AND regulation

14 Multinational Capital Budgeting

CHAPTER OBJECTIVES

The specific objectives of this chapter are to:

- compare the capital budgeting analysis of an MNC's subsidiary versus its parent,
- demonstrate how multinational capital budgeting can be applied to determine whether an international project should be implemented,
- show how multinational capital budgeting can be adapted to account for special situations such as alternative exchange rate scenarios or when subsidiary financing is considered, and
- explain how the risk of international projects can be assessed.

Multinational corporations (MNCs) evaluate international projects by using multinational capital budgeting, which compares the benefits and costs of these projects. More specifically, MNCs determine whether an international project is feasible by comparing the present value of that project's expected future cash flows to the initial investment that would be necessary for that project. This type of evaluation for international projects is similar to the evaluation of domestic projects. However, special circumstances of international projects that affect the expected future cash flows or the discount rate used to discount cash flows make multinational capital budgeting more complex than domestic capital budgeting.

Given that many MNCs spend more than $100 million per year on international projects, multinational capital budgeting is a critical function. Many international projects are irreversible and cannot be easily sold to other corporations at a reasonable price. Financial managers must understand how to apply capital budgeting to international projects so they can maximize the value of the MNC. This chapter provides an overview of the capital budgeting process and identifies the type of information used.

14-1 Subsidiary versus Parent Perspective

Normally, multinational capital budgeting should be based on the parent's perspective. Some projects might be feasible for a subsidiary but not feasible for the parent, since net after-tax cash inflows to the subsidiary can differ substantially from those to the parent. Such differences in cash flows between the subsidiary versus parent can be due to several factors, some of which are discussed here.

14-1a Tax Differentials

If the earnings from the project will someday be remitted to the parent, then the MNC needs to consider how the parent's government taxes these earnings. If the parent's government imposes a high tax rate on the remitted funds, the project may be feasible from the subsidiary's point of view but not from the parent's point of view.

WEB

www.kpmg.com
Detailed information on the tax regimes, rates, and regulations of more than 75 countries.

14-1b Restrictions on Remitted Earnings

Host governments may impose restrictions on remitted earnings by subsidiaries. Consider a potential project to be implemented in a country where host government restrictions require that a percentage of the subsidiary earnings remain in the country. Since the parent may never have access to these funds, the project is not attractive to the parent although it may be attractive to the subsidiary.

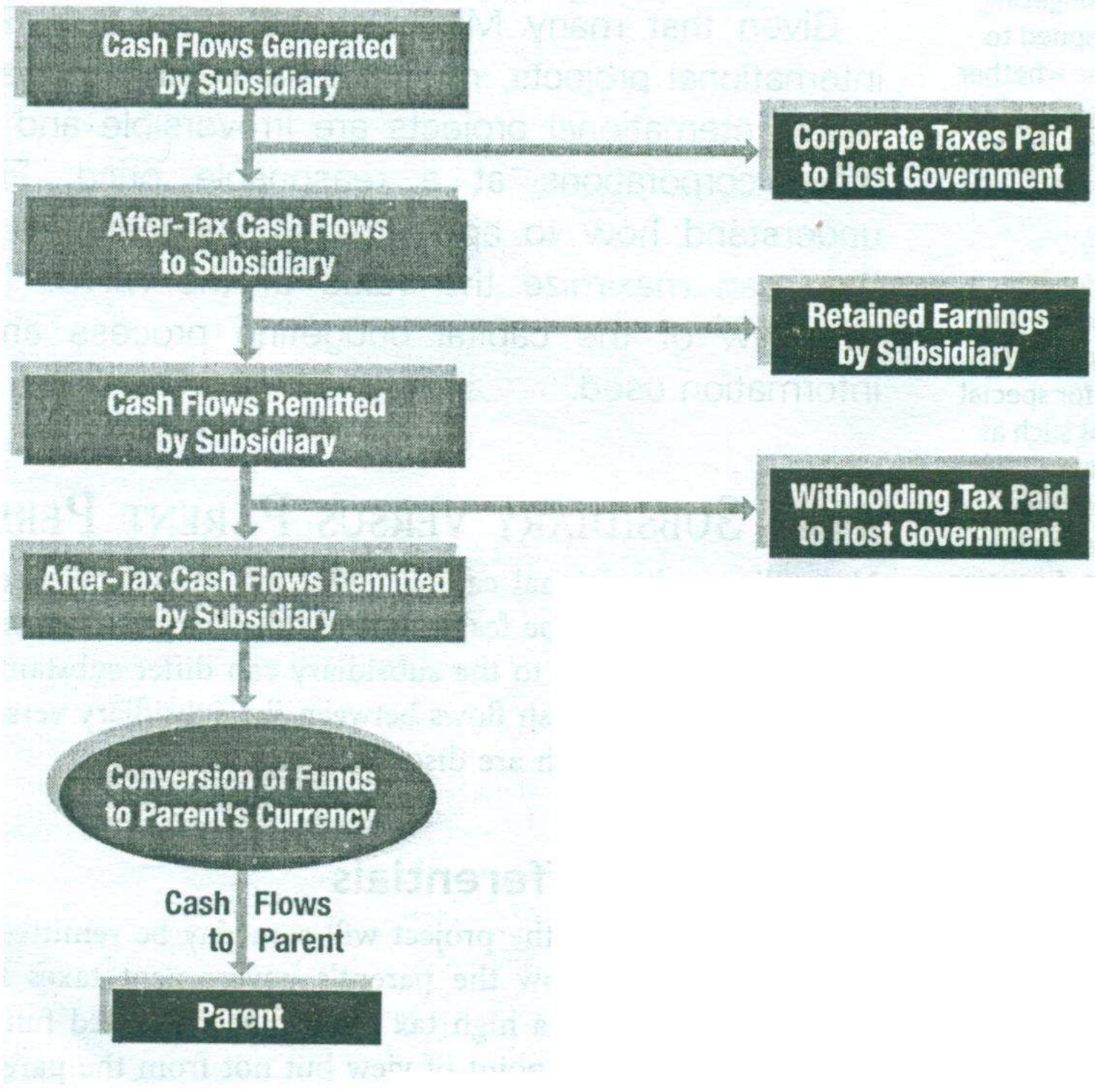
14-1c Exchange Rate Movements

When earnings are remitted to the parent, the amount received by the parent is influenced by the existing exchange rate. Therefore, a project that appears to be feasible to the subsidiary may not be feasible to the parent if the subsidiary's currency is expected to weaken substantially over time.

14-1d Summary of Factors

Exhibit 14.1 illustrates the process from the time earnings are generated by the subsidiary until the parent receives the remitted funds. The exhibit shows how the cash flows of the subsidiary may be reduced by the time they reach the parent. The subsidiary's earnings

Exhibit 14.1 Process of Remitting Subsidiary Earnings to the Parent



are reduced initially by corporate taxes paid to the host government. Then, some of the earnings are retained by the subsidiary (either by the subsidiary's choice or according to the host government's rules), with the residual targeted as funds to be remitted. Those funds that are remitted may be subject to a withholding tax by the host government. The remaining funds are converted to the parent's currency (at the prevailing exchange rate) and remitted to the parent.

Given the various factors shown here that can drain subsidiary earnings, the cash flows actually remitted by the subsidiary may represent only a small portion of the earnings it generates. The feasibility of the project from the parent's perspective depends not on the subsidiary's cash flows but on the cash flows that the parent ultimately receives.

The parent's perspective is appropriate in attempting to determine whether a project will enhance the firm's value. Given that the parent's shareholders are its owners, it should make decisions that satisfy its shareholders. Each project, whether foreign or domestic, should ultimately generate sufficient cash flows to the parent to enhance shareholder wealth. Any changes in the parent's expenses should also be included in the analysis. The parent may incur additional expenses for monitoring the new foreign subsidiary's management or consolidating the subsidiary's financial statements. Any project that can create a positive net present value for the parent should enhance shareholder wealth.

WEB

finance.yahoo.com/intlindices?u
Information on the recent performance of country stock indexes. This is sometimes used as a general indicator of economic conditions in various countries and may be considered by MNCs that assess the feasibility of foreign projects.

One exception to the rule of using a parent's perspective occurs when the foreign subsidiary is not wholly owned by the parent and the foreign project is partially financed with retained earnings of the parent and of the subsidiary. In this case, the foreign subsidiary has a group of shareholders that it must satisfy. Any arrangement made between the parent and the subsidiary should be acceptable to the two entities only if the arrangement enhances the values of both. The goal is to make decisions in the interests of both groups of shareholders and not to transfer wealth from one entity to another.

Although this exception occasionally occurs, most foreign subsidiaries of MNCs are wholly owned by the parents. Examples in this text implicitly assume that the subsidiary is wholly owned by the parent (unless noted otherwise) and therefore focus on the parent's perspective.

14-2 Input for Multinational Capital Budgeting

Capital budgeting for the MNC is necessary for all long-term projects that deserve consideration. The projects may range from a small expansion of a subsidiary division to the creation of a new subsidiary. Regardless of the long-term project to be considered, an MNC will normally require forecasts of the financial characteristics that influence the initial investment or cash flows of the project. Each of these characteristics is briefly described here:

1. *Initial investment.* The parent's initial investment in a project may constitute the major source of funds to support a particular project. Funds initially invested in a project may include not only what is necessary to start the project but also additional funds, such as working capital, to support the project over time. Such funds are needed to finance inventory, wages, and other expenses until the project begins to generate revenue. Because cash inflows will not always be sufficient to cover upcoming cash outflows, working capital is needed throughout a project's lifetime.
2. *Price and consumer demand.* The price at which the product could be sold can be forecast using competitive products in the markets as a comparison. The future prices will most likely be responsive to the future inflation rate in the host country (where the project is to take place), but the future inflation rate is not known.

Thus, future inflation rates must be forecast in order to develop projections of the product price over time.

When projecting a cash flow schedule, an accurate forecast of consumer demand for a product is quite valuable. The future demand is usually influenced by economic conditions, which are uncertain.

3. *Costs.* Variable-cost forecasts can be developed from comparative costs of the components (such as hourly labor costs and the cost of materials). Such costs should normally move in tandem with the future inflation rate of the host country. Even if the variable cost per unit can be accurately predicted, the projected total variable cost (variable cost per unit times quantity produced) may be wrong if the consumer demand is inaccurately forecast.

   Fixed costs are expenses that are not affected by consumer demand, so they can be estimated without an estimate of that demand. Rent or leasing expense is an example of a fixed cost. On a periodic basis, the fixed cost may be easier to predict than the variable cost. It is, however, sensitive to any change in the host country's inflation rate from the time the forecast is made until the time the fixed costs are incurred.
4. *Tax laws.* The tax laws on earnings generated by a foreign subsidiary or remitted to the MNC's parent vary among countries (see the chapter appendix for more details). Because after-tax cash flows are necessary for an adequate capital budgeting analysis, international tax effects must be considered when assessing the feasibility of any proposed foreign projects.
5. *Remitted funds.* The MNC's policy for remitting funds to the parent is relevant input because it influences the estimated cash flows generated by a foreign project that will be remitted to the parent each period. In some cases, a host government will prevent a subsidiary from remitting its earnings to the parent. If the parent is aware of these restrictions, it can incorporate them when projecting net cash flows.
6. *Exchange rates.* Any international project will be affected by exchange rate fluctuations during the life of the project, but these movements are usually difficult to forecast. Although it is possible to hedge foreign currency cash flows, there is normally much uncertainty surrounding the amount of those flows.
7. *Salvage (liquidation) value.* The after-tax salvage value of most projects will depend on several factors, including the success of the project and the attitude of the host government toward the project. Some projects have indefinite lifetimes that can be difficult to assess; other projects have designated specific lifetimes, following which they will be liquidated. This makes the capital budgeting analysis easier to apply. The MNC does not always have complete control over the lifetime decision. In some cases, political events may force the firm to liquidate the project earlier than planned. The probability that such events will occur varies among countries.

WEB

www.weforum.org
Information on global competitiveness and other details of interest to MNCs that implement projects in foreign countries.

8. *Required rate of return.* Once the relevant cash flows of a proposed project are estimated, they can be discounted at the project's required rate of return. The MNC should first estimate its cost of capital, after which it can derive its required rate of return on a project based on the risk of that project. If a particular project has higher risk than other operations of the MNC, then the required return on that project should be higher than the MNC's cost of capital. The manner by which an MNC determines its cost of capital is discussed in Chapter 17.

The challenge of multinational capital budgeting is to accurately forecast the financial variables just described that are used to estimate cash flows. If garbage (inaccurate forecasts) is input into a capital budgeting analysis, then the output of an analysis will also be garbage. Consequently, an MNC may take on a project by mistake. Because such a mistake may cost millions of dollars, MNCs need to assess the degree of uncertainty for

any input that is used in the project evaluation. This is discussed more thoroughly later in this chapter.

14-3 Multinational Capital Budgeting Example

This section illustrates how multinational capital budgeting can be applied. It begins with assumptions that simplify the capital budgeting analysis. Then, additional considerations are introduced to emphasize the potential complexity of such an analysis.

14-3a Background

Spartan, Inc., is considering the development of a subsidiary in Singapore that would manufacture and sell tennis rackets locally. Spartan's financial managers have asked the manufacturing, marketing, and financial departments to provide them with relevant input so they can apply a capital budgeting analysis to this project. In addition, some Spartan executives have met with government officials in Singapore to discuss the proposed subsidiary. The project would end in four years. All relevant information follows.

1. *Initial investment.* The project would require an initial investment of 20 million Singapore dollars (S$), which includes funds to support working capital. Given the existing spot rate of $.50 per Singapore dollar, the U.S. dollar amount of the parent's initial investment is S$20 million × $.50 = $10 million.
2. *Price and consumer demand.* The estimated price and demand schedules during each of the next 4 years are shown here:

	YEAR 1	YEAR 2	YEAR 3	YEAR 4
Price per tennis racket	S$350	S$350	S$360	S$380
Demand in Singapore	60,000 units	60,000 units	100,000 units	100,000 units

3. *Costs.* The variable costs (for materials, labor, etc.) per unit have been estimated and consolidated as shown here:

	YEAR 1	YEAR 2	YEAR 3	YEAR 4
Variable costs per tennis racket	S$200	S$200	S$250	S$260

The expense of leasing extra office space is S$1 million per year. Other annual overhead expenses are expected to be S$1 million per year.

4. *Tax Laws.* The Singapore government will allow Spartan's subsidiary to depreciate the cost of the plant and equipment at a maximum rate of S$2 million per year, which is the rate the subsidiary will use.

The Singapore government will impose a 20 percent tax rate on income. In addition, it will impose a 10 percent withholding tax on any funds remitted by the subsidiary to the parent.

The U.S. government will allow a tax credit on taxes paid in Singapore; therefore, earnings remitted to the U.S. parent will not be taxed by the U.S. government.

5. *Remitted funds.* The Spartan subsidiary plans to send all net cash flows received back to the parent firm at the end of each year. The Singapore government promises no restrictions on the cash flows to be sent back to the parent firm but does impose a 10 percent withholding tax on any funds sent to the parent, as mentioned previously.

6. *Exchange rates.* The spot exchange rate of the Singapore dollar is $.50. Spartan uses the spot rate as its forecast for all future periods.
7. *Salvage value.* The Singapore government will pay the parent S$12 million to assume ownership of the subsidiary at the end of four years. Assume that there is no capital gains tax on the sale of the subsidiary.
8. *Required rate of return.* Spartan, Inc., requires a 15 percent return on this project.

14-3b Analysis

The capital budgeting analysis will be conducted from the parent's perspective and be based on the assumption that the subsidiary would be wholly owned by the parent and be created to enhance the parent's value. Thus, Spartan, Inc., will approve this proposed project only if the present value of estimated future cash flows (including the salvage value) to be received by the parent exceeds the parent's initial outlay.

The capital budgeting analysis to determine whether Spartan, Inc., should establish the subsidiary is provided in Exhibit 14.2 (review this exhibit as you read on). The first step is to incorporate demand and price estimates in order to forecast total revenue earned by the subsidiary (see lines 1 through 3). Then, the expenses incurred by the subsidiary are summed up to forecast total expenses (see lines 4 through 9). Next, before-tax earnings are computed (in line 10) by subtracting total expenses from total revenues. Host government taxes (line 11) are then deducted from before-tax earnings to determine after-tax earnings for the subsidiary (line 12).

Exhibit 14.2 Capital Budgeting Analysis: Spartan, Inc.

		YEAR 0	YEAR 1	YEAR 2	YEAR 3	YEAR 4
1.	Demand		60,000	60,000	100,000	100,000
2.	Price per unit		S$350	S$350	S$360	S$380
3.	Total revenue = (1) × (2)		S$21,000,000	S$21,000,000	S$36,000,000	S$38,000,000
4.	Variable cost per unit		S$200	S$200	S$250	S$260
5.	Total variable cost = (1) × (4)		S$12,000,000	S$12,000,000	S$25,000,000	S$26,000,000
6.	Annual lease expense		S$1,000,000	S$1,000,000	S$1,000,000	S$1,000,000
7.	Other fixed annual expenses		S$1,000,000	S$1,000,000	S$1,000,000	S$1,000,000
8.	Noncash expense (depreciation)		S$2,000,000	S$2,000,000	S$2,000,000	S$2,000,000
9.	Total expenses = (5) + (6) + (7) + (8)		S$16,000,000	S$16,000,000	S$29,000,000	S$30,000,000
10.	Before-tax earnings of subsidiary = (3) − (9)		S$5,000,000	S$5,000,000	S$7,000,000	S$8,000,000
11.	Host government tax (20%)		S$1,000,000	S$1,000,000	S$1,400,000	S$1,600,000
12.	After-tax earnings of subsidiary		S$4,000,000	S$4,000,000	S$5,600,000	S$6,400,000
13.	Net cash flow to subsidiary = (12) + (8)		S$6,000,000	S$6,000,000	S$7,600,000	S$8,400,000
14.	S$ remitted by subsidiary (100% of net cash flow)		S$6,000,000	S$6,000,000	S$7,600,000	S$8,400,000
15.	Withholding tax on remitted funds (10%)		S$600,000	S$600,000	S$760,000	S$840,000
16.	S$ remitted after withholding taxes		S$5,400,000	S$5,400,000	S$6,840,000	S$7,560,000
17.	Salvage value					S$12,000,000
18.	Exchange rate of S$		$.50	$.50	$.50	$.50
19.	Cash flows to parent		$2,700,000	$2,700,000	$3,420,000	$9,780,000
20.	PV of parent cash flows (15% discount rate)		$2,347,826	$2,041,588	$2,248,706	$5,591,747
21.	Initial investment by parent	$10,000,000				
22.	Cumulative NPV		−$7,652,174	−$5,610,586	−$3,361,880	$2,229,867

The depreciation expense is added to the after-tax subsidiary earnings to compute the net cash flow to the subsidiary (line 13). The remitted cash flows are shown in line 14. Because all after-tax earnings are to be remitted by the subsidiary in this example, line 14 is the same as line 13. The subsidiary can afford to send all net cash flow to the parent because the initial investment provided by the parent includes working capital. The funds remitted to the parent (line 14) are subject to a 10 percent withholding tax (line 15), so the actual amount of funds to be sent after these taxes is shown in line 16. The salvage value of the project is shown in line 17. The funds to be remitted must first be converted into dollars at the exchange rate (line 18) existing at that time. The parent's cash flow (in U.S. dollars) from the subsidiary is shown in line 19. The periodic funds received from the subsidiary are not subject to U.S. corporate taxes because it was assumed that the parent would receive credit for the taxes paid in Singapore.

Calculation of Net Present Value The net present value (NPV) of the project is estimated as the present value of the net cash flows to the parent as a result of the project less the initial outlay for the project, as shown here:

$$NPV = -IO + \sum_{t=1}^{n} \frac{CF_t}{(1+k)^t} + \frac{SV_n}{(1+k)^n}$$

where

IO = initial outlay (investment)
CF_t = cash flow in period t
SV_n = salvage value
k = required rate of return on the project
n = lifetime of the project (number of periods)

The net cash flow per period (line 19) is discounted at the required rate of return (15 percent in this example) to derive the present value (PV) of each period's net cash flow (line 20). Finally, the cumulative NPV (line 22) is determined by consolidating the discounted cash flows for each period and then subtracting the initial investment (in line 21). At the end of year 2, the cumulative NPV was −$5,610,586. This amount was determined by consolidating the $2,347,826 in year 1 and the $2,041,588 in year 2 and then subtracting the initial investment of $10,000,000. The cumulative NPV in each period measures how much of the initial outlay has been recovered up to that point by the receipt of discounted cash flows. Thus, it can be used to estimate how many periods it will take to recover the initial outlay. For some projects, the cumulative NPV remains negative in all periods, which means that the initial outlay is never fully recovered.

The critical value in line 22 is in the last period because it reflects the NPV of the project. In our example, the cumulative NPV at the end of the last period is $2,229,867. Because the NPV is positive, Spartan, Inc., may accept this project if the discount rate of 15 percent has fully accounted for the project's risk. If the analysis has not yet accounted for risk, however, then Spartan may decide to reject the project. The way an MNC can account for risk in capital budgeting is discussed shortly.

14-4 Other Factors to Consider

The example of Spartan, Inc., ignored a variety of factors that may affect the capital budgeting analysis, such as:

- exchange rate fluctuations,
- inflation,

- financing arrangement,
- blocked funds,
- uncertain salvage value,
- impact of project on prevailing cash flows,
- host government incentives, and
- real options

Each of these factors will be discussed in turn.

14-4a Exchange Rate Fluctuations

Recall that Spartan, Inc., uses the Singapore dollar's current spot rate ($.50) as a forecast for all future periods of concern. The company realizes that the exchange rate will typically change over time, but it does not know whether the Singapore dollar will strengthen or weaken in the future. Although the difficulty of accurately forecasting exchange rates is well known, a multinational capital budgeting analysis could at least incorporate other scenarios for exchange rate movements, such as a pessimistic scenario and an optimistic scenario. From the parent's point of view, an appreciation of the Singapore dollar would be favorable because the earnings received by the subsidiary and remitted to the parent would be converted to more U.S. dollars. Conversely, a depreciation would be unfavorable because the earnings received by the subsidiary and remitted to the parent would be converted to fewer U.S. dollars.

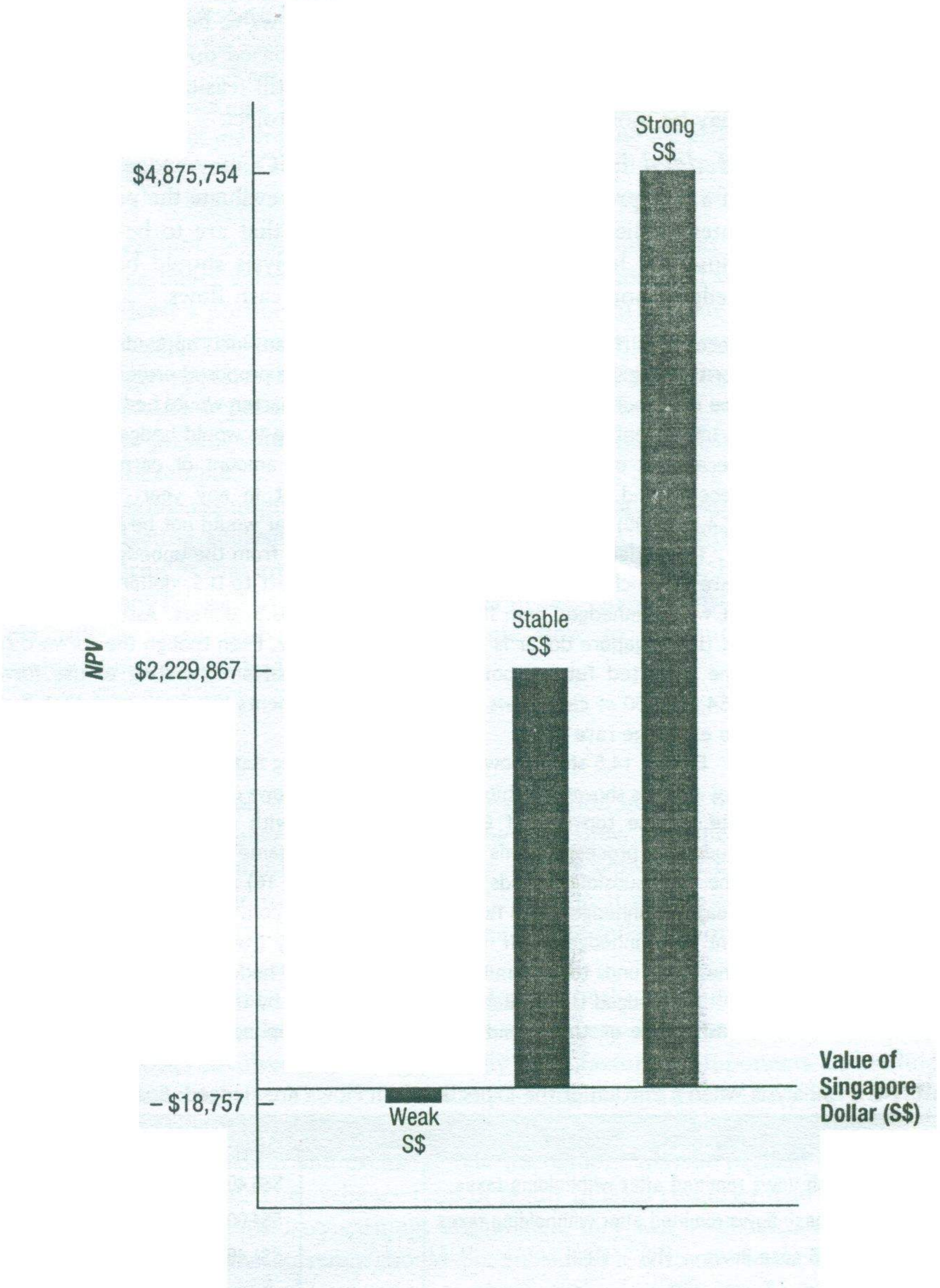
Exhibit 14.3 illustrates both a weak Singapore dollar (weak-S$) scenario and a strong Singapore dollar (strong-S$) scenario. The top row of the table shows the anticipated after-tax Singapore dollar cash flows (including salvage value) for the subsidiary from lines 16 and 17 in Exhibit 14.2. The amount in U.S. dollars to which these Singapore dollars convert depends on the exchange rates prevailing in the various periods when they are converted. The number of Singapore dollars multiplied by the forecasted exchange rate will determine the estimated number of U.S. dollars received by the parent.

Observe from Exhibit 14.3 how the cash flows received by the parent differ depending on the scenario. A strong Singapore dollar is clearly beneficial, as indicated by the increased U.S. dollar value of the cash flows received. The NPV forecasts based on projections for

Exhibit 14.3 Analysis Using Different Exchange Rate Scenarios: Spartan, Inc.

	YEAR 0	YEAR 1	YEAR 2	YEAR 3	YEAR 4
S$ remitted after withholding taxes (including salvage value)		S$5,400,000	S$5,400,000	S$6,840,000	S$19,560,000
Strong-S$ Scenario					
Exchange rate of S$		$.54	$.57	$.61	$.65
Cash flows to parent		$2,916,000	$3,078,000	$4,172,400	$12,714,000
PV of cash flows (15% discount rate)		$2,535,652	$2,327,410	$2,743,421	$7,269,271
Initial investment by parent	$10,000,000				
Cumulative NPV		–$7,464,348	–$5,136,938	–$2,393,517	$4,875,754
Wealc-S$ Scenario					
Exchange rate of S$		$.47	$.45	$.40	$.37
Cash flows to parent		$2,538,000	$2,430,000	$2,736,000	$7,237,200
PV of cash flows (15% discount rate)		$2,206,957	$1,837,429	$1,798,964	$4,137,893
Initial investment by parent	$10,000,000				
Cumulative NPV		–$7,793,043	–$5,955,614	–$4,156,650	–$18,757

Exhibit 14.4 Sensitivity of the Project's NPV to Different Exchange Rate Scenarios: Spartan, Inc.



exchange rates are illustrated in Exhibit 14.4. The estimated NPV is negative for the weak-S$ scenario but positive for the stable-S$ and strong-S$ scenarios. Thus, the feasibility of this project's depends on the probability distribution of these three scenarios for the Singapore dollar during the project's lifetime. If there is a high probability that the weak-S$ scenario will occur, then this project should not be accepted.

Exchange Rates Tied to Parent Currency Some U.S.-based MNCs consider projects in countries where the local currency is tied to the dollar. They may conduct a

capital budgeting analysis that presumes the exchange rate will remain fixed. It is possible, however, that the local currency will be devalued at some point in the future, which could have a major impact on the cash flows to be received by the parent. Therefore, the MNC may reestimate the project's NPV based on a particular devaluation scenario that it believes might occur. If the project is still feasible under this scenario, then the MNC may be more comfortable pursuing the project.

Hedged Exchange Rates Some MNCs may hedge some of the expected cash flows of a new project. In this case, they should evaluate the project based on hedged exchange rates applied to the expected cash flows that are to be hedged. The following example illustrates how the capital budgeting analysis should be changed if the MNC plans to hedge a portion of the project's expected cash flows.

EXAMPLE Reconsider the original example in which Spartan, Inc., applied an expected future spot rate of $.50 for the Singapore dollar for all four years of the proposed project. However, assume that because of the uncertainty of the Singapore dollar (S$), Spartan would hedge some of its expected cash flows if it implements the project. Specifically, assume it would hedge cash flows of S$4,000,000 per year because it expects that this is the minimum amount of earnings that the new subsidiary would receive and be able to remit to the parent in any year. Any additional cash flows (beyond S$4,000,000) received by the subsidiary per year would not be hedged.

The hedged cash flows should be separated from the unhedged cash flows because the exchange rate at which the hedged cash flows will convert to U.S. dollars may differ from the exchange rate at which unhedged cash flows will convert to U.S. dollars. Assume that the prevailing forward rate of the Singapore dollar is $.48 for any maturity. Even though the forward rate is slightly lower than the expected future spot rate of the S$, Spartan is willing to use forward contracts to hedge S$4,000,000 of cash flows per year if it implements this project so that it could reduce its exposure to exchange rate risk.

Exhibit 14.5 shows how the capital budgeting analysis of this example would differ from the original analysis shown in Exhibit 14.2. The first 16 rows of that exhibit are not affected by this new example, so the top row of Exhibit 14.5 begins with row (16) pulled from Exhibit 14.2. The capital budgeting process for this new example is the same as the process shown in Exhibit 14.2 except that the total subsidiary funds to be remitted (row 16) are first segmented into hedged cash flows (row 16a) and unhedged cash flows (row 16b) before conversion into U.S. dollar cash flows for the U.S. parent. The unhedged cash flows of the subsidiary (row 16b) are estimated as the difference between the total funds to be remitted (row 16) and the hedged cash flows of the subsidiary (row 16a).

The hedged U.S. dollar cash flows received by the parent (row 19a) are estimated as the hedged cash flows of the subsidiary (row 16a) multiplied by the forward rate of the Singapore dollar

Exhibit 14.5 Analysis When a Portion of the Expected Cash Flows Are Hedged: Spartan, Inc.

			YEAR 1	YEAR 2	YEAR 3	YEAR 4
16.	Total S$ cash flows remitted after withholding taxes		S$5,400,000	S$5,400,000	S$5,400,000	S$5,400,000
16a.	Hedged S$ cash flows remitted after withholding taxes		S$4,000,000	S$4,000,000	S$4,000,000	S$4,000,000
16b.	Unhedged S$ cash flows = (16) − (16a)		S$1,400,000	S$1,400,000	S$1,40,000	S$13,400,000
17.	Salvage value					S$12,000,000
18a.	Forward rate of S$		$.48	$.48	$.48	$.48
18b.	Expected future spot rate of S$		$.50	$.50	$.50	$.50
19a.	Hedged cash flows to parent = (16a) × (18a)		$1,920,000	$1,920,000	$1,920,000	$1,920,000
19b.	Unhedged cash flows to parent = (16b) × (18b)		$700,000	$700,000	$700,000	$6,700,000
19c.	Total cash flows to parent = (19a) + (19b)		$2,620,000	$2,620,000	$2,620,000	$8,620,000
20.	PV of parent cash flows (based on 15% discount rate)		$2,278,261	$1,981,096	$1,722,692	$4,928,513
21.	Initial investment by parent	$10,000,000				
22.	Cumulative NPV		−$7,721,739	−$5,740,643	−$4,017,951	$910,562

(row 18a). The unhedged U.S. dollar cash flows (row 19b) are estimated as the unhedged cash flows of the subsidiary (row 16b) and the salvage value (row 17) multiplied by the expected future spot rate of the Singapore dollar (row 18b). The relatively large unhedged cash flows in year 4 shown in row 19b are due to the salvage value, which would not be hedged. The total U.S. dollar cash flows to the parent (row 19c) are the sum of the hedged U.S. dollar cash flows (row 19a) and unhedged U.S. dollar cash flows (row 19b). The present value of the proposed project in this new example is lower than it was for the original example in Exhibit 14.2 because the partial hedging strategy in this new example would cause some Singapore dollars to be converted into U.S. dollars at the forward rate, which is less than the expected future spot rate that was used in the original example. ●

In this example scenario, the payment for salvage value was not hedged. If Spartan knew with certainty when it was going to divest its subsidiary, it might seriously consider hedging at least a portion of the expected proceeds from the sale of the subsidiary.

The discount rate was not changed in this new example. However, it is possible that Spartan might apply a slightly lower discount rate in this example than in the original example because a portion of the project's future cash flows would be hedged. If so, then the net present value of the project in this example could be higher than it was in the original example.

The hedging assumptions used for this example are intended to illustrate how the capital budgeting analysis can be revised when an MNC plans to partially hedge future remitted earnings that are generated by an international project. However, these assumptions will not be used in any other examples in this chapter. Instead, the original example will be used and adapted to illustrate how to account for other factors in multinational capital budgeting.

14-4b Inflation

Capital budgeting analysis implicitly considers inflation because the variable cost per unit and product prices generally have been rising over time. In some countries, yearly inflation can be volatile and thus can strongly influence a project's net cash flows. In countries where the inflation rate is both high and volatile, it will be virtually impossible for a subsidiary to accurately forecast inflation. Inaccurate inflation forecasts can lead to inaccurate net cash flow forecasts.

Although fluctuations in inflation should affect both costs and revenues in the same direction, the magnitude of their changes may be very different. This is especially true when the project involves importing partially manufactured components and selling the finished product locally. The local economy's inflation will most likely have a stronger effect on revenues than on costs in such cases.

The effects of inflation and exchange rate fluctuations may be partially offsetting from the parent's viewpoint. The exchange rates of highly inflated countries tend to weaken over time. Thus, even if subsidiary earnings are inflated, they will be deflated when converted into the parent's home currency should the subsidiary's currency weaken because of its high inflation, as suggested by purchasing power parity (see Chapter 8). However, MNCs cannot count on exchange rate effects perfectly offsetting inflation effects in a host country. Therefore, MNCs should attempt to explicitly account for any effects on inflation by using proper estimates of future costs and prices charged as well as future exchange rates.

14-4c Financing Arrangement

Many foreign projects are partially financed by foreign subsidiaries. To illustrate how this foreign financing can influence a project's feasibility, consider the following revisions to the original example of Spartan, Inc.

Subsidiary Financing Assume that the subsidiary borrows S$10 million to purchase the offices that are leased in the initial example. Assume that the subsidiary will make interest payments on this loan (of S$1 million) annually and will pay the principal (S$10 million) at the end of year 4, when the project is terminated. Since the Singapore government permits a maximum of S$2 million per year in depreciation for this project, the subsidiary's depreciation rate will remain unchanged. Assume the offices are expected to be sold for S$10 million after taxes at the end of year 4.

Domestic capital budgeting problems would not include debt payments in the measurement of cash flows because all financing costs are captured by the discount rate. However, it is important to account for debt payments in multinational capital budgeting in order to accurately estimate the amount of cash flows that are ultimately remitted to the parent and converted into the parent's home currency. When a subsidiary uses a portion of its funds to pay interest expenses on its debt, the amount of funds to be converted into the parent currency would be overstated if the payment of foreign interest expenses is not explicitly considered. Given the revised assumptions in this new example, the following revisions must be made to the capital budgeting analysis.

1. Since the subsidiary is borrowing funds to purchase the offices, the lease payments of S$1 million per year will not be necessary. However, the subsidiary will pay interest of S$1 million per year as a result of the loan. Thus, the annual cash outflows for the subsidiary are still the same.
2. The subsidiary must pay the S$10 million in loan principal at the end of four years. However, since the subsidiary expects to receive S$10 million (in four years) from the sale of the offices that it purchases with the funds provided by the loan, it can use the proceeds of the sale to pay the loan principal.

Since the subsidiary has already taken the maximum depreciation expense allowed by the Singapore government before the offices were considered, it cannot increase its annual depreciation expenses. In this example, the cash flows ultimately received by the parent when the subsidiary obtains financing to purchase offices are similar to the cash flows determined in the original example (when the offices are to be leased). Therefore, the NPV under the condition of subsidiary financing is the same as the NPV in the original example. If the numbers were not offsetting, then the capital budgeting analysis would be repeated to determine whether the NPV from the parent's perspective is higher than in the original example.

Parent Financing Consider one more alternative arrangement in which, instead of the subsidiary leasing the offices or purchasing them with borrowed funds, the parent uses its own funds to purchase the offices. Thus, its initial investment is $15 million, which consists of the original $10 million investment as explained before plus an additional $5 million needed to obtain an extra S$10 million to purchase the offices. This example illustrates how the capital budgeting analysis changes when the parent takes a bigger stake in the investment. If the parent rather than the subsidiary purchases the offices, then the following revisions must be made to the capital budgeting analysis.

1. The subsidiary will not have any loan payments (since it will not need to borrow funds) because the parent will purchase the offices. Since the offices are to be purchased, there will be no lease payments, either.
2. The parent's initial investment is $15 million instead of $10 million.
3. The salvage value to be received by the parent is S$22 million instead of S$12 million because the offices are assumed to be sold for S$10 million after taxes at the end of year 4. The S$10 million to be received from selling the offices can be added to the S$12 million to be received from selling the rest of the subsidiary.

Exhibit 14.6 Analysis with an Alternative Financing Arrangement: Spartan, Inc.

			YEAR 0	YEAR 1	YEAR 2	YEAR 3	YEAR 4
1.	Demand			60,000	60,000	100,000	100,000
2.	Price per unit			S$350	S$350	S$360	S$380
3.	Total revenue = (1) × (2)			S$21,000,000	S$21,000,000	S$36,000,000	S$38,000,000
4.	Variable cost per unit			S$200	S$200	S$250	S$260
5.	Total variable cost = (1) × (4)			S$12,000,000	S$12,000,000	S$25,000,000	S$26,000,000
6.	Annual lease expense			[S$0]	[S$0]	[S$0]	[S$0]
7.	Other fixed annual expenses			S$1,000,000	S$1,000,000	S$1,000,000	S$1,000,000
8.	Noncash expense (depreciation)			S$2,000,000	S$2,000,000	S$2,000,000	S$2,000,000
9.	Total expenses = (5) + (6) + (7) + (8)			S$15,000,000	S$15,000,000	S$28,000,000	S$29,000,000
10.	Before-tax earnings of subsidiary = (3) − (9)			S$6,000,000	S$6,000,000	S$8,000,000	S$9,000,000
11.	Host government tax (20%)			S$1,200,000	S$1,200,000	S$1,600,000	S$1,800,000
12.	After-tax earnings of subsidiary			S$4,800,000	S$4,800,000	S$6,400,000	S$7,200,000
13.	Net cash flow to subsidiary = (12) + (8)			S$6,800,000	S$6,800,000	S$8,400,000	S$9,200,000
14.	S$ remitted by subsidiary (100% of S$)			S$6,800,000	S$6,800,000	S$8,400,000	S$9,200,000
15.	Withholding tax on remitted funds (10%)			S$680,000	S$680,000	S$840,000	S$920,000
16.	S$ remitted after withholding taxes			S$6,120,000	S$6,120,000	S$7,560,000	S$8,280,000
17.	Salvage value						[S$22,000,000]
18.	Exchange rate of S$			$.50	$.50	$.50	$.50
19.	Cash flows to parent			$3,060,000	$3,060,000	$3,780,000	$15,140,000
20.	PV of parent cash flows (15% discount rate)			$2,660,870	$2,313,800	$2,485,411	$8,656,344
21.	Initial investment by parent		[$15,000,000]				
22.	Cumulative NPV			−$12,339,130	−$10,025,330	−$7,539,919	$1,116,425

The capital budgeting analysis for Spartan, Inc., under this revised financing strategy in which the parent finances the entire $15 million investment is shown in Exhibit 14.6. This analysis uses our original exchange rate projections of $.50 per Singapore dollar for each period. The numbers that are directly affected by the revised financing arrangement are bracketed. Other numbers are also affected indirectly as a result. For example, the subsidiary's after-tax earnings increase as a result of avoiding interest or lease payments on its offices. The NPV of the project under this alternative financing arrangement is positive but less than in the original arrangement. Given the lower NPV, this arrangement is not as feasible as the arrangement in which the subsidiary either leases the offices or purchases them with borrowed funds.

Comparison of Parent and Subsidiary Financing One reason that the subsidiary financing is more feasible than complete parent financing is that the financing rate on the loan is lower than the parent's required rate of return on funds provided to the subsidiary. If local loans had a relatively high interest rate, however, then the use of local financing would likely not be as attractive.

In general, this revised example shows that the increased investment by the parent increases its exchange rate exposure for the following reasons. First, since the parent provides the entire investment, no foreign financing is required. Consequently, the subsidiary makes no interest payments and therefore remits larger cash flows to the parent. Second, the salvage value to be remitted to the parent is larger. Given the larger payments to the parent, the cash flows ultimately received by the parent are more susceptible to exchange rate movements.

The parent's exposure is not as large when the subsidiary purchases the offices because the subsidiary incurs some of the financing expenses. The subsidiary financing essentially shifts some of the expenses to the same currency that the subsidiary will receive as revenue, thereby reducing the amount of funds that will ultimately be converted into U.S. dollars for the parent.

Financing with Other Subsidiaries' Retained Earnings. Some foreign projects are completely financed with retained earnings of existing foreign subsidiaries. These projects are difficult to assess from the parent's perspective because their direct effects are normally felt by the subsidiaries. One approach is to view a subsidiary's investment in a project as an opportunity cost, since the funds could be remitted to the parent rather than invested in the foreign project. Thus, the initial outlay from the parent's perspective is the amount of funds it would have received from the subsidiary if the funds had been remitted rather than invested in this project. The cash flows from the parent's perspective reflect those cash flows ultimately received by the parent as a result of the foreign project.

Even if the project generates earnings for the subsidiary that are reinvested by the subsidiary, the key cash flows from the parent's perspective are those that it ultimately receives from the project. In this way, any international factors that will affect the cash flows (such as withholding taxes and exchange rate movements) are incorporated into the capital budgeting process.

14-4d Blocked Funds

In some cases, the host country may block funds that the subsidiary attempts to send to the parent. Some countries require that earnings generated by the subsidiary be reinvested locally for at least three years before they can be remitted. Such restrictions can affect the accept/reject decision on a project.

EXAMPLE

Reconsider the example of Spartan, Inc., but now assume that all funds are blocked until the subsidiary is sold. Thus, the subsidiary must reinvest those funds until that time. Blocked funds penalize a project if the return on the reinvested funds is less than the required rate of return on the project.

Suppose the subsidiary uses the funds to purchase marketable securities that are expected to yield 5 percent annually after taxes. A reevaluation of Spartan's cash flows (from Exhibit 14.2) to incorporate the blocked-funds restriction is shown in Exhibit 14.7. The withholding tax is not applied until the funds are remitted to the parent, which is in year 4. The original exchange rate projections are used here. All parent cash flows depend on the exchange rate four years from now. The NPV of the project with blocked funds is still positive, but it is substantially less than the NPV in the original example.

If the foreign subsidiary has a loan outstanding, then it may be able to better utilize the blocked funds by repaying the local loan. For example, the S$6 million at the end of year 1 could be used to reduce the outstanding loan balance instead of being invested in marketable securities, assuming that the lending bank allows early repayment. ●

There may be other situations that deserve to be considered in multinational capital budgeting, such as political conditions in the host country and restrictions that may be imposed by a country's host government. These country risk characteristics are discussed in more detail in Chapter 16.

14-4e Uncertain Salvage Value

The salvage value of an MNC's project typically has a significant impact on the project's NPV. When the salvage value is uncertain, the MNC may incorporate various possible outcomes for the salvage value and reestimate the NPV based on each possible outcome. It may even estimate the break-even salvage value (also called break-even termin

Exhibit 14.7 Capital Budgeting with Blocked Funds: Spartan, Inc.

	YEAR 0	YEAR 1	YEAR 2	YEAR 3	YEAR 4
S$ to be remitted by subsidiary		S$6,000,000	S$6,000,000	S$7,600,000	S$8,400,000
					S$7,980,000
S$ accumulated by reinvesting funds to be remitted					S$6,615,000 S$6,945,750 S$29,940,750
Withholding tax (10%)					S$2,994,075
S$ remitted after withholding tax					S$26,946,675
Salvage value					S$12,000,000
Exchange rate					$.50
Cash flows to parent					$19,473,338
PV of parent cash flows (15% discount rate)					$11,133,944
Initial investment by parent	$10,000,000				
Cumulative NPV		−$10,000,000	−$10,000,000	−$10,000,000	$1,133,944

value), which is the salvage value necessary to achieve a zero NPV for the project. If the actual salvage value is expected to equal or exceed the break-even salvage value, then the project is feasible. The break-even salvage value, SV_n, can be determined by setting NPV equal to 0 and then rearranging the capital budgeting equation:

$$NPV = -IO + \sum_{t=1}^{n} \frac{CF_t}{(1+k)^t} + \frac{SV_n}{(1+k)^n}$$

$$0 = -IO + \sum_{t=1}^{n} \frac{CF_t}{(1+k)^t} + \frac{SV_n}{(1+k)^n}$$

$$IO - \sum_{t=1}^{n} \frac{CF_t}{(1+k)^t} = \frac{SV_n}{(1+k)^n}$$

$$\left[IO - \sum_{t=1}^{n} \frac{CF_t}{(1+k)^t}\right](1+k)^n = SV_n$$

EXAMPLE Reconsider the Spartan, Inc., example and assume that Spartan is not guaranteed a price for the project. The break-even salvage value for the project can be determined by (1) estimating the present value of future cash flows (excluding the salvage value), (2) subtracting the discounted cash flows from the initial outlay, and (3) multiplying the difference by $(1 + k)n$. Using the original cash flow information from Exhibit 14.2, the present value of cash flows can be determined as follows:

$$\text{PV of parent cash flows} = \frac{\$2,700,000}{(1.15)^1} + \frac{\$2,700,000}{(1.15)^2} + \frac{\$3,420,000}{(1.15)^3} + \frac{\$3,780,000}{(1.15)^4}$$

$$= \$2,347,826 + \$2,041,588 + \$2,248,706 + \$2,161,227$$

$$= \$8,799,347$$

Given the present value of cash flows and the estimated initial outlay, the break-even salvage value is calculated as

$$SV_n = \left[10 - \sum \frac{CF_t}{(1+k)^t}\right](1+k)^n$$
$$= (\$10{,}000{,}000 - \$8{,}799{,}347)(1.15)^4$$
$$= \$2{,}099{,}950$$

Given the original information in Exhibit 14.2, Spartan, Inc., will accept the project only if the salvage value is estimated to be at least $2,099,950 (assuming that the project's required rate of return is 15 percent). ●

14-4f Impact of Project on Prevailing Cash Flows

Thus far, in our example, we have assumed that the new project has no impact on Spartan's prevailing cash flows. In reality, however, there may often be an impact.

EXAMPLE Reconsider the Spartan, Inc., example, assuming this time that (1) Spartan currently exports tennis rackets from its U.S. plant to Singapore; (2) Spartan, Inc., still considers establishing a subsidiary in Singapore because it expects production costs to be lower in Singapore than in the United States; and (3) without a subsidiary, Spartan's export business to Singapore is expected to generate net cash flows of $1 million over the next four years. With a subsidiary, these cash flows would be forgone. The effects of these assumptions are shown in Exhibit 14.8. The previously estimated cash flows to the parent from the subsidiary (drawn from Exhibit 14.2) are restated in Exhibit 14.8. These estimates do not account for forgone cash flows because the possible export business was not considered. If the export business is established, however, the forgone cash flows attributable to this business must be considered (as shown in Exhibit 14.8). The adjusted cash flows to the parent account for the project's impact on prevailing cash flows.

The present value of adjusted cash flows and cumulative NPV are also shown in Exhibit 14.8. The project's NPV is now negative as a result of the adverse effect on prevailing cash flows. Thus, the project will not be feasible if the exporting business is eliminated. ●

Some foreign projects may have a favorable impact on prevailing cash flows. For example, if a manufacturer of computer components establishes a foreign subsidiary to manufacture computers, the subsidiary might order the components from the parent. In this case, the sales volume of the parent would increase.

14-4g Host Government Incentives

Foreign projects proposed by MNCs may have a favorable impact on economic conditions in the host country and are therefore encouraged by the host government. Any incentives offered by the host government must be incorporated into the capital budgeting analysis.

Exhibit 14.8 Capital Budgeting When Prevailing Cash Flows Are Affected: Spartan, Inc.

	YEAR 0	YEAR 1	YEAR 2	YEAR 3	YEAR 4
Cash flows to parent, ignoring impact on prevailing cash flows		$2,700,000	$2,700,000	$3,420,000	$9,780,000
Impact of project on prevailing cash flows		−$1,000,000	−$1,000,000	−$1,000,000	−$1,000,000
Cash flows to parent, incorporating impact on prevailing cash flows		$1,700,000	$1,700,000	$2,420,000	$8,780,000
PV of cash flows to parent (15% discount rate)		$1,478,261	$1,285,444	$1,591,189	$5,019,994
Initial investment	$10,000,000				
Cumulative NPV		−$8,521,739	−$7,236,295	−$5,645,106	−$625,112

For example, a low-rate host government loan or a reduced tax rate offered to the subsidiary will enhance periodic cash flows. If the government subsidizes the initial establishment of the subsidiary, the MNC's initial investment will be reduced.

14-4h Real Options

A real option is an option on specified real assets such as machinery or a facility. Some capital budgeting projects contain real options in that they may allow opportunities to obtain or eliminate real assets. Since these opportunities can generate cash flows, they can enhance the value of a project.

EXAMPLE Reconsider the Spartan example and assume that the government in Singapore promised that, if Spartan established the subsidiary to produce tennis rackets in Singapore, then the company would be allowed to purchase some government buildings in the future at a discounted price. This offer does not directly affect the cash flows of the project that is presently being assessed, but it reflects an implicit call option that Spartan could exercise in the future. In some cases, real options can be so valuable that MNCs consider accepting a project that they would have rejected without the real option. ●

The value of a real option within a project is primarily influenced by two factors: (1) the probability that the real option will be exercised; and (2) the NPV that would result from exercising the real option. In the example just considered, Spartan's real option is influenced by (1) the probability that Spartan will capitalize on the opportunity to purchase government buildings at a discount and (2) the NPV that would be generated from this opportunity.

14-5 Adjusting Project Assessment for Risk

If an MNC is unsure of the estimated cash flows of a proposed project, then it needs to incorporate an adjustment for this risk. Three methods are commonly used to adjust the evaluation for risk:

- risk-adjusted discount rate,
- sensitivity analysis, and
- simulation

Each method will be described in a separate section.

14-5a Risk-Adjusted Discount Rate

The greater the uncertainty about a project's forecasted cash flows, the larger should be the discount rate applied to cash flows (other things being equal). The application of a risk-adjusted discount rate is easy, but is criticized for being somewhat arbitrary. Some managers might use a higher discount rate than other managers for a particular project with a given level of expected cash flows, which means that the project might be feasible when assessed by some managers but rejected when assessed by other managers.

In addition, an equal adjustment to the discount rate over all periods does not reflect differences in uncertainty from one period to another. If the projected cash flows among periods have different degrees of uncertainty, the risk adjustment of the cash flows should vary also. Consider a country where the political situation is slowly destabilizing. The probability of blocked funds, expropriation, and other adverse events is increasing over time. Thus, cash flows sent to the parent are less certain in the distant future than they are in the near future. A different discount rate should therefore be applied to each

period in accordance with its corresponding risk. Even so, the adjustment will be subjective and may not accurately reflect the actual risk.

Despite its subjectivity, the risk-adjusted discount rate is a commonly used method—perhaps because of the ease with which it can be arbitrarily adjusted. In addition, there is no alternative technique that will perfectly adjust for risk, although in certain cases some others (discussed next) may better reflect a project's risk.

14-5b Sensitivity Analysis

Once the MNC has estimated the NPV of a proposed project, it may want to consider alternative estimates for its input variables.

EXAMPLE

Recall that the demand for the Spartan subsidiary's tennis rackets was originally estimated to be 60,000 in the first two years and 100,000 in the next two years. If demand turns out to be 60,000 in all four years, how will the NPV results change? Alternatively, what if demand is 100,000 in all four years? The use of such *what-if* scenarios is referred to as sensitivity analysis. The objective is to determine how sensitive the NPV is to alternative values of the input variables. The estimates of any input variables can be revised to create new estimates for NPV. If the NPV is consistently positive during these revisions, then the MNC should feel more comfortable about the project; if it is negative in many cases, the accept/reject decision for the project becomes more difficult. ●

The two exchange rate scenarios developed earlier represent a form of sensitivity analysis. Sensitivity analysis can be more useful than simple point estimates because it reassesses the project based on various circumstances that may occur. Computer software packages are available to perform sensitivity analysis.

14-5c Simulation

Simulation can be used for a variety of tasks, including the generation of a probability distribution for NPV based on a range of possible values for one or more input variables. Simulation is typically performed with the aid of a computer package.

EXAMPLE

Reconsider Spartan, Inc., and assume that it expects the exchange rate to depreciate by 3 to 7 percent per year (with an equal probability of all values in this range occurring). Unlike a single point estimate, simulation can consider the range of possibilities for the Singapore dollar's exchange rate at the end of each year. It considers all point estimates for the other variables and randomly picks one of the possible values of the Singapore dollar's depreciation level for each of the four years. Based on this random selection process, the NPV is determined.

The procedure just described constitutes one iteration. Then the process is repeated: the Singapore dollar's depreciation for each year is again randomly selected (within the range of possibilities assumed earlier) and the NPV of the project is computed. The simulation program may be run for, say, 100 iterations. This means that 100 different possible scenarios are created for the possible exchange rates of the Singapore dollar during the four-year project period. Each iteration reflects a different scenario. The NPV of the project based on each scenario is then computed. In this way, simulation generates a distribution of NPVs for the project. The major advantage of simulation is that the MNC can examine a range of possible NPVs that might occur. From this information, it can determine the probability that the NPV will be positive (or greater than a particular level). The greater the uncertainty of the exchange rate, the greater will be the uncertainty of the NPV. The risk of a project will be greater if it involves transactions in more volatile currencies, other things being equal. ●

In reality, many or all of the input variables necessary for multinational capital budgeting may be uncertain in the future. Probability distributions can be developed for all variables with uncertain future values. The final result is a distribution of possible NPVs that might occur for the project. The simulation technique does not put all of its emphasis on

any one NPV forecast but instead provides a distribution of the possible outcomes that may occur.

The project's cost of capital can be used as a discount rate when simulation is performed. The probability that the project will be successful can be estimated by measuring the area within the probability distribution for which NPV > 0. This area represents the probability that the present value of future cash flows will exceed the initial outlay. An MNC can also use the probability distribution to estimate the probability that the project will backfire by measuring the area for which NPV < 0.

Simulation is difficult to perform manually because of the iterations necessary to develop a distribution of NPVs. Computer programs can run 100 iterations and generate results within a matter of seconds. The user of a simulation program must provide the probability distributions for the input variables that will affect the project's NPV. As with any model, the accuracy of results generated by simulation will depend on the accuracy of the input.

SUMMARY

- Capital budgeting may generate different results and a different conclusion depending on whether it is conducted from the perspective of an MNC's subsidiary or from the perspective of the MNC's parent. When a parent is deciding whether to implement an international project, it should determine whether the project is feasible from its own perspective.
- Multinational capital budgeting requires any input that will help estimate the initial outlay, periodic cash flows, salvage value, and required rate of return on the project. Once these factors are estimated, the international project's net present value can be estimated, just as if it were a domestic project. However, it is normally more difficult to estimate these factors for an international project. Exchange rates create an additional source of uncertainty because they affect the cash flows ultimately received by the parent as a result of the project. Other international conditions that can influence the cash flows ultimately received by the parent include the financing arrangement (parent versus subsidiary financing of the project), blocked funds by the host government, and host government incentives.
- The risk of international projects can be accounted for by adjusting the discount rate used to estimate the project's net present value. However, the adjustment to the discount rate is subjective. An alternative method is to estimate the net present value based on various possible scenarios for exchange rates or any other uncertain factors. This method is facilitated by the use of sensitivity analysis or simulation.

POINT COUNTER-POINT

Should MNCs Use Forward Rates to Estimate Dollar Cash Flows of Foreign Projects?

Point Yes. An MNC's parent should use the forward rate for each year in which it will receive net cash flows in a foreign currency. The forward rate is market determined and serves as a useful forecast for future years.

Counter-Point No. An MNC should use its own forecasts for each year in which it will receive net cash flows in a foreign currency. If the forward rates for future time periods are higher than the MNC's expected spot rates, the MNC may accept a project that it should not accept.

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. Two managers of Marshall, Inc., assessed a proposed project in Jamaica. Each manager used exactly the same estimates of the earnings to be generated by the project, as these estimates were provided by other employees. The managers agree on the proportion of funds to be remitted each year, the life of the project, and the discount rate to be applied. Both managers also assessed the project from the U.S. parent's perspective. Nevertheless, one manager determined that this project had a large net present value, while the other manager determined that the project had a negative net present value. Explain the possible reasons for such a difference.

2. Pinpoint the parts of a multinational capital budgeting analysis for a proposed sales distribution center in Ireland that are sensitive when the forecast of a stable economy in Ireland is revised to predict a recession.

3. New Orleans Exporting Co. produces small computer components, which are then sold to Mexico. It plans to expand by establishing a plant in Mexico that will produce the components and sell them locally. This plant will reduce the amount of goods that are transported from New Orleans. The firm has determined that the cash flows to be earned in Mexico would yield a positive net present value after accounting for tax and exchange rate effects, converting cash flows to dollars, and discounting them at the proper discount rate. What other major factor must be considered to estimate the project's NPV?

4. Explain how the present value of the salvage value of an Indonesian subsidiary will be affected (from the U.S. parent's perspective) by (a) an increase in the risk of the foreign subsidiary and (b) an expectation that Indonesia's currency (rupiah) will depreciate against the dollar over time.

5. Wilmette Co. and Niles Co. (both from the United States) are assessing the acquisition of the same firm in Thailand and have obtained the future cash flow estimates (in Thailand's currency, baht) from the firm. Wilmette would use its retained earnings from U.S. operations to acquire the subsidiary. Niles Co. would finance the acquisition mostly with a term loan (in baht) from Thai banks. Neither firm has any other business in Thailand. Which firm's dollar cash flows would be affected more by future changes in the value of the baht (assuming that the Thai firm is acquired)?

6. Review the capital budgeting example of Spartan, Inc., discussed in this chapter. Identify the specific variables assessed in the process of estimating a foreign project's net present value (from a U.S. perspective) that would cause the most uncertainty about the NPV.

QUESTIONS AND APPLICATIONS

1. MNC Parent's Perspective Why should capital budgeting for subsidiary projects be assessed from the parent's perspective? What additional factors that normally are not relevant for a purely domestic project deserve consideration in multinational capital budgeting?

2. Accounting for Risk What is the limitation of using point estimates of exchange rates in the capital budgeting analysis?

List the various techniques for adjusting risk in multinational capital budgeting. Describe any advantages or disadvantages of each technique.

Explain how simulation can be used in multinational capital budgeting. What can it do that other risk adjustment techniques cannot?

3. Uncertainty of Cash Flows Using the capital budgeting framework discussed in this chapter, explain the sources of uncertainty surrounding a proposed project in Hungary by a U.S. firm. In what ways is the estimated net present value of this project more uncertain than that of a similar project in a more developed European country?

4. Accounting for Risk Your employees have estimated the net present value of Project X to be $1.2 million. Their report says that they have not accounted for risk but that, with such a large NPV, the project should be accepted since even a risk-adjusted NPV would likely be positive. You have the final decision as to whether to accept or reject the project. What is your decision?

5. Impact of Exchange Rates on NPV

a. Describe in general terms how future appreciation of the euro will likely affect the value (from the parent's perspective) of a project established in Germany today

by a U.S.-based MNC. Will the sensitivity of the project value be affected by the percentage of earnings remitted to the parent each year?

b. Repeat this question, but assume the future depreciation of the euro.

6. Impact of Financing on NPV Explain how the financing decision can influence the sensitivity of the net present value to exchange rate forecasts.

7. Change in Required Return on Projects Woodsen, Inc., of Pittsburgh, Pennsylvania, considered the development of a large subsidiary in Greece. In response to a crisis in Greece, its expected cash flows and earnings from this acquisition were reduced only slightly. Yet, the firm decided to retract its offer because of an increase in its required rate of return on the project, which caused the NPV to be negative. Explain why the required rate of return on its project may have increased.

8. Assessing a Foreign Project Huskie Industries, a U.S.-based MNC, considers purchasing a small manufacturing company in France that sells products only within France. Huskie has no other existing business in France and no cash flows in euros. Would the proposed acquisition likely be more feasible if the euro is expected to appreciate or depreciate over the long run? Explain.

9. Relevant Cash Flows in Disney's French Theme Park When Walt Disney World considered establishing a theme park in France, were the forecasted revenues and costs associated with the French park sufficient to assess the feasibility of this project? Were there any other "relevant cash flows" that deserved to be considered?

10. Capital Budgeting Logic Athens, Inc., established a subsidiary in the United Kingdom that was independent of its operations in the United States. The subsidiary's performance was well above what was expected. Consequently, when a British firm approached Athens about the possibility of acquiring the subsidiary, Athens' chief financial officer replied that the subsidiary was performing so well that it was not for sale. Comment on this strategy.

11. Capital Budgeting Logic Lehigh Co. established a subsidiary in Switzerland that was performing below the cash flow projections developed before the subsidiary was established. Lehigh anticipated that future cash flows would also be lower than the original cash flow projections. Consequently, Lehigh decided to inform several potential acquiring firms of its plan to sell the subsidiary. Lehigh then received a few bids. Even the highest bid was very low, but Lehigh accepted the offer. It justified its decision by stating that any existing project whose cash flows are not sufficient to recover the initial investment should be divested. Comment on this statement.

12. Impact of Reinvested Foreign Earnings on NPV Flagstaff Corp. is a U.S.-based firm with a subsidiary in Mexico. It plans to reinvest its earnings in Mexican government securities for the next 10 years since the interest rate earned on these securities is so high. Then, after 10 years, it will remit all accumulated earnings to the United States. What is a drawback of using this approach? (Assume the securities have no default or interest rate risk.)

13. Capital Budgeting Example Brower, Inc., just constructed a manufacturing plant in Ghana. The construction cost 9 billion Ghanaian cedi. Brower intends to leave the plant open for 3 years. During the 3 years of operation, cedi cash flows are expected to be 3 billion cedi, 3 billion cedi, and 2 billion cedi, respectively. Operating cash flows will begin 1 year from today and are remitted back to the parent at the end of each year. At the end of the third year, Brower expects to sell the plant for 5 billion cedi. Brower has a required rate of return of 17 percent. It currently takes 8,700 cedi to buy 1 U.S. dollar, and the cedi is expected to depreciate by 5 percent per year.

a. Determine the NPV for this project. Should Brower build the plant?

b. How would your answer change if the value of the cedi was expected to remain unchanged from its current value of 8,700 cedi per U.S. dollar over the course of the 3 years? Should Brower construct the plant then?

14. Impact of Financing on NPV Ventura Corp., a U.S.-based MNC, plans to establish a subsidiary in Japan. It is confident that the Japanese yen will appreciate against the dollar over time. The subsidiary will retain only enough revenue to cover expenses and will remit the rest to the parent each year. Will Ventura benefit more from exchange rate effects if its parent provides equity financing for the subsidiary or if the subsidiary is financed by local banks in Japan? Explain.

15. Accounting for Changes in Risk Santa Monica Co., a U.S.-based MNC, was considering establishing a consumer products division in Germany, which would be financed by German banks. Santa Monica completed its capital budgeting analysis in August. Then, in November, the government leadership stabilized and political conditions improved in Germany. In response,

Santa Monica increased its expected cash flows by 20 percent but did not adjust the discount rate applied to the project. Should the discount rate be affected by the change in political conditions?

16. Estimating the NPV Assume that a less developed country called LDC encourages direct foreign investment (DFI) in order to reduce its unemployment rate, currently at 15 percent. Also assume that several MNCs are likely to consider DFI in this country. The inflation rate in recent years has averaged 4 percent. The hourly wage in LDC for manufacturing work is the equivalent of about $5 per hour. When Piedmont Co. develops cash flow forecasts to perform a capital budgeting analysis for a project in LDC, it assumes a wage rate of $5 in Year 1 and applies a 4 percent increase for each of the next 10 years. The components produced are to be exported to Piedmont's headquarters in the United States, where they will be used in the production of computers. Do you think Piedmont will overestimate or underestimate the net present value of this project? Why? (Assume that LDC's currency is tied to the dollar and will remain that way.)

17. PepsiCo's Project in Brazil PepsiCo recently decided to invest more than $300 million for expansion in Brazil. Brazil offers considerable potential because it has 150 million people and their demand for soft drinks is increasing. However, the soft drink consumption is still only about one-fifth of the soft drink consumption in the United States. PepsiCo's initial outlay was used to purchase three production plants and a distribution network of almost 1,000 trucks to distribute its products to retail stores in Brazil. The expansion in Brazil was expected to make PepsiCo's products more accessible to Brazilian consumers.

a. Given that PepsiCo's investment in Brazil was entirely in dollars, describe its exposure to exchange rate risk resulting from the project. Explain how the size of the parent's initial investment and the exchange rate risk would have been affected if PepsiCo had financed much of the investment with loans from banks in Brazil.

b. Describe the factors that PepsiCo likely considered when estimating the future cash flows of the project in Brazil.

c. What factors did PepsiCo likely consider in deriving its required rate of return on the project in Brazil?

d. Describe the uncertainty that surrounds the estimate of future cash flows from the perspective of the U.S. parent.

e. PepsiCo's parent was responsible for assessing the expansion in Brazil. Yet, PepsiCo already had some existing operations in Brazil. When capital budgeting analysis was used to determine the feasibility of this project, should the project have been assessed from a Brazilian perspective or a U.S. perspective? Explain.

18. Impact of Asian Crisis Assume that Fordham Co. was evaluating a project in Thailand (to be financed with U.S. dollars). All cash flows generated from the project were to be reinvested in Thailand for several years. Explain how the Asian crisis would have affected the expected cash flows of this project and the required rate of return on this project. If the cash flows were to be remitted to the U.S. parent, explain how the Asian crisis would have affected the expected cash flows of this project.

19. Tax Effects on NPV When considering the implementation of a project in one of various possible countries, what types of tax characteristics should be assessed among the countries? (See the chapter appendix.)

20. Capital Budgeting Analysis A project in South Korea requires an initial investment of 2 billion South Korean won. The project is expected to generate net cash flows to the subsidiary of 3 billion and 4 billion won in the 2 years of operation, respectively. The project has no salvage value. The current value of the won is 1,100 won per U.S. dollar, and the value of the won is expected to remain constant over the next 2 years.

a. What is the NPV of this project if the required rate of return is 13 percent?

b. Repeat the question, except assume that the value of the won is expected to be 1,200 won per U.S. dollar after 2 years. Further assume that the funds are blocked and that the parent company will only be able to remit them back to the United States in 2 years. How does this affect the NPV of the project?

21. Accounting for Exchange Rate Risk Carson Co. is considering a 10-year project in Hong Kong, where the Hong Kong dollar is tied to the U.S. dollar. Carson Co. uses sensitivity analysis that allows for alternative exchange rate scenarios. Why would Carson use this approach rather than using the pegged exchange rate as its exchange rate forecast in every year?

22. Decisions Based on Capital Budgeting Marathon, Inc., considers a 1-year project with the Belgian government. Its euro revenue would be guaranteed. Its consultant states that the percentage

change in the euro is represented by a normal distribution and that, based on a 95 percent confidence interval, the percentage change in the euro is expected to be between 0 and 6 percent. Marathon uses this information to create three scenarios: 0, 3, and 6 percent for the euro. It derives an estimated NPV based on each scenario and then determines the mean NPV. The NPV was positive for the 3 and 6 percent scenarios, but it was slightly negative for the 0 percent scenario. This led Marathon to reject the project. Its manager stated that it did not want to pursue a project that had a one-in-three chance of having a negative NPV. Do you agree with the manager's interpretation of the analysis? Explain.

23. Estimating Cash Flows of a Foreign Project Assume that Nike decides to build a shoe factory in Brazil; half the initial outlay will be funded by the parent's equity and half by borrowing funds in Brazil. Assume that Nike wants to assess the project from its own perspective to determine whether the project's future cash flows will provide a sufficient return to the parent to warrant the initial investment. Why will the estimated cash flows be different from the estimated cash flows of Nike's shoe factory in New Hampshire? Why will the initial outlay be different? Explain how Nike can conduct multinational capital budgeting in a manner that will achieve its objective.

Advanced Questions

24. Break-Even Salvage Value A project in Malaysia costs $4 million. Over the next 3 years, the project will generate total operating cash flows of $3.5 million, measured in today's dollars using a required rate of return of 14 percent. What is the break-even salvage value of this project?

25. Capital Budgeting Analysis Zistine Co. considers a 1-year project in New Zealand so that it can capitalize on its technology. It is risk averse but is attracted to the project because of a government guarantee. The project will generate a guaranteed NZ$8 million in revenue, paid by the New Zealand government at the end of the year. The payment by the New Zealand government is also guaranteed by a credible U.S. bank. The cash flows earned on the project will be converted to U.S. dollars and remitted to the parent in 1 year. The prevailing nominal 1-year interest rate in New Zealand is 5 percent, while the nominal 1-year interest rate in the United States is 9 percent. Zistine's chief executive officer believes that the movement in the New Zealand dollar is highly uncertain over the next year, but his best guess is that the change in its value will be in accordance with the international Fisher effect (IFE). He also believes that interest rate parity holds. He provides this information to three recent finance graduates that he just hired as managers and asks them for their input.

a. The first manager states that due to the parity conditions, the feasibility of the project will be the same whether the cash flows are hedged with a forward contract or are not hedged. Is this manager correct? Explain.

b. The second manager states that the project should not be hedged. Based on the interest rates, the IFE suggests that Zistine Co. will benefit from the future exchange rate movements, so the project will generate a higher NPV if Zistine does not hedge. Is this manager correct? Explain.

c. The third manager states that the project should be hedged because the forward rate contains a premium and, therefore, the forward rate will generate more U.S. dollar cash flows than the expected amount of dollar cash flows if the firm remains unhedged. Is this manager correct? Explain.

26. Accounting for Uncertain Cash Flows Blustream, Inc., considers a project in which it will sell the use of its technology to firms in Mexico. It already has received orders from Mexican firms that will generate 3 million Mexican pesos (MXP) in revenue at the end of the next year. However, it might also receive a contract to provide this technology to the Mexican government. In this case, it will generate a total of MXP5 million at the end of the next year. It will not know whether it will receive the government order until the end of the year.

Today's spot rate of the peso is $.14. The 1-year forward rate is $.12. Blustream expects that the spot rate of the peso will be $.13 1 year from now. The only initial outlay will be $300,000 to cover development expenses (regardless of whether the Mexican government purchases the technology). Blustream will pursue the project only if it can satisfy its required rate of return of 18 percent. Ignore possible tax effects. It decides to hedge the maximum amount of revenue that it will receive from the project.

a. Determine the NPV if Blustream receives the government contract.

b. If Blustream does not receive the contract, it will have hedged more than it needed to and will offset the excess forward sales by purchasing pesos in the spot market at the time the forward sale is executed.

Determine the NPV of the project assuming that Blustream does not receive the government contract.

c. Now consider an alternative strategy in which Blustream only hedges the minimum peso revenue that it will receive. In this case, any revenue due to the government contract would not be hedged. Determine the NPV based on this alternative strategy and assume that Blustream receives the government contract.

d. If Blustream uses the alternative strategy of only hedging the minimum peso revenue that it will receive, determine the NPV assuming that it does not receive the government contract.

e. If there is a 50 percent chance that Blustream will receive the government contract, would you advise Blustream to hedge the maximum amount or the minimum amount of revenue that it may receive? Explain.

f. Blustream recognizes that it is exposed to exchange rate risk whether it hedges the minimum amount or the maximum amount of revenue it will receive. It considers a new strategy of hedging the minimum amount it will receive with a forward contract and hedging the additional revenue it might receive with a put option on Mexican pesos. The 1-year put option has an exercise price of $.125 and a premium of $.01. Determine the NPV if Blustream uses this strategy and receives the government contract. Also, determine the NPV if Blustream uses this strategy and does not receive the government contract. Given that there is a 50 percent probability that Blustream will receive the government contract, would you use this new strategy or the strategy that you selected in question (e)?

27. Capital Budgeting Analysis Wolverine Corp. currently has no existing business in New Zealand but is considering establishing a subsidiary there. The following information has been gathered to assess this project:

- The initial investment required is $50 million in New Zealand dollars (NZ$). Given the existing spot rate of $.50 per New Zealand dollar, the initial investment in U.S. dollars is $25 million. In addition to the NZ$50 million initial investment for plant and equipment, NZ$20 million is needed for working capital and will be borrowed by the subsidiary from a New Zealand bank. The New Zealand subsidiary will pay interest only on the loan each year, at an interest rate of 14 percent. The loan principal is to be paid in 10 years.
- The project will be terminated at the end of Year 3, when the subsidiary will be sold.
- The price, demand, and variable cost of the product in New Zealand are as follows:

YEAR	PRICE	DEMAND	VARIABLE COST
1	NZ$500	40,000 units	NZ$30
2	NZ$511	50,000 units	NZ$35
3	NZ$530	60,000 units	NZ$40

- The fixed costs, such as overhead expenses, are estimated to be NZ$6 million per year. The exchange rate of the New Zealand dollar is expected to be $.52 at the end of Year 1, $.54 at the end of Year 2, and $.56 at the end of Year 3.
- The New Zealand government will impose an income tax of 30 percent on income. In addition, it will impose a withholding tax of 10 percent on earnings remitted by the subsidiary. The U.S. government will allow a tax credit on the remitted earnings and will not impose any additional taxes.
- All cash flows received by the subsidiary are to be sent to the parent at the end of each year. The subsidiary will use its working capital to support ongoing operations.
- The plant and equipment are depreciated over 10 years using the straight-line depreciation method. Since the plant and equipment are initially valued at NZ$50 million, the annual depreciation expense is NZ$5 million.
- In 3 years, the subsidiary is to be sold. Wolverine plans to let the acquiring firm assume the existing New Zealand loan. The working capital will not be liquidated but will be used by the acquiring firm that buys the subsidiary. Wolverine expects to receive NZ$52 million after subtracting capital gains taxes. Assume that this amount is not subject to a withholding tax.
- Wolverine requires a 20 percent rate of return on this project.

a. Determine the net present value of this project. Should Wolverine accept this project?

b. Assume that Wolverine is also considering an alternative financing arrangement in which the parent would invest an additional $10 million to cover the working capital requirements so that the subsidiary would not need the New Zealand loan. If this arrangement is used, the selling price of the subsidiary (after subtracting any capital gains taxes) is expected to be NZ$18 million higher. Is this alternative financing arrangement more feasible for the parent than the original proposal? Explain.

c. From the parent's perspective, would the NPV of this project be more sensitive to exchange rate movements if the subsidiary uses New Zealand financing to cover the working capital or if the parent invests more of its own funds to cover the working capital? Explain.

d. Assume Wolverine used the original financing proposal and that funds are blocked until the subsidiary is sold. The funds to be remitted are reinvested at a rate of 6 percent (after taxes) until the end of Year 3. How is the project's NPV affected?

e. What is the break-even salvage value of this project if Wolverine uses the original financing proposal and funds are not blocked?

f. Assume that Wolverine decides to implement the project using the original financing proposal. Also assume that after 1 year, a New Zealand firm offers Wolverine a price of $27 million after taxes for the subsidiary and that Wolverine's original forecasts for Years 2 and 3 have not changed. Compare the present value of the expected cash flows if Wolverine keeps the subsidiary to the selling price. Should Wolverine divest the subsidiary? Explain.

28. Capital Budgeting with Hedging Baxter Co. considers a project with Thailand's government. If it accepts the project, it will definitely receive one lump-sum cash flow of 10 million Thai baht in 5 years. The spot rate of the Thai baht is presently $.03. The annualized interest rate for a 5-year period is 4 percent in the United States and 17 percent in Thailand. Interest rate parity exists. Baxter plans to hedge its cash flows with a forward contract. What is the dollar amount of cash flows that Baxter will receive in 5 years if it accepts this project?

29. Capital Budgeting and Financing Cantoon Co. is considering the acquisition of a unit from the French government. Its initial outlay would be $4 million. It will reinvest all the earnings in the unit. It expects that at the end of 8 years, it will sell the unit for 12 million euros after capital gains taxes are paid. The spot rate of the euro is $1.20 and is used as the forecast of the euro in the future years. Cantoon has no plans to hedge its exposure to exchange rate risk. The annualized U.S. risk-free interest rate is 5 percent regardless of the maturity of the debt, and the annualized risk-free interest rate on euros is 7 percent, regardless of the maturity of the debt. Assume that interest rate parity exists. Cantoon's cost of capital is 20 percent. It plans to use cash to make the acquisition.

a. Determine the NPV under these conditions.

b. Rather than use all cash, Cantoon could partially finance the acquisition. It could obtain a loan of 3 million euros today that would be used to cover a portion of the acquisition. In this case, it would have to pay a lump-sum total of 7 million euros at the end of 8 years to repay the loan. There are no interest payments on this debt. This financing deal is structured such that none of the payment is tax deductible. Determine the NPV if Cantoon uses the forward rate instead of the spot rate to forecast the future spot rate of the euro and elects to partially finance the acquisition. You need to derive the 8-year forward rate for this question.

30. Sensitivity of NPV to Conditions Burton Co., based in the United States, considers a project in which it has an initial outlay of $3 million and expects to receive 10 million Swiss francs (SF) in 1 year. The spot rate of the franc is $.80. Burton Co. decides to purchase put options on Swiss francs with an exercise price of $.78 and a premium of $.02 per unit to hedge its receivables. It has a required rate of return of 20 percent.

a. Determine the net present value of this project for Burton Co. based on the forecast that the Swiss franc will be valued at $.70 at the end of 1 year.

b. Assume the same information as in part (a), but with the following adjustment. While Burton expected to receive 10 million Swiss francs, assume that there were unexpected weak economic conditions in Switzerland after Burton initiated the project. Consequently, Burton received only 6 million Swiss francs at the end of the year. Also assume that the spot rate of the franc at the end of the year was $.79. Determine the net present value of this project for Burton Co. if these conditions occur.

31. Hedge Decision on a Project Carlotto Co. (a U.S. firm) will definitely receive 1 million British pounds in 1 year based on a business contract it has with the British government. Like most firms, Carlotto Co. is risk averse and only takes risk when the potential benefits outweigh the risk. It has no other international business and is considering various methods to hedge its exchange rate risk. Assume that interest rate parity exists. Carlotto Co. recognizes that exchange rates are very difficult to forecast with accuracy, but it believes that the 1-year forward rate of the pound yields the best forecast of the pound's spot rate in 1 year. Today the pound's spot rate is $2.00, while the 1-year forward rate of the pound is $1.90. Carlotto Co. has determined that a forward hedge is better than alternative forms of hedging. Should Carlotto Co. hedge with a forward contract or should it remain unhedged? Briefly explain.

32. NPV of Partially Hedged Project Sazer Co. (a U.S. firm) is considering a project in which it

produces special safety equipment. It will incur an initial outlay of $1 million for the research and development of this equipment. It expects to receive 600,000 euros in 1 year from selling the products in Portugal where it already does much business. In addition, it also expects to receive 300,000 euros in 1 year from sales to Spain, but these cash flows are very uncertain because it has no existing business in Spain. Today's spot rate of the euro is $1.50 and the 1-year forward rate is $1.50. It expects that the euro's spot rate will be $1.60 in 1 year. It will pursue the project only if it can satisfy its required rate of return of 24 percent. It decides to hedge all the expected receivables due to business in Portugal but none of the expected receivables due to business in Spain. Estimate the net present value of the project.

33. Project Financing Strategy Konk Co., a U.S. firm, considers a project in which it would build a subsidiary in Belgium that would generate net cash flows of about 10 million euros per year for 5 years and would remit that amount to the parent each year. It has no other international business. It needs about 20 million euros as the initial outlay to establish the subsidiary. It can finance this initial outlay in the following ways and the subsidiary would repay the amount of the investment evenly over the next 5 years: (a) the parent can borrow dollars from a U.S. bank and convert them to euros, (b) the parent can borrow euros from a Belgian bank, (c) the parent can use its equity (retained earnings from existing business in the U.S.) and convert the funds into euros, (d) the parent can borrow dollars from a Belgian bank and convert them to euros, and (e) the parent can diversify its financing by obtaining one-fourth of the funds from each of the preceding sources. Assume that there is no cost advantage to any financing method. If Konk Co. wants to use a financing method to minimize its project's exposure to exchange rate risk, which method should it use? Briefly explain.

34. NPV and Financing Louisville Co. is a U.S. firm considering a project in Austria which it has an initial cash outlay of $7 million. Louisville will accept the project only if it can satisfy its required rate of return of 18 percent. The project would definitely generate 2 million euros in one year from sales to a large corporate customer in Austria. In addition, it also expects to receive 4 million euros in one year from sales to other customers in Austria. Louisville's best guess is that the euro's spot rate will be $1.26 in one year. Today, the spot rate of the euro is $1.40, while the one-year forward rate of the euro is $1.34. If Louisville accepts the project, it would hedge all the receivables resulting from sales to the large corporate customer but none of the expected receivables due to expected sales to other customers.

a. Estimate the net present value of the project.

b. Assume that Louisville considers alternative financing for the project in which it would use $5 million cash while the remaining initial outlay would come from borrowing euros. In this case, it would need 1,600,000 euros to repay the loan (principal plus interest) at the end of one year. Assume no tax effects due to this alternative financing. Estimate the NPV of the project under these conditions.

c. Do you think the Louisville's exposure to exchange rate risk due to the project if it uses the alternative financing (explained in part b) is higher, lower, or the same as if it has an initial cash outlay of $7 million (and does not borrow any funds)? Briefly explain.

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 *International Financial Management* text companion website. Go to www.cengagebrain.com (students) or www.cengage.com/login (instructors) and search using **ISBN 9781133947837.**

Blades, Inc. Case

Decision by Blades, Inc., to Invest in Thailand

Since Ben Holt, Blades' chief financial officer, believes the growth potential for the roller blade market in Thailand is very high, he has decided to invest in Thailand. The investment would involve establishing a subsidiary in Bangkok consisting of a manufacturing plant to produce Speedos, Blades' high-quality roller blades. Holt believes that economic conditions in Thailand will be relatively strong in 10 years, when he expects to sell the subsidiary.

Blades will continue exporting to the United Kingdom under an existing agreement with Jogs, Ltd., a British retailer. Furthermore, it will continue its sales in the

United States. Under an existing agreement with Entertainment Products, Inc., a Thai retailer, Blades is committed to selling 180,000 pairs of Speedos to the retailer at a fixed price of 4,594 Thai baht per pair. Once operations in Thailand commence, the agreement will last another year, at which time it may be renewed. Thus, during its first year of operations in Thailand, Blades will sell 180,000 pairs of roller blades to Entertainment Products under the existing agreement whether it has operations in the country or not. If it establishes the plant in Thailand, Blades will produce 108,000 of the 180,000 Entertainment Products Speedos at the plant during the last year of the agreement. Therefore, the new subsidiary would need to import 72,000 pairs of Speedos from the United States so that it can accommodate its agreement with Entertainment Products. It will save the equivalent of 300 baht per pair in variable costs on the 108,000 pairs not previously manufactured in Thailand.

Entertainment Products has already declared its willingness to renew the agreement for another 3 years under identical terms. Because of recent delivery delays, however, it is willing to renew the agreement only if Blades has operations in Thailand. Moreover, if Blades has a subsidiary in Thailand, Entertainment Products will keep renewing the existing agreement as long as Blades operates in Thailand. If the agreement is renewed, Blades expects to sell a total of 300,000 pairs of Speedos annually during its first 2 years of operation in Thailand to various retailers, including 180,000 pairs to Entertainment Products. After this time, it expects to sell 400,000 pairs annually (including 180,000 to Entertainment Products). If the agreement is not renewed, Blades will be able to sell only 5,000 pairs to Entertainment Products annually but not at a fixed price. Thus, if the agreement is not renewed, Blades expects to sell a total of 125,000 pairs of Speedos annually during its first 2 years of operation in Thailand and 225,000 pairs annually thereafter. Pairs not sold under the contractual agreement with Entertainment Products will be sold for 5,000 Thai baht per pair, since Entertainment Products had required a lower price to compensate it for the risk of being unable to sell the pairs it purchased from Blades.

Holt wishes to analyze the financial feasibility of establishing a subsidiary in Thailand. As a Blades' financial analyst, you have been given the task of analyzing the proposed project. Since future economic conditions in Thailand are highly uncertain, Holt has also asked you to conduct some sensitivity analyses. Fortunately, he has provided most of the information you need to conduct a capital budgeting analysis. This information is detailed here:

- The building and equipment needed will cost 550 million Thai baht. This amount includes additional funds to support working capital.
- The plant and equipment, valued at 300 million baht, will be depreciated using straight-line depreciation. Thus, 30 million baht will be depreciated annually for 10 years.
- The variable costs needed to manufacture Speedos are estimated to be 3,500 baht per pair next year.
- Blades' fixed operating expenses, such as administrative salaries, will be 25 million baht next year.
- The current spot exchange rate of the Thai baht is $.023. Blades expects the baht to depreciate by an average of 2 percent per year for the next 10 years.
- The Thai government will impose a 25 percent tax rate on income and a 10 percent withholding tax on any funds remitted by the subsidiary to Blades. Any earnings remitted to the United States will not be taxed again.
- After 10 years, Blades expects to sell its Thai subsidiary. It expects to sell the subsidiary for about 650 million baht, after considering any capital gains taxes.
- The average annual inflation in Thailand is expected to be 12 percent. Unless prices are contractually fixed, revenue, variable costs, and fixed costs are subject to inflation and are expected to change by the same annual rate as the inflation rate.

Blades could continue its current operations of exporting to and importing from Thailand, which have generated a return of about 20 percent. Blades requires a return of 25 percent on this project in order to justify its investment in Thailand. All excess funds generated by the Thai subsidiary will be remitted to Blades and will be used to support U.S. operations.

Holt has asked you to answer the following questions:

1. Should the sales and the associated costs of 180,000 pairs of roller blades to be sold in Thailand under the existing agreement be included in the capital budgeting analysis to decide whether Blades should establish a subsidiary in Thailand? Should the sales resulting from a renewed agreement be included? Why or why not?
2. Using a spreadsheet, conduct a capital budgeting analysis for the proposed project, assuming that Blades renews the agreement with Entertainment Products.

Should Blades establish a subsidiary in Thailand under these conditions?

3. Using a spreadsheet, conduct a capital budgeting analysis for the proposed project assuming that Blades does not renew the agreement with Entertainment Products. Should Blades establish a subsidiary in Thailand under these conditions? Should Blades renew the agreement with Entertainment Products?

4. Since future economic conditions in Thailand are uncertain, Holt would like to know how critical the salvage value is in the alternative you think is most feasible.

5. The future value of the baht is highly uncertain. Under a worst-case scenario, the baht may depreciate by as much as 5 percent annually. Revise your spreadsheet to illustrate how this would affect Blades' decision to establish a subsidiary in Thailand. (Use the capital budgeting analysis you have identified as the most favorable from questions 2 and 3 to answer this question.)

Small Business Dilemma

Multinational Capital Budgeting by the Sports Exports Company

Jim Logan, owner of the Sports Exports Company, has been pleased with his success in the United Kingdom. He began his business by producing footballs and exporting them to the United Kingdom. While American-style football is still not nearly as popular in the United Kingdom as it is in the United States, his firm controls the market in the United Kingdom. Logan is considering an application of the same business in Mexico. He would produce the footballs in the United States and export them to a distributor of sporting goods in Mexico, who would sell the footballs to retail stores. The distributor likely would want to pay for the product each month in Mexican pesos. Logan would need to hire one full-time employee in the United States to produce the footballs. He would also need to lease one warehouse.

1. Describe the capital budgeting steps that would be necessary to determine whether this proposed project is feasible, as related to this specific situation.

2. Explain why there is uncertainty surrounding the cash flows of this project.

Internet/Excel Exercises

Assume that you invested equity to establish a project in Portugal in January about 7 years ago. At the time the project began, you could have supported it with a 7-year loan either in dollars or in euros. If you borrowed U.S. dollars, your annual loan payment (including principal) would have been $2.5 million. If you borrowed euros, your annual loan payment (including principal) would have been 2 million euros. The project generated 5 million euros per year in revenue.

1. Use an Excel spreadsheet to determine the dollar net cash flows (after making the debt payment) that you would receive at the end of each of the last 7 years if you partially financed the project by borrowing dollars.

2. Determine the standard deviation of the dollar net cash flows that you would receive at the end of each of the last 7 years if you partially financed the project by borrowing dollars.

3. Reestimate the dollar net cash flows and the standard deviation of the dollar net cash flows if you partially financed the project by borrowing euros. (You can obtain the end-of-year exchange rate of the euro for the last 7 years at www.oanda.com or similar Web sites.) Are the project's net cash flows more volatile if you had borrowed dollars or euros? Explain your results.

Online Articles with Real-World Examples

Find a recent article online that describes an actual international finance application or a real-world example about a specific MNC's actions that reinforces one or more of the concepts covered in this chapter.

If your class has an online component, your professor may ask you to post your summary there and provide the Web link of the article so that other students can access it. If your class is live, your professor may ask you to summarize your application in class. Your professor may assign specific students to complete this assignment for this chapter or may allow any students to do the assignment on a volunteer basis.

For recent online articles and real-world examples applied to this chapter, consider using the following search terms (and include the current year as a search term to ensure that the online articles are recent).

1. policy for repatriating earnings
2. tax on foreign earnings
3. company AND international expansion
4. Inc. AND international expansion
5. foreign subsidiary AND expansion
6. [name of an MNC] AND international project
7. Inc. AND international project
8. [name of an MNC] AND foreign project
9. company AND foreign project
10. Inc. AND foreign project

APPENDIX 14

Incorporating International Tax Law in Multinational Capital Budgeting

Tax laws can vary among countries in many ways, but any type of tax causes an MNC's after-tax cash flows to differ from its before-tax cash flows. To estimate the future cash flows that are to be generated by a proposed foreign project (such as the establishment of a new subsidiary or the acquisition of a foreign firm), MNCs must first estimate the taxes that they will incur due to the foreign project. This appendix provides a general background on some of the more important international tax characteristics that an MNC must consider when assessing foreign projects. Financial managers do not necessarily have to be international tax experts because they may be able to rely on the MNC's international tax department or on independent tax consultants for guidance. Nevertheless, they should at least be aware of international tax characteristics that can affect the cash flows of a foreign project and recognize how those characteristics can vary among the countries where foreign projects are considered.

Variation in Tax Laws among Countries

Each country generates tax revenue in different ways. The United States relies on corporate and individual income taxes for federal revenue. Other countries may depend more on a *value-added tax* (VAT) or excise taxes. Since each country has its own philosophy on whom to tax and how much, it is not surprising that the tax treatment of corporations differs among countries. Because each country has a unique tax system and tax rates, MNCs need to recognize the various tax provisions of each country where they consider investing in a foreign project. The more important tax characteristics of a country to be considered in an MNC's international tax assessment are (1) corporate income taxes, (2) withholding taxes, (3) personal and excise tax rates, (4) provision for carrybacks and carryforwards, (5) tax treaties, (6) tax credits, and (7) taxes on income from intercompany transactions. A discussion of each characteristic follows.

Corporate Income Taxes

In general, countries impose taxes on corporate income generated within their borders even if the parents of those corporations are based in other countries. Each country has its unique corporate income tax laws. The United States, for example, taxes the worldwide

WEB

www.pwc.com
Access to country-specific information such as general business rules and regulations and tax environments.

income of U.S. "persons," a term that includes corporations. As a general rule, however, foreign income of a foreign subsidiary of a U.S. company is not taxed until it is transferred to the U.S. parent by payment of dividends or a liquidation distribution. This is the concept of *deferral.*

An MNC planning direct foreign investment in foreign countries must determine how the anticipated earnings from a foreign project will be affected. Tax rates imposed on income earned by businesses (including foreign subsidiaries of MNCs) or income remitted to a parent are shown in Exhibit 14A.1 for several countries. The tax rates may be lower than what is shown for corporations that have relatively low levels of earnings. This exhibit shows the extent to which corporate income tax rates can vary among host countries and illustrates why MNCs closely assess the tax guidelines in any foreign country where they consider conducting direct foreign investment. Given differences in tax deductions, depreciation, business subsidies, and other factors, corporate tax differentials cannot be measured simply by comparing quoted tax rates across countries.

Corporate tax rates can also differ within a country depending on whether the entity is a domestic corporation. Also, if an unregistered foreign corporation is considered to have a permanent establishment in a country, it may be subject to that country's tax laws on income earned within its borders. Generally, a permanent establishment includes an office or fixed place of business or a specified kind of agency (independent agents are normally excluded) through which active and continuous business is conducted. In some cases, the tax depends on the industry or on the form of business used (e.g., corporation, branch, partnership).

WEB

www.worldwide-tax.com
Information about taxes imposed by each country.

Exhibit 14A.1 Comparison of Tax Characteristics among Countries

COUNTRY	CORPORATE INCOME TAX	COUNTRY	CORPORATE INCOME TAX
Argentina	35%	Israel	27
Australia	30	Italy	28
Austria	25	Japan	30
Belgium	33	Korea	25
Brazil	15	Malaysia	26
Canada	21	Mexico	28
Chile	17	Netherlands	26
China	25	New Zealand	33
Czech Republic	20	Singapore	18
France	33	Spain	30
Germany	15	Switzerland	25
Hong Kong	18	Taiwan	25
Hungary	16	United Kingdom	30
India	30	United States	35
Indonesia	30	Venezuela	34
Ireland	13		

Source: Worldwide Corporate Tax Guide, 2008, Ernst & Young. *The numbers provided are for illustrative purposes only; the actual tax rate may depend on specific characteristics of the MNC.*

Withholding Taxes

The following types of payments by an MNC's subsidiary are commonly subject to a withholding tax by the host government. (1) A subsidiary may remit a portion of its earnings, referred to as *dividends*, to its parent because the parent is the shareholder of the subsidiary. (2) The subsidiary may pay interest to the parent or to other nonresident debt holders from which it received loans. (3) The subsidiary may make payments to the parent or to other nonresident firms in return for the use of patents (such as technology) or other rights. The payment of dividends reduces the amount of reinvestment by the subsidiary in the host country. The payments by the subsidiary to nonresident firms to cover interest or patents reflect expenses by the subsidiary, which will normally reduce its taxable income and therefore will reduce the corporate income taxes paid to the host government. Thus, withholding taxes may be a way for host governments to tax MNCs that make interest or patent payments to nonresident firms.

Since withholding taxes imposed on the subsidiary can reduce the funds remitted by the subsidiary to the parent, the withholding taxes must be accounted for in a capital budgeting analysis conducted by the parent. As with corporate tax rates, the withholding tax rate can vary substantially among countries.

Reducing Exposure to Withholding Taxes Withholding taxes can be reduced by income tax treaties (discussed shortly). Because of tax treaties between some countries, the withholding taxes may be lower when the MNC is based in a county participating in the treaties.

If the host country government of a particular subsidiary imposes a high withholding tax on subsidiary earnings remitted to the parent, then the MNC may instruct the subsidiary to temporarily refrain from remitting earnings and to reinvest them in the host country instead. As an alternative approach, the MNC may instruct the subsidiary to set up a research and development division that will enhance subsidiaries elsewhere. The main purpose behind this strategy is to efficiently use the funds abroad when the funds cannot be sent to the parent without excessive taxation. Since international tax laws can influence the timing of the transfer of funds to the parent, they affect the timing of cash flows on proposed foreign projects. Therefore, the international tax implications must be understood before the cash flows of a foreign project can be estimated.

Personal and Excise Tax Rates

An MNC is more likely to be concerned with corporate tax rates and withholding tax rates than individual tax rates because its cash flows are directly affected by the taxes incurred. However, a country's individual tax rates can indirectly affect an MNC's cash flows because the MNC may have to pay higher wages to employees in countries (such as in Europe) where personal income is taxed at a relatively high rate. In addition, a country's value-added tax or excise tax may affect cash flows to be generated from a foreign project because it may make the products less competitive on a global basis (reducing the expected quantity of products to be sold).

Provision for Carrybacks and Carryforwards

Negative earnings from operations can often be carried back or forward to offset earnings in other years. The laws pertaining to these so-called **net operating loss carrybacks** and **carryforwards** can vary among countries. An MNC generally does not plan to generate negative earnings in foreign countries. If negative earnings do occur, however, it is desirable to be able to use them to offset other years of positive earnings. Most foreign

countries do not allow negative earnings to be carried back but allow some flexibility in carrying losses forward. Since many foreign projects are expected to result in negative earnings in the early years, the tax laws for the country of concern will affect the future tax deductions resulting from these losses and will therefore affect the future cash flows of the foreign project.

Tax Treaties

Countries often establish income tax treaties, whereby one partner will reduce its taxes by granting a credit for taxes imposed on corporations operating within the other treaty partner's tax jurisdiction. Income tax treaties help corporations avoid exposure to double taxation. Some treaties apply to taxes paid on income earned by MNCs in foreign countries. Other treaties apply to withholding taxes imposed by the host country on foreign earnings that are remitted to the parent.

Without such treaties, subsidiary earnings could be taxed by the host country and then again by the parent's country when received by the parent. To the extent that the parent uses some of these earnings to provide cash dividends for shareholders, triple taxation could result (since the dividend income is also taxed at the shareholder level). Because income tax treaties reduce taxes on earnings generated by MNCs, they help stimulate direct foreign investment. Many foreign projects that are perceived as feasible would not be feasible without income tax treaties because the expected cash flows would be reduced by excessive taxation.

Tax Credits

Even without income tax treaties, an MNC may be allowed a credit for income and withholding taxes paid in another country against taxes owed in the home country if it meets certain requirements. Like income tax treaties, tax credits help to avoid double taxation and stimulate direct foreign investment.

Tax credit policies vary somewhat among countries, but they generally work like this. Consider a U.S.-based MNC subject to a U.S. tax rate of 35 percent. Assume that a foreign subsidiary of this corporation has generated earnings taxed at less than 35 percent by the host country's government. The earnings remitted to the parent from the subsidiary will be subject to an additional amount of U.S. tax to bring the total tax up to 35 percent. From the parent's point of view, the tax on its subsidiary's remitted earnings are 35 percent overall, so it does not matter whether the host country of the subsidiary or the United States receives most of the taxes. From the perspective of the governments of these two countries, however, the allocation of taxes is very important. If a subsidiary is established in a foreign country that taxes income at nearly 35 percent, that country can generate large tax revenues from income earned by the subsidiary. The host country receives the tax revenues at the expense of the parent's country (the United States, in this case).

If the corporate income tax rate in a foreign country is greater than 35 percent, the United States generally does not impose any additional taxes on earnings remitted to a U.S. parent by foreign subsidiaries in that country. In fact, under current law, the United States allows the excess foreign tax to be credited against other taxes owed by the parent on the same type of income generated by subsidiaries in other lower-tax countries. This suggests that some host countries could charge abnormally high corporate income tax rates to foreign subsidiaries and still attract direct foreign investment. If the MNC in our example has subsidiaries located in some countries with low corporate income taxes, then the U.S. tax on earnings remitted to the U.S. parent will normally bring the total tax up to 35 percent. However, credits against excessive income taxes by high-tax

countries on foreign subsidiaries could offset these taxes that would otherwise be paid to the U.S. government. Thus tax credits could make an MNC more willing to invest in a project in a country with excessive tax rates.

Basic information on a country's current taxes may not be sufficient for determining the tax effects of a particular foreign project because tax incentives may be offered in particular circumstances and tax rates can change over time. Consider an MNC that plans to establish a manufacturing plant in Country Y rather than Country X. Assume that while many economic characteristics favor Country X, the current tax rates in Country Y are lower. However, whereas tax rates in Country X have been historically stable and are expected to continue that way, they have been changing every few years in Country Y. In this case, the MNC must assess the future uncertainty of the tax rates. It cannot treat the current tax rate of Country Y as a constant when conducting a capital budgeting analysis. Instead, it must consider possible changes in the tax rates over time and, based on these possibilities, determine whether Country Y's projected tax advantages *over time* sufficiently outweigh the advantages of Country X. One approach to account for possible changes in the tax rates is to use sensitivity analysis, which measures the sensitivity of the net present value (NPV) of after-tax cash flows to various possible tax changes over time. For each tax scenario, a different NPV is projected. By accounting for each possible tax scenario, the MNC can develop a distribution of possible NPVs that may occur and can then compare these for each country.

Two critical and broadly defined functions are necessary to determine how international tax laws affect the cash flows of a foreign project. The first is to be aware of all the current (and possible future) tax laws that exist for each country where the MNC does (or plans to do) business. The second is to take the information generated from the first function and apply it to forecasted earnings and remittances to determine the taxes, so that the proposed project's cash flows can be estimated.

Taxes on Income from Intercompany Transactions

Many of an MNC's proposed foreign projects will involve intercompany transactions. For example, a U.S.-based MNC may consider acquiring a foreign firm that will produce and deliver supplies to its U.S. subsidiaries. Under these conditions, the MNC must use transfer pricing, which involves pricing the transactions between two entities (such as subsidiaries) of the same corporation. When MNCs consider new foreign projects, they must incorporate their transfer pricing to properly estimate cash flows that will be generated from these projects. This means that, before the feasibility of a foreign project can be determined, transfer pricing decisions must be made on any anticipated intercompany transactions that would result from the new project. Multinational corporations are subject to certain guidelines on transfer pricing, but they usually have some flexibility and tend to use a transfer pricing policy that will minimize taxes while satisfying the guidelines.

EXAMPLE Oakland Corp. has established two subsidiaries to capitalize on low production costs. One of these subsidiaries (called Hitax Sub) is located in a country whose government imposes a 50 percent tax rate on before-tax earnings. Hitax Sub produces partially finished products and sends them to the other subsidiary (called Lotax Sub) where the final assembly takes place. The host government of Lotax Sub imposes a 20 percent tax on before-tax earnings. To simplify the example, assume that no dividends are to be remitted to the parent in the near future. Given this information, pro forma income statements would be as shown in the top part of Exhibit 14A.2 for Hitax Sub (second column), Lotax Sub (third column), and the combined subsidiaries (last column). The income statement items are reported in U.S. dollars to more easily illustrate how a revised transfer pricing policy can affect earnings and cash flows.

Exhibit 14A.2 Impact of Transfer Pricing Adjustment on Pro Forma Earnings and Taxes: Oakland Corp. (thousands of U.S. dollars)

	ORIGINAL ESTIMATES		
	HITAX SUB	LOTAX SUB	COMBINED*
Sales	$100,000	$150,000	$250,000
Less: Cost of goods sold	50,000	100,000	150,000
Gross profit	50,000	50,000	100,000
Less: Operating expenses	20,000	20,000	40,000
Earnings before interest and taxes	30,000	30,000	60,000
Interest expense	5,000	5,000	10,000
Earnings before taxes	25,000	25,000	50,000
Taxes (50% for Hitax and 20% for Lotax)	12,500	5,000	17,500
Earnings after taxes	$12,500	$20,000	$32,500
	REVISED ESTIMATES BASED ON ADJUSTING TRANSFER PRICING POLICY		
	HITAX SUB	LOTAX SUB	COMBINED
Sales	$80,000	$150,000	$230,000
Less: Cost of goods sold	50,000	80,000	130,000
Gross profit	30,000	70,000	100,000
Less: Operating expenses	20,000	20,000	40,000
Earnings before interest and taxes	10,000	50,000	60,000
Interest expense	5,000	5,000	10,000
Earnings before taxes	5,000	45,000	50,000
Taxes (50% for Hitax and 20% for Lotax)	2,500	9,000	11,500
Earnings after taxes	$2,500	$36,000	$38,500

*The combined numbers are shown here for illustrative purposes only and do not reflect the firm's official consolidated financial statements. When consolidating sales for financial statements, intercompany transactions (between subsidiaries) would be eliminated. This example is intended simply to illustrate how total taxes paid by subsidiaries are lower when transfer pricing is structured to shift some gross profit from a high-tax subsidiary to a low-tax subsidiary.

The sales level shown for Hitax Sub matches the cost of goods sold for Lotax Sub, indicating that all Hitax Sub sales are to Lotax Sub. The additional expenses incurred by Lotax Sub to complete the product are classified as operating expenses.

Notice from Exhibit 14A.2 that both subsidiaries have the same earnings before taxes. Yet because of the different tax rates, Hitax Sub's after-tax income is $7.5 million less than Lotax Sub's. If Oakland Corp. can revise its transfer pricing, then its combined earnings after taxes will be increased. To illustrate, suppose that the price of products sent from Hitax Sub to Lotax Sub is reduced, causing Hitax Sub's sales to decline from $100 million to $80 million. This also reduces Lotax Sub's cost of goods sold by $20 million. The revised pro forma income statement resulting from the change in the transfer pricing policy is shown in the bottom part of Exhibit 14A.2. The two subsidiaries' forecasted earnings before taxes now differ by $40 million, although the combined amount has not changed. Because earnings have been shifted from Hitax Sub to Lotax Sub, the total tax payments are reduced to $11.5 million from the original estimate of $17.5 million. Thus, the corporate taxes imposed on earnings are now forecasted to be $6 million lower than originally expected. ●

It should be mentioned that possible adjustments in the transfer pricing policies may be limited because host governments may restrict such practices when the intent is to avoid taxes. Transactions between subsidiaries of a firm are supposed to be priced using

the principle of "arm's-length" transactions. That is, the price should be set as if the buyer is unrelated to the seller and should not be adjusted simply to shift tax burdens. Nevertheless, there is some flexibility on transfer pricing policies that enables MNCs from all countries to establish policies that are within legal limits but also reduce tax burdens. As long as the transfer price reflects the "fair" price that would normally be charged in the market, one subsidiary can charge another for technology transfers, research and development expenses, or other forms of overhead expenses incurred.

The actual mechanics of international transfer pricing go far beyond the example provided here. The U.S. laws in this area are particularly strict. Nevertheless, there are various ways that MNCs can justify increasing prices at one subsidiary and reducing them at another.

There is substantial evidence that MNCs based in numerous countries use transfer pricing strategies to reduce their taxes. Moreover, transfer pricing restrictions can be circumvented in several ways. Various fees can be implemented for services, research and development, royalties, and administrative duties. Although the fees may minimize taxes by shifting earnings, they have the effect of distorting the actual performance of each subsidiary. To correct for any distortion, the MNC can use a centralized approach to account for the transfer pricing strategy when assessing the performance of each subsidiary.

15 International Corporate Governance and Control

CHAPTER OBJECTIVES

The specific objectives of this chapter are to:

- describe the common forms of corporate governance by MNCs,
- explain how MNCs use corporate control as a form of governance,
- identify the factors that are considered when valuing a foreign target,
- explain why valuations of a target firm vary among MNCs that consider corporate control strategies, and
- identify other types of international corporate control actions.

When multinational corporations (MNCs) expand internationally, they are subject to various types of agency problems. Many of the agency problems occur because incentives for managers of the parent or its subsidiaries are not properly structured to ensure that managers focus on maximizing the value of the firm (and therefore shareholder wealth). International corporate governance and corporate control can ensure that managerial goals are aligned with those of shareholders.

15-1 International Corporate Governance

Most MNCs use a number of methods to ensure that their foreign subsidiary managers own shares of the firm in order to align their interests with those of the corporation. They may offer bonuses in the form of stock that cannot be sold for a few years, which encourages the managers of foreign subsidiaries to focus on the goal of maximizing the MNC's stock price when making decisions for the subsidiaries. Under these conditions, the high-level managers may properly govern themselves. However, since the stock ownership by high-level managers of an MNC is typically limited, managers' first priority on decision making may be to protect their jobs even if doing so reduces the stock price. For example, they might make decisions that will expand their subsidiary in order to justify their position, even if these decisions adversely affect the value of the MNC overall. Furthermore, expansion might improve their potential for more responsibility and therefore a promotion. Thus, governance may be needed to ensure that managerial decisions serve shareholder interests. Forms of governance of MNCs are described next.

15-1a Governance by Board Members

The board of directors is responsible for appointing high-level managers of the firm, including the chief executive officer (CEO). It oversees major decisions of the firm such as restructuring and expansion, and it is supposed to make sure that key management decisions are in the best interest of shareholders. However, boards of MNCs are not always effective at governance.

First, some boards of directors allow the firm's chief executive officer to serve as the chair of the board, which may reduce the board's ability to control management because the chair may have sufficient power to control the board. For example, the chair normally organizes the agenda for a board meeting and might establish the process by which decisions are made. Second, boards typically contain insiders (managers working for the firm)

who might prefer policies that favor managerial power. Boards of MNCs may be more effective if they contain a larger number of outside board members that do not work for the firm. Third, board members who are employees of a foreign subsidiary may attempt to make decisions that maximize the benefits to the subsidiary and not the MNC overall.

15-1b Governance by Institutional Investors

A large proportion of many firms' shares are held by institutional investors such as pension funds, mutual funds, hedge funds, and insurance companies. If the firm performs well, then its stock will perform well and the institutional investors benefit. However, ownership of 1 or 2 percent of the firm's shares will seldom be sufficient to swing an important vote. Although institutional investors may contact board members if they are displeased with policies of the firm, their power to enact change is limited. They can show their displeasure by selling their shares, but that is not likely to change the firm's policies. In fact, managers who do not want to be monitored might prefer that institutional owners sell their holdings of the stock so that the managers are not subject to close monitoring.

The ability or willingness to enforce governance varies among types of institutional investors. For example, some public pension funds and mutual funds may invest in the stock of companies and plan to hold the stock for a long time. Thus, they do not actively govern the companies in which they invest.

In contrast, hedge funds frequently use an investment strategy of investing in companies that have performed poorly (and therefore have a low stock price) but have the potential to improve. The hedge funds will actively govern the companies in which they invest because they benefit from their investments only if these companies improve their performance.

Private equity firms, which pool money from institutional investors such as pension funds or insurance companies, often use the money to invest in privately held companies. However, they participate in international governance because many MNCs are privately held. In addition, private equity funds commonly invest in companies based in foreign countries. They may invest in a portion of a business and offer advice to management, or they might even take over the management of a business. Private equity firms attempt to improve the operations of the companies in which they invest while they have an equity investment in those companies. Their investment in a business is typically for a period of between four and eight years. They sell their equity interest to other investors after they have influenced management in a manner that has increased the value of the companies. In some cases, the company engages in an initial public offering and the private equity firm cash out as ownership is transferred to stockholders.

Private equity firms have a natural incentive to target countries where companies are less efficient because there is much potential for the firms to enter those countries (assuming government regulations allow for entrance) and purchase those companies at a low price when they are poorly managed. Thus, such funds help to improve the level of international governance.

15-1c Governance by Shareholder Activists

Some institutional investors or individual shareholders of publicly traded MNCs are called *blockholders* because they hold a large proportion (such as at least 5 percent) of the firm's stock. Blockholders often become shareholder activists; that is, they take actions to influence management. Investors do not have to be blockholders to become activists, but there is more motivation for investors to be activists if they have a lot at stake and can possibly influence management with their voting power. If shareholder

activists dislike a new policy by management, they may contact the board and voice their opinion. They may also engage in proxy contests whereby they attempt to change the composition of the board of directors. They may even attempt to serve on the board if they have sufficient support from other shareholders. In addition, it is not unusual for shareholder activists to file lawsuits against the firm in an attempt to influence managerial decisions.

15-2 International Corporate Control

Even with the various forms of governance described previously, managers may still be able to make decisions that serve themselves rather than shareholders. To the extent that a firm's decisions are focused on serving its managers rather than shareholders, its stock price should be relatively low as a reflection of these poor decisions. Consequently, the firm could be subjected to a takeover attempt; that is, it becomes a *target*. The target may be contacted by another firm that wants to engage in discussions regarding a takeover. If the target declines this request, the other firm might still acquire it by engaging in a tender offer whereby it stands willing to purchase shares from the target's shareholders. If the target presently has a low stock price, another firm might hope to acquire it at a low cost and then restructure it by removing the inefficient managers.

Most countries allow local companies to be acquired by MNCs from other countries. Thus, the international market for corporate control can correct inefficient MNCs wherever they are, which has two important implications. First, MNC managers recognize that if they make decisions that destroy value, the MNC could be subject to a takeover and its managers could lose their jobs. Second, when MNCs are expanding their business globally, they may consider the market for corporate control as a means of achieving their expansion goals.

15-2a Motives for International Acquisitions

Many international acquisitions are motivated by the desire to increase global market share or to capitalize on economies of scale through global consolidation. Some MNCs may have a comparative advantage in terms of their technology or image in a foreign market where competition is not as intense as in their domestic market. United States–based MNCs such as Oracle Corp., Google, Inc., and Dow Chemical Co. have recently engaged in international acquisitions. Announcements of acquisitions of foreign targets lead to neutral or slightly favorable stock price effects for acquirers, on average, whereas acquisitions of domestic targets generally lead to negative effects. The publicly traded foreign targets almost always experience a large favorable stock price response at the time of the acquisition, which is attributed to the large premium that the acquirer pays to obtain control of the target.

Multinational corporations may view international acquisitions as a better form of direct foreign investment (DFI) than establishing a new subsidiary. However, there are distinct differences between these two forms of DFI. Through an international acquisition, the firm can immediately expand its international business since the target is already in place.

EXAMPLE Yahoo! successfully established portals in Europe and Asia. However, it believed that it could improve its presence in Asia by focusing on the greater China area. China has much potential because of its population base, but it also imposes restrictions that discourage DFI by firms. Meanwhile, Kimo, a privately held company and the leading portal in Taiwan, had 4 million registered users in Taiwan. Yahoo! agreed to acquire Kimo for about $150 million. With this DFI, Yahoo! not only established a presence in Taiwan but also established a link to mainland China. ●

When viewed as a project, the international acquisition usually generates quicker and larger cash flows than the establishment of a new subsidiary, but it also requires a larger initial outlay. International acquisitions also necessitate the integration of the parent's management style with that of the foreign target.

WEB

www.worldbank.org
Data on socioeconomic development and performance indicators as well as links to statistical and project-oriented publications and analyses.

15-2b Trends in International Acquisitions

Traditionally, MNCs in various countries tend to focus on specific geographic regions and use stocks or cash to make their purchases depending on shareholder power.

Multinational corporations based in the United States acquire more firms in the United Kingdom than in any other country. British and Canadian firms are the most common acquirers of companies in the United States. In general, Europe has been a popular target for U.S. firms, especially since many European countries adopted the euro and allowed easier entry for firms that want to do business there.

When a U.S. firm attempts to acquire a target firm in a country where shareholder rights are weak, it usually uses stock as a method of payment. The target shareholders are willing to accept stock as payment because they will now own shares of a stock in which they enjoy stronger shareholder rights. However, if a firm in a country where shareholder rights are weak wants to acquire a U.S. firm, it would likely need to use cash because the shareholders of the target firm do not want to hold stock of a firm where shareholder rights are weak.

International acquisitions have generally increased over time. However, the pace slowed during the credit crisis in 2008. During this period, MNCs reduced their expansion plans because of forecasts of a weak global economy. In addition, they could not effectively finance acquisitions. Credit was quite limited during the credit crisis because creditors feared that some MNCs might fail and therefore not repay their loans. Using stock offerings to finance acquisitions was also not a realistic option. If MNCs attempted to issue stock in order to support acquisitions, they would have to issue the stock at about the prevailing market price. Yet because MNCs at that time had low stock prices due to the negative outlook for the global economy, they would have received a relatively small amount of proceeds from a secondary stock offering.

15-2c Barriers to International Corporate Control

The international market for corporate control is limited by barriers that a target firm or its host government can implement to protect against a takeover.

Anti-Takeover Amendments Implemented by Target First, the target may implement an anti-takeover amendment that requires a large proportion of shareholders to approve the takeover. This type of amendment allows a firm's employees to prevent a takeover.

Poison Pills Implemented by Target An alternative method of protecting against a takeover is a poison pill, which grants special rights to managers or shareholders under specified conditions. For example, a poison pill might grant existing shareholders of the target additional stock if a takeover is initiated. A poison pill does not require the approval of other shareholders, so it can be easily implemented by the target firm. In some cases, a poison pill is implemented not to prevent a takeover but rather as a bargaining tool by the target firm. Since a poison pill can make it very expensive for another firm to acquire the target, it essentially forces the MNC to negotiate with the target's management.

In most cases, the target's management and board will be unwilling to give up control unless an MNC is willing to pay a premium (above the existing share price) of perhaps 30 to 50 percent. For example, if a firm wants to acquire a target that presently has a

market value of $100 million (based on today's stock price), it may have to pay $130 to $150 million to obtain control of the target. When an MNC must pay such a high price for the target, its board may decide that the takeover cannot be justified.

Alternatively, an MNC might pursue the takeover anyway, which normally causes some of its shareholders to sell their shares because they believe the MNC is paying too much for the target. Consequently, the share prices of the MNC could decline in response to its announced intentions to take over a target, especially when the premium that it plans to pay is very high.

Host Government Barriers Governments of some countries restrict foreign firms from taking control of local firms, or they may allow foreign ownership of local firms only if specific guidelines are satisfied. For example, foreign firms might be allowed to acquire a local firm only if they retain all employees in the local target company. If the local firm was an appealing takeover target to foreign firms because it was inefficient and could be acquired at a low price, then the inability to reduce its employment level means the foreign firm may be prevented from improving the target. Thus, this type of restriction could serve as a major barrier to international corporate control.

15-2d Model for Valuing a Foreign Target

WEB

www.cia.gov
Provides a link to the *World Factbook*, which has valuable information about countries that would be considered by MNCs seeking to acquire foreign targets.

Recall from Chapter 1 that the value of an MNC is based on the present value of expected cash flows to be received. An MNC that engages in restructuring alters the structure of its assets, which will ultimately affect the present value of its cash flows. For example, if it acquires a company then it will incur a large initial outlay this year, but its expected annual cash flows will now be larger. An MNC's decision to acquire a foreign company is similar to the decision to invest in other projects in that it is based on a comparison of benefits and costs as measured by net present value (as explained in Chapter 14). From the MNC's perspective, the foreign target's value can be estimated as the present value of cash flows that the MNC would receive from the target.

The MNC would consider investing in the target only if the estimated present value of the cash flows it would receive from the target over time exceeds the initial outlay necessary to purchase the target. Thus, capital budgeting analysis can be used to determine whether a firm should be acquired. The net present value of a company from the acquiring firm's perspective (NPV_a) is

$$NPV_a = -IO_a + \sum_{t=1}^{n} \frac{CF_{a,t}}{(1+k)^t} + \frac{SV_a}{(1+k)^n}$$

where

IO_a = initial outlay needed by the acquiring firm to acquire the target
$CF_{a,t}$ = cash flow to be generated by the target for the acquiring firm
k = required rate of return on the acquisition of the target
SV_a = salvage value of the target (expected selling price of the target at a point in the future)
n = time when the target will be sold by the acquiring firm

Estimating the Initial Outlay The initial outlay reflects the price to be paid for the target. When firms acquire publicly traded foreign targets, they commonly pay premiums of at least 30 percent above the prevailing stock price of the target in order to gain ownership. This premium must be accounted for when deriving an accurate estimate of the estimated initial outlay.

For an acquisition to be successful, the acquirer must substantially improve the target's cash flows so that it can overcome the large premium it pays for the target. The capital budgeting analysis of a foreign target must also account for the exchange rate of concern. The dollar initial outlay ($IO_{U.S.}$) needed by the U.S. firm is determined by the acquisition price in foreign currency units (IO_f) and the spot rate of the foreign currency (S):

$$IO_{U.S.} = IO_f(S)$$

Estimating the Cash Flows The dollar amount of cash flows to the U.S. firm is calculated as the foreign currency cash flows ($CF_{f,t}$) per period remitted to the United States multiplied by the spot rate at that time (S_t):

$$CF_{a,t} = (CF_{f,t})S_t$$

The estimated foreign currency cash flows that are to be converted must account for any taxes or blocked-funds restrictions imposed by the host government. Some international acquisitions backfire because the MNC overestimates the net cash flows of the target. That is, the MNC's managers are excessively optimistic when estimating the target's future cash flows, which leads them to make acquisitions that are not feasible.

The dollar amount of salvage value to the U.S. firm is determined by the salvage value in foreign currency units (SV_f) and the spot rate at the time (period n) when it is converted to dollars (S_n) as follows:

$$SV_a = (SV_f)S_n$$

Estimating the NPV The net present value of a foreign target can be derived by substituting the equalities just described into the capital budgeting equation:

$$NPV_a = -IO_a + \sum_{t=1}^{n} \frac{CF_{a,t}}{(1+k)^t} + \frac{SV}{(1+k)^n}$$

$$= -(IO_f)S + \sum_{t=1}^{n} \frac{(CF_{f,t})S_t}{(1+k)^t} + \frac{(SV_f)S_n}{(1+k)^n}$$

15-2e Impact of the SOX Act on the Valuation of Targets

In response to some major abuses in financial reporting by some MNCs such as Enron and WorldCom, Congress passed the Sarbanes-Oxley (SOX) Act in 2002. The SOX Act improved the process for reporting profits used by U.S. firms (including U.S.-based MNCs). It requires firms to document an orderly and transparent process for reporting so that they cannot distort their earnings. It also requires more accountability for oversight by executives and the board of directors. This increased accountability has had a direct impact on the process for assessing acquisitions. Executives of MNCs are prompted to conduct a more thorough review of the foreign target's operations and risk (called due diligence). In addition, the board of directors of an MNC conducts a more thorough review of any proposed acquisitions before agreeing to them. Multinational corporations increasingly hire outside legal and financial advisers to offer their assessment of proposed acquisitions. If an MNC pursues an acquisition, it must ensure that financial information of the target is accurate.

15-3 Factors Affecting Target Valuation

When an MNC estimates the future cash flows that it will ultimately receive after acquiring a foreign target, it considers several factors about the target or its respective country.

15-3a Target-Specific Factors

The following characteristics of the foreign target are typically considered when estimating the cash flows that the target will provide to the parent.

Target's Previous Cash Flows Since the foreign target has been conducting business, it has a history of cash flows that it has generated. The recent cash flows per period may serve as an initial base from which future cash flows per period can be estimated after accounting for other factors. Such recent data may also make it easier to estimate the cash flows the target will generate than to estimate the cash flows that would be generated by a new foreign subsidiary.

However, a company's previous cash flows are not necessarily an accurate indicator of future cash flows to the acquirer because the target's future cash flows must be converted into the acquirer's home currency when they are remitted to the parent. The acquirer needs to carefully consider all the factors that could influence the amount of funds that the target will need to continue its operations so that the cash flows remitted to the parent can be more accurately estimated.

Managerial Talent of the Target An acquiring firm must assess the target's existing management so that it can determine how the target firm will be managed after the acquisition. If the MNC acquires the target, it may allow the target firm to be managed as it was before the acquisition. Under these conditions, however, the acquiring firm may have less potential for enhancing the target's cash flows.

A second alternative for the MNC is to downsize the target firm after acquiring it. For example, if the acquiring firm introduces new technology that reduces the need for some of the target's employees, it can attempt to downsize the target. Downsizing reduces expenses but may also reduce productivity and revenue, so the effect on cash flows can vary with the situation.

A third alternative for the MNC is to maintain the existing employees of the target but restructure the operations so that labor is used more efficiently. For example, the MNC may infuse its own technology into the target firm and then restructure operations so that many of the employees receive new job assignments. This strategy may cause the acquirer to incur some additional expenses, but there is potential for improved cash flows over time.

15-3b Country-Specific Factors

An MNC typically considers the following country-specific factors when estimating the cash flows that will be provided by the foreign target to the parent.

Target's Local Economic Conditions Potential targets in countries where economic conditions are strong are more likely to experience strong demand for their products in the future and may generate higher cash flows. However, some firms are more sensitive to economic conditions than others. Also, some acquisitions of firms are intended to focus on exporting from the target's home country, so the economic conditions in the target's country may not be as important. Economic conditions are difficult to predict over a long-term period, especially for emerging countries.

Target's Local Political Conditions Potential targets in countries where political conditions are favorable are less likely to experience adverse shocks to their cash flows. The sensitivity of cash flows to political conditions depends on the firm's type of business. Political conditions are also difficult to predict over a long-term period, especially for emerging countries.

If an MNC plans to improve the efficiency of a target by laying off employees who are not needed, it must first make sure that the government would allow layoffs before it

makes the acquisition. Some countries protect employees from layoffs, which may cause many local firms to be inefficient. An MNC might not be capable of improving efficiency if it is not allowed to lay off employees.

Target's Industry Conditions Industry conditions within a country can cause some targets to be more desirable than others. Some industries in a particular country may be extremely competitive while others are not. In addition, some industries exhibit strong potential for growth in a particular country, whereas others exhibit very little potential. When an MNC assesses targets among countries, it would prefer a country where the growth potential for its industry is high and the competition within the industry is low.

WEB

http://research.stlouisfed.org/fred2
Numerous economic and financial time series, including balance-of-payments statistics, interest rates, and foreign exchange rates.

Target's Currency Conditions If a U.S.-based MNC plans to acquire a foreign target, it must consider how future exchange rate movements may affect the target's local currency cash flows. It must also consider how exchange rates will affect the conversion of the target's remitted earnings to the U.S. parent. In the typical case, ideally the foreign currency would be weak at the time of the acquisition (so that the MNC's initial outlay is low) but strengthen over time as funds are periodically remitted to the U.S. parent. The MNC forecasts future exchange rates and then applies the forecasts to estimate the effect of those rates on cash flows.

Target's Local Stock Market Conditions Potential target firms that are publicly held are continuously valued in the market, so their stock prices can change rapidly. As the target firm's stock price changes, the bid price required to buy that firm will likely change as well. Thus, there can be substantial swings in the purchase price that would be acceptable to a target. This is especially true for publicly traded firms in emerging markets in Asia, Eastern Europe, and Latin America, where stock prices often change by 5 percent or more in a week. Therefore, an MNC that plans to acquire a target would prefer to make its bid at a time when the local stock market prices are generally low.

Taxes Applicable to the Target When an MNC assesses a foreign target, it must estimate the expected after-tax cash flows that it will ultimately receive in the form of funds remitted to the parent. Thus, the tax laws applicable to the foreign target are used to derive the after-tax cash flows. First, the applicable corporate tax rates are applied to the estimated future earnings of the target to determine the after-tax earnings. Second, the after-tax proceeds are determined by applying any withholding tax rates to the funds that are expected to be remitted to the parent in each period. Third, if the acquiring firm's government imposes an additional tax on remitted earnings or allows a tax credit, that tax or credit must be applied.

15-4 Example of the Valuation Process

Lincoln Co. desires to expand in Latin America or Canada. The methods Lincoln uses to screen targets in various countries and then to estimate a target's value are discussed next.

15-4a International Screening Process

Lincoln Co. considers the factors just described when it conducts an initial screening of prospective targets. It has identified prospective targets in Mexico, Brazil, Colombia, and Canada, as shown in Exhibit 15.1. The target in Mexico has no plans to sell its business and is unwilling to even consider an offer from Lincoln Co. Therefore, this firm is no longer considered. Lincoln anticipates potential political problems that could create barriers to an acquisition in Colombia, even though the Colombian target is willing to be

Exhibit 15.1 Example of Process Used to Screen Foreign Targets

TARGET BASED IN	IS THE TARGET RECEPTIVE TO AN ACQUISITION?	LOCAL ECONOMIC AND INDUSTRY CONDITIONS	LOCAL POLITICAL CONDITIONS	LOCAL CURRENCY CONDITIONS	PREVAILING STOCK MARKET PRICES	TAX LAWS
Mexico	No	Favorable	OK	OK	OK	May change
Brazil	Maybe	OK	OK	OK	Too high	May change
Colombia	Yes	Favorable	Volatile	Favorable	OK	Reasonable
Canada	Yes	OK	Favorable	Slightly unfavorable	OK	Reasonable

acquired. Stock market conditions are not favorable in Brazil, as the stock prices of most Brazilian companies have recently risen substantially. Lincoln does not want to pay as much as the Brazilian target is now worth based on its prevailing market value.

Based on this screening process, the only foreign target that deserves a closer assessment is the target in Canada. According to Lincoln's assessment, Canadian currency conditions are slightly unfavorable, but this is not a reason to eliminate the target from further consideration. Thus, the next step would be for Lincoln to obtain as much information as possible about the target and conditions in Canada. Then Lincoln can use this information to derive the target's expected cash flows and to determine whether the target's value exceeds the initial outlay that would be required to purchase it, as explained next.

15-4b Estimating the Target's Value

Once Lincoln Co. has completed its initial screening of targets, it conducts a valuation of all targets that passed the screening process. Lincoln can estimate the present value of future cash flows that would result from acquiring the target. This estimation is then used to determine whether the target should be acquired.

Continuing with our simplified example, Lincoln's screening process resulted in only one eligible target, a Canadian firm. The Canadian firm has conducted all of its business locally. Lincoln expects that it can obtain materials at a lower cost than the target can because of its relationships with some Canadian suppliers and because it will implement a more efficient production process. Lincoln plans to use its existing managerial talent to manage the target and thereby reduce the administrative and marketing expenses incurred by the target. It expects that the target's revenue will increase when its products are sold under Lincoln's name. Lincoln expects to maintain prices of the products as they are.

The target's expected cash flows can be measured by first determining the revenue and expense levels in recent years and then adjusting those levels to reflect the changes that would occur after the acquisition, as shown in Exhibit 15.2.

Estimated Revenue of Target The target's annual revenue has ranged between C$80 million and C$90 million in Canadian dollars (C$) over the last 4 years. Lincoln Co. expects that it can improve sales, and it forecasts revenue to be C$100 million next year, C$93.3 million in the following year, and C$121 million in the year after (see row 1 of Exhibit 15.2).

Estimated Expenses of Target The cost of goods sold has been about 50 percent of revenue in the past, but Lincoln expects it will fall to 40 percent of revenue because of improvements in efficiency. Thus, the cost of goods sold in row 2 is 40 percent of the estimated revenue in row 1. Gross profit (row 3) is equal to revenue (row 1) minus

Exhibit 15.2 Valuation of Canadian Target Based on the Assumptions Provided (millions of dollars)

		LAST YEAR	YEAR 1	YEAR 2	YEAR 3
1.	Revenue	C$90	C$100	C$93.3	C$121
2.	Cost of goods sold	C$45	C$40	C$37.3	C$48.4
3.	Gross profit	C$45	C$60	C$56	C$72.6
4.	Selling & administrative expenses	C$20	C$15	C$15	C$15
5.	Depreciation	C$10	C$10	C$10	C$10
6.	Earnings before taxes	C$15	C$35	C$31	C$47.6
7.	Tax (30%)	C$4.5	C$10.5	C$9.3	C$14.28
8.	Earnings after taxes	C$10.5	C$24.5	C$21.7	C$33.32
9.	+ Depreciation		C$10	C$10	C$10
10.	− Funds to reinvest		C$5	C$5	C$5
11.	Sale of firm after capital gains taxes				C$230
12.	Cash flows in C$		C$29.5	C$26.7	C$268.32
13.	Exchange rate of C$		$.80	$.80	$.80
14.	Cash flows in $		$23.6	$21.36	$214.66
15.	PV (20% discount rate)		$19.67	$14.83	$124.22
16.	Cumulative PV		$19.67	$34.50	$158.72

cost of goods sold (row 2). Selling and administrative expenses have been about C$20 million annually, but Lincoln believes that through restructuring it can reduce these expenses to C$15 million in each of the next three years (see row 4). Depreciation expenses have been about C$10 million in the past and are expected to remain at that level for the next three years (see row 5).

Estimated Earnings of Target Earnings before taxes are estimated in row 6 as gross profit (row 3) minus selling and administrative expenses (row 4) and depreciation (row 5). The taxes to be paid by the target (row 7) are expected to be 30 percent of forecasted earnings before taxes, and they are subtracted from before-tax earnings in order to estimate earnings after taxes (row 8).

Cash Flows to Parent Because Lincoln's parent wishes to assess the target from its own perspective, it focuses on the dollar cash flows that it expects to receive. Assume that the target will need C$5 million in cash each year to support existing operations (including the repair of existing machinery) and that the remaining cash flow can be remitted to the U. S. parent. The cash flows generated by the target (row 12) are determined by adding the depreciation expenses (row 9) back to the after-tax earnings, accounting for the amount of funds to be reinvested to maintain existing operations (row 10) and accounting for the salvage value (row 11) when the target business is sold. Assume that Lincoln expects to receive C$230 million (after capital gains taxes) from the sale of the target in three years.

Assuming no additional taxes, the expected cash flows generated in Canada that are to be remitted to Lincoln are converted into U.S. dollars at the expected exchange rate at the end of each year. Lincoln uses the prevailing exchange rate of the Canadian dollar (which is $.80) as the expected exchange rate for the Canadian dollar in future years (row 13) when estimating the U.S. dollar cash flows to be received by the parent (row 14).

Valuing the Present Value of Estimated Cash Flows Assuming a required rate of return of 20 percent (row 15), the present value of the target is estimated to be $158.72 million after three years (last column of row 16). Given that the target presently

has 10 million shares outstanding, and that its shares are currently valued at C$17 per share, the 10 million shares are worth C$170 million. At the prevailing exchange rate of $.80 per Canadian dollar, the target is currently valued at $136 million by the market (computed as C$170 million × $.80). Lincoln's valuation of the target of about $159 million is about 17 percent above the market valuation. However, Lincoln would not have to pay a premium on the shares to persuade the target's board of directors to approve the acquisition. Because Lincoln believes it would have to offer a premium of more than 17 percent to purchase the target, it should not pursue the acquisition.

Sources of Uncertainty This example shows how the acquisition of a publicly traded foreign firm differs from the creation of a new foreign subsidiary. Although the valuation of a publicly traded foreign firm can utilize information about an existing business, the cash flows resulting from the acquisition are still subject to uncertainty for several reasons, which can be identified by reviewing the assumptions made in the valuation process.

First, revenue is subject to uncertainty because economic growth is difficult to forecast. Second, the cost of goods sold could exceed the assumed level of 40 percent of revenue, which would reduce cash flows remitted to the parent. Third, the selling and administrative expenses could exceed the assumed amount of C$15 million, especially when considering that the annual expenses were C$20 million prior to the acquisition. Fourth, Canada's corporate tax rate could increase, which would reduce the cash flows remitted to the parent. Fifth, the exchange rate of the Canadian dollar may be weaker than assumed, which would reduce the cash flows received by the parent. Sixth, the estimated selling price of the target three years from now could be incorrect for any of these five reasons, and this estimate has a strong effect on the current valuation of the target.

To account for uncertainty, the capital budgeting analysis could be reapplied after allowing for possible alternative scenarios. For example, the future cash flows to be received by Lincoln could be reestimated based on alternative assumptions about revenue, cost, future exchange rates, or salvage value.

15-4c Changes in Valuation over Time

If Lincoln Co. decides not to bid for the target at this time, it will need to redo its analysis if it later reconsiders acquiring the target. As the factors that affect the expected cash flows or the required rate of return from investing in the target change, so will the target's value.

Impact of Stock Market Conditions A change in stock market conditions affects the price per share of each stock in that market. Thus, the value of publicly traded firms in that market will change. Remember that an acquirer needs to pay a premium above the market valuation to acquire a foreign firm.

Continuing with the example involving Lincoln Co.'s pursuit of a Canadian target, assume that the target firm has a market price of C$17 per share (representing a valuation of C$170 million) but that, before Lincoln makes its decision to acquire the target, the Canadian stock market level rises by 20 percent. If the target's stock price rises by this same percentage, the firm is now valued in the market at

$$\begin{aligned}\text{New stock price} &= \text{C\$170 million} \times 1.2\\ &= \text{C\$204 million}\end{aligned}$$

This example illustrates how the price paid for the target can change abruptly simply because of a change in the general level of the stock market.

Even if a target is privately held, general stock market conditions will affect the amount that an acquirer has to pay for the target because a privately held company's value is

influenced by the market price multiples of related firms in the same country. A simple method of valuing a private company is to apply the price/earnings (P/E) ratios of publicly traded firms in the same industry to the private company's annual earnings. If stock prices rise in a particular country, then the P/E ratios of publicly traded firms in that country usually rise and so a higher P/E ratio would be applied to value a private firm.

Impact of Credit Availability The availability of credit has a strong effect on the ability of MNCs to make acquisitions. During the credit crisis in 2008, stock market values of many firms weakened substantially. As a result, foreign targets could be purchased at a much lower price. However, this did not encourage more acquisitions. The decline in value reflected the lower cash flow estimates of the companies because the economies of most countries were expected to weaken. In fact, foreign acquisitions declined during this period because MNCs did not want to expand while the global economies were weak. Furthermore, credit was limited, which restricted the amount of funding that would be available for MNCs that pursued acquisitions.

Impact of Exchange Rates Whether a foreign target is publicly traded or private, a U.S. acquirer must convert dollars to the local currency in order to purchase the target. If the foreign currency appreciates by the time the acquirer makes payment, then the acquisition will be more costly. The cost of the acquisition changes in the same proportion as the change in the exchange rate.

Impact of Market Anticipation Regarding the Target The stock price of the target may increase if investors anticipate that the target will be acquired because they are aware that stock prices of targets rise abruptly after a bid by the acquiring firm. Thus, it is important that Lincoln keep its intentions about acquiring the target confidential.

15-5 Disparity in Foreign Target Valuations

Most MNCs that consider acquiring a specific target will use a process similar to the one just described when valuing the target. Nevertheless, their valuations of the target will vary because of differences in the following inputs: (1) cash flows to be generated by the target, (2) exchange rate effects on funds remitted to the MNC's parent, and (3) the parent's required rate of return in order to acquire the target.

15-5a Expected Cash Flows of the Foreign Target

The target's expected future cash flows will vary among any MNCs that would consider acquiring it because the cash flows to the acquirer will depend on its management or oversight of the target's operations. If an MNC can improve the target's production efficiency without reducing its production volume, it can improve the target's cash flows.

Each MNC may have a different plan as to how the target will fit within its structure and how the target will conduct future operations. The target's expected cash flows will be influenced by the way it is utilized. An MNC with production plants in Asia that purchases another Asian production plant may simply be attempting to increase its market share and production capacity. This MNC's cash flows change because of a higher production and sales level. In contrast, an MNC with all of its production plants in the United States may purchase an Asian production plant to shift its production where costs are lower. This MNC's cash flows change because of lower expenses.

Tax laws can create competitive advantages for acquirers that are based in some countries. Acquirers based in low-tax countries may be able to generate higher cash flows from acquiring a foreign target than acquirers in high-tax countries simply because they are subject to lower taxes on the future earnings remitted by the target (after it is acquired).

15-5b Exchange Rate Effects on Remitted Earnings

The valuation of a target can vary among MNCs simply because of differences in the exchange rate effects on earnings remitted by the foreign target to the MNC's parent. On the one hand, if the MNC would require the target to remit most of its earnings shortly after being acquired, then the target's value will depend in part on the expected exchange rate of the target's local currency when the earnings are remitted to the MNC. On the other hand, if the MNC would prefer that the target reinvest its earnings to expand operations in the host country, then the target's valuation depends more on its local growth strategy and on exchange rates in the distant future.

15-5c Required Return of Acquirer

The valuation of the target could also vary among MNCs because of differences in their required rate of return from investing funds to acquire the target. If an MNC targets a successful foreign company and plans to continue the target's local business in a more efficient manner, then the risk of the business will be relatively low. In that case, the MNC's required return from acquiring the target will be relatively low. Yet if an MNC seeks to convert the target into a major exporter, then the risk is much higher because the cash flows from the new exporting business are very uncertain. Under these conditions, the MNC's required return from acquiring the target will be relatively high.

If potential acquirers are based in different countries, their required rates of return from a specific target will vary even if they plan to use the target in similar ways. Recall that an MNC's required rate of return on any project depends on the local risk-free interest rate (since that rate influences the cost of funds for the MNC). Therefore, the required rate of return for MNCs based in countries with relatively high interest rates (such as Brazil and Venezuela) may differ from MNCs based in countries with low interest rates (such as the United States and Japan). The higher required rate of return for MNCs based in Latin American countries will not necessarily lead to a lower valuation. The target's currency might be expected to appreciate substantially against Latin American currencies (since some Latin American currencies have consistently weakened over time), which would enhance the amount of cash flows received as a result of remitted funds and could possibly offset the effects of the higher required rate of return.

15-6 Other Corporate Control Decisions

Besides acquiring foreign firms, MNCs may also pursue international partial acquisitions, acquisitions of privatized businesses, and international divestitures. Each type is described in turn.

15-6a International Partial Acquisitions

An MNC may consider a partial international acquisition in which it purchases part of the existing stock of a foreign firm. A partial international acquisition requires fewer funds because only a portion of the foreign target's shares are purchased. With this type of investment, the foreign target normally continues operating and may not experience the employee turnover that usually occurs after a target's ownership changes. Nevertheless, by acquiring a substantial fraction of the shares, the MNC may have some influence on the target's management and is in a position to complete the acquisition in the future. Some MNCs buy substantial stakes in foreign companies to maintain control over their operations. For example, Coca-Cola has purchased stakes in many foreign bottling companies that bottle its syrup. In this way, it can ensure that the bottling operations meet its standards.

Valuation Process When an MNC considers a partial acquisition in which it will purchase enough shares to control the firm, the MNC can conduct its valuation of the target in much the same way as when it purchases the entire firm. If the MNC buys only a small proportion of the firm's shares, however, then the MNC cannot restructure the firm's operations to make it more efficient. Therefore, its estimates of the target's cash flows must be made from the perspective of a passive investor rather than as a decision maker for the firm.

15-6b International Acquisitions of Privatized Businesses

In recent years, government-owned businesses in many developing countries in Eastern Europe and South America have been sold to individuals or corporations. Many MNCs have capitalized on this wave of so-called privatization by taking control of businesses that are sold by governments. These businesses may be attractive because of the potential for MNCs to increase their efficiency.

Valuation Process An MNC can conduct a valuation of a foreign business that was owned by the government in a developing country by using capital budgeting analysis, as illustrated earlier. However, the valuation of such businesses is difficult for the following reasons.

- The future cash flows are uncertain because the businesses were previously operating in environments of little or no competition. Thus, previous sales volume figures may not be useful indicators of future sales.
- Data concerning what businesses are worth are limited in some countries because there are not many publicly traded firms in their markets and there is limited disclosure of prices paid for targets in other acquisitions. Consequently, there may not be any benchmarks to use when valuing a privatized business.
- Economic conditions in these countries are uncertain during the transition to a market-oriented economy.
- Political conditions tend to be volatile during the transition because government policies for businesses are sometimes unclear or subject to abrupt changes.
- If the government retains a portion of the firm's equity, it may attempt to exert some control over the firm. Its objectives may be very different from those of the acquirer, a situation that could lead to conflict.

Despite these difficulties, MNCs such as IBM and PepsiCo have acquired privatized businesses as a means of entering new markets. Hungary serves as a model country for privatizations. Hungary's government was quick and efficient at selling off its assets to MNCs. More than 25,000 MNCs have a foreign stake in Hungary's businesses.

15-6c International Divestitures

Multinational corporations periodically reassess foreign projects that they previously implemented to determine whether they should be continued or sold (divested). Some foreign projects that were previously implemented may no longer be feasible if today's present value of the project's future cash flows is lower than the price for which the project could now be sold. Some external forces that could reduce the present value of a foreign subsidiary's future cash flows are:

- a weakening economy in the host country could reduce expected cash flows to be generated by the subsidiary,
- a reduction in the local currency of the host country could reduce the exchange rate at which the cash flows generated by the subsidiary would be converted to dollars,
- higher taxes imposed by the host government would reduce the expected cash flows of the subsidiary, and

flows from Spartan's perspective exceeds the price at which it can sell the subsidiary, the divestiture is not feasible. Thus, Spartan should not divest the subsidiary at the price offered. Spartan may still search for another firm that is willing to acquire the subsidiary for a price that exceeds its present value. ●

15-7 Control Decisions as Real Options

Some international corporate control decisions by MNCs involve real options, or implicit options on real assets (such as buildings, machinery, and other assets used by MNCs to facilitate their production). A real option can be classified as a call option on real assets or a put option on real assets, as explained next.

15-7a Call Option on Real Assets

A **call option on real assets** represents a proposed project that contains an option of pursuing an additional venture. Some possible forms of restructuring by MNCs contain a call option on real assets. Multinational capital budgeting can be conducted in a way that accounts for the option.

EXAMPLE Coral, Inc., an Internet firm in the United States, is considering the acquisition of an Internet business in Mexico. Coral estimates and discounts the expected dollar cash flows that would result from acquiring this business and compares them to the initial outlay. At this time, the present value of the future cash flows that are directly attributable to the Mexican business is slightly lower than the initial outlay that would be required to purchase that business, so the business appears to be an infeasible investment.

A Brazilian Internet firm is also for sale. However, its owners will sell the business only to a firm that they know and trust, and Coral, Inc., has no relationship with this business. A possible advantage of the Mexican firm that is not measured by the traditional multinational capital budgeting analysis is that it frequently does business with the Brazilian Internet firm and could use its relationship to help Coral acquire the Brazilian firm. Thus, if Coral purchases the Mexican business, it will have an option to also acquire the Internet firm in Brazil. In essence, Coral will have a call option on real assets (of the Brazilian firm) because it will have the option (not the obligation) to purchase the Brazilian firm. The expected purchase price of the Brazilian firm over the next few months serves as the exercise price in the call option on real assets. If Coral acquires the Brazilian firm, it now has a second initial outlay and will generate a second stream of cash flows.

When the call option on real assets is considered, the acquisition of the Mexican Internet firm may now be feasible even though it was not feasible when considering only the cash flows directly attributable to that firm. The project can be analyzed by segmenting it into two scenarios. In the first scenario, Coral, Inc., acquires the Mexican firm but, after taking a closer look at the Brazilian firm, decides not to exercise its call option (decides not to purchase the Brazilian firm). The net present value in this scenario is simply a measure of the present value of expected dollar cash flows directly attributable to the Mexican firm minus the initial outlay necessary to purchase that firm. In the second scenario, Coral, Inc., acquires the Mexican firm and then exercises its option by also purchasing the Brazilian firm. In this case, the present value of combined (Mexican firm plus Brazilian firm) cash flow streams (in dollars) would be compared to the combined initial outlays.

If the outlay necessary to acquire the Brazilian firm was made after the initial outlay of the Mexican firm, then the outlay for the Brazilian firm should be discounted to determine its present value. If Coral, Inc., knows the probability of the two scenarios, it can determine the probability of each one and then determine the expected value of the proposed project's NPV by summing the products of the probability of each scenario by the respective net present value for that scenario. ●

15-7b Put Option on Real Assets

A **put option on real assets** represents a proposed project that contains an option of divesting part or all of the project. Like a call option on real assets, a put option on real assets can be accounted for by multinational capital budgeting.

EXAMPLE

Jade, Inc., an office supply firm in the United States, is considering the acquisition of a similar business in Italy. Jade believes that if future economic conditions in Italy are favorable then the net present value of this project is positive. However, given that weak economic conditions in Italy are more likely, the proposed project appears to be infeasible.

Assume now that Jade, Inc., knows that it can sell the Italian firm at a specified price to another firm at any time during the next four years. Thus, Jade has an implied put option attached to the project.

The feasibility of this project can be assessed by determining the net present value under both the scenario of strong economic conditions and the scenario of weak economic conditions. The expected value of the net present value of this project can be estimated as the sum of the products of the probability of each scenario by its respective net present value. If economic conditions are favorable, the net present value is positive. If economic conditions are weak then Jade, Inc., may sell the Italian firm at the locked-in sales price (which resembles the exercise price of a put option) and therefore may still achieve a positive net present value over the short time that it owned the Italian firm. Thus, the put option on real assets may turn an infeasible project into a feasible one. ●

Summary

- An MNC's board of directors is responsible for ensuring that its managers focus on maximizing the wealth of the shareholders. A board should be more effective if the chair is an outside board member and if the board is dominated by outside members. Institutional investors monitor an MNC, but some institutional investors (such as hedge funds) tend to be more effective monitors than others. Blockholders who have a large stake in the firm may also serve as effective monitors and can influence the management because of their voting power.
- The international market for corporate control serves as another form of governance because public firms that do not serve their shareholders may become subject to takeovers. However, managers of public firms can implement some tactics such as anti- takeover provisions and poison pills in order to protect against takeovers.
- The valuation of a firm's target is influenced by target-specific factors (such as the target's previous cash flows and its managerial talent) and country-specific factors (such as economic conditions, political conditions, currency conditions, and stock market conditions).
- In the typical valuation process, an MNC initially screens prospective targets based on willingness to be acquired and country barriers. Each prospective target is valued by estimating its cash flows, based on target-specific characteristics and the target's country characteristics, and by discounting the expected cash flows. Then the perceived value is compared to the target's market value to determine whether the target can be purchased at a price that is below the perceived value from the MNC's perspective.
- Valuations of a foreign target may vary among potential acquirers because of differences in estimates of the target's cash flows or exchange rate movements or differences in the required rate of return among acquirers. These differences may be especially pronounced when the potential acquirers are from different countries.
- Besides international acquisitions of firms, international corporate control transactions include international partial acquisitions, international acquisitions of privatized businesses, and international divestitures. The feasibility of these types of transactions can be assessed by applying multinational capital budgeting.

POINT COUNTER-POINT

Can a Foreign Target Be Assessed Like Any Other Asset?

Point Yes. The value of a foreign target to an MNC is the present value of the future cash flows to the MNC. The process of estimating a foreign target's value is the same as the process of estimating a machine's value. A target has expected cash flows, which can be derived from information about previous cash flows.

Counter-Point No. A target's behavior will change after it is acquired by an MNC. Its efficiency may improve depending on the ability of the MNC to integrate the target with its own operations. The morale of the target employees could either improve or worsen after the acquisition, depending on their treatment by the acquirer. Thus, a proper estimate of cash flows generated by the target must consider the changes in the target due to the acquisition.

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. Explain why more acquisitions have taken place in Europe in recent years.
2. What are some of the barriers to international acquisitions?
3. Why might a U.S.-based MNC prefer to establish a foreign subsidiary rather than acquire an existing firm in a foreign country?
4. Provo, Inc. (based in Utah), has been considering the divestiture of a Swedish subsidiary that produces ski equipment and sells it locally. A Swedish firm has already offered to acquire this Swedish subsidiary. Assume that the U.S. parent has just revised its projections of the Swedish krona's value downward. Will the proposed divestiture now seem more or less feasible than it did before? Explain.

QUESTIONS AND APPLICATIONS

1. **Motives for Restructuring** Why do you think MNCs continuously assess possible forms of multinational restructuring, such as foreign acquisitions or downsizing of a foreign subsidiary?

2. **Exposure to Country Regulations** Maude, Inc., a U.S.-based MNC, has recently acquired a firm in Singapore. To eliminate inefficiencies, Maude downsized the target substantially, eliminating two-thirds of the workforce. Why might this action affect the regulations imposed on the subsidiary's business by the Singapore government?

3. **Global Expansion Strategy** Poki, Inc., a U.S.-based MNC, is considering expanding into Thailand because of decreasing profit margins in the United States. The demand for Poki's product in Thailand is very strong. However, forecasts indicate that the baht is expected to depreciate substantially over the next 3 years. Should Poki expand into Thailand? What factors may affect its decision?

4. **Valuation of a Private Target** Rastell, Inc., a U.S.-based MNC, is considering the acquisition of a Russian target to produce personal computers (PCs) and market them throughout Russia, where demand for PCs has increased substantially in recent years. Assume that the stock prices of most Russian companies rose substantially just prior to Rastell's assessment of the target. If Rastell, Inc., acquires a private target in Russia, will it be able to avoid the impact of the high stock prices on business valuations in Russia?

5. **Comparing International Projects** Savannah, Inc., a manufacturer of clothing, wants to increase its market share by acquiring a target producing a popular clothing line in Europe. This clothing line is well established. Forecasts indicate a relatively stable euro over the life of the project. Marquette, Inc., wants to increase its market share in the personal computer market by acquiring a target in Thailand that currently produces radios and converting the operations to produce PCs. Forecasts indicate a depreciation of the baht over the life of the project. Funds resulting from both projects will be remitted to the respective U.S. parent

on a regular basis. Which target do you think will result in a higher net present value? Why?

6. Privatized Business Valuations Why are valuations of privatized businesses previously owned by the governments of developing countries more difficult than valuations of existing firms in developed countries?

7. Valuing a Foreign Target Blore, Inc., a U.S.-based MNC, has screened several targets. Based on economic and political considerations, only one eligible target remains in Malaysia. Blore would like you to value this target and has provided you with the following information:

- Blore expects to keep the target for 3 years, at which time it expects to sell the firm for 300 million Malaysian ringgit (MYR) after any taxes.
- Blore expects a strong Malaysian economy. The estimates for revenue for the next year are MYR200 million. Revenues are expected to increase by 8 percent in each of the following 2 years.
- Cost of goods sold is expected to be 50 percent of revenue.
- Selling and administrative expenses are expected to be MYR30 million in each of the next 3 years.
- The Malaysian tax rate on the target's earnings is expected to be 35 percent.
- Depreciation expenses are expected to be MYR20 million per year for each of the next 3 years.
- The target will need MYR7 million in cash each year to support existing operations.
- The target's stock price is currently MYR30 per share. The target has 9 million shares outstanding.
- Any remaining cash flows will be remitted by the target to Blore, Inc. Blore uses the prevailing exchange rate of the Malaysian ringgit as the expected exchange rate for the next 3 years. This exchange rate is currently $.25.
- Blore's required rate of return on similar projects is 20 percent.

a. Prepare a worksheet to estimate the value of the Malaysian target based on the information provided.

b. Will Blore, Inc., be able to acquire the Malaysian target for a price lower than its valuation of the target?

8. Uncertainty Surrounding a Foreign Target Refer to question 7. What are some of the key sources of uncertainty in Blore's valuation of the target? Identify two reasons why the expected cash flows from an Asian subsidiary of a U.S.-based MNC would be lower if Asia experienced a new crisis.

9. Divestiture Strategy The reduction in expected cash flows of Asian subsidiaries as a result of the Asian crisis likely resulted in a reduced valuation of these subsidiaries from the parent's perspective. Explain why a U.S.-based MNC might not have sold its Asian subsidiaries.

10. Why a Foreign Acquisition May Backfire Provide two reasons why an MNC's strategy of acquiring a foreign target could backfire. That is, explain why the acquisition might result in a negative NPV.

Advanced Questions

11. Pricing a Foreign Target Alaska, Inc., would like to acquire Estoya Corp., which is located in Peru. In initial negotiations, Estoya has asked for a purchase price of 1 billion Peruvian new sol. If Alaska completes the purchase, it would keep Estoya's operations for 2 years and then sell the company. In the recent past, Estoya has generated annual cash flows of 500 million new sol per year, but Alaska believes that it can increase these cash flows 5 percent each year by improving the operations of the plant. Given these improvements, Alaska believes it will be able to resell Estoya in 2 years for 1.2 billion new sol. The current exchange rate of the new sol is $.29, and exchange rate forecasts for the next 2 years indicate values of $.29 and $.27, respectively. Given these facts, should Alaska, Inc., pay 1 billion new sol for Estoya Corp. if the required rate of return is 18 percent? What is the maximum price Alaska should be willing to pay?

12. Global Strategy Senser Co. established a subsidiary in Russia 2 years ago. Under its original plans, Senser intended to operate the subsidiary for a total of 4 years. However, it would like to reassess the situation because exchange rate forecasts for the Russian ruble indicate that it may depreciate from its current level of $.033 to $.028 next year and to $.025 in the following year. Senser could sell the subsidiary today for 5 million rubles to a potential acquirer. If Senser continues to operate the subsidiary, it will generate cash flows of 3 million rubles next year and 4 million rubles in the following year. These cash flows would be remitted back to the parent in the United States. The required rate of return of the project is 16 percent. Should Senser continue operating the Russian subsidiary?

13. Divestiture Decision Colorado Springs Co. plans to divest either its Singapore or its Canadian subsidiary. Assume that if exchange rates remain constant, the

dollar cash flows each of these subsidiaries would provide to the parent over time would be somewhat similar. However, the company expects the Singapore dollar to depreciate against the U.S. dollar and the Canadian dollar to appreciate against the U.S. dollar. The firm can sell either subsidiary for about the same price today. Which one should it sell?

14. Divestiture Decision San Gabriel Corp. recently considered divesting its Italian subsidiary and determined that the divestiture was not feasible. The required rate of return on this subsidiary was 17 percent. In the last week, San Gabriel's required return on that subsidiary increased to 21 percent. If the sales price of the subsidiary has not changed, explain why the divestiture may now be feasible.

15. Divestiture Decision Ethridge Co. of Atlanta, Georgia, has a subsidiary in India that produces products and sells them throughout Asia. In response to the September 11, 2001, terrorist attack on the United States, Ethridge Co. decided to conduct a capital budgeting analysis to determine whether it should divest the subsidiary. Why might this decision be different after the attack as opposed to before the attack? Describe the general method for determining whether the divestiture is financially feasible.

16. Feasibility of a Divestiture Merton, Inc., has a subsidiary in Bulgaria that it fully finances with its own equity. Last week, a firm offered to buy the subsidiary from Merton for $60 million in cash, and the offer is still available this week as well. The annualized long-term risk-free rate in the United States increased from 7 to 8 percent this week. The expected monthly cash flows to be generated by the subsidiary have not changed since last week. The risk premium that Merton applies to its projects in Bulgaria was reduced from 11.3 to 10.9 percent this week. The annualized long-term risk-free rate in Bulgaria declined from 23 to 21 percent this week. Would the NPV to Merton, Inc., from divesting this unit be more or less than the NPV determined last week? Why? (No analysis is necessary, but make sure that your explanation is very clear.)

17. Accounting for Government Restrictions Sunbelt, Inc., plans to purchase a firm in Indonesia. It believes that it can install its operating procedure in this firm, which would significantly reduce the firm's operating expenses. However, the Indonesian government will approve the acquisition only if Sunbelt agrees not to lay off any workers. How can Sunbelt possibly increase efficiency without laying off workers? How can Sunbelt account for the Indonesian government's position as it assesses the NPV of this possible acquisition?

18. Foreign Acquisition Decision Florida Co. produces software. Its primary business in Boca Raton is expected to generate cash flows of $4 million at the end of each of the next 3 years, and Florida expects that it could sell this business for $10 million (after accounting for capital gains taxes) at the end of 3 years. Florida Co. also has a side business in Pompano Beach that takes the software created in Boca Raton and exports it to Europe. As long as the side business distributes this software to Europe, it is expected to generate $2 million in cash flows at the end of each of the next 3 years. This side business in Pompano Beach is separate from Florida's main business.

Recently, Florida was contacted by Ryne Co., located in Europe, which specializes in distributing software throughout Europe. If Florida acquires Ryne Co., it would rely on Ryne instead of its side business to sell its software in Europe because Ryne could easily reach all of Florida Co.'s existing European customers and additional potential European customers. By acquiring Ryne, Florida would be able to sell much more software in Europe than it can sell with its side business, but it has to determine whether the acquisition would be feasible. The initial investment to acquire Ryne Co. would be $7 million. Ryne would generate 6 million euros per year in profits and would be subject to a European tax rate of 40 percent. All after-tax profits would be remitted to Florida Co. at the end of each year, and the profits would not be subject to any U.S. taxes since they were already taxed in Europe. The spot rate of the euro is $1.10, and Florida Co. believes the spot rate is a reasonable forecast of future exchange rates. Florida Co. expects that it could sell Ryne Co. at the end of 3 years for 3 million euros (after accounting for any capital gains taxes). Florida Co.'s required rate of return on the acquisition is 20 percent. Determine the net present value of this acquisition. Should Florida Co. acquire Ryne Co.?

19. Foreign Acquisition Decision Idaho Co. consists of two businesses. Its local business is expected to generate cash flows of $1 million at the end of each of the next 3 years. It also owns a foreign subsidiary based in Mexico, whose business is selling technology in

Mexico. This business is expected to generate $2 million in cash flows at the end of each of the next 3 years. The main competitor of the Mexican subsidiary is Perez Co., a privately held firm that is based in Mexico. Idaho Co. just contacted Perez Co. and wants to acquire it. If it acquires Perez, Idaho would merge the operations of Perez Co. with its Mexican subsidiary's business. It expects that these merged operations in Mexico would generate a total of $3 million in cash flows at the end of each of the next 3 years. Perez Co. is willing to be acquired for a price of 40 million pesos. The spot rate of the Mexican peso is $.10. The required rate of return on this project is 24 percent. Determine the net present value of this acquisition by Idaho Co. Should Idaho Co. pursue this acquisition?

20. Decision to Sell a Business Kentucky Co. has an existing business in Italy that it is trying to sell. It receives one offer today from Rome Co. for $20 million (after capital gains taxes are paid). Alternatively, Venice Co. wants to buy the business but will not have the funds to make the acquisition until 2 years from now. It is meeting with Kentucky Co. today to negotiate the acquisition price that it will pay for Kentucky in 2 years. If Kentucky Co. retains the business for the next 2 years, it expects that the business will generate 6 million euros per year in cash flows (after taxes are paid) at the end of each of the next 2 years, which would be remitted to the United States. The euro is presently $1.20, and that rate can be used as a forecast of future spot rates. Kentucky would only retain the business if it can earn a rate of return of at least 18 percent by keeping the firm for the next 2 years rather than selling it to Rome Co. now. Determine the minimum price in dollars at which Kentucky should be willing to sell its business (after accounting for capital gain taxes paid) to Venice Co. in order to satisfy its required rate of return.

21. Foreign Divestiture Decision Baltimore Co. considers divesting its six foreign projects as of today. Each project will last 1 year. Its required rate of return on each project is the same. The cost of operations for each project is denominated in dollars and is the same. Baltimore believes that each project will generate the equivalent of $10 million in 1 year based on today's exchange rate. However, each project generates its cash flow in a different currency. Baltimore believes that interest rate parity (IRP) exists. Baltimore forecasts exchange rates as explained in the table below.

PROJECT	COMPARISON OF 1-YEAR U.S. AND FOREIGN INTEREST RATES	METHOD USED TO FORECAST THE SPOT RATE 1 YEAR FROM NOW
Country A	U.S. interest rate is higher than currency A's interest rate	Spot rate
Country B	U.S interest rate is higher than currency B's interest rate	Forward rate
Country C	U.S. interest rate is the same as currency C's interest rate	Forward rate
Country D	U.S. interest rate is the same as currency D's interest rate	Spot rate
Country E	U.S. interest rate is lower than currency E's interest rate	Forward rate
Country F	U.S. interest rate is lower than currency F's interest rate	Spot rate

a. Based on this information, which project will Baltimore be most likely to divest? Why?

b. Based on this information, which project will Baltimore be least likely to divest? Why?

22. Factors That Affect the NPV of a Divestiture Clemson Co. (a U.S. firm) has a subsidiary in Germany that generates substantial earnings in euros each year. One week ago, it received an offer from a company to purchase the subsidiary, and it has not yet responded to this offer.

a. Since last week, the expected stream of euro cash flows has not changed, but the forecasts of the euro's value in future periods have been revised downward. Will the NPV of the divestiture be larger or smaller or the same as it was last week? Briefly explain.

b. Since last week, the expected stream of euro cash flows has not changed, but the long-term interest rate in the United States has declined. Will the NPV of the divestiture be larger or smaller or the same as it was last week? Briefly explain.

23. Impact of Country Perspective on Target Valuation Targ Co. of the United States has been targeted

by three firms that consider acquiring it: (1) Americo (from the United States), Japino (of Japan), and Canzo (of Canada). These three firms do not have any other international business, have similar risk levels, and have a similar capital structure. Each of the three potential acquirers has derived similar expected dollar cash flow estimates for Targ Co. The long-term risk-free interest rate is 6 percent in the United States, 9 percent in Canada, and 3 percent in Japan. The stock market conditions are similar in each of the countries. There are no potential country risk problems that would result from acquiring Targ Co. All potential acquirers expect that the Canadian dollar will appreciate by 1 percent a year against the U.S. dollar and will be stable against the Japanese yen. Which firm will likely have the highest valuation of Targ Co.? Explain.

24. Valuation of a Foreign Target Gaston Co. (a U.S. firm) is considering the purchase of a target company based in Mexico. The net cash flows to be generated by this target firm are expected to be 300 million pesos at the end of 1 year. The existing spot rate of the peso is $.14, while the expected spot rate in 1 year is $.12. All cash flows will be remitted to the parent at the end of 1 year. In addition, Gaston hopes to sell the company for 800 million pesos (after taxes) at the end of 1 year. The target has 10 million shares outstanding. If Gaston purchases this target, it would require a 25 percent return. The maximum value that Gaston should pay for this target company today is _____ pesos per share. Show your work.

25. Divestiture of a Foreign Subsidiary Rudecki Co. (a U.S. firm) has a Polish subsidiary that it is considering divesting. The subsidiary is completely focused on research and development for Rudecki's other business. Rudecki has cash outflows (paid in zloty, the Polish currency) for the laboratories and scientists in Poland. Although the subsidiary does not generate any sales, its research and development lead to new products and higher sales of products that are sold solely in the United States and denominated in dollars. There is no foreign competition. Last week, a firm offered to purchase the subsidiary for $10 million, and the offer is still available. Today Rudecki has revised its forecasts of the zloty upward for all future periods. Will today's adjustment in exchange rate forecasts increase, decrease, or have no effect on the net present value of a divestiture of this subsidiary from Rudecki's perspective? Briefly explain. (Keep in mind that the NPV of the divestiture is not the same as the NPV that results from acquiring a project.)

26. Poison Pills and Takeovers Explain how a foreign target could use poison pills to prevent a takeover or change the terms of a takeover.

27. Governance of MNCs by Shareholders Explain the various ways in which large shareholders can attempt to govern an MNC and improve its management.

28. Divestiture of a Foreign Subsidiary Ved Co. (a U.S. firm) has a subsidiary in Germany that generates substantial earnings in euros each year. It will soon decide whether to divest the subsidiary. One week ago, a company offered to purchase the subsidiary from Ved Co., and Ved has not yet responded to this offer.

a. Since last week, the expected stream of euro cash flows has not changed, but the forecasts of the euro's value in future periods have been revised downward. When deciding whether a divestiture is feasible, Ved Co. estimates the NPV of the divestiture. Will Ved's estimated NPV of the divestiture be larger or smaller or the same as it was last week? Briefly explain.

b. If the long-term interest rate in the United States suddenly declines and all other factors are unchanged, will the NPV of the divestiture be larger, smaller, or the same as it was last week? Briefly explain.

29. Valuation of a Planned Divestiture Dallen Co. has a subsidiary in Mexico that does research and development and produces prescription pills that are transported to and sold in the United States. The parent used its own funds to build the subsidiary. Dallen Co. pays for the operations in Mexico in Mexican pesos, but all of its revenue from selling the pills in the United States is denominated in dollars. It has no other international business. Dallen's competitors are local firms in the United States that have no international operations. Two days ago, Dallen received an offer from a firm to buy Dallen's subsidiary, and the offer is in effect for a few days.

a. Yesterday, an event occurred that makes the parent of Dallen Co. believe that the Mexican peso will weaken substantially in the future. Do you think the event that occurred yesterday will increase, decrease, or have no impact on the likelihood that Dallen will accept the offer and sell its subsidiary at the existing offer price? Briefly explain.

b. Today, an event occurred that caused the risk-free interest rate in the United States to increase. Do you think the event that just occurred today will increase, decrease, or have no impact on the likelihood that Dallen will accept the offer and sell its subsidiary at the existing offer price? Briefly explain.

30. Divestiture Decision Kylee Co. (a U.S. firm) has a British subsidiary that will generate cash flows of

3 million pounds at the end of each of the next two years. It uses the prevailing spot rate of the British pound of $1.80 as a forecast of the future value of the pound. Its required rate of return on this business is 16 percent. Kylle just received an offer from a British company who wants to buy the subsidiary for $8,000,000. Assume that Kylle would not be subject to any tax on the sale.

a. Should Kylle Co. sell the business? Show your work.

b. Assume that there is news today that causes Kylle to think that the British pound will strengthen substantially the next two years. Assume the offer price remains unchanged. If Kylle reassesses whether to divest based on this information, do you think the potential news will increase the net present value of the divestiture (make the divestiture more beneficial for Kylle), reduce the net present value of the divestiture, or have no impact on the estimated net present value of the divestiture? Briefly explain.

c. Assume that today the prevailing long-term U.S. risk-free interest rate decreased and that this has no effect on Kylle's cash flows from operations. Assume the offer price remains unchanged. Do you think this information about the decline in the U.S. risk-free interest rate will increase the net present value of the divestiture, reduce the net present value of the divestiture, or have no impact on the estimated net present value of the divestiture? Briefly explain.

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 *International Financial Management* text companion website. Go to www.cengagebrain.com (students) or www.cengage.com/login (instructors) and search using **ISBN 9781133947837**.

Blades, Inc. Case

Assessment of an Acquisition in Thailand

Recall that Ben Holt, Blades' chief financial officer (CFO), has suggested to the board of directors that Blades proceed with the establishment of a subsidiary in Thailand. Due to the high growth potential of the roller blade market in Thailand, his analysis suggests that the venture will be profitable. Specifically, his view is that Blades should establish a subsidiary in Thailand to manufacture roller blades, whether an existing agreement with Entertainment Products (a Thai retailer) is renewed or not. Under this agreement, Entertainment Products is committed to the purchase of 180,000 pairs of Speedos, Blades' primary product, annually. The agreement was initially for 3 years and will expire 2 years from now. At this time, the agreement may be renewed. Due to delivery delays, Entertainment Products has indicated that it will renew the agreement only if Blades establishes a subsidiary in Thailand. In this case, the price per pair of roller blades would be fixed at 4,594 Thai baht per pair. If Blades decides not to renew the agreement, Entertainment Products has indicated that it would purchase only 5,000 pairs of Speedos annually at prevailing market prices.

According to Holt's analysis, renewing the agreement with Entertainment Products and establishing a subsidiary in Thailand will result in a net present value (NPV) of $2,638,735. However, if the agreement is not renewed and a subsidiary is established, the resulting NPV will be $8,746,688. Consequently, Holt has suggested to the board of directors that Blades establish a subsidiary without renewing the existing agreement with Entertainment Products.

Recently, a Thai roller blade manufacturer called Skates'n'Stuff contacted Holt regarding the potential sale of the company to Blades. Skates'n'Stuff entered the Thai roller blade market a decade ago and has generated a profit in every year of operation. Furthermore, Skates'n'Stuff has established distribution channels in Thailand. Consequently, if Blades acquires the company, it could begin sales immediately and would not require an additional year to build the plant in Thailand. Initial forecasts indicate that Blades would be able to sell 280,000 pairs of roller blades annually. These sales are incremental to the acquisition of Skates'n'Stuff. Furthermore, all sales resulting from the acquisition would be made to retailers in Thailand. Blades' fixed expenses would be 20 million baht annually. Although Holt has not previously considered the acquisition of an existing business, he is now wondering whether acquiring Skates'n'Stuff may be a better course of action than building a subsidiary in Thailand.

Holt is also aware of some disadvantages associated with such an acquisition. Skates'n'Stuff's CFO has

indicated that he would be willing to accept a price of 1 billion baht in payment for the company, which is clearly more expensive than the 550 million baht outlay that would be required to establish a subsidiary in Thailand. However, Skates'n'Stuff's CFO has indicated that it is willing to negotiate. Furthermore, Blades employs a high-quality production process, which enables it to charge relatively high prices for roller blades produced in its plants. If Blades acquires Skates'n'Stuff, which uses an inferior production process (resulting in lower quality roller blades), it would have to charge a lower price for the roller blades it produces there. Initial forecasts indicate that Blades will be able to charge a price of 4,500 Thai baht per pair of roller blades without affecting demand. However, because Skates'n'Stuff uses a production process that results in lower quality roller blades than Blades' Speedos, operating costs incurred would be similar to the amount incurred if Blades establishes a subsidiary in Thailand. Thus, Blades estimates that it would incur operating costs of about 3,500 baht per pair of roller blades.

Holt has asked you, a financial analyst for Blades, Inc., to determine whether the acquisition of Skates'n'Stuff is a better course of action for Blades than the establishment of a subsidiary in Thailand. Acquiring Skates'n'Stuff will be more favorable than establishing a subsidiary if the present value of the cash flows generated by the company exceeds the purchase price by more than $8,746,688, the NPV of establishing a new subsidiary. Thus, Holt has asked you to construct a spreadsheet that determines the NPV of the acquisition. To aid you in your analysis, Holt has provided the following additional information, which he gathered from various sources, including unaudited financial statements of Skates'n'Stuff for the last 3 years:

- Blades, Inc., requires a return on the Thai acquisition of 25 percent, the same rate of return it would require if it established a subsidiary in Thailand.
- If Skates'n'Stuff is acquired, Blades, Inc., will operate the company for 10 years, at which time Skates'n'Stuff will be sold for an estimated 1.1 million baht.
- Of the 1 billion baht purchase price, 600 million baht constitutes the cost of the plant and equipment. These items are depreciated using straight-line depreciation. Thus, 60 million baht will be depreciated annually for 10 years.
- Sales of 280,000 pairs of roller blades annually will begin immediately at a price of 4,500 baht per pair.
- Variable costs per pair of roller blades will be 3,500 per pair.
- Fixed operating costs, including salaries and administrative expenses, will be 20 million baht annually.
- The current spot rate of the Thai baht is $.023. Blades expects the baht to depreciate by an average of 2 percent per year for the next 10 years.
- The Thai government will impose a 25 percent tax on income and a 10 percent withholding tax on any funds remitted by Skates'n'Stuff to Blades, Inc. Any earnings remitted to the United States will not be taxed again in the United States. All earnings generated by Skates'n'Stuff will be remitted to Blades, Inc.
- The average inflation rate in Thailand is expected to be 12 percent annually. Revenues, variable costs, and fixed costs are subject to inflation and are expected to change by the same annual rate as the inflation rate.

In addition to the information outlined above, Holt has informed you that Blades, Inc., will need to manufacture all of the 180,000 pairs to be delivered to Entertainment Products this year and next year in Thailand. Since Blades previously only used components from Thailand (which are of a lower quality but cheaper than U.S. components) sufficient to manufacture 72,000 pairs annually, it will incur cost savings of 32.4 million baht this year and next year. However, since Blades will sell 180,000 pairs of Speedos annually to Entertainment Products this year and next year whether it acquires Skates'n'Stuff or not, Holt has urged you not to include these sales in your analysis. The agreement with Entertainment Products will not be renewed at the end of next year.

Holt would like you to answer the following questions:

1. Using a spreadsheet, determine the NPV of the acquisition of Skates'n'Stuff. Based on your numerical analysis, should Blades establish a subsidiary in Thailand or acquire Skates'n'Stuff?
2. If Blades negotiates with Skates'n'Stuff, what is the maximum amount (in Thai baht) Blades should be willing to pay?
3. Are there any other factors Blades should consider in making its decision? In your answer, you should consider the price Skates'n'Stuff is asking relative to your analysis in question 1, other potential businesses for sale in Thailand, the source of the information your analysis is based on, the production process that will be employed by the target in the future, and the future management of Skates'n'Stuff.

SMALL BUSINESS DILEMMA

Multinational Restructuring by the Sports Exports Company

The Sports Exports Company has been successful in producing footballs in the United States and exporting them to the United Kingdom. Recently, Jim Logan (owner of the Sports Exports Company) has considered restructuring his company by expanding throughout Europe. He plans to export footballs and other sporting goods that were not already popular in Europe to one large sporting goods distributor in Germany; the goods will then be distributed to any retail sporting goods stores throughout Europe that are willing to purchase these goods. This distributor will make payments in euros to the Sports Exports Company.

1. Are there any reasons why the business that has been so successful in the United Kingdom might not be successful in other European countries?
2. If the business is diversified throughout Europe, will this substantially reduce the exposure of the Sports Exports Company to exchange rate risk?
3. Now that several countries in Europe participate in a single currency system, will this affect the performance of new expansion throughout Europe?

INTERNET/EXCEL EXERCISES

1. Use an online news source to review an international acquisition in the last month. Describe the motive for this acquisition. Explain how the acquirer could benefit from this acquisition.
2. You consider acquiring a target in Argentina, Brazil, or Canada. You realize that the value of a target is partially influenced by stock market conditions in a country. Go to finance.yahoo.com/intlindices?e=Americas and, under "Americas" click on index ^MERV (which represents the Argentina stock market index). Click on 1y just below the chart provided. Then, at the left, click on "Historical Prices." Set the date range so that you can obtain the stock index value as of 3 years ago, 2 years ago, 1 year ago, and as of today. Insert the data on a spreadsheet. Compute the annual percentage change in the stock value. Also compute the annual percentage change in the stock value from 3 years ago until today. Repeat the process for the Brazilian stock index ^BVSP and the Canadian stock index ^GSPTSE. Based on this information, in which country have values of corporations increased the most? In which country have the values of corporations increased the least? Why might this information influence your decision on where to pursue a target?

ONLINE ARTICLES WITH REAL-WORLD EXAMPLES

Find a recent article online that describes an actual international finance application or a real-world example about a specific MNC's actions that reinforces one or more of the concepts covered in this chapter.

If your class has an online component, your professor may ask you to post your summary there and provide the Web link of the article so that other students can access it. If your class is live, your professor may ask you to summarize your application in class. Your professor may assign specific students to complete this assignment for this chapter or may allow any students to do the assignment on a volunteer basis.

For recent online articles and real world examples applied to this chapter, consider using the following search terms (and include the current year as a search term to ensure that the online articles are recent).

1. international corporate governance
2. multinational AND board member
3. multinational AND shareholder activist
4. multinational AND corporate control
5. international acquisition
6. foreign target
7. acquire AND foreign company
8. partial acquisition AND international
9. divestiture AND foreign
10. takeover AND foreign

16
Country Risk Analysis

CHAPTER OBJECTIVES

The specific objectives of this chapter are to:

- identify the common factors used by MNCs to measure country risk,
- explain how to measure country risk,
- explain how MNCs use the assessment of country risk when making financial decisions, and
- explain how MNCs can prevent host government takeovers.

Country risk represents the potentially adverse impact of a country's environment on an MNC's cash flows. An MNC conducts country risk analysis when it applies capital budgeting (explained in Chapter 14) to determine whether to implement a new project in a particular country or whether to continue conducting business in a particular country. Financial managers must understand how to measure country risk and incorporate country risk within their capital budgeting analysis so that they can make investment decisions that maximize their MNC's value.

16-1 Country Risk Characteristics

Country risk characteristics can be partitioned into political risks and financial risks.

16-1a Political Risk Characteristics

Political risk can impede the performance of a local subsidiary. An extreme form of political risk is the possibility that the host country will take over a subsidiary. In some cases of expropriation, compensation (in an amount determined by the host country government) is awarded. In other cases, the assets are confiscated and no compensation is provided. Expropriation can take place peacefully or by force. The following are some of the more common characteristics of political risk:

- attitude of consumers in the host country,
- actions of host government,
- blockage of fund transfers,
- currency inconvertibility,
- war,
- inefficient bureaucracy, and
- corruption.

Each of these characteristics will be discussed in turn.

Attitude of Consumers in the Host Country A mild form of political risk (to an exporter) is the tendency of residents to purchase only locally produced goods. Even if the exporter decides to set up a subsidiary in the foreign country, that tendency could prevent its success. All countries tend to exert some pressure on consumers to purchase from locally owned manufacturers. An MNC that considers entering a foreign market (or has already entered that market) must monitor the general loyalty of consumers

toward locally produced products. If consumers are very loyal to local products, then a joint venture with a local company may be more feasible than an exporting strategy.

Actions of Host Government Various actions of the host government can affec an MNC's cash flow. A host government might impose pollution control standard (which affect costs) and additional corporate taxes (which affect after-tax earnings) a well as withholding taxes and fund transfer restrictions (which affect after-tax cash flows sent to the parent).

EXAMPLE When residents in China use Google to conduct online searches of information, some results and sug gested Web sites are blocked by the Chinese government. Hence Google's popularity in China migh be limited by these restrictions, and this restricts Google's ability to attract advertisers in China.

When Facebook went public in 2012, its registration statement disclosed its exposure to politica risk as follows. "It is possible that governments of one of more countries may seek to censor conten available on Facebook in their country, restrict access to Facebook from their country entirely, o impose other restrictions that may affect the accessibility in their country.... In the event tha access to Facebook is restricted, ... we may not be able to maintain or grow our revenue as anti cipated and our financial results could be adversely affected." ●

WEB

www.cia.gov
Valuable information about political risk that should be considered by MNCs engaging in direct foreign investment.

Some MNCs use turnover in government members or change in government philoso phy as a proxy for a country's political risk. Although such change can significantly influence the MNC's future cash flows, it alone does not serve as a suitable representation of political risk. A subsidiary is not necessarily affected by changing governments. Furthermore, a subsidiary can be affected by new policies of the host government or by a changed attitude toward the subsidiary's home country (and therefore the subsidiary) even when the host government has no risk of being overthrown.

A host government can use various means to make an MNC's operations coincide with its own goals. It may, for example, require the use of local employees for managerial positions at a subsidiary. In addition, it may require special environmental controls (such as air pollution controls). Furthermore, a host government may require special permits, impose extra taxes, or subsidize competitors. It may also impose restrictions or fines to protect local competition.

In some cases, MNCs are adversely affected by a *lack* of restrictions in a host country, which allows illegitimate business behavior to capture market share. One of the most troubling issues for MNCs is the failure by host governments to enforce copyright laws against local firms that illegally copy the MNC's product. For example, local firms in Asia commonly copy software produced by MNCs and sell it to customers at lower prices. Software producers lose an estimated $3 billion in sales annually in Asia for this reason. Furthermore, the legal systems in some countries do not adequately protect a firm against copyright violations or other illegal means of obtaining market share.

Blockage of Fund Transfers Subsidiaries of MNCs often send funds back to headquarters for loan repayments, purchases of supplies, administrative fees, remitted earnings, or other purposes. In some cases, a host government may block fund transfers, which could force subsidiaries to undertake projects that are not optimal (just to make use of the funds). Alternatively, the MNC may invest the funds in local securities that provide some return while the funds are blocked. But this return may be inferior to what could have been earned on funds remitted to the parent.

Currency Inconvertibility Some governments do not allow the home currency to be exchanged into other currencies. Thus, the earnings generated by a subsidiary in these countries cannot be remitted to the parent through currency conversion. When the currency is inconvertible, an MNC's parent may need to exchange it for goods to extract benefits from projects in that country.

War Some countries tend to engage in conflicts with neighboring countries or to experience internal turmoil. This can affect the safety of employees hired by an MNC's subsidiary or by salespeople who attempt to establish export markets for the MNC. In addition, countries plagued by the threat of war typically have volatile business cycles, which make cash flows generated from such countries more uncertain. Multinational corporations in all countries have some exposure to terrorist attacks, but this exposure is much higher in certain countries than in others. Even if an MNC is not directly damaged due to a war, it may incur costs from ensuring the safety of its employees.

Some firms may contend that no risk is too high when considering a project. Their reasoning is that if the potential return is high enough, the project is worth undertaking. When employee safety is a concern, however, the project may be rejected regardless of its potential return. If the country risk is too high, MNCs do not need to analyze the feasibility of the proposed project any further.

Inefficient Bureaucracy Another country risk factor is a government's bureaucracy, which can complicate an MNC's business. Although this factor may seem irrelevant, it has been a major deterrent for MNCs that consider projects in various emerging countries. Bureaucracy can delay an MNC's efforts to establish a new subsidiary or expand business in a country. In some cases, the bureaucratic problem is caused by government employees who expect "gifts" before they approve applications by MNCs. In other cases, the problem is caused by a lack of government organization, so the development of a new business is delayed until various applications are approved by different sections of the bureaucracy.

WEB

finance.yahoo.com
Assessments of various political risk characteristics by outside evaluators.

WEB

www.heritage.org
Interesting insight into international political risk issues that should be considered by MNCs conducting international business.

Corruption Corruption can adversely affect an MNC's international business because it can increase the cost of conducting business or reduce revenue. Various forms of corruption can occur at the firm level or with firm–government interactions. For example, an MNC may lose revenue because a government contract is awarded to a local firm that paid off a government official. Laws defining corruption and their enforcement vary among countries, however. In the United States, for instance, it is illegal to pay a high-ranking government official in return for political favors but it is legal for U.S. firms to contribute to a politician's election campaign.

Transparency International has derived a corruption index for most countries (see www.transparency.org). The index for selected countries is shown in Exhibit 16.1.

16-1b Financial Risk Characteristics

Along with political characteristics, financial characteristics should be considered when assessing country risk. Financial characteristics can have a strong impact on international projects that MNCs have proposed or implemented.

Economic Growth The most obvious financial characteristic is the current and potential state of the country's economy. An MNC that exports to a country or develops a subsidiary there is naturally concerned about that country's demand for its products, which is influenced by the country's economy. A recession could severely reduce demand for the MNC's exports or for products sold by the MNC's local subsidiary. Multinational corporations, including 3M, DuPont, IBM, and Nike, were adversely affected by a weak European economy in the 2008–2010 period. Recent levels of a country's gross domestic product (GDP) may be used to measure recent economic growth; in some cases, these levels may be used to forecast future economic growth. A country's economic growth is influenced by interest rates, exchange rates, and inflation.

- *Interest rates.* Higher interest rates tend to slow the growth of an economy and reduce demand for the MNC's products. Governments commonly attempt to

Exhibit 16.1 Corruption Index Ratings for Selected Countries (maximum rating = 10; high ratings indicate low corruption)

COUNTRY	INDEX RATING	COUNTRY	INDEX RATING
Finland	9.6	Chile	7.3
New Zealand	9.6	United States	7.3
Denmark	9.5	Spain	6.8
Singapore	9.4	Uruguay	6.4
Sweden	9.2	Taiwan	5.9
Switzerland	9.1	Hungary	5.2
Netherlands	8.9	Malaysia	5.0
Austria	8.6	Italy	4.9
United Kingdom	8.6	Czech Republic	4.8
Canada	8.5	Greece	4.4
Hong Kong	8.3	Brazil	3.9
Germany	8.0	China	3.3
Belgium	7.4	India	3.3
France	7.4	Mexico	3.3
Ireland	7.4	Russia	2.5

Source: *Transparency International, 2009.*

maintain low interest rates when they want to stimulate the economy. Low interest rates can encourage more borrowing by firms and consumers and thus can result in more spending. However, during and after the recent financial crisis, low interest rates had limited effects because many firms and consumers were already at their debt capacity and were not in a position to borrow more funds.

- *Exchange rates.* Exchange rates can influence the demand for the country's exports, which affects the country's production and income level. A strong currency may reduce demand for the country's exports, increase the volume of products imported by the country, and therefore reduce the country's production and national income.
- *Inflation.* Inflation can affect consumers' purchasing power and their demand for an MNC's goods. In addition, it affects the expenses associated with operations in the country. Inflation may also influence a country's financial condition by affecting the country's interest rates and currency value.

A country's financial risk characteristics are strongly influenced by the government's fiscal policy. Some countries use expansionary fiscal policies that involve massive spending and low taxes in order to stimulate their economy. However, this type of policy results in a large national budget deficit and therefore increases the amount of funds borrowed by the government. An expansionary fiscal policy can have long-term adverse effects if the level of government borrowing is so high that it causes concerns about the government's ability to repay its loans.

EXAMPLE During the 2008-2010 period, the government of Greece continued to pay generous salaries and pensions to government employees, and it spent much more money than it received in taxes. In 2010, some existing loans to the government were about to mature, and the government needed to borrow more money so that it could pay off the loans. However, creditors were no longer as willing to extend loans because of concerns that the government might default on them. Thus, the government had to take actions to correct its debt problems so that it could obtain new loans from creditors. To reduce its budget deficit, the government was forced to reduce its spending and to raise

taxes, which adversely affected the economy. These concerns about the economy restricted the amount of loans that creditors would provide to MNCs doing business in Greece, and it also increased the cost of capital because creditors charged high loan rates to reflect a high credit risk premium. Many other countries (such as Portugal and Spain) also experienced weak economies when they attempted to resolve their own budget deficit problems, but the impact was not as pronounced as it was in Greece. ●

16-2 Measuring Country Risk

WEB

http://lcweb2.loc.gov/frd/cs/
Detailed studies of 85 countries provided by the Library of Congress.

A **macro-assessment of country risk** is an overall risk assessment of a country and involves consideration of all variables that affect country risk *except* those that are unique to a particular firm or industry. This type of assessment is convenient because it remains the same for a given country regardless of the firm or industry of concern; however, it excludes relevant information that could improve the assessment's accuracy. A macro-assessment of country risk serves as a foundation that can then be modified to reflect the particular business of the MNC, as explained next.

A **micro-assessment of country risk** involves the assessment of a country as it relates to the MNC's type of business. It is used to determine how the country risk relates to the specific MNC. The specific impact of a particular form of country risk can affect MNCs in different ways, which is why a micro-assessment of country risk is needed.

EXAMPLE

Country Z has been assigned a relatively low macro-assessment by most experts because of its poor financial condition. Two MNCs are deciding whether to set up subsidiaries in Country Z. Carco, Inc., is considering developing a subsidiary that would produce automobiles and sell them locally, while Milco, Inc., plans to build a subsidiary that would produce military supplies. Carco's plan to build an automobile subsidiary does not appear to be feasible unless Country Z does not already have enough automobile producers.

Country Z's government may be committed to purchasing a given amount of military supplies, regardless of how weak the economy is. Thus, Milco's plan to build a military supply subsidiary may still be feasible even though Country Z's financial condition is poor.

It is possible, however, that Country Z's government will order its military supplies from a locally owned firm because it wants its supply needs to remain confidential. This possibility is an element of country risk because it is a country characteristic (or attitude) that can affect the feasibility of a project. Yet that particular characteristic is relevant only to Milco, Inc., and not to Carco, Inc. ●

This example illustrates how an appropriate country risk assessment varies with the firm, industry, and project of concern, so it also illustrates the limitations of using only a macro-assessment of country risk. Therefore, a micro-assessment is also necessary when evaluating the country risk related to a specific project proposed by a particular firm.

16-2a Techniques for Assessing Country Risk

Once a firm identifies all the macro- and micro-factors that deserve consideration in the country risk assessment, it may wish to implement a system for evaluating these factors and determining a country risk rating. Various techniques are available to achieve this objective. Among the most popular techniques are the following:

- checklist approach,
- Delphi technique,
- quantitative analysis,
- inspection visits, and
- combination of techniques.

Each technique is briefly discussed in turn.

Checklist Approach A checklist approach involves making a judgment on all the political and financial factors (both macro and micro) that contribute to a firm's assessment of country risk. Ratings are assigned to a list of various financial and political factors, and these ratings are then consolidated to derive an overall assessment of country risk. Some factors (such as real GDP growth) can be measured from available data, whereas others (such as probability of entering a war) must be subjectively measured.

A substantial amount of information about countries is available on the Internet. This information can be used to develop ratings of various factors used to assess country risk. The factors are then converted to a numerical rating in order to assess a particular country. Those factors thought to have a greater influence on country risk should be assigned greater weights. Both the measurement of some factors and the weighting scheme implemented are subjective.

Delphi Technique The **Delphi technique** involves the collection of independent opinions without group discussion. As applied to country risk analysis, the MNC could survey specific employees or outside consultants who have some expertise in assessing a given country's risk characteristics. The MNC receives responses from its survey and attempts to determine some consensus opinions (without attaching names to any of the opinions) about the country's perceived risk. The firm then sends this summary of the survey back to the survey respondents and asks for additional feedback regarding its summary of the country's risk.

Quantitative Analysis Once the financial and political variables have been measured for a period of time, models for quantitative analysis can attempt to identify the characteristics that influence the level of country risk. For example, regression analysis may be used to assess risk, since it can measure the sensitivity of one variable to other variables. A firm could regress a measure of its business activity (such as its percentage increase in sales) against country characteristics (such as real growth in GDP) over a series of previous months or quarters. Results from such an analysis will indicate the susceptibility of a particular business to a country's economy. This is valuable information to incorporate into the overall evaluation of country risk.

Although quantitative models can quantify the impact of variables on each other, they cannot always indicate a country's problems *before* they actually occur (preferably before the firm's decision to pursue a project in that country). Nor can such models evaluate subjective data that cannot be quantified. In addition, historical trends of various country characteristics are not always useful for anticipating an upcoming crisis.

Inspection Visits Inspection visits involve travelling to a country and meeting with government officials, business executives, and/or consumers. Such meetings can help clarify any uncertain opinions the firm has about a country. Indeed, some variables (such as intercountry relationships) may be difficult to assess without a trip to the host country.

Combination of Techniques Many MNCs do not have a formal method to assess country risk. This does not mean that they neglect to assess country risk but rather that there is no proven method that is always most appropriate. Consequently, many MNCs use a combination of techniques to assess country risk.

16-2b Deriving a Country Risk Rating

An overall country risk rating using a checklist approach can be developed from separate ratings for political and financial risk. First, the political factors are assigned values within some arbitrarily chosen range (such as values from 1 to 5, where 5 is the lowest risk and thus the best value). Next, these political factors are assigned weights (representing relative

Exhibit 16.3 Derivation of the Overall Country Risk Rating Based on Assumed Information

(1)	(2)	(3)	(4) = (2) × (3)
POLITICAL RISK FACTORS	RATING ASSIGNED BY COMPANY TO FACTOR (WITHIN A RANGE OF 1–5)	WEIGHT ASSIGNED BY COMPANY TO FACTOR ACCORDING TO IMPORTANCE	WEIGHTED VALUE OF FACTOR
Blockage of fund transfers	4	30%	1.2
Bureaucracy	3	70	2.1
		100%	3.3 = Political risk rating
FINANCIAL RISK FACTORS			
Interest rate	5	20%	1.0
Inflation rate	4	10	.4
Exchange rate	4	20	.8
Industry competition	5	10	.5
Industry growth	3	40	1.2
		100%	3.9 = Financial risk rating

(1)	(2)	(3)	(4) = (2) × (3)
CATEGORY	RATING AS DETERMINED ABOVE	WEIGHT ASSIGNED BY COMPANY TO EACH RISK CATEGORY	WEIGHTED RATING
Political risk	3.3	80%	2.64
Financial risk	3.9	20	.78
		100%	3.42 = Overall country risk rating

example. Cougar Co. will consider projects only in countries for which its country risk rating is 3.5 or higher.

Cougar Co. has assigned the values and weights to the factors as shown in Exhibit 16.3. In this example, the company generally assigns the financial factors higher ratings than the political factors. The financial condition of Mexico has therefore been assessed more favorably than the political condition. Industry growth is the most important financial factor in Mexico, based on its 40 percent weighting. The bureaucracy is thought to be the most important political factor, based on a weighting of 70 percent; regulation of international fund transfers receives the remaining 30 percent weighting. The political risk rating is estimated at 3.3 by adding the products of the assigned ratings (column 2) and weights (column 3) of the political risk factors.

The financial risk is computed to be 3.9, based on adding the products of the assigned ratings and the weights of the financial risk factors. Once the political and financial ratings are determined, the overall country risk rating can be derived (as shown at the bottom of Exhibit 16.3), given the weights assigned to political and financial risk. Column 3 at the bottom of Exhibit 16.3 indicates that Cougar perceives political risk (receiving an 80 percent weight) to be much more important than financial risk (receiving a 20 percent weight) in Mexico for the proposed project. The overall country risk rating of 3.42 may appear low given the individual category ratings. This is because of the heavy weighting given to political risk, which in this example is crucial from the firm's perspective. In particular, Cougar views Mexico's bureaucracy as a critical factor and assigns it a low rating. Given that Cougar considers projects only in countries that have a rating of at least 3.5, it decides not to pursue the project in Mexico. ●

The weighting procedure described here is just one of many that could be used to derive an overall measure of country risk. Most procedures are similar, though, in that they somehow assign ratings and weights to all individual characteristics relevant to country risk assessment.

Governance of the Country Risk Assessment Many international projects by MNCs last for 20 years or more. When managers want to pursue a project because of its potential success during the next few years, they may overlook the potential for increased country risk surrounding the project over time. In their minds, they may no longer be held accountable if the project fails several years from now. Consequently, MNCs need a proper governance system to ensure that managers fully consider country risk when assessing potential projects. One solution is to require that major long-term projects use input from an external source (such as a consulting firm) regarding the country risk assessment of a specific project and that this assessment be directly incorporated into the project analysis. This procedure might allow for a better assessment of country risk over the long term.

16-2c Comparing Risk Ratings among Countries

WEB

www.standardandpoors.com/ratings/fi/analyticinitiatives/en/us
This Web site provides country ratings assigned by Standard & Poor's.

An MNC may evaluate country risk for several countries, perhaps to determine where to establish a subsidiary. One approach to comparing political and financial ratings among countries, advocated by some foreign risk managers, is a **foreign investment risk matrix (FIRM)** that displays the financial (or economic) and political risk by intervals ranging across the matrix from "poor" to "good." Each country can be positioned in its appropriate location on the matrix based on its political rating and financial rating.

Country Risk Ratings Exhibit 16.4 is a map showing actual risk ratings assigned to various countries. This exhibit is not necessarily applicable to a particular MNC that wants to pursue international business because the risk assessment here may not focus on the factors that are relevant to that MNC. Nevertheless, the exhibit illustrates how the risk rating can vary substantially among countries. Many industrialized countries have high ratings, indicating low risk. Emerging countries tend to have lower ratings. Country risk ratings change over time in response to the factors that influence a country's rating. Therefore, MNCs need to periodically update their assessments of each country where they do business.

Impact of the Credit Crisis Many countries experienced a decline in their country risk rating due to the credit crisis in 2008. The decline in housing prices created severe financial problems for commercial banks and other financial institutions. These institutions then became more cautious when providing credit. The international credit crunch contributed to the weak global economy. Countries especially reliant on international credit were adversely affected when credit was difficult to access.

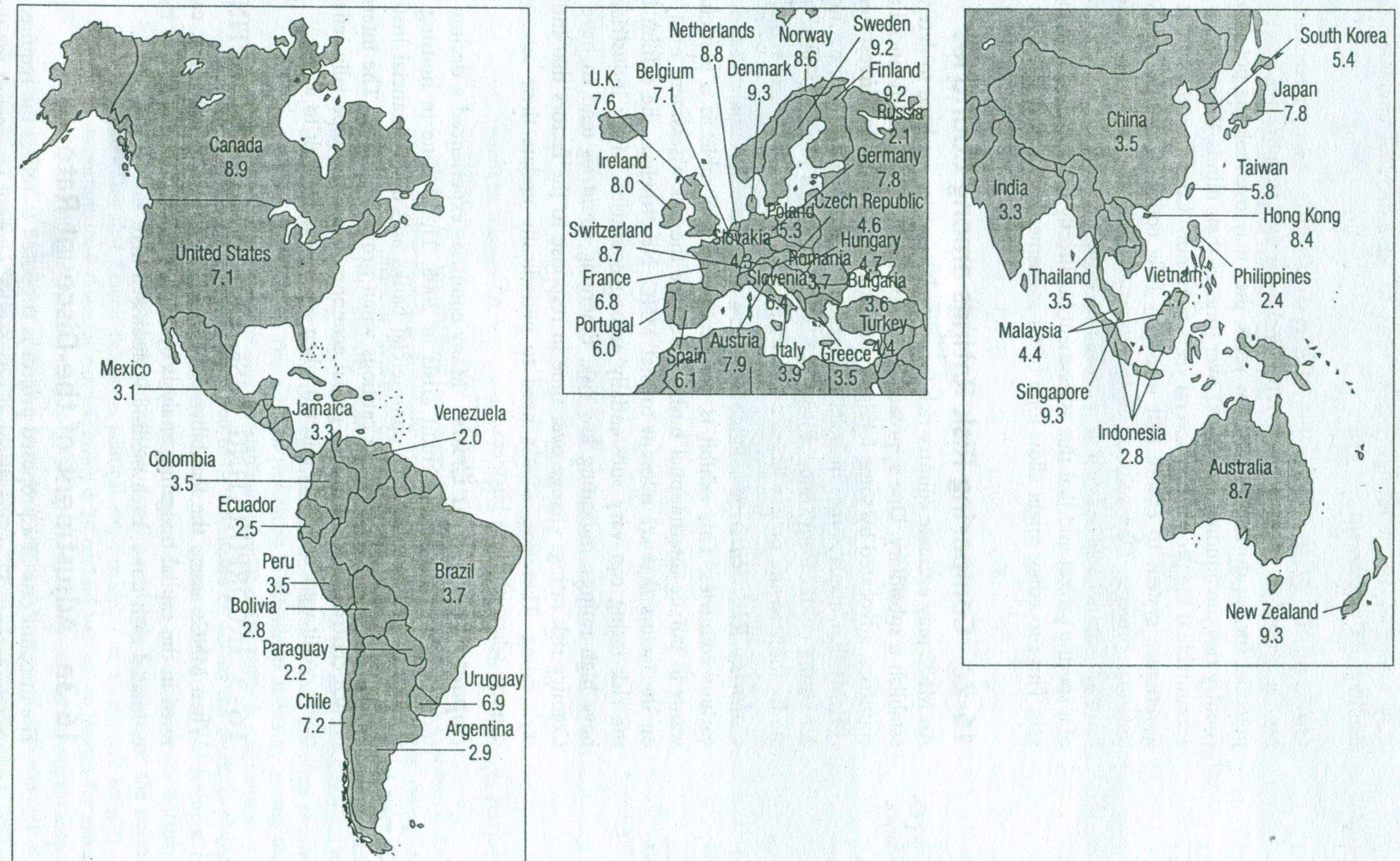
16-3 Incorporating Risk in Capital Budgeting

When MNCs assess the feasibility of a proposed project, country risk can be incorporated in the capital budgeting analysis by adjusting the discount rate or by adjusting the estimated cash flows. Each method is discussed here.

16-3a Adjustment of the Discount Rate

The discount rate of a proposed project is supposed to reflect the required rate of return on that project. Thus, the discount rate can be adjusted to account for the country risk. The lower the country risk rating, the higher the perceived risk and the higher the

Exhibit 16.4 Country Risk Ratings



Source: *Transparency International is a global civil society organization that has developed a Corruption Perceptions Index, which represents the perception of corruption in a country's public sector. The index relies on assessments and business surveys by institutions.*

discount rate applied to the project's cash flows. This approach is convenient in that one adjustment to the capital budgeting analysis can capture country risk. However, there is no precise formula for adjusting the discount rate to incorporate country risk. The adjustment is somewhat arbitrary and may therefore cause feasible projects to be rejected or infeasible projects to be accepted.

16-3b Adjustment of the Estimated Cash Flows

Perhaps the most appropriate method for incorporating forms of country risk in a capital budgeting analysis is to estimate how the cash flows would be affected by each form of country risk. For example, if there is a 20 percent probability that the host government will temporarily block funds from the subsidiary to the parent, the MNC should estimate the project's net present value (NPV) under these circumstances, realizing that there is a 20 percent chance that this NPV will occur.

If there is a chance that a host government will impose higher taxes on the subsidiary, then the foreign project's NPV to the MNC should be estimated under these conditions. Each possible form of risk has an estimated effect on the foreign project's cash flows and therefore on the project's NPV. By analyzing each possible effect, the MNC can determine the probability distribution of NPVs for the project. Its accept/reject decision on the project will be based on its assessment of the probability that the project will generate a positive NPV and of the size of possible NPV outcomes.

EXAMPLE Reconsider the example of Spartan, Inc., introduced in Chapter 14, in which Spartan plans to establish a subsidiary in Singapore. Assume for the moment that all the initial assumptions regarding Spartan's initial investment, project life, pricing policy, exchange rate projections, and so on still apply. Now, however, assume two adjustments to the country risk situation that Spartan must consider.

1. *Higher withholding tax*. The original example assumed that Singapore would impose a 10 percent withholding tax on any funds remitted by the subsidiary to the parent (with 100 percent certainty). Now assume that there is a 30 percent chance that Singapore will impose a 20 percent withholding tax rate instead of the 10 percent rate. This means that the probability of the originally assumed 10 percent withholding tax is reduced from 100 percent to 70 percent, since the sum of probabilities of possible outcomes for the withholding tax must add to 100 percent:

POSSIBLE TAX RATE OUTCOME	PROBABILITY OF OUTCOME OCCURRING
10%	70%
20%	30%
	100%

2. *Lower salvage value*. The original example assumed that the Singapore government will buy the subsidiary from Spartan (salvage value) for S$12 million after 4 years. Now assume that there is a 40 percent chance that the Singapore government will buy the subsidiary from Spartan for S$7 million instead of S$12 million. Thus, the probability distribution of possible outcomes for the salvage value is now as follows:

POSSIBLE SALVAGE VALUE OUTCOME	PROBABILITY OF OUTCOME OCCURRING
S$12 million	60%
S$7 million	40%
	100%

Exhibit 16.5 Analysis of Project Based on a 20 Percent Withholding Tax: Spartan, Inc.

	YEAR 0	YEAR 1	YEAR 2	YEAR 3	YEAR 4
14. S$ remitted by subsidiary		S$6,000,000	S$6,000,000	S$7,600,000	S$8,400,000
15. Withholding tax imposed on remitted funds (20%)		S$1,200,000	S$1,200,000	S$1,520,000	S$1,680,000
16. S$ remitted after withholding taxes		S$4,800,000	S$4,800,000	S$6,080,000	S$6,720,000
17. Salvage value					S$12,000,000
18. Exchange rate of S$		$.50	$.50	$.50	$.50
19. Cash flows to parent		$2,400,000	$2,400,000	$3,040,000	$9,360,000
20. PV of parent cash flows (15% discount rate)		$2,086,956	$1,814,745	$1,998,849	$5,351,610
21. Initial investment by parent	$10,000,000				
22. Cumulative NPV		−$7,913,044	−$6,098,299	−$4,099,450	$1,252,160

To determine how the NPV is affected by each of these country risk situations, a capital budgeting analysis similar to that shown in Exhibit 14.2 can be used. If this analysis is already on a spreadsheet then the NPV can easily be estimated by adjusting line items 15 (withholding tax on remitted funds) and 17 (salvage value). The capital budgeting analysis measures the effect of a 20 percent withholding tax rate (while using the original assumption of S$12 million salvage value) in Exhibit 16.5. Since items before line 14 are not affected, these items are not shown here. If the 20 percent withholding tax rate is imposed, the NPV of the four-year project is $1,252,160.

Now consider the possibility of the lower salvage value while using the initial assumption of a 10 percent withholding tax rate. The capital budgeting analysis accounts for the lower salvage value in Exhibit 16.6. The estimated NPV is $800,484 based on this country risk situation.

Finally, consider the possibility that both the higher withholding tax and the lower salvage value occur. The capital budgeting analysis in Exhibit 16.7 accounts for both of these country risk situations; the NPV is estimated to be −$177,223.

Once estimates for the NPV are derived for each country risk situation, Spartan, Inc., can attempt to determine whether the project is feasible. There are two country risk variables that are uncertain, and there are four possible NPV outcomes; see Exhibit 16.8. Given the probability of each possible situation and the assumption that the withholding tax outcome is independent of the salvage value outcome, joint probabilities can be determined for each pair of outcomes by multiplying the probabilities of the two outcomes of concern. Because the probability of a 20 percent withholding tax is 30 percent, it follows that the probability of a 10 percent withholding tax is 70 percent. Likewise, given that the probability of a lower salvage value is 40 percent, the probability

Exhibit 16.6 Analysis of Project Based on a Reduced Salvage Value: Spartan, Inc.

	YEAR 0	YEAR 1	YEAR 2	YEAR 3	YEAR 4
14. S$ remitted by subsidiary		S$6,000,000	S$6,000,000	S$7,600,000	S$8,400,000
15. Withholding tax imposed on remitted funds (10%)		S$600,000	S$600,000	S$760,000	S$840,000
16. S$ remitted after withholding taxes		S$5,400,000	S$5,400,000	S$6,840,000	S$7,560,000
17. Salvage value					S$7,000,000
18. Exchange rate of S$		$.50	$.50	$.50	$.50
19. Cash flows to parent		$2,700,000	$2,700,000	$3,420,000	$7,280,000
20. PV of parent cash flows (15% discount rate)		$2,347,826	$2,041,588	$2,248,706	$4,162,364
21. Initial investment by parent	$10,000,000				
22. Cumulative NPV		−$7,652,174	−$5,610,586	−$3,361,880	$800,484

Exhibit 16.7 Analysis of Project Based on a 20 Percent Withholding Tax and a Reduced Salvage Value: Spartan, Inc.

	YEAR 0	YEAR 1	YEAR 2	YEAR 3	YEAR 4
14. 5$ remitted by subsidiary		S$6,000,000	S$6,000,000	S$7,600,000	S$8,400,000
15. Withholding tax imposed on remitted funds (20%)		S$1,200,000	S$1,200,000	S$1,520,000	S$1,680,000
16. S$ remitted after withholding taxes		S$4,800,000	S$4,800,000	S$6,080,000	S$6,720,000
17. Salvage value					S$7,000,000
18. Exchange rate of S$		$50	$0.50	$0.50	$0.50
19. Cash flows to parent		$2,400,000	$2,400,000	$3,040,000	$6,860,000
20. PV of parent cash flows (15% discount rate)		$2,086,956	$1,814,745	$1,998,849	$3,922,227
21. Initial investment by parent	$10,000,000				
22. Cumulative NPV		–$7,913,044	–$6,098,299	–$4,099,450	–$177,223

that the originally assumed salvage value will occur is 60 percent. Thus, scenario 1 (10 percent withholding tax and S$12 million salvage value, as in Chapter 14) has a joint probability of 70% × 60% = 42%; this is the probability that *both* outcomes will occur. The joint probabilities for the other three scenarios shown in Exhibit 16.8 are determined in the same manner.

In Exhibit 16.8, scenario 4 is the only scenario in which there is a negative NPV. Since this scenario has a 12 percent chance of occurring, there is a 12 percent chance that the project will adversely affect the value of the firm. Put another way, there is an 88 percent chance that the project will enhance the firm's value. The expected value of the project's NPV can be measured as the sum of each scenario's estimated NPV multiplied by its respective probability across all four scenarios, as shown at the bottom of Exhibit 16.8. Most MNCs would accept the proposed project, given the likelihood that the project will have a positive NPV and the limited loss that would occur under even the worst-case scenario. ●

Accounting for Uncertainty In the previous example, the initial assumptions for most input variables were used as if they were known with certainty. However, Spartan, Inc., could account for the uncertainty of country risk characteristics (as in the current example) while also allowing for uncertainty in the other variables as well. This process is facilitated by performing the analysis with the aid of a computer spreadsheet.

EXAMPLE If Spartan, Inc., wishes to allow for three possible exchange rate trends, it can adjust the exchange rate projections for each of the four scenarios assessed in the current example. Each scenario will

Exhibit 16.8 Summary of Estimated NPVs across the Possible Scenarios: Spartan, Inc.

SCENARIO	WITHHOLDING TAX IMPOSED BY SINGAPORE GOVERNMENT	SALVAGE VALUE OF PROJECT	NPV	PROBABILITY
1	10%	S$12,000,000	$2,229,867	(70%)(60%) = 42%
2	20%	S$12,000,000	$1,252,160	(30%)(60%) = 18%
3	10%	S$7,000,000	$800,484	(70%)(40%) = 28%
4	20%	S$7,000,000	–$177,223	(30%)(40%) = 12%
		E(NPV) = $2,229,867(42%) + $1,252,160(18%) + $800,484(28%) –$177,223(12%) = $1,364,801		

reflect a specific withholding tax outcome, a specific salvage value outcome, and a specific exchange rate trend. There will now be a total of 12 scenarios, each with its associated NPV estimate and probability of occurrence. Based on the estimated NPV and the probability of each scenario, Spartan, Inc., can then measure the expected NPV and the probability that it will be positive, which leads to a decision regarding whether the project is feasible. ●

16-3c Analysis of Existing Projects

An MNC should consider country risk not only when assessing a new project but should also review the country risk periodically after a project has been implemented. If an MNC has a subsidiary in a country that experiences adverse political conditions, it may need to reassess the feasibility of maintaining this subsidiary.

EXAMPLE Three years ago, California Co. established a subsidiary in Zinland. As a result of a new higher tax imposed by the government of Zinland, the cash flows generated by the subsidiary are reduced. Based on a new capital budgeting analysis, California Co. determines that the present value of the subsidiary is 30 percent less than before the higher tax rate was imposed by the government. Because it believes that the high tax rate will continue in Zinland, California Co. decides to seek a buyer for its subsidiary. If it can find a buyer that is willing to pay more than the subsidiary's present value, it will sell its subsidiary and do its future business in Zinland by exporting products there. ●

MNCs commonly respond to adverse country risk conditions by restructuring their operations in a manner that will reduce their exposure to country risk. However, strategies such as selling a subsidiary can be difficult and costly. If California Co. had anticipated, three years earlier, the actions by the Zinland government to impose higher tax rates, then the company might never have established a subsidiary there. Although MNCs are not capable of anticipating all changes in country risk conditions that can occur, they should at least consider various scenarios that might occur, especially when considering a long-term project in a foreign country.

16-4 Preventing Host Government Takeovers

The most severe country risk is a host government takeover. This type of takeover may result in major losses, especially when the MNC does not have any power to negotiate with the host government.

The following are the most common strategies used to reduce exposure to a host government takeover:

- use a short-term horizon,
- rely on unique supplies or technology,
- hire local labor,
- borrow local funds,
- purchase insurance, and
- use project finance.

16-4a Use a Short-Term Horizon

An MNC may concentrate on recovering cash flow quickly so that losses are minimized in the event of expropriation. An MNC might make only a minimum effort to replace worn-out equipment and machinery at the subsidiary. It may even phase out its overseas investment by selling off its assets to local investors or the government in stages over time. As a result, there would be little incentive for a host government to take over an MNC's subsidiary.

16-4b Rely on Unique Supplies or Technology

If the subsidiary can bring in supplies from its headquarters (or a sister subsidiary) that cannot be duplicated locally, then the host government will not be able to take over and operate the subsidiary without those supplies. The MNC can also cut off supplies if the subsidiary is treated unfairly.

If the subsidiary can hide the technology in its production process, then a government takeover will be less likely. A takeover would be successful in this case only if the MNC would provide the necessary technology, and the MNC would do so only under conditions of a friendly takeover that would ensure it received adequate compensation.

16-4c Hire Local Labor

If local employees of the subsidiary would be affected by the host government's takeover, they can pressure their government to avoid such action. However, the government could still keep those employees after taking over the subsidiary. Thus, this strategy has only limited effectiveness in avoiding or limiting a government takeover.

16-4d Borrow Local Funds

If the subsidiary borrows funds locally, then local banks will be concerned about its future performance. If for any reason a government takeover would reduce the probability that the banks would receive their loan repayments promptly, they might attempt to prevent a takeover by the host government. However, the host government may guarantee repayment to the banks, so this strategy has only limited effectiveness. Nevertheless, it could still be preferable to a situation in which the MNC not only loses the subsidiary but also still owes home country creditors.

16-4e Purchase Insurance

Insurance can be purchased to cover the risk of expropriation. For example, the U.S. government provides insurance through the Overseas Private Investment Corporation (OPIC). The insurance premiums paid by a firm depend on the extent of insurance coverage and the risk associated with the firm. Typically, however, any insurance policy will cover only a portion of the company's total exposure to country risk.

Many home countries of MNCs have investment guarantee programs that insure to some extent the risks of expropriation, wars, or currency blockage. Some guarantee programs have a one-year waiting period (or longer) before compensation is actually paid on losses due to expropriation. Also, some insurance policies do not cover all forms of expropriation. Furthermore, to be eligible for such insurance, the subsidiary might be required by the country to concentrate on exporting rather than on local sales. Even if a subsidiary qualifies for insurance, there is a cost. Any insurance will typically cover only a portion of the assets and may specify a maximum duration of coverage, such as 15 or 20 years. A subsidiary must weigh the benefits of this insurance against the cost of the policy's premiums and potential losses in excess of coverage. The insurance can be helpful, but it does not by itself prevent losses due to expropriation.

The World Bank has established an affiliate, called the Multilateral Investment Guarantee Agency (MIGA) to provide political insurance for MNCs with direct foreign investment in less developed countries. This agency offers insurance against expropriation, breach of contract, currency inconvertibility, war, and civil disturbances.

16-4f Use Project Finance

Many of the world's largest infrastructure projects are structured as "project finance" deals, which limit the exposure of the MNCs. First, project finance deals are heavily

financed with credit. Thus, the MNC's exposure is limited because it invests only a limited amount of equity in the project. Second, a bank may guarantee the payments to the MNC. Third, project finance deals are unique in that they are secured by the project's future revenues from production. That is, the project is separate from the MNC that manages the project. The loans are "nonrecourse" so that the creditor is entitled only to the assets and cash flows of the project itself. Given the transparency of the process, which arises from the single purpose and finite plan for termination, project finance enables funding for projects that might not obtain financing under conventional terms. A host government is unlikely to take over this type of project because it would have to assume the existing liabilities due to the credit arrangement.

SUMMARY

- The characteristics used by MNCs to measure a country's political risk include the attitude of consumers toward purchasing locally produced goods, the host government's actions toward the MNC, the blockage of fund transfers, currency inconvertibility, war, bureaucratic problems, and corruption. These characteristics can increase the costs of international business.

  The characteristics used by MNCs to measure a country's financial risk are the country's gross domestic product, interest rate, exchange rate, and inflation rate.
- The techniques typically used by MNCs to measure the country risk are the checklist approach, the Delphi technique, quantitative analysis, and inspection visits. Since no one technique covers all aspects of country risk, a combination of these techniques may be used. An overall measure of country risk is essentially a weighted average of the political or financial factors that are perceived to constitute country risk. Each MNC has its own view as to the weights that should be assigned to each factor and its own view about each factor's importance as related to its business. Thus, the overall rating for a country varies among MNCs.
- Once country risk is measured, it can be incorporated into a capital budgeting analysis by adjustment of the discount rate. The adjustment is somewhat arbitrary, however, and may lead to improper decision making. An alternative method of incorporating country risk analysis into capital budgeting is to explicitly account for each factor that affects country risk. For each possible form of risk, the MNC can recalculate the foreign project's net present value under the condition that the event (such as blocked funds or increased taxes) occurs.
- MNCs can reduce the likelihood of a host government takeover of their subsidiary by using a short-term horizon for their operations whereby the investment in the subsidiary is limited. In addition, reliance on unique technology (that cannot be copied), local citizens for labor, and local financial institutions for financing may create some protection from the host government.

POINT COUNTER-POINT

Does Country Risk Matter for U.S. Projects?

Point No. U.S.-based MNCs should consider country risk for foreign projects only. A U.S.-based MNC can account for U.S. economic conditions when estimating cash flows of a U.S. project or deriving the required rate of return on a project, but it does not need to consider country risk.

Counter-Point Yes. Country risk should be considered for U.S. projects. Country risk can indirectly affect the cash flows of a U.S. project. Consider a U.S. project in which supplies are produced and sent to a U.S. exporter. The demand for the supplies will be dependent on the demand for the exports over time, and the demand for exports over time may be dependent on country risk.

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. Key West Co. exports highly advanced phone system components to its subsidiary shops on islands in the Caribbean. The components are purchased by consumers to improve their phone systems. These components are not produced in other countries. Explain how political risk factors could adversely affect the profitability of Key West Co.
2. Using the information in question 1, explain how financial risk factors could adversely affect the profitability of Key West Co.
3. Given the information in question 1, do you expect that Key West Co. is more concerned about the adverse effects of political risk or of financial risk?
4. Explain what types of firms would be most concerned about an increase in country risk as a result of the terrorist attack on the United States on September 11, 2001.
5. Rockford Co. plans to expand its successful business by establishing a subsidiary in Canada. However, it is concerned that after 2 years the Canadian government will either impose a special tax on any income sent back to the U.S. parent or order the subsidiary to be sold at that time. The executives have estimated that each of these scenarios has a 15 percent chance of occurring. They have decided to add four percentage points to the project's required rate of return to incorporate the country risk that they are concerned about in the capital budgeting analysis. Is there a better way to more precisely incorporate the country risk of concern here?

QUESTIONS AND APPLICATIONS

1. **Forms of Country Risk** List some forms of political risk other than a takeover of a subsidiary by the host government, and briefly elaborate on how each factor can affect the risk to the MNC. Identify common financial factors for an MNC to consider when assessing country risk. Briefly elaborate on how each factor can affect the risk to the MNC.
2. **Country Risk Assessment** Describe the steps involved in assessing country risk once all relevant information has been gathered.
3. **Uncertainty Surrounding the Country Risk Assessment** Describe the possible errors involved in assessing country risk. In other words, explain why country risk analysis is not always accurate.
4. **Diversifying Away Country Risk** Why do you think that an MNC's strategy of diversifying projects internationally could achieve low exposure to country risk?
5. **Monitoring Country Risk** Once a project is accepted, country risk analysis for the foreign country involved is no longer necessary, assuming that no other proposed projects are being evaluated for that country. Do you agree with this statement? Why or why not?
6. **Country Risk Analysis** If the potential return is high enough, any degree of country risk can be tolerated. Do you agree with this statement? Why or why not? Do you think that a proper country risk analysis can replace a capital budgeting analysis of a project considered for a foreign country? Explain.
7. **Country Risk Analysis** Niagara, Inc., has decided to call a well-known country risk consultant to conduct a country risk analysis in a small country where it plans to develop a large subsidiary. Niagara prefers to hire the consultant since it plans to use its employees for other important corporate functions. The consultant uses a computer program that has assigned weights of importance linked to the various factors. The consultant will evaluate the factors for this small country and insert a rating for each factor into the computer. The weights assigned to the factors are not adjusted by the computer, but the factor ratings are adjusted for each country that the consultant assesses. Do you think Niagara, Inc., should use this consultant? Why or why not?
8. **Micro-Assessment** Explain the micro-assessment of country risk.
9. **Incorporating Country Risk in Capital Budgeting** How could a country risk assessment be used to adjust a project's required rate of return? How could such an assessment be used instead to adjust a project's estimated cash flows?
10. **Reducing Country Risk** Explain some methods of reducing exposure to existing country risk while maintaining the same amount of business within a particular country.

11. Managing Country Risk Why do some subsidiaries maintain a low profile as to where their parents are located?

12. Country Risk Analysis When NYU Corp. considered establishing a subsidiary in Zenland, it performed a country risk analysis to help make the decision. It first retrieved a country risk analysis performed about 1 year earlier, when it had planned to begin a major exporting business to Zenland firms. Then it updated the analysis by incorporating all current information on the key variables that were used in that analysis, such as Zenland's willingness to accept exports, its existing quotas, and existing tariff laws. Is this country risk analysis adequate? Explain.

13. Reducing Country Risk MNCs such as Alcoa, DuPont, Heinz, and IBM donated products and technology to foreign countries where they had subsidiaries. How could these actions have reduced some forms of country risk?

14. Country Risk Ratings Assauer, Inc., would like to assess the country risk of Glovanskia. Assauer has identified various political and financial risk factors, as shown below. Assauer has assigned an overall rating of 80 percent to political risk factors and of 20 percent to financial risk factors. Assauer is not willing to consider Glovanskia for investment if the country risk rating is below 4.0. Should Assauer consider Glovanskia for investment?

POLITICAL RISK FACTOR	ASSIGNED RATING	ASSIGNED WEIGHT
Blockage of fund transfers	5	40%
Bureaucracy	3	60%

FINANCIAL RISK FACTOR	ASSIGNED RATING	ASSIGNED WEIGHT
Interest rate	1	10%
Inflation	4	20%
Exchange rate	5	30%
Competition	4	20%
Growth	5	20%

15. Effects of September 11 Arkansas, Inc., exports to various less developed countries, and its receivables are denominated in the foreign currencies of the importers. It considers reducing its exchange rate risk by establishing small subsidiaries to produce products. By incurring some expenses in the countries where it generates revenue, it reduces its exposure to exchange rate risk. Since September 11, 2001, when terrorists attacked the United States, it has questioned whether it should restructure its operations. Its CEO believes that its cash flows may be less exposed to exchange rate risk but more exposed to other types of risk as a result of restructuring. What is your opinion?

Advanced Questions

16. How Country Risk Affects NPV Hoosier, Inc., is planning a project in the United Kingdom. It would lease space for 1 year in a shopping mall to sell expensive clothes manufactured in the United States. The project would end in 1 year, when all earnings would be remitted to Hoosier, Inc. Assume that no additional corporate taxes are incurred beyond those imposed by the British government. Since Hoosier, Inc., would rent space, it would not have any long-term assets in the United Kingdom and expects the salvage (terminal) value of the project to be about zero.

Assume that the project's required rate of return is 18 percent. Also assume that the initial outlay required by the parent to fill the store with clothes is $200,000. The pretax earnings are expected to be £300,000 at the end of 1 year. The British pound is expected to be worth $1.60 at the end of 1 year, when the after-tax earnings are converted to dollars and remitted to the United States. The following forms of country risk must be considered:

- The British economy may weaken (probability = 30 percent), which would cause the expected pretax earnings to be £200,000.
- The British corporate tax rate on income earned by U.S. firms may increase from 40 to 50 percent (probability = 20 percent).

These two forms of country risk are independent. Calculate the expected value of the project's net present value (NPV) and determine the probability that the project will have a negative NPV.

17. How Country Risk Affects NPV Explain how the capital budgeting analysis in the previous question would need to be adjusted if there were three possible outcomes for the British pound along with the possible outcomes for the British economy and corporate tax rate.

18. JCPenney's Country Risk Analysis Recently, JCPenney decided to consider expanding into various foreign countries; it applied a comprehensive country risk analysis before making its expansion decisions.

Initial screenings of 30 foreign countries were based on political and economic factors that contribute to country risk. For the remaining 20 countries where country risk was considered to be tolerable, specific country risk characteristics of each country were considered. One of JCPenney's biggest targets is Mexico, where it planned to build and operate seven large stores.

a. Identify the political factors that you think may possibly affect the performance of the JCPenney stores in Mexico.

b. Explain why the JCPenney stores in Mexico and in other foreign markets are subject to financial risk (a subset of country risk).

c. Assume that JCPenney anticipated that there was a 10 percent chance that the Mexican government would temporarily prevent conversion of peso profits into dollars because of political conditions. This event would prevent JCPenney from remitting earnings generated in Mexico and could adversely affect the performance of these stores (from the U.S. perspective).

d. Offer a way in which this type of political risk could be explicitly incorporated into a capital budgeting analysis when assessing the feasibility of these projects.

e. Assume that JCPenney decides to use dollars to finance the expansion of stores in Mexico. Second, assume that JCPenney decides to use one set of dollar cash flow estimates for any project that it assesses. Third, assume that the stores in Mexico are not subject to political risk. Do you think that the required rate of return on these projects would differ from the required rate of return on stores built in the United States at that same time? Explain.

f. Based on your answer to the previous question, does this mean that proposals for any new stores in the United States have a higher probability of being accepted than proposals for any new stores in Mexico?

19. How Country Risk Affects NPV Monk, Inc., is considering a capital budgeting project in Tunisia. The project requires an initial outlay of 1 million Tunisian dinars; the dinar is currently valued at $.70. In the first and second years of operation, the project will generate 700,000 dinars in each year. After 2 years, Monk will terminate the project, and the expected salvage value is 300,000 dinars. Monk has assigned a discount rate of 12 percent to this project. The following additional information is available:

- There is currently no withholding tax on remittances to the United States, but there is a 20 percent chance that the Tunisian government will impose a withholding tax of 10 percent beginning next year.
- There is a 50 percent chance that the Tunisian government will pay Monk 100,000 dinar after 2 years instead of the 300,000 dinars it expects.
- The value of the dinar is expected to remain unchanged over the next 2 years.

a. Determine the net present value of the project in each of the four possible scenarios.

b. Determine the joint probability of each scenario.

c. Compute the expected NPV of the project and make a recommendation to Monk regarding its feasibility.

20. How Country Risk Affects NPV In the previous question, assume that instead of adjusting the estimated cash flows of the project, Monk had decided to adjust the discount rate from 12 to 17 percent. Reevaluate the NPV of the project's expected scenario using this adjusted discount rate.

21. Risk and Cost of Potential Kidnapping In 2004 during the war in Iraq, some MNCs capitalized on opportunities to rebuild Iraq. However, in April 2004, some employees were kidnapped by local militant groups. How should an MNC account for this potential risk when it considers direct foreign investment (DFI) in any particular country? Should it avoid DFI in any country in which such an event could occur? If so, how would it screen the countries to determine which are acceptable? For whatever countries the MNC is willing to consider, should it adjust its feasibility analysis to account for the possibility of kidnapping? Should it attach a cost to reflect this possibility or increase the discount rate when estimating the net present value? Explain.

22. Integrating Country Risk and Capital Budgeting Tovar Co. is a U.S. firm that has been asked to provide consulting services to help Grecia Co. (in Greece) improve its performance. Tovar would need to spend $300,000 today on expenses related to this project. In 1 year, Tovar will receive payment from Grecia, which will be tied to Grecia's performance during the year. There is uncertainty about Grecia's performance and about Grecia's tendency for corruption.

Tovar expects that it will receive 400,000 euros if Grecia achieves strong performance following the consulting job. However, there are two forms of country risk that are a concern to Tovar Co. There is an 80 percent chance that Grecia will achieve strong

performance. There is a 20 percent chance that Grecia will perform poorly, and in this case, Tovar will receive a payment of only 200,000 euros.

While there is a 90 percent chance that Grecia will make its payment to Tovar, there is a 10 percent chance that Grecia will become corrupt, and in this case, Grecia will not submit any payment to Tovar.

Assume that the outcome of Grecia's performance is independent of whether Grecia becomes corrupt. The prevailing spot rate of the euro is $1.30, but Tovar expects that the euro will depreciate by 10 percent in 1 year, regardless of Grecia's performance or whether it is corrupt.

Tovar's cost of capital is 26 percent. Determine the expected value of the project's net present value. Determine the probability that the project's NPV will be negative.

23. Capital Budgeting and Country Risk Wyoming Co. is a nonprofit educational institution that wants to import educational software products from Hong Kong and sell them in the United States. It wants to assess the net present value of this project since any profits it earns will be used for its foundation. It expects to pay HK$5 million for the imports. Assume the existing exchange rate is HK$1 = $.12. It would also incur selling expenses of $1 million to sell the products in the United States. It would be able to sell the products in the United States for $1.7 million. However, it is concerned about two forms of country risk. First, there is a 60 percent chance that the Hong Kong dollar will be revalued to be worth HK$1 = $.16 by the Hong Kong government. Second, there is a 70 percent chance that the Hong Kong government will impose a special tax of 10 percent on the amount that U.S. importers must pay for Hong Kong exports. These two forms of country risk are independent, meaning that the probability that the Hong Kong dollar will be revalued is independent of the probability that the Hong Kong government will impose a special tax. Wyoming's required rate of return on this project is 22 percent. What is the expected value of the project's net present value? What is the probability that the project's NPV will be negative?

24. Accounting for Country Risk of a Project Kansas Co. wants to invest in a project in China. It would require an initial investment of 5 million yuan. It is expected to generate cash flows of 7 million yuan at the end of 1 year. The spot rate of the yuan is $.12, and Kansas thinks this exchange rate is the best forecast of the future. However, there are two forms of country risk.

First, there is a 30 percent chance that the Chinese government will require that the yuan cash flows earned by Kansas at the end of 1 year be reinvested in China for 1 year before it can be remitted (so that cash would not be remitted until 2 years from today). In this case, Kansas would earn 4 percent after taxes on a bank deposit in China during that second year.

Second, there is a 40 percent chance that the Chinese government will impose a special remittance tax of 400,000 yuan at the time that Kansas Co. remits cash flows earned in China back to the United States.

The two forms of country risk are independent. The required rate of return on this project is 26 percent. There is no salvage value. What is the expected value of the project's net present value?

25. Accounting for Country Risk of a Project Slidell Co. (a U.S. firm) considers a foreign project in which it expects to receive 10 million euros at the end of this year. It plans to hedge receivables of 10 million euros with a forward contract. Today, the spot rate of the euro is $1.20, the 1-year forward rate of the euro is presently $1.24, and the expected spot rate of the euro in 1 year is $1.19. The initial outlay is $7 million. Slidell has a required return of 18 percent.

There is a 20 percent chance that political problems will cause a reduction in foreign business, such that Slidell would only receive 4 million euros at the end of 1 year. Determine the expected value of the net present value of this project.

26. Political Risk and Currency Derivative Values Assume that interest rate parity exists. At 10:30 a.m., the media reported news that the Mexican government's political problems were reduced, which reduced the expected volatility of the Mexican peso against the dollar over the next month. However, this news had no effect on the prevailing 1-month interest rates of the U.S. dollar or Mexican peso, or on the expected exchange rate of the Mexican peso in 1 month. The spot rate of the Mexican peso was $.13 as of 10 a.m. and remained at that level all morning.

a. At 10 a.m., Piazza Co. purchased a call option at the money on 1 million Mexican pesos with a December expiration date. At 11:00 a. m., Corradetti Co. purchased a call option at the money on 1 million pesos with a December expiration date. Did Corradetti Co. pay more, less, or the same as Piazza Co. for the options? Briefly explain.

b. Teke Co. purchased futures contracts on 1 million Mexican pesos with a December settlement date at

10 a.m. Malone Co. purchased futures contracts on 1 million Mexican pesos with a December settlement date at 11 a.m. Did Teke Co. pay more, less, or the same as Malone Co. for the futures contracts? Briefly explain.

27. Political Risk and Project NPV Drysdale Co. (a U.S. firm) is considering a new project that would result in cash flows of 5 million Argentine pesos in 1 year under the most likely economic and political conditions. The spot rate of the Argentina peso in 1 year is expected to be $.40 based on these conditions. However, it wants to also account for the 10 percent probability of a political crisis in Argentina, which would change the expected cash flows to 4 million Argentine pesos in 1 year. In addition, it wants to account for the 20 percent probability that the exchange rate may only be $.36 at the end of 1 year. These two forms of country risk are independent. Drysdale's required rate of return is 25 percent and its initial outlay for this project is $1.4 million. Show the distribution of possible outcomes for the project's net present value.

28. Country Risk and Project NPV Atro Co. (a U.S. firm) considers a foreign project in which it expects to receive 10 million euros at the end of 1 year. While it realizes that its receivables are uncertain, it decides to hedge receivables of 10 million euros with a forward contract today. As of today, the spot rate of the euro is $1.20, while the 1-year forward rate of the euro is presently $1.24, and the expected spot rate of the euro in 1 year is $1.19. The initial outlay of this project is $7 million. Atro has a required return of 18 percent.

a. Estimate the NPV of this project based on the expectation of 10 million euros in receivables.

b. Now estimate the NPV based on the possibility that country risk could cause a reduction in foreign business such that Atro Co. only receives 4 million euros instead of 10 million euros at the end of 1 year. Estimate the net present value of the project if this form of country risk occurs.

29. Accounting for Political Risk and the Hedging Decision

a. Duv Co. (a U.S. firm) is planning to invest $2.5 million in a project in Portugal that will exist for one year. Its required rate of return on this project is 18 percent. It expects to receive cash flows of 2 million euros in one year from this project. The spot rate of the euro in one year is expected to be $1.50. The one-year forward rate of the euro is presently $1.40. Duv Co. wants to account also for the 20 percent probability of a crisis in Portugal. If this crisis occurs, Duv would reduce its expected cash flows to 1 million euros in one year. Duv Co. does not plan to hedge its expected cash flows. Show the distribution of possible outcomes for the project's estimated net present value, including the probability of each possible outcome.

b. Now assume that Duv plans to hedge the cash flows that it believes it will receive if a crisis in Portugal occurs. However, it decides not to hedge additional cash flows that it would receive if the crisis does not occur. Estimate what the net present value of the project will be based on the hedging strategy described here and assuming that a crisis in Portugal does not occur.

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 *International Financial Management* text companion website. Go to www.cengagebrain.com (students) or www.cengage.com/login (instructors) and search using **ISBN 9781133947837.**

Blades, Inc. Case

Country Risk Assessment

Recently, Ben Holt, Blades' chief financial Officer, has assessed whether it would be more beneficial for Blades to establish a subsidiary in Thailand to manufacture roller blades or to acquire an existing manufacturer, Skates'n'Stuff, which has offered to sell the business to Blades for 1 billion Thai baht. In Holt's view, establishing a subsidiary in Thailand yields a higher net present value than acquiring the existing business. Furthermore, the Thai manufacturer has rejected an offer by Blades, Inc., of 900 million baht. A purchase price of 900 million baht for Skates'n'Stuff would make the acquisition as attractive as the establishment of a subsidiary in Thailand in terms of NPV Skates'n'Stuff has indicated that it is not willing to accept less than 950 million baht.

Although Holt is confident that the NPV analysis was conducted correctly, he is troubled by the fact that the same discount rate, 25 percent, was used in each analysis. In his view, establishing a subsidiary in Thailand

may be associated with a higher level of country risk than acquiring Skates'n'Stuff. Although either approach would result in approximately the same level of financial risk, the political risk associated with establishing a subsidiary in Thailand may be higher then the political risk of operating Skates'n'Stuff. If the establishment of a subsidiary in Thailand is associated with a higher level of country risk overall, then a higher discount rate should have been used in the analysis. Based on these considerations, Holt wants to measure the country risk associated with Thailand on both a macro and a micro level and then to reexamine the feasibility of both approaches.

First, Holt has gathered some more detailed political information for Thailand. For example, he believes that consumers in Asian countries prefer to purchase goods produced by Asians, which might prevent a subsidiary in Thailand from being successful. This cultural characteristic might not prevent an acquisition of Skates'n'Stuff from succeeding, however, especially if Blades retains the company's management and employees. Furthermore, the subsidiary would have to apply for various licenses and permits to be allowed to operate in Thailand, whereas Skates'n'Stuff obtained these licenses and permits long ago. However, the number of licenses required for Blades' industry is relatively low compared to other industries. Moreover, there is a high possibility that the Thai government will implement capital controls in the near future, which would prevent funds from leaving Thailand. Since Blades, Inc., has planned to remit all earnings generated by its subsidiary or by Skates'n'Stuff back to the United States, regardless of which approach to direct foreign investment it takes, capital controls may force Blades to reinvest funds in Thailand.

Holt has also gathered some information regarding the financial risk of operating in Thailand. Thailand's economy has been weak lately, and recent forecasts indicate that a recovery may be slow. A weak economy may affect the demand for Blades' products, roller blades. The state of the economy is of particular concern to Blades since it produces a leisure product. In the case of an economic turndown, consumers will first eliminate these types of purchases. Holt is also worried about the high interest rates in Thailand, which may further slow economic growth if Thai citizens begin saving more. Furthermore, Holt is also aware that inflation levels in Thailand are expected to remain high. These high inflation levels can affect the purchasing power of Thai consumers, who may adjust their spending habits to purchase more essential products than roller blades. However, high levels of inflation also indicate that consumers in Thailand are still spending a relatively high proportion of their earnings.

Another financial factor that may affect Blades' operations in Thailand is the baht-dollar exchange rate. Current forecasts indicate that the Thai baht may depreciate in the future. However, recall that Blades will sell all roller blades produced in Thailand to Thai consumers. Therefore, Blades is not subject to a lower level of U.S. demand resulting from a weak baht. Blades will remit the earnings generated in Thailand back to the United States, however, and a weak baht would reduce the dollar amount of these translated earnings. Based on these initial considerations, Holt feels that the level of political risk of operating may be higher if Blades decides to establish a subsidiary to manufacture roller blades (as opposed to acquiring Skates'n'Stuff). The financial risk of operating in Thailand will be roughly the same whether Blades establishes a subsidiary or acquires Skates'n'Stuff. Holt is not satisfied with this initial assessment, however, and would like to have numbers at hand when he meets with the board of directors next week. Thus, he would like to conduct a quantitative analysis of the country risk associated with operating in Thailand. He has asked you, a financial analyst at Blades, to develop a country risk analysis for Thailand and to adjust the discount rate for the riskier venture (i.e., establishing a subsidiary or acquiring Skates'n'Stuff). Holt has provided the following information for your analysis:

- Since Blades produces leisure products, it is more susceptible to financial risk factors than political risk factors. You should use weights of 60 percent for financial risk factors and 40 percent for political risk factors in your analysis.
- You should use the attitude of Thai consumers, capital controls, and bureaucracy as political risk factors in your analysis. Holt perceives capital controls as the most important political risk factor. In his view, the consumer attitude and bureaucracy factors are of equal importance.
- You should use interest rates, inflation levels, and exchange rates as the financial risk factors in your analysis. In Holt's view, exchange rates and interest rates in Thailand are of equal importance, while inflation levels are slightly less important.
- Each factor used in your analysis should be assigned a rating in a range of 1 to 5, where 5 indicates the most unfavorable rating.

Holt has asked you to provide answers to the following questions for him, which he will use in his meeting with the board of directors:

1. Based on the information provided in the case, do you think the political risk associated with Thailand is

higher or lower for a manufacturer of leisure products such as Blades as opposed to, say, a food producer? That is, conduct a micro-assessment of political risk for Blades, Inc.

2. Do you think the financial risk associated with Thailand is higher or lower for a manufacturer of leisure products such as Blades as opposed to, say, a food producer? That is, conduct a micro-assessment of financial risk for Blades, Inc. Do you think a leisure product manufacturer such as Blades will be more affected by political or financial risk factors?

3. Without using a numerical analysis, do you think establishing a subsidiary in Thailand or acquiring Skates'n'Stuff will result in a higher assessment of political risk? Of financial risk? Substantiate your answer.

4. Using a spreadsheet, conduct a quantitative country risk analysis for Blades, Inc., based on the information Holt has provided for you. Use your judgment to assign weights and ratings to each political and financial risk factor and determine an overall country risk rating for Thailand. Conduct two separate analyses for the establishment of a subsidiary in Thailand and the acquisition of Skates'n'Stuff.

5. Which method of direct foreign investment should utilize a higher discount rate in the capital budgeting analysis? Would this strengthen or weaken the tentative decision of establishing a subsidiary in Thailand?

Small Business Dilemma

Country Risk Analysis at the Sports Exports Company

The Sports Exports Company produces footballs in the United States and exports them to the United Kingdom. It also has an ongoing joint venture with a British firm that produces some sporting goods for a fee. The Sports Exports Company is considering the establishment of a small subsidiary in the United Kingdom.

1. Under the current conditions, is the Sports Exports Company subject to country risk?

2. If the firm does decide to develop a small subsidiary in the United Kingdom, will its exposure to country risk change? If so, how?

Internet/Excel Exercise

Go to the website (www.cia.gov/library/publications/the-world-factbook/index.html) of the CIA *World Factbook*. Select a country and review the information about the country's political conditions. Explain whether these conditions would likely discourage an MNC from engaging in direct foreign investment. Explain how the political conditions could adversely affect the cash flows of the MNC.

Online Articles with Real-World Examples

Find a recent article online that describes an actual international finance application or a real-world example about a specific MNC's actions that reinforces one or more of the concepts covered in this chapter.

If your class has an online component, your professor may ask you to post your summary there and provide the Web link of the article so that other students can access it. If your class is live, your professor may ask you to summarize your application in class. Your professor may assign specific students to complete this assignment for this chapter or may allow any students to do the assignment on a volunteer basis.

For recent online articles and real-world examples applied to this chapter, consider using the following search terms (and include the current year as a search term to ensure that the online articles are recent).

1. company AND political risk
2. Inc. AND political risk
3. [name of an MNC] AND political risk
4. [name of an MNC] AND country risk
5. exposure to political risk
6. exposure to country risk
7. country risk rating
8. risk AND foreign project
9. risk AND foreign subsidiary
10. multinational AND government takeover

has foreign subsidiaries, its overall (or "global") capital structure is the combination of the capital structures of the parent and all subsidiaries. In general, an MNC can increase its capital internally by retaining earnings or externally by issuing debt or equity. Common sources of external debt and equity are described next.

17-1a External Sources of Debt

When MNCs consider debt financing, they consider the following sources.

Domestic Bond Offering Multinational corporations often engage in a domestic bond offering in their home country in which the funds are denominated in their local currency. They hire an investment bank to help determine the amount of the offering and the price at which the bonds can be sold. The investment bank also serves the distribution role by selling the bonds to many institutional investors. Maturities on the debt typically range from 10 to 20 years. Investors who purchase the bonds do not have to hold them until maturity because the bonds can be sold to other investors in the secondary market.

The proceeds of a domestic bond offering are initially denominated in the parent's local currency. Thus, if the parent plans to use a portion of the proceeds to provide financing to any of its foreign subsidiaries, it would convert the funds into the subsidiary's local currency at the prevailing exchange rate.

Global Bond Offering An MNC can engage in a global bond offering (with the help of an investment bank) in which it simultaneously sells bonds denominated in the currencies of multiple countries. The focus is on obtaining funds from a few countries where large subsidiaries are in need of financing. For example, an offering by a U.S.-based MNC may consist of $20 million in bonds sold to U.S. investors to finance its home operations, British pound–denominated bonds valued at 15 million British pounds sold to British investors to finance its subsidiaries that conduct business in the United Kingdom, and Swiss franc–denominated bonds valued at 10 million Swiss francs sold to Swiss investors to finance its subsidiaries that conduct business in Switzerland. Investors who purchase any of these bonds can sell them before maturity to other investors in the secondary market.

Private Placement of Bonds Another source of debt for MNCs is to offer a private placement of bonds to financial institutions in their home country or in the foreign country where they are expanding. Private placements of debt may reduce transaction costs because the debt is placed with a small number of large investors. However, MNCs may not be able to obtain all the funds that they need with a private placement of debt. Privately placed bonds may carry some restrictions on their resale in the secondary market. Thus, they may offer limited liquidity to investors.

Loans from Financial Institutions An MNC commonly borrows funds from financial institutions. It not only benefits from access to funds but also establishes a business relationship with the financial institutions, giving it access to other services such as foreign exchange and cash management. Subsidiaries of an MNC borrow funds from local financial institutions in their respective host country and may also rely on other services from these financial institutions.

Loans from financial institutions to MNCs typically specify an adjustable interest rate that changes every six months or one year in accordance with the annualized interbank loan rate (called the London Interbank Offer rate, or LIBOR) in the same currency. For example, the interest rate on a loan denominated in British pounds may be reset every year for loans denominated in pounds, plus an annualized premium of 3 percent. The interest rate on a loan denominated in Swiss francs may be reset every year at the

prevailing LIBOR rate for interbank loans denominated in Swiss francs, plus an annualized premium of 3 percent. While the formula is the same for both loans, the interest rates may vary substantially between the two loans because the prevailing interbank loan rate on one currency might be much higher than the interbank loan rate on the other currency. For example, if the prevailing LIBOR for British pound-denominated loans is higher than the prevailing LIBOR for Swiss franc-denominated loans, then the interest rate on a loan to an MNC denominated in pounds would be higher than the interest rate on a loan denominated in Swiss francs.

The size of the premium paid by the MNC above the interbank interest rate depends on the credit risk of the MNC that receives the loan. A relatively low loan premium (such as 2 percent) would be charged by creditors on any loan to profitable MNCs that is backed by collateral. At the other extreme, a much higher premium (such as 5 percent) would be charged by creditors on any loan to financially weaker MNCs that is not backed by collateral.

If the MNC wants to borrow a large amount of funds, it may rely on a syndicate of lenders rather than a single lender. The structure of a syndicated loan can be tailored to meet the MNC's needs. For example, the loan can be segmented into portions so that each portion is denominated in a currency that is needed by a particular foreign subsidiary. The interest rate on the loan per currency will be periodically reset every 6 months or 1 year based on that currency's prevailing LIBOR.

The term of a loan can be set to fit the preferences of the MNC. Although MNCs normally rely on long-term loans to finance their operations, they may also obtain short-term loans and lines of credit (as described in Chapter 20) to ensure access to cash and their ability to cover short-term funding needs. Some MNCs continually roll over their short-term loans upon maturity so that they essentially rely on some short-term debt as a permanent form of financing to complement their other sources of capital.

17-1b External Sources of Equity

When MNCs need to obtain external equity, they consider the following sources.

Domestic Equity Offering Multinational corporations can engage in a domestic equity offering in their home country in which the funds are denominated in their local currency. They may distribute a portion of the proceeds to their subsidiaries. Any funds transferred to subsidiaries must be converted into the subsidiary's local currency at the prevailing exchange rate.

Global Equity Offering Most MNCs obtain equity funding in their home country, but some pursue a global equity offering in which they can simultaneously access equity from multiple countries. Their efforts in placing the stock are focused on a few countries where they have large subsidiaries that need financing. The stock will be listed on an exchange in the foreign country and denominated in the local currency so that investors there can sell their holdings of the stock in the local stock market. Investors in a foreign country will be more willing to purchase shares in a global equity offering if the MNC places a large number of shares in that country because this ensures a more active and liquid secondary market for the stock in that country. Hence those investors can more easily sell their shares in the secondary market in the future.

EXAMPLE Georgia Co. engages in a global offering in which a portion of the stock is denominated in dollars. The proceeds received from selling the dollar-denominated stock are used to support the operations of subsidiaries in the United States. This stock is placed with investors in the United States, who can easily sell the stock in the future because it is listed on U.S. stock exchanges.

Another portion of the global stock offering is denominated in Japanese yen, and the proceeds of this portion are used to support operations by Georgia's Japanese subsidiary. This stock is placed with Japanese investors who can easily sell the stock in the future because it is listed on a Japanese stock exchange.

Another portion of Georgia's global stock offering is denominated in euros, and the proceeds of this portion are to be used to support operations by Georgia's European subsidiary. This stock is placed with European investors who can easily sell the stock in the future because it is listed on a European stock exchange. ●

Multinational corporations that issue stock on a global basis are typically more capable of issuing new stock at the stock's prevailing market price than are MNCs that issue stock only in their home country. MNCs are better able to issue stock globally if they are large and established global name recognition. A global equity offering may be ineffective in some countries where there are weak disclosure laws, weak shareholder protection laws, and weak enforcement of the securities laws because there may be limited demand for stock by investors in such countries.

In addition, an MNC would consider raising funds from a stock offering in a foreign country only if the country's prevailing stock market valuations are relatively high. If the valuations are low, a stock offering would not attract much interest and would not generate a sufficient amount of funds to the MNC.

Private Placement of Equity Another source of equity for MNCs is to offer a private placement of equity to financial institutions in their home country or in the foreign country where they are expanding. As with private placements of debt, private placements of equity may reduce transaction costs. However, MNCs may not be able to obtain all the funds that they need with a private placement. The funding must come from a limited number of large investors who are willing to maintain the investment for a long period of time because the equity may be subject to conditions regarding its resale.

17-2 The MNC's Capital Structure Decision

An MNC's capital structure decision involves the choice of debt versus equity financing within all of its subsidiaries. The advantages of using debt as opposed to equity vary with corporate characteristics specific to each MNC and specific to the countries where the MNC has established subsidiaries.

17-2a Influence of Corporate Characteristics

Characteristics unique to each MNC can influence its capital structure. Several firm-specific characteristics that are known to affect an MNC's capital structure are identified here.

MNC's Cash Flow Stability Multinational corporations with more stable cash flows can handle more debt because there is a constant stream of cash inflows to cover periodic interest payments on debt. Conversely, MNCs with erratic cash flows may prefer less debt because they are not assured of generating enough cash in each period to make larger interest payments on debt. An MNC that is diversified across several countries may have more stable cash flows since the conditions in any single country should not have a major impact on cash flows. Consequently, such MNCs may be able to handle a more debt-intensive capital structure.

WEB

www.worldbank.org
Country profiles, analyses, and sectoral surveys.

MNC's Credit Risk Multinational corporations that have lower credit risk (risk of default on loans provided by creditors) have more access to credit. An MNC with assets that serve as acceptable collateral (such as buildings, trucks, and adaptable machinery) can more easily secure loans and so may prefer to emphasize debt financing. In contrast,

MNCs with assets that do not serve as adequate collateral may need to use a higher proportion of equity financing.

MNC's Access to Retained Earnings Highly profitable MNCs may be able to finance most of their investment with retained earnings and therefore use an equity-intensive capital structure; MNCs that generate small levels of earnings may rely mainly on debt financing. Growth-oriented MNCs may commonly need more funds than can be accessed from retained earnings, so tend to rely on debt financing. In contrast, MNCs with less growth may be able to rely on retained earnings (equity) rather than debt.

MNC's Guarantees on Debt If the parent backs the debt of its subsidiary, then the subsidiary's borrowing capacity should be increased. In that case, the subsidiary would need less equity financing. At the same time, however, the parent's borrowing capacity might be reduced because creditors will be less willing to provide funds to the parent if those funds might be needed to rescue the subsidiary.

MNC's Agency Problems If a subsidiary in a foreign country cannot easily be monitored by investors from the parent's country, then agency costs are higher. The parent may induce the subsidiary to rely more on debt financing, because this will force the subsidiary to be disciplined in order to cover its periodic loan payments.

17-2b Influence of Host Country Characteristics

In addition to characteristics unique to each MNC, the following characteristics unique to each host country can influence the MNC's choice of debt versus equity financing and thereby influence the MNC's capital structure.

Interest Rates in Host Countries The price of loanable funds (the interest rate) can vary across countries. Multinational corporations may be able to obtain loanable funds (debt) at a relatively low cost in specific countries, while the cost of debt in other countries may be very high. Consequently, an MNC's preference for debt may depend on the costs of debt in the countries where it operates. If markets are somewhat segmented and the cost of funds in the subsidiary's country appears excessive, the parent may use its own equity to support projects implemented by the subsidiary.

Strength of Host Country Currencies If an MNC is concerned about the potential weakness of the currencies in its subsidiaries' host countries, it may instruct these subsidiaries to finance a large proportion of their operations by borrowing in those currencies instead of relying on parent financing. In this way, the subsidiaries will remit a smaller amount in earnings because they will be making interest payments on local debt. This strategy reduces the MNC's exposure to exchange rate risk.

If the parent believes that a subsidiary's local currency will appreciate against the parent's currency, then it may have the subsidiary retain and reinvest more of its earnings. As a result, the subsidiary will reduce its reliance on local debt financing.

Country Risk in Host Countries A relatively mild form of country risk is the possibility that the host government will temporarily block funds to be remitted by the subsidiary to the parent. Subsidiaries that are prevented from remitting earnings over a period may prefer to use local debt financing. This strategy reduces the amount of funds that are blocked because the subsidiary can use some of the funds to pay interest on local debt.

If an MNC's subsidiary is exposed to the risk that the host government might confiscate its assets, then the subsidiary may rely mostly on debt financing in that host country. Then local creditors that have lent funds will have a genuine interest in ensuring that the subsidiary is treated fairly by the host government. In addition, if the MNC's operations in a foreign country are terminated by the host government, it will not lose as much if its

operations are financed by local creditors. Under these circumstances, the local creditors will have to negotiate with the host government to obtain all or part of the funds they have lent after the host government liquidates the assets it confiscates from the MNC.

Alternatively, the subsidiary could issue stock in the host country. Minority shareholders benefit directly from a profitable subsidiary. Therefore, they could pressure their local government to refrain from imposing excessive taxes, environmental constraints, or any other provisions that would reduce the subsidiary's profits. Having local investors own a minority interest in a subsidiary may also offer some protection against threats of adverse actions by the host government. Another advantage of a partially owned subsidiary is that it may open up additional opportunities in the host country. The subsidiary's name will become better known when its shares are acquired by minority shareholders in that country.

Tax Laws in Host Countries Foreign subsidiaries of an MNC may be subject to a withholding tax when they remit earnings. By using local debt financing instead of relying on parent financing, they will make interest payments on the local debt that should reduce the amount to be remitted periodically. Thus, the subsidiary reduces the parent's withholding taxes by using more local debt financing.

17-2c Response to Changing Country Characteristics

The country characteristics just described vary among countries and also can change over time in any particular country. Thus, these characteristics explain not only *why* the ideal capital structure may vary among countries but also *how* the ideal capital structure could change within any particular country over time.

EXAMPLE

Plymouth Co. has subsidiaries in several countries that have just revised their capital structure levels as follows.

- Its subsidiary in Argentina decides to rely more on retained earnings because local interest rates have increased and thus caused the cost of local debt to increase. Therefore, its capital structure will become more equity intensive.
- Plymouth Co. is concerned that the Japanese yen will depreciate substantially in two years. The company instructs its subsidiary in Japan to remit all earnings to the parent over the next year, before the yen depreciates. Consequently, the Japanese subsidiary cannot rely on retained earnings (equity) to support its operations and must rely more heavily on local debt.
- Plymouth Co. has a subsidiary in Chile, where the government announced it will block funds for the next year. This subsidiary will use the funds that it would have remitted to pay off some local debt in Chile. Thus, its capital structure will become more equity intensive.
- Plymouth Co. has a subsidiary in India, where the government announced it will repeal its withholding tax on remitted funds. This subsidiary has been retaining earnings in order to avoid the withholding tax in recent years, and it will now remit more of those earnings to the parent. Thus, the subsidiary will rely less on retained earnings and more on local debt to support its operations.

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finance.yahoo.com
Capital repatriation regulations imposed by each country.

Overall, two country conditions caused subsidiaries to use a more debt-intensive capital structure, while two other country conditions caused subsidiaries to use a more equity-intensive capital structure. ●

17-3 Subsidiary versus Parent Capital Structure Decisions

The capital structure of an MNC's subsidiaries may vary because some subsidiaries are subject to conditions that favor debt financing whereas others are subject to conditions that favor equity financing. Because the subsidiary's capital structure decision affects the

amount of retained earnings that are remitted to the parent, that decision affects the amount of equity contributed to the parent and so affects the parent's capital structure. Thus, the capital structure decisions of subsidiaries affect the capital structure of the parent and should be made in consultation with the parent. The potential impact of two typical subsidiary financing situations on the parent's capital structure are explained next.

17-3a Impact of Increased Subsidiary Debt Financing

When a subsidiary relies heavily on debt financing, its need for internal equity financing (retained earnings) is reduced. Because these "extra" internal funds are remitted to the parent, the parent will itself have a larger amount of internal funds to use before resorting to external financing. Assuming that the parent's operations absorb all internal funds and require some debt financing, there are offsetting effects on the capital structures of the subsidiary and the parent. The increased use of debt financing by the subsidiary is offset by the reduced debt financing of the parent. Since the subsidiary may have more financial leverage than is desired for the MNC overall, the parent may use less financial leverage to finance its own operations in order to achieve its overall ("global") target capital structure.

17-3b Impact of Reduced Subsidiary Debt Financing

When global conditions encourage the subsidiary to use less debt financing, it will need to use more internal financing. The subsidiary will therefore remit fewer funds, reducing the amount of internal funds available to the parent. If the parent's operations absorb all internal funds and require some debt financing, then there are offsetting effects on the capital structures of the subsidiary and parent. The subsidiary's reduced use of debt financing is offset by the parent's increased use. Thus, even though a local (specific subsidiary) capital structure has changed, it is seldom necessary for the MNC's global capital structure to change. An MNC can still achieve its target capital structure by offsetting one subsidiary's change in financial leverage with an opposite change in financial leverage of another subsidiary or of the parent.

17-3c Limitations in Offsetting a Subsidiary's Leverage

The strategy of offsetting a subsidiary's shift in financial leverage to achieve a global target capital structure is rational as long as it is acceptable to foreign creditors and investors. However, foreign creditors may charge higher loans rates to a subsidiary that uses a highly leveraged local capital structure (even if the MNC's global capital structure is more balanced) because they believe that the subsidiary may be unable to meet its high debt repayments. If the parent plans to back the subsidiaries, however, it could guarantee debt repayment to the creditors in the foreign countries; doing so might reduce their risk perception and lower the cost of the debt. Many MNC parents stand ready to financially back their subsidiaries because, if they did not, their subsidiaries would be unable to obtain adequate financing.

17-4 Multinational Cost of Capital

Because an MNC's capital represents its debt and its equity, its cost of capital is based on its cost of debt and its cost of equity.

17-4a MNC's Cost of Debt

An MNC's cost of debt depends on the interest rate that it pays when borrowing funds. The interest rate that it pays is equal to the risk-free rate at the time it borrows funds along with a credit risk premium that compensates creditors for accepting credit (default) risk when extending credit to the MNC. Because interest expenses incurred by

corporations are deductible when determining a corporation's taxable income, there is a tax advantage associated with debt.

17-4b MNC's Cost of Equity

An MNC creates equity by retaining earnings or by issuing new stock. The firm's cost of retained earnings reflects an opportunity cost, which represents what the existing shareholders could have earned if they had received the earnings as dividends and invested the funds themselves. The MNC's cost of new equity (from issuing new common stock) also reflects an opportunity cost of what the new shareholders could have earned if they had invested their funds elsewhere instead of in the stock. This cost exceeds that of retained earnings because it also includes the expenses (known as "flotation costs") associated with selling the new stock.

An MNC's cost of equity contains a risk premium (above the risk-free interest rate) that compensates the equity investors for their willingness to invest in the equity. If investors thought the MNC would offer a future return on equity that was no higher than the prevailing risk-free rate, then they would not invest in its equity because they would rather earn that same return without any exposure to risk by investing in a risk-free Treasury security. When investing in an MNC's equity, there is uncertainty surrounding the return on that investment. Thus, price of equity must be low enough for investors so that it is expected to increase and thus offer a return to investors that reflects a premium above the risk-free rate.

The equity risk premium that investors would expect in order to invest in the MNC's equity (instead of investing in a risk-free security or in other securities) depends on the risk of the MNC. Those MNCs with higher levels of uncertainty surrounding their cash flows exhibit a higher level of risk, which means that the return to investors who invest in the stock is uncertain. The return may be less than the risk-free rate and may even be negative. Thus, the stock price must be low enough to entice investors so that it can possibly offer a large enough return to compensate for the risk involved.

17-4c Estimating an MNC's Cost of Capital

The cost of an MNC's capital (denoted k_c) can be measured as the cost of its debt plus the cost of its equity, with appropriate weights applied in order to reflect the percentage of the MNC's capital represented by debt and equity, respectively:

$$k_c = \left(\frac{D}{D+E}\right) k_d (1-t) + \left(\frac{E}{D+E}\right) k_e$$

Here

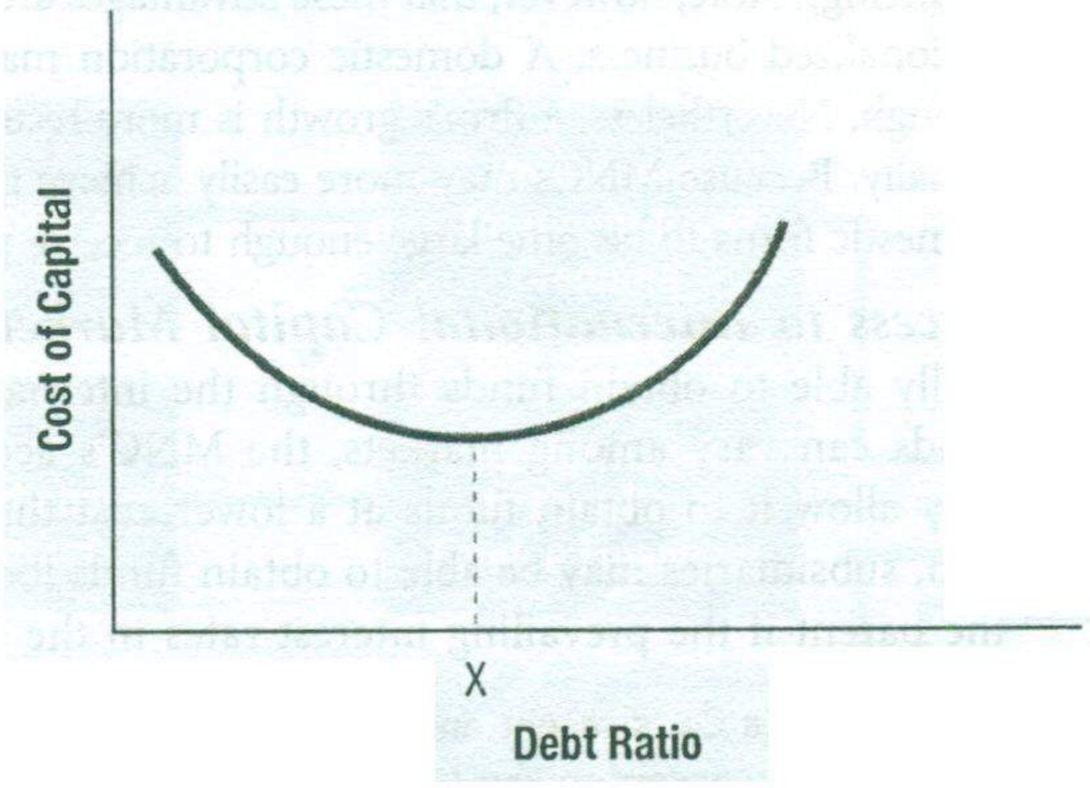
D = amount of the firm's debt
k_d = before-tax cost of the firm's debt
t = corporate tax rate
E = amount of the firm's equity
k_e = cost of financing with equity

The weights assigned to debt and equity appear within large parentheses in the preceding equation.

17-4d Comparing Costs of Debt and Equity

There is an advantage to using debt rather than equity as capital because the interest payments on debt are tax deductible. The greater the use of debt, however, the greater

Exhibit 17.1 Searching for the Appropriate Capital Structure



the interest expense and the higher the probability that the firm will be unable to meet its expenses. Consequently, as an MNC increases its proportion of debt, the rate of return required by potential new shareholders or creditors will increase to reflect the greater likelihood of bankruptcy.

The trade-off between debt's advantage (tax deductibility of interest payments) and its disadvantage (increased likelihood of bankruptcy) is illustrated in Exhibit 17.1. The graph shows the relationship between the firm's degree of financial leverage (as measured by the ratio of debt to total capital on the horizontal axis) and the cost of capital (on the vertical axis). When the ratio of debt to total capital is low, there is not much concern that the firm will go bankrupt because the firm should be able to cover its debt payments easily. Under these conditions, the tax advantage of debt overwhelms the disadvantage of debt (potential concerns about bankruptcy).

Yet at some point (labelled X in Exhibit 17.1) the debt ratio is high enough to trigger concern by creditors and shareholders about the firm's potential bankruptcy. The larger amount of debt would require the firm to make higher debt payments, which would increase the probability of the firm going bankrupt. At such a higher level of debt, the firm would incur a higher cost of additional debt to reflect the higher level of credit risk. In addition, investors might require higher returns (which means a higher cost of equity from the firm's perspective) in order to invest because of the firm's higher risk of bankruptcy. Consequently, when the ratio of debt to total capital is beyond point X on the horizontal axis, the cost of capital rises as the ratio of debt to total capital increases. The firm's cost of capital is minimized at point X, where it benefits from the tax advantage of debt but does not use so much debt that its tax advantage is overwhelmed by concerns about the firm's bankruptcy.

17-4e Cost of Capital for MNCs versus Domestic Firms

The cost of capital for MNCs may differ from that for domestic firms because of the following characteristics that distinguish MNCs from domestic firms.

Size of Firm An MNC that often borrows substantial amounts may receive preferential treatment from creditors, thereby reducing its cost of capital. Furthermore, its relatively large issues of stocks or bonds allow for reduced flotation costs (as a percentage of the amount of financing). Note, however, that these advantages are due to the MNC's size and not to its internationalized business. A domestic corporation may receive the same treatment if it is large enough. Nevertheless, a firm's growth is more restricted if it is not willing to operate internationally. Because MNCs may more easily achieve growth, they may be more able than purely domestic firms to become large enough to receive preferential treatment from creditors.

Access to International Capital Markets Multinational corporations are normally able to obtain funds through the international capital markets. Since the cost of funds can vary among markets, the MNC's access to the international capital markets may allow it to obtain funds at a lower cost than that paid by domestic firms. In addition, subsidiaries may be able to obtain funds locally at a lower cost than that available to the parent if the prevailing interest rates in the host country are relatively low.

EXAMPLE The Coca-Cola Co.'s recent annual report stated: "Our global presence and strong capital position afford us easy access to key financial markets around the world, enabling us to raise funds with a low effective cost. This posture, coupled with the aggressive management of our mix of short-term and long-term debt, results in a lower overall cost of borrowing." ●

International Diversification As explained earlier, a firm's cost of capital is affected by the probability that it will go bankrupt. If a firm's cash inflows come from sources all over the world, those cash inflows may be more stable because the firm's total sales will not be strongly influenced by a single economy. To the extent that individual economies are independent of each other, net cash flows from a portfolio of subsidiaries should exhibit less variability, which may reduce the probability of bankruptcy and therefore reduce the cost of capital.

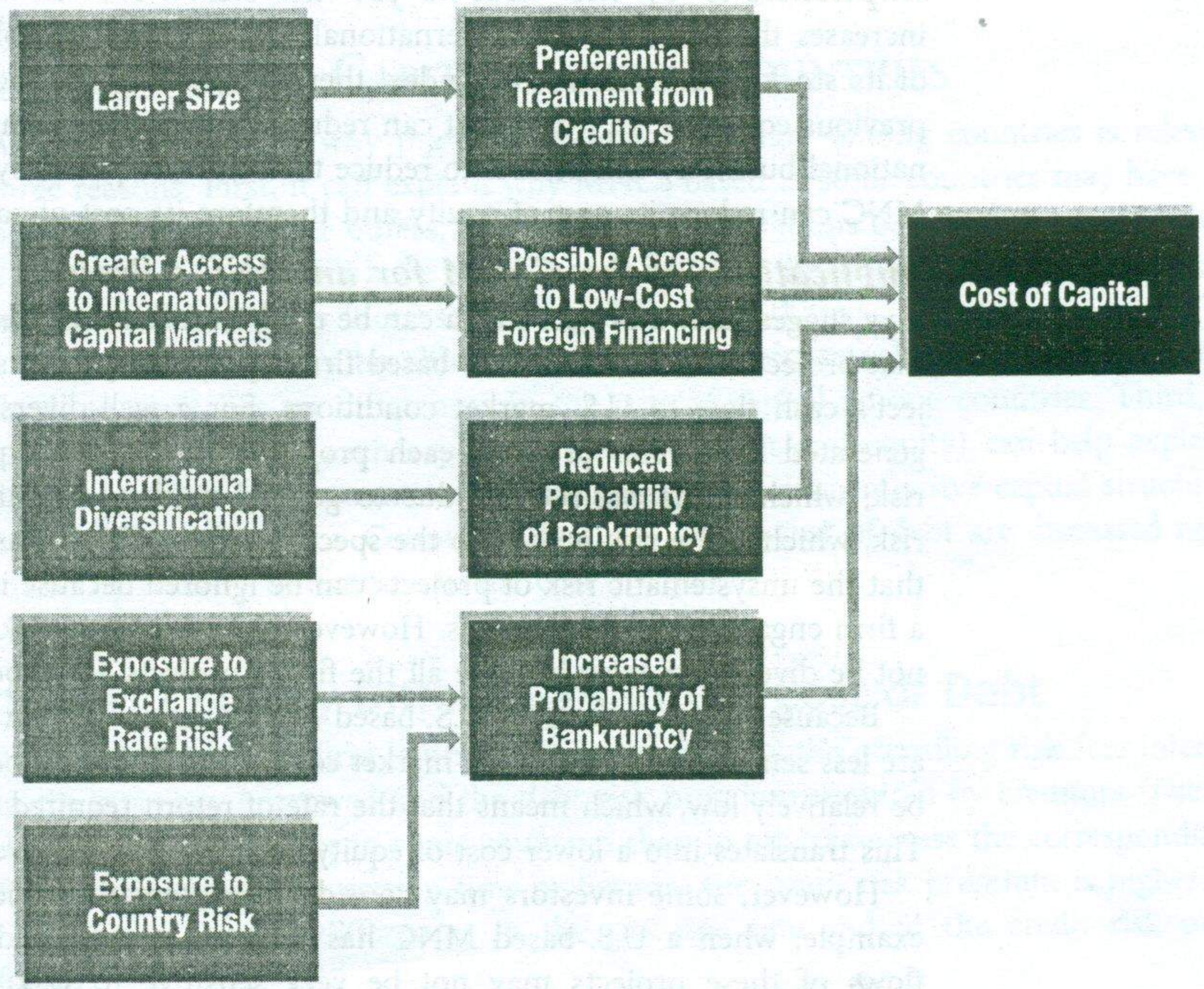
Exposure to Exchange Rate Risk An MNC's cash flows could be more volatile than those of a domestic firm in the same industry if it is highly exposed to exchange rate risk. If foreign earnings are remitted to the U.S. parent, they will not be worth as much when the U.S. dollar is strong against major currencies. This reduces the firm's ability to make interest payments on its outstanding debt, which increases the likelihood of bankruptcy. In addition, an MNC that is more exposed to exchange rate fluctuations will usually have a wider (more dispersed) distribution of possible cash flows in future periods. This could lead creditors and shareholders to require a higher return, which would increase the MNC's cost of capital.

Exposure to Country Risk An MNC that establishes foreign subsidiaries is subject to the possibility that a host country government may seize a subsidiary's assets. The probability of such an occurrence is influenced by many factors, including the industry in which the MNC operates and the attitude of the host country government. If assets are seized and fair compensation is not provided, the probability of the MNC's going bankrupt increases. The higher the percentage of an MNC's assets invested in foreign countries and the higher the overall country risk of operating in these countries, the higher will be the MNC's probability of bankruptcy (and therefore its cost of capital), other things being equal.

Other more moderate forms of country risk, such as changes in a host government's tax laws, could also affect an MNC's subsidiary's cash flows. Because it is possible that these events will occur, the capital budgeting process should incorporate such risk.

EXAMPLE ExxonMobil has much experience in assessing the feasibility of potential projects in foreign countries. If it detects a radical change in government or tax policy, it adds a premium to the required return of related projects. The adjustment also reflects a possible increase in its cost of capital. ●

Exhibit 17.2 Summary of Factors That Cause the Cost of Capital to Differ for MNCs versus Domestic Firms



The five factors that distinguish the cost of capital for an MNC and the cost for a domestic firm in a particular industry are summarized in Exhibit 17.2. In general, the first three factors listed (size, access to international capital markets, and international diversification) have a favorable effect on an MNC's cost of capital; the next two factors (exposure to exchange rate risk and country risk) have an unfavorable effect. It is impossible to generalize about whether MNCs have an overall cost-of-capital advantage over domestic firms. Each MNC should be assessed separately to determine whether the net effects of its international operations on the cost of capital are favorable.

17-4f Cost-of-Equity Comparison Using the CAPM

To assess how the cost of equity for an MNC differs from that cost for a purely domestic firms, the capital asset pricing model (CAPM) can be applied. This model defines the required return (k_e) on a stock as

$$k_e = R_f + B(R_m - R_f)$$

where

R_f = risk-free rate of return
R_m = market return
B = beta of stock

The CAPM suggests that the required return on a firm's stock is a positive function of (1) the risk-free rate of interest, (2) the market rate of return, and (3) the stock's beta. The *beta* refers to the sensitivity of a stock's returns to market returns (a U.S. stock index is normally used as a proxy for the market when assessing the stock of a U.S. company).

Implications of the CAPM for an MNC's Risk A U.S.-based MNC that increases the amount of its international business may be able to reduce the sensitivity of its stock returns to a stock index, thereby reducing its stock's beta. According to the previous equation, an MNC that can reduce its beta (for example, by increasing its international business) will be able to reduce the return required by investors. In this way, the MNC can reduce its cost of equity and therefore its cost of capital.

Implications of the CAPM for an MNC's Projects Advocates of the CAPM may suggest that a project's beta can be used to determine the required rate of return for that project. The beta of a U.S.-based firm's project represents the sensitivity of the project's cash flow to U.S. market conditions. For a well-diversified firm with cash flows generated by several projects, each project contains two types of risk: (1) systematic risk, which is the project risk due to general market conditions; and (2) unsystematic risk, which is the risk unique to the specific project. Capital asset pricing theory suggests that the unsystematic risk of projects can be ignored because it will be diversified away if a firm engages in many projects. However, the systematic risk of the firm's projects cannot be diversified away because all the firm's projects are exposed to this risk.

Because many projects of U.S.-based MNCs are in foreign countries, their cash flows are less sensitive to general U.S. market conditions. Thus, the betas of their projects should be relatively low, which means that the rate of return required by investors should be low. This translates into a lower cost of equity and thus a lower overall cost of capital.

However, some investors may consider unsystematic project risk to be relevant. For example, when a U.S.-based MNC has projects in Asia and South America, the cash flows of these projects may not be very sensitive to U.S. market conditions, which means that the systematic risk of the projects is low. Yet the project cash flows may be very uncertain because of unsystematic risk, such as high country risk associated with a particular project. Investors will not necessarily ignore the unsystematic risk, even if the MNC is well diversified, because they recognize that it could affect the overall cash flows and profitability of the MNC. Under these conditions, the required rate of return by investors will not necessarily be lower for an MNC's projects than for projects of domestic firms.

Applying CAPM with a World Market Index The CAPM as presented here is based on the sensitivity of project cash flows to a U.S. stock index. If U.S. investors invest mostly in the United States, then their investments are systematically affected by the U.S. market. Thus, MNCs may be more capable of pursuing international projects with cash flows that are *not* sensitive to the U.S. market.

However, a world market may be more appropriate than a U.S. market for determining the betas of U.S.-based MNCs. That is, if investors purchase stocks across many countries, their stocks will be substantially affected by world market conditions and not only by U.S. market conditions. Consequently, to achieve more diversification benefits, they will prefer to invest in firms with low sensitivity to world market conditions not just to U.S. market conditions. When MNCs adopt projects that are isolated from general world market conditions, they may be able to reduce their overall sensitivity to such conditions and so might be viewed as more desirable investments by investors. However, it may be more difficult for MNCs (than for domestic firms) to achieve lower betas on projects if the beta is based on sensitivity to general world market conditions.

WEB

www.pwc.com
Access to country-specific information such as general business rules and regulations, tax environments, and other useful statistics and surveys.

In summary, we cannot say with certainty whether an MNC will have a lower cost of capital than a purely domestic firm in the same industry. However, this discussion illustrates how the conclusion from comparing the cost of equity for MNCs versus domestic firms depends on the measurement of risk chosen.

17-5 Cost of Capital across Countries

An understanding of why the cost of capital can vary among countries is relevant for three reasons. First, it can explain why MNCs based in some countries may have a competitive advantage over others. Multinational corporations based in some countries with a low cost of capital will have a larger set of feasible (positive-NPV) projects; thus, these MNCs can more easily increase their world market share.

Second, MNCs may be able to adjust their international operations and sources of funds to capitalize on differences in the cost of capital among countries. Third, differences in the costs of each capital component (debt and equity) can help explain why MNCs based in some countries tend to use a more debt-intensive capital structure than MNCs based elsewhere. Country differences in the cost of debt are discussed next, followed by country differences in the cost of equity.

17-5a Country Differences in the Cost of Debt

The cost of debt to a firm is primarily determined by the prevailing risk-free interest rate in the currency borrowed and the debt risk premium required by creditors. The cost of debt for firms is higher in some countries than in others because the corresponding risk-free rate is higher at a certain time or because the credit risk premium is higher. Explanations for country differences in the risk-free rate and in the credit risk premium follow.

Differences in the Risk-Free Rate The risk-free rate is the interest rate charged on loans to a country's government that is perceived to have no risk of defaulting on the loans. Many country governments are presumed to have no credit risk because they can increase taxes or reduce expenditures if necessary in order to have sufficient funds to repay debt.

Any factors that influence the supply of or the demand for loanable funds within a country will affect the risk-free rate. These factors include tax laws, demographics, monetary policies, and economic conditions, all of which differ among countries. Tax laws in some countries offer more incentives to save than those in others; this can influence the supply of savings and, by extension, interest rates. A country's corporate tax laws may affect the corporate demand for loanable funds and thus may affect interest rates.

WEB

www.worldbank.org
Information on the debt situation for each country.

A country's demographics influence the supply of savings available and the amount of loanable funds demanded. Because demographics differ among countries, so will supply and demand conditions and, as a result, nominal interest rates. Countries with younger populations are likely to experience higher interest rates because younger households tend to save less and borrow more.

Because economic conditions influence interest rates, they can cause interest rates to vary across countries. The cost of debt is much higher in many less developed countries than in industrialized countries, primarily because of economic conditions. Countries such as Brazil and Russia have a high risk-free interest rate, which is due in part to higher levels of expected inflation. Investors in these countries will invest in a firm's debt securities only if they are compensated beyond the degree to which prices of products are expected to increase.

WEB

www.morganstanley.com/views/gef/index.html
Analyses, discussions, statistics, and forecasts related to non-U.S. economies.

The monetary policy implemented by a country's central bank influences the supply of loanable funds and therefore influences interest rates. Each central bank implements its own monetary policy, and this can cause interest rates to differ among countries. One exception is the set of European countries that rely on the European Central Bank to control the supply of euros. Most of these countries have a similar risk-free rate because they use the same currency.

Differences in the Credit Risk Premium Most MNCs must pay a credit premium above the prevailing risk-free rate in the country where they obtain loans. The reason is that, unlike the local country government, these firms are not perceived to be risk free. The credit risk premium paid by an MNC must be large enough to compensate creditors for taking the risk that the MNC may not meet its payment obligations.

The credit risk premium on an MNC's loans is strongly affected by the loaning country's characteristics, such as its economic conditions, the relationship between its creditors and borrowers, and its government's willingness to rescue troubled companies. When a country's economic conditions tend to be stable, the risk of a recession in that country is relatively low. Hence the probability that a firm might not meet its debt obligations is lower, which allows for a lower credit risk premium.

Corporations and creditors have closer relationships in some countries than in others. Creditors in Japan stand ready to extend credit in the event of a corporation's financial distress, which reduces the risk of illiquidity. The cost of a Japanese firm's financial problems may be shared in various ways by the firm's management, business customers, and consumers. Because the financial problems are not borne entirely by creditors, all parties involved have more incentive to see that the problems are resolved. Thus, there is less likelihood (for a given level of debt) that Japanese firms will go bankrupt, allowing for a lower risk premium on the debt of Japanese firms.

Governments in some countries are more willing than in others to intervene and rescue local failing firms. For example, in the United Kingdom many firms are partially owned by the government. It may be in the government's best interest to rescue firms that it partially owns. Even if the government is not a partial owner, it may provide direct subsidies or extend loans to failing firms based in that country. In the United States, government rescues are less likely because taxpayers prefer not to bear the cost of corporate mismanagement. Although the government has intervened occasionally in the United States (such as during the credit crisis of 2008) to protect particular industries, the probability that a failing firm will be rescued by the government is lower there than in other countries.

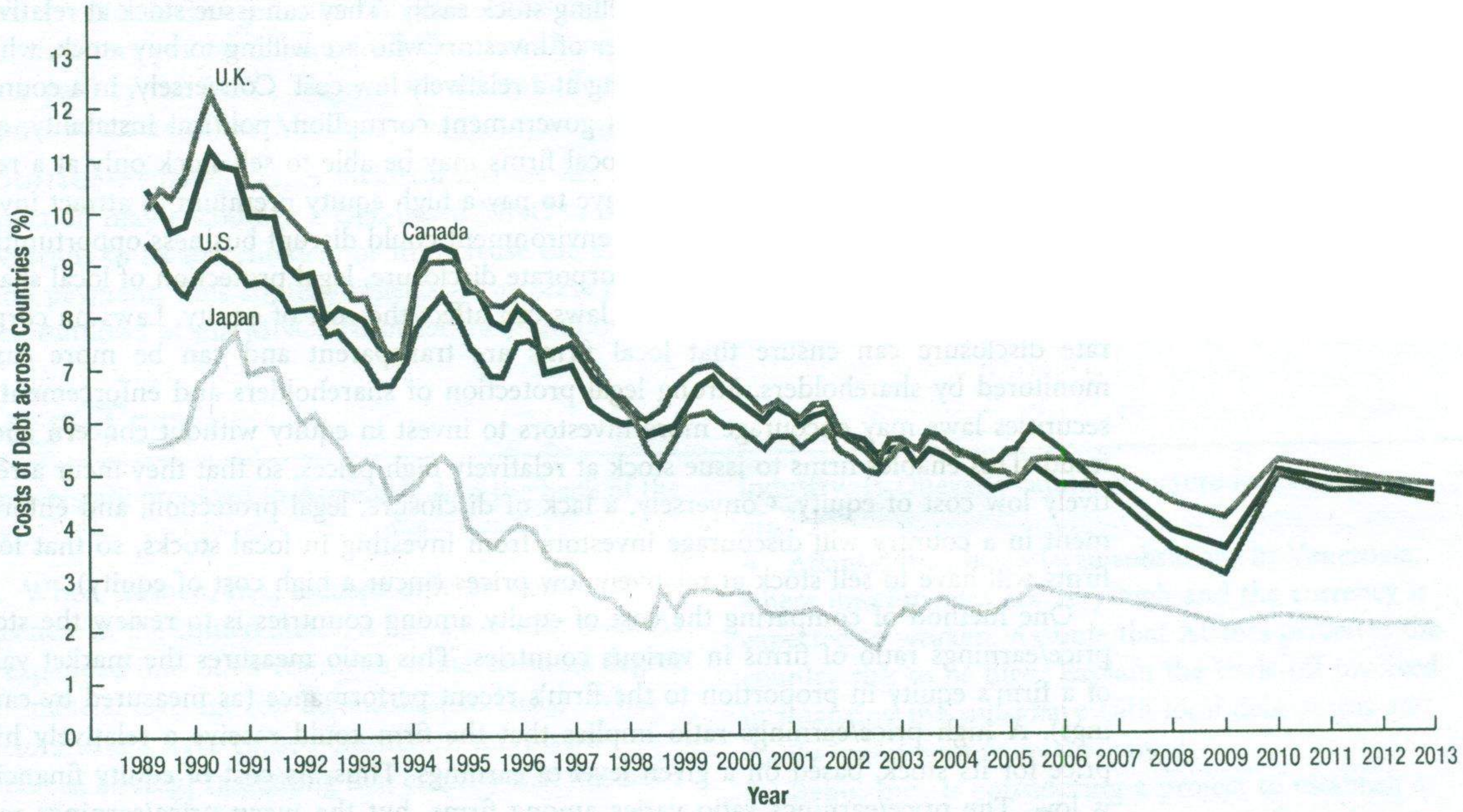
Firms in some countries have greater borrowing capacity because their creditors are willing to tolerate a higher degree of financial leverage. For example, firms in Japan and Germany have a higher degree of financial leverage than firms in the United States. If all other factors were equal, these high-leverage firms would have to pay a higher risk premium. However, all other factors are not equal. In fact, these firms are allowed to use a higher degree of financial leverage because of their unique relationships with the creditors and governments.

Comparative Costs of Debt across Countries The before-tax cost of debt (as measured by high-rated corporate bond yields) for various countries is displayed in Exhibit 17.3. There is some positive correlation between country cost-of-debt levels over time. Notice how interest rates in various countries tend to move in the same direction. However, some rates change to a greater degree than others. The disparity in the cost of debt among the countries is due primarily to the disparity in their risk-free interest rates.

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Exhibit 17.3 Costs of Debt across Countries



Source: *U.S. Federal Reserve.*

17-5b Country Differences in the Cost of Equity

A firm's cost of equity represents an opportunity cost: what shareholders could earn on investments with similar risk if the equity funds were distributed to them. The cost of equity among firms per country can vary because of differences in country characteristics.

Differences in the Risk-Free Rate Since risk-free interest rates vary among countries, so does the cost of equity. When the country's risk-free interest rate is high, local investors would invest in equity only if the potential return is sufficiently higher than what they can earn at the risk-free rate. Thus, firms that wish to attract equity funding must compensate the local investors by offering a high return. In contrast, if the country's interest rate is low, local investors may be more willing to consider equity investments because they do not give up much by switching away from risk-free government securities.

Differences in the Equity Risk Premium The equity risk premium is partially based on investment opportunities in the country of concern. In a country where firms have many investment opportunities, potential returns may be relatively high. Firms are able to sell stock at relatively high prices, which means that they can obtain equity funding at a low cost (they pay a relatively small equity premium). Conversely, in a country where investment opportunities are limited, investors will be less willing to invest in equity. Firms would have to sell stock at relatively low prices, which means that they can obtain equity funding only at a high cost (they pay a large equity premium). In other words, they must

offer a relatively large amount of stock in order to obtain adequate funding to pursue a particular project.

A second factor that can influence the equity risk premium is the country risk. In a country where the government is stable and is not viewed as a threat to business expansion, local firms are more capable of selling stock easily. They can issue stock at relatively high prices because of the large number of investors who are willing to buy stock, which allows the firms to access equity funding at a relatively low cost. Conversely, in a country where country risk problems (such as government corruption, political instability, and government bureaucracy) are severe, local firms may be able to sell stock only at a relatively low price. That is, they would have to pay a high equity premium to attract investors because of concerns that the local environment could disrupt business opportunities.

In addition, the country's laws on corporate disclosure, legal protection of local shareholders, and enforcement of securities laws can affect the cost of equity. Laws on corporate disclosure can ensure that local firms are transparent and can be more easily monitored by shareholders. Strong legal protection of shareholders and enforcement of securities laws may encourage more investors to invest in equity without concern about fraud. This enables firms to issue stock at relatively high prices, so that they incur a relatively low cost of equity. Conversely, a lack of disclosure, legal protection, and enforcement in a country will discourage investors from investing in local stocks, so that local firms will have to sell stock at relatively low prices (incur a high cost of equity).

One method of comparing the cost of equity among countries is to review the stock price/earnings ratio of firms in various countries. This ratio measures the market value of a firm's equity in proportion to the firm's recent performance (as measured by earnings). A high price/earnings ratio implies that the firm could receive a relatively high price for its stock, based on a given level of earnings. Thus, its cost of equity financing is low. The price/earnings ratio varies among firms, but the *mean* price/earnings ratio should be higher in countries that exhibit the favorable country characteristics of promoting business expansion and shareholder rights.

Summary

- An MNC's capital consists of debt and equity. MNCs can access debt through domestic debt offerings, global debt offerings, private placements of debt, and loans from financial institutions. They can access equity by retaining earnings and by issuing stock through domestic offerings, global offerings, and private placements of equity.
- An MNC's capital structure decision is influenced by corporate characteristics such as the stability of the MNC's cash flows, its credit risk, and its access to earnings. The capital structure is also influenced by characteristics of the countries where the MNC conducts business, such as interest rates, strength of local currencies, country risk, and tax laws. Some characteristics favor an equity-intensive capital structure because they discourage the use of debt. Other characteristics favor a debt-intensive structure because of the desire to protect against risks by creating foreign debt.
- If an MNC's subsidiary's financial leverage deviates from the global target capital structure, the MNC can still achieve the target if either another subsidiary or the parent takes an offsetting position in financial leverage. However, even with these offsetting effects, the cost of capital might be affected.
- The cost of capital may be lower for an MNC than for a domestic firm because of characteristics peculiar to the MNC, including its size, its access to international capital markets, and its degree of international diversification. Yet some characteristics peculiar to an MNC can increase the MNC's cost of capital, such as exposure to exchange rate risk and to country risk.
- Costs of capital vary across countries because of country differences in the components that constitute the cost of capital. Specifically, there are differences in the risk-free rate, the risk premium on debt, and the cost of equity among countries. Countries with a higher risk-free rate tend to exhibit a higher cost of capital.

Point Counter-Point

Should a Reduced Tax Rate on Dividends Affect an MNC's Capital Structure?

Point No. A change in the tax law reduces the taxes that investors pay on dividends. It does not change the taxes paid by the MNC. Thus, it should not affect the capital structure of the MNC.

Counter-Point Yes. A dividend income tax reduction may encourage a U.S.-based MNC to offer dividends to its shareholders or to increase the dividend payment. This strategy reflects an increase in the cash outflows of the MNC. To offset these outflows, the MNC may have to adjust its capital structure. For example, the next time that it raises funds, it may prefer to use equity rather than debt so that it can free up some cash outflows (the outflows to cover dividends would be less than outflows associated with debt).

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. When Goshen, Inc., focused only on domestic business in the United States, it had a low debt level. As it expanded into other countries, it increased its degree of financial leverage (on a consolidated basis). What factors would have caused Goshen to increase its financial leverage (assuming that country risk was not a concern)?

2. Lynde Co. is a U.S.-based MNC with a large subsidiary in the Philippines financed with equity from the parent. In response to news about a possible change in the Philippine government, the subsidiary revised its capital structure by borrowing from local banks and transferring the equity investment back to the U.S. parent. Explain the likely motive behind these actions.

3. Duever Co. (a U.S. firm) noticed that its financial leverage was substantially lower than that of most successful firms in Germany and Japan in the same industry. Is Duever's capital structure less than optimal?

4. Atlanta, Inc., has a large subsidiary in Venezuela, where interest rates are very high and the currency is expected to weaken. Assume that Atlanta perceives the country risk to be high. Explain the trade-off involved in financing the subsidiary with local debt versus an equity investment from the parent.

5. Reno, Inc., is considering a project to establish a plant for producing and selling consumer goods in an undeveloped country. Assume that the host country's economy is very dependent on oil prices, the local currency of the country is very volatile, and the country risk is very high. Also assume that the country's economic conditions are unrelated to U.S. conditions. Should the required rate of return (and therefore the risk premium) on the project be higher or lower than that of alternative projects in the United States?

Questions and Applications

1. Capital Structure of MNCs Present an argument in support of an MNC's favoring a debt-intensive capital structure. Present an argument in support of an MNC's favoring an equity-intensive capital structure.

2. Optimal Financing Wizard, Inc., has a subsidiary in a country where the government allows only a small amount of earnings to be remitted to the United States each year. Should Wizard finance the subsidiary with debt financing by the parent, equity financing by the parent, or financing by local banks in the foreign country?

3. Country Differences Describe general differences between the capital structures of firms based in the United States and those of firms based in Japan. Offer an explanation for these differences.

4. Local versus Global Capital Structure Why might a firm use a "local" capital structure at a particular subsidiary that differs substantially from its "global" capital structure?

5. Cost of Capital Explain how characteristics of MNCs can affect the cost of capital.

6. Capital Structure and Agency Issues Explain why managers of a wholly owned subsidiary may be more likely to satisfy the shareholders of the MNC.

7. Target Capital Structure LaSalle Corp. is a U.S.-based MNC with subsidiaries in various less developed countries where stock markets are not well established. How can LaSalle still achieve its "global" target capital structure of 50 percent debt and 50 percent equity if it plans to use only debt financing for the subsidiaries in these countries?

8. Financing Decision Drexel Co. is a U.S.-based company that is establishing a project in a politically unstable country. It is considering two possible sources of financing. Either the parent could provide most of the financing, or the subsidiary could be supported by local loans from banks in that country. Which financing alternative is more appropriate to protect the subsidiary?

9. Financing Decision Veer Co. is a U.S.-based MNC that has most of its operations in Japan. Since the Japanese companies with which it competes use more financial leverage, it has decided to adjust its financial leverage to be in line with theirs. With this heavy emphasis on debt, Veer should reap more tax advantages. It believes that the market's perception of its risk will remain unchanged, since its financial leverage will still be no higher than that of its Japanese competitors. Comment on this strategy.

10. Financing Trade-Offs Pullman, Inc., a U.S. firm, has been highly profitable but prefers not to pay out higher dividends because its shareholders want the funds to be reinvested. It plans for large growth in several less developed countries. Pullman would like to finance the growth with local debt in the host countries of concern to reduce its exposure to country risk. Explain the dilemma faced by Pullman, and offer possible solutions.

11. Costs of Capital across Countries Explain why the cost of capital for a U.S.-based MNC with a large subsidiary in Brazil is higher than for a U.S.-based MNC in the same industry with a large subsidiary in Japan. Assume that the subsidiary operations for each MNC are financed with local debt in the host country.

12. Cost of Capital An MNC has total assets of $100 million and debt of $20 million. The firm's before-tax cost of debt is 12 percent, and its cost of financing with equity is 15 percent. The MNC has a corporate tax rate of 40 percent. What is this firm's cost of capital?

13. Cost of Equity Wiley, Inc., an MNC, has a beta of 1.3. The U.S. stock market is expected to generate an annual return of 11 percent. Currently, Treasury bonds yield 2 percent. Based on this information, what is Wiley's estimated cost of equity?

14. Cost of Capital Blues, Inc., is an MNC located in the United States. Blues would like to estimate its cost of capital (WACC). On average, bonds issued by Blues yield 9 percent. Currently, Treasury security rates are 3 percent. Furthermore, Blues' stock has a beta of 1.5, and the return on the Wilshire 5000 stock index is expected to be 10 percent. Blues' target capital structure is 30 percent debt and 70 percent equity. If Blues is in the 35 percent tax bracket, what is its cost of capital?

15. Effects of September 11 Rose, Inc., of Dallas, Texas, needed to infuse capital into its foreign subsidiaries to support their expansion. As of August 2001, it planned to issue stock in the United States. However, after the September 11, 2001, terrorist attack, it decided that long-term debt was a cheaper source of capital. Explain how the terrorist attack could have altered the two forms of capital.

16. Nike's Cost of Capital If Nike decides to expand further in South America, why might its capital structure be affected? Why will its overall cost of capital be affected?

Advanced Questions

17. Interaction between Financing and Investment Charleston Corp. is considering establishing a subsidiary in either Germany or the United Kingdom. The subsidiary will be mostly financed with loans from the local banks in the host country chosen. Charleston has determined that the revenue generated from the British subsidiary will be slightly more favorable than the revenue generated by the German subsidiary, even after considering tax and exchange rate effects. The initial outlay will be the same, and both countries appear to be politically stable. Charleston decides to establish the subsidiary in the United Kingdom because of the revenue advantage. Do you agree with its decision? Explain.

18. Financing Decision In recent years, several U.S. firms have penetrated Mexico's market. One of the biggest challenges is the cost of capital to finance businesses in Mexico. Mexican interest rates tend to be much higher than U.S. interest rates. In some periods, the Mexican government does not attempt to lower the

interest rates because higher rates may attract foreign investment in Mexican securities.

a. How might U.S.-based MNCs expand in Mexico without incurring the high Mexican interest expenses when financing their expansion? Are any disadvantages associated with this strategy?

b. Are there any additional alternatives for the Mexican subsidiary to finance its business itself after it has been well established? How might this strategy affect the subsidiary's capital structure?

19. Financing Decision The subsidiaries of Forest Co. produce goods in the United States, Germany, and Australia and sell those goods in the areas where they are produced. Foreign earnings are periodically remitted to the U.S. parent. As the euro's interest rates have declined to a very low level, Forest has decided to finance its German operations with borrowed funds in place of the parent's equity investment. Forest will transfer its equity investment in the German subsidiary over to its Australian subsidiary. These funds will be used to pay off a floating rate loan, as Australian interest rates have been high and are rising. Explain the expected effects of these actions on the consolidated capital structure and cost of capital of Forest Co.

Given the strategy to be used by Forest, explain how its exposure to exchange rate risk may have changed.

20. Financing in a High-Interest Rate Country Fairfield Corp., a U.S. firm, recently established a subsidiary in a less developed country that consistently experiences an annual inflation rate of 80 percent or more. The country does not have an established stock market, but loans by local banks are available with a 90 percent interest rate. Fairfield has decided to use a strategy in which the subsidiary is financed entirely with funds from the parent. It believes that in this way it can avoid the excessive interest rate in the host country. What is a key disadvantage of using this strategy that may cause Fairfield to be no better off than if it paid the 90 percent interest rate?

21. Cost of Foreign Debt versus Equity Carazona, Inc., is a U.S. firm that has a large subsidiary in Indonesia. It wants to finance the subsidiary's operations in Indonesia. However, the cost of debt is currently about 30 percent there for firms like Carazona or government agencies that have a very strong credit rating. A consultant suggests to Carazona that it should use equity financing there to avoid the high interest expense. He suggests that since Carazona's cost of equity in the United States is about 14 percent, the Indonesian investors should be satisfied with a return of about 14 percent as well. Clearly explain why the consultant's advice is not logical. That is, explain why Carazona's cost of equity in Indonesia would not be less than Carazona's cost of debt in Indonesia.

22. Integrating Cost of Capital and Capital Budgeting Zylon Co. is a U.S. firm that provides technology software for the government of Singapore. It will be paid S$7 million at the end of each of the next 5 years. The entire amount of the payment represents earnings since Zylon created the technology software years ago. Zylon is subject to a 30 percent corporate income tax rate in the United States. Its other cash inflows (such as revenue) are expected to be offset by its other cash outflows (due to operating expenses) each year, so its profits on the Singapore contract represent its expected annual net cash flows. Its financing costs are not considered within its estimate of cash flows. The Singapore dollar (S$) is presently worth $.60, and Zylon uses that spot exchange rate as a forecast of future exchange rates.

The risk-free interest rate in the United States is 6 percent while the risk-free interest rate in Singapore is 14 percent. Zylon's capital structure is 60 percent debt and 40 percent equity. Zylon is charged an interest rate of 12 percent on its debt. Zylon's cost of equity is based on the CAPM. It expects that the U.S. annual market return will be 12 percent per year. Its beta is 1.5.

Quiso Co., a U.S. firm, wants to acquire Zylon and offers Zylon a price of $10 million.

Zylon's owner must decide whether to sell the business at this price and hires you to make a recommendation. Estimate the NPV to Zylon as a result of selling the business, and make a recommendation about whether Zylon's owner should sell the business at the price offered.

23. Financing with Foreign Equity Orlando Co. has its U.S. business funded in dollars with a capital structure of 60 percent debt and 40 percent equity. It has its Thailand business funded in Thai baht with a capital structure of 50 percent debt and 50 percent equity. The corporate tax rate on U.S. earnings and on Thailand earnings is 30 percent. The annualized 10-year risk-free interest rate is 6 percent in the United States and 21 percent in Thailand. The annual real rate of interest is about 2 percent in the United States and 2 percent in Thailand. Interest rate parity exists. Orlando pays 3 percentage points above the risk-free rates when it borrows, so its before-tax cost of debt is 9 percent in the United States and 24 percent in Thailand. Orlando

expects that the U.S. stock market return will be 10 percent per year, and expects that the Thailand stock market return will be 28 percent per year. Its business in the United States has a beta of .8 relative to the U.S. market, while its business in Thailand has a beta of 1.1 relative to the Thai market. The equity used to support Orlando's Thai business was created from retained earnings by the Thailand subsidiary in previous years. However, Orlando Co. is considering a stock offering in Thailand that is denominated in Thai baht and targeted at Thai investors. Estimate Orlando's cost of equity in Thailand that would result from issuing stock in Thailand.

24. Assessing Foreign Project Funded with Debt and Equity Nebraska Co. plans to pursue a project in Argentina that will generate revenue of 10 million Argentine pesos (AP) at the end of each of the next 4 years. It will have to pay operating expenses of AP3 million per year. The Argentine government will charge a 30 percent tax rate on profits. All after-tax profits each year will be remitted to the U.S. parent and no additional taxes are owed. The spot rate of the AP is presently $.20. The AP is expected to depreciate by 10 percent each year for the next 4 years. The salvage value of the assets will be worth AP40 million in 4 years after capital gains taxes are paid. The initial investment will require $12 million, half of which will be in the form of equity from the U.S. parent and half of which will come from borrowed funds. Nebraska will borrow the funds in Argentine pesos. The annual interest rate on the funds borrowed is 14 percent. Annual interest (and zero principal) is paid on the debt at the end of each year, and the interest payments can be deducted before determining the tax owed to the Argentine government. The entire principal of the loan will be paid at the end of year 4. Nebraska requires a rate of return of at least 20 percent on its invested equity for this project to be worthwhile. Determine the NPV of this project. Should Nebraska pursue the project?

25. Sensitivity of Foreign Project Risk to Capital Structure Texas Co. produces drugs and plans to acquire a subsidiary in Poland. This subsidiary is a lab that would perform biotech research. Texas Co. is attracted to the lab because of the cheap wages of scientists in Poland. The parent of Texas Co. would review the lab research findings of the subsidiary in Poland when deciding which drugs to produce and would then produce the drugs in the United States. The expenses incurred in Poland will represent about half of the total expenses incurred by Texas Co. All drugs produced by Texas Co. are sold in the United States, and this situation would not change in the future. Texas Co. has considered three ways to finance the acquisition of the Polish subsidiary if it buys it. First, it could use 50 percent equity funding (in dollars) from the parent and 50 percent borrowed funds in dollars. Second, it could use 50 percent equity funding (in dollars) from the parent and 50 percent borrowed funds in Polish zloty. Third, it could use 50 percent equity funding by selling new stock to Polish investors denominated in Polish zloty and 50 percent borrowed funds denominated in Polish zloty. Assuming that Texas Co. decides to acquire the Polish subsidiary, which financing method for the Polish subsidiary would minimize the exposure of Texas to exchange rate risk? Explain.

26. Cost of Capital and Risk of Foreign Financing Nevada Co. is a U.S. firm that conducts major importing and exporting business in Japan, and all transactions are invoiced in dollars. It obtained debt in the United States at an interest rate of 10 percent per year. The long-term risk-free rate in the United States is 8 percent. The stock market return in the United States is expected to be 14 percent annually. Nevada's beta is 1.2. Its target capital structure is 30 percent debt and 70 percent equity. Nevada Co. is subject to a 25 percent corporate tax rate.

a. Estimate the cost of capital to Nevada Co.

b. Nevada has no subsidiaries in foreign countries but plans to replace some of its dollar-denominated debt with Japanese yen–denominated debt since Japanese interest rates are low. It will obtain yen-denominated debt at an interest rate of 5 percent. It cannot effectively hedge the exchange rate risk resulting from this debt because of parity conditions that make the price of derivatives contracts reflect the interest rate differential. How could Nevada Co. reduce its exposure to the exchange rate risk resulting from the yen-denominated debt without moving its operations?

27. Measuring the Cost of Capital Messan Co. (a U.S. firm) borrows U.S. funds at an interest rate of 10 percent per year. Its beta is 1.0. The long-term annualized risk-free rate in the United States is 6 percent. The stock market return in the United States is expected to be 16 percent annually. Messan's target capital structure is 40 percent debt and 60 percent equity. Messan Co. is subject to a 30 percent corporate tax rate. Estimate the cost of capital to Messan Co.

28. MNC's Cost of Capital Newark Co. is based in the United States. About 30 percent of its sales are from exports to Portugal. Newark Co. has no other international business. It finances its operations with 40 percent equity and 60 percent dollar-denominated debt. It borrows its funds from a U.S. bank at an interest rate of 9 percent per year. The long-term risk-free rate in the United States is 6 percent. The long-term risk-free rate in Portugal is 11 percent. The stock market return in the United States is expected to be 13 percent annually. Newark's stock price typically moves in the same direction and by the same degree as the U.S. stock market. Its earnings are subject to a 20 percent corporate tax rate. Estimate the cost of capital to Newark Co.

29. MNC's Cost of Capital Slater Co. is a U.S.-based MNC that finances all operations with debt and equity. It borrows U.S. funds at an interest rate of 11 percent per year. The long-term risk-free rate in the United States is 7 percent. The stock market return in the United States is expected to be 15 percent annually. Slater's beta is 1.4. Its target capital structure is 20 percent debt and 80 percent equity. Slater Co. is subject to a 30 percent corporate tax rate. Estimate the cost of capital to Slater Co.

30. Change in Cost of Capital Assume that Naperville Co. will use equity to finance a project in Switzerland, that Lombard Co. will rely on a dollar-denominated loan to finance a project in Switzerland, and that Addison Co. will rely on a Swiss franc–denominated loan to finance a project in Switzerland. The firms will arrange their financing in 1 month. This week, the U.S. risk-free long-term interest rate declined but interest rates in Switzerland did not change. Do you think the estimated cost of capital for the projects by each of these three U.S. firms increased, decreased, or remained unchanged? Explain.

31. Cost of Equity Illinois Co. is a U.S. firm that plans to expand its business overseas. It plans to use all the equity to be obtained in the United States to finance a new project. The project's cash flows are not affected by U.S. interest rates. Just before Illinois Co. obtains new equity, the risk-free interest rate in the U.S. rises. Will the change in interest rates increase, decrease, or have no effect on the required rate of return on the project? Briefly explain.

32. Debt Financing Decision Marks Co. (a U.S. firm) considers a project in which it will establish a subsidiary in Zinland, and it expects that the subsidiary will generate large earnings in zin (the currency). However, it is the Zinland government's policy to block all funds so that earnings cannot be remitted to the U.S. parent for at least 10 years; furthermore, the blocked funds cannot earn interest. The zin is expected to weaken by 20 percent per year against the dollar over time. Marks Co. will borrow some funds to finance the subsidiary. Should the company (a) obtain a dollar-denominated loan and convert the loan into zin, (b) obtain a zin-denominated loan, or (c) obtain half of the funds needed from each possible source? (Assume that the interest rate from borrowing zin is the same as the interest rate from borrowing dollars.) Briefly explain.

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 *International Financial Management* text companion website. Go to www.cengagebrain.com (students) or www.cengage.com/login (instructors) and search using **ISBN 9781133947837**.

Blades, Inc. Case

Assessment of Cost of Capital

Recall that Blades has tentatively decided to establish a subsidiary in Thailand to manufacture roller blades. The new plant will be utilized to produce Speedos, Blades' primary product. Once the subsidiary has been established in Thailand, it will be operated for 10 years, at which time it is expected to be sold. Ben Holt, Blades' chief financial officer, believes the growth potential in Thailand will be extremely high over the next few years. However, his optimism is not shared by most economic forecasters, who predict a slow recovery of the Thai economy, which has been very negatively affected by recent events in that country. Furthermore, forecasts for the future value of the baht indicate that the currency may continue to depreciate over the next few years.

Despite the pessimistic forecasts, Holt believes Thailand is a good international target for Blades' products because of the high growth potential and lack of

competitors in Thailand. At a recent meeting of the board of directors, Holt presented his capital budgeting analysis and pointed out that the establishment of a subsidiary in Thailand had a net present value (NPV) of over $8 million even when a 25 percent required rate of return is used to discount the cash flows resulting from the project. Blades' board of directors, while favorable to the idea of international expansion, remained skeptical. Specifically, the directors wondered where Holt obtained the 25 percent discount rate to conduct his capital budgeting analysis and whether this discount rate was high enough. Consequently, the decision to establish a subsidiary in Thailand has been delayed until the directors' meeting next month.

The directors also asked Holt to determine how operating a subsidiary in Thailand would affect Blades' required rate of return and its cost of capital. The directors would like to know how Blades' characteristics would affect its cost of capital relative to roller blade manufacturers operating solely in the United States. Furthermore, the capital asset pricing model (CAPM) was mentioned by two directors, who would like to know how Blades' systematic risk would be affected by expanding into Thailand. Another issue that was raised is how the cost of debt and equity in Thailand differ from the corresponding costs in the United States and whether these differences would affect Blades' cost of capital. The last issue that was raised during the meeting was whether Blades' capital structure would be affected by expanding into Thailand. The directors have asked Holt to conduct a thorough analysis of these issues and report back to them at their next meeting.

Holt's knowledge of cost of capital and capital structure decisions is somewhat limited, and he requires your help. You are a financial analyst for Blades, Inc. Holt has gathered some information regarding Blades' characteristics that distinguish it from roller blade manufacturers operating solely in the United States, its systematic risk, and the costs of debt and equity in Thailand, and he wants to know whether and how this information will affect Blades' cost of capital and its capital structure decision.

Regarding Blades' characteristics, Holt has gathered information regarding Blades' size, its access to the Thai capital markets, its diversification benefits from a Thai expansion, its exposure to exchange rate risk, and its exposure to country risk. Although Blades' expansion into Thailand classifies the company as an MNC, Blades is still relatively small compared to other U.S. roller blade manufacturers. Also, Blades' expansion into Thailand will give it access to the capital and money markets there. However, negotiations with various commercial banks in Thailand indicate that Blades will have to borrow at interest rates of approximately 15 percent, versus 8 percent in the United States.

Expanding into Thailand will diversify Blades' operations. As a result of this expansion, Blades would be subject to economic conditions in Thailand as well as in the United States. Holt sees this as a major advantage since Blades' cash flows would no longer be solely dependent on the U.S. economy. Consequently, he believes that Blades' probability of bankruptcy would be reduced. Nevertheless, if Blades establishes a subsidiary in Thailand, all of the subsidiary's earnings will be remitted back to the U.S. parent, which would create a high level of exchange rate risk. This is of particular concern because current economic forecasts for Thailand indicate that the baht will depreciate over the next few years. Furthermore, Holt has already conducted a country risk analysis for Thailand that resulted in an unfavorable country risk rating.

Regarding Blades' level of systematic risk, Holt has determined how Blades' beta, which measures systematic risk, would be affected by the establishment of a subsidiary in Thailand. He believes that Blades' beta would drop from its current level of 2.0 to 1.8 because the firm's exposure to U.S. market conditions would be reduced by its expansion into Thailand. Moreover, Holt estimates that the risk-free interest rate is 5 percent and the required return on the market is 12 percent.

Holt has also determined that the costs of both debt and equity are higher in Thailand than in the United States. Lenders such as commercial banks in Thailand require interest rates higher than U.S. rates. This is partially attributed to a higher risk premium, which reflects the larger degree of economic uncertainty in Thailand. The cost of equity is also higher in Thailand than in the United States. Thailand is not as developed as the United States in many ways, and various investment opportunities are available to Thai investors, which increases the opportunity cost. However, Holt is not sure that this higher cost of equity in Thailand would affect Blades, as all of Blades' shareholders are located in the United States.

Holt has asked you to analyze this information and to determine how it may affect Blades' cost of capital and its capital structure. To help you in your analysis, he would like you to provide answers to the following questions:

1. If Blades expands into Thailand, do you think its cost of capital will be higher or lower than the cost of capital of roller blade manufacturers operating solely in

the United States? Substantiate your answer by outlining how Blades' characteristics distinguish it from domestic roller blade manufacturers.

2. According to the CAPM, how would Blades' required rate of return be affected by an expansion into Thailand? How do you reconcile this result with your answer to question 1? Do you think Blades should use the required rate of return resulting from the CAPM to discount the cash flows of the Thai subsidiary to determine its NPV?

3. If Blades borrows funds in Thailand to support its Thai subsidiary, how would this affect its cost of capital? Why?

4. Given the high level of interest rates in Thailand, the high level of exchange rate risk, and the high (perceived) level of country risk, do you think Blades will be more or less likely to use debt in its capital structure as a result of its expansion into Thailand? Why?

Small Business Dilemma

Multinational Capital Structure Decision at the Sports Exports Company

The Sports Exports Company has considered a variety of projects, but all of its business is still in the United Kingdom. Since most of its business comes from exporting footballs (denominated in pounds), it remains exposed to exchange rate risk. On the favorable side, the British demand for its footballs has risen consistently every month. Jim Logan, the owner of the Sports Exports Company, has retained more than $100,000 (after the pounds were converted into dollars) in earnings since he began his business. At this point in time, his capital structure is mostly his own equity with very little debt. Logan has periodically considered establishing a very small subsidiary in the United Kingdom to produce the footballs there (so that he would not have to export them from the United States). If he does establish this subsidiary, he has several options for the capital structure that would be used to support it: (1) use all of his equity to invest in the firm, (2) use pound-denominated long-term debt, or (3) use dollar-denominated long-term debt. The interest rate on British long-term debt is slightly higher than the interest rate on U.S. long-term debt.

1. What is an advantage of using equity to support the subsidiary? What is a disadvantage?

2. If Logan decides to use long-term debt as the primary form of capital to support this subsidiary, should he use dollar-denominated debt or pound-denominated debt?

3. How can the equity proportion of this firm's capital structure increase over time after it is established?

Internet/Excel Exercise

The Bloomberg Web site (www.bloomberg.com) provides interest rate data for many countries and various maturities. Go to the "Market Data" section and then click on "Rates and Bonds." Assume that an MNC would pay 1 percent more on borrowed funds than the risk-free (government) rates shown on the Bloomberg Web site. Determine the cost of debt (use a 10-year maturity) for the U.S. parent that borrows dollars. Click on Japan and determine the cost of funds for a foreign subsidiary in Japan that borrows funds locally. Then click on Germany and determine the cost of debt for a subsidiary in Germany that borrows funds locally. Offer some explanations as to why the cost of debt may vary among the three countries.

Online Articles with Real-World Examples

Find a recent article online that describes an actual international finance application or a real-world example about a specific MNC's actions that reinforces one or more of the concepts covered in this chapter.

If your class has an online component, your professor may ask you to post your summary there and provide the Web link of the article so that other students can access it. If your class is live, your professor may ask you to summarize your application in class. Your professor may assign specific students to complete this assignment for this chapter or may allow any students to do the assignment on a volunteer basis.

For recent online articles and real-world examples applied to this chapter, consider using the following

search terms (and include the current year as a search term to ensure that the online articles are recent).

1. [name of an MNC] AND debt
2. multinational AND equity
3. multinational AND capital
4. international AND capital structure
5. international AND cost of capital
6. company AND foreign financing
7. Inc. AND foreign financing
8. subsidiary AND repatriates
9. subsidiary AND financing
10. international AND financing

18

Long-Term Debt Financing

CHAPTER OBJECTIVES

The specific objectives of this chapter are to:

- explain how an MNC uses debt financing in a manner that minimizes its exposure to exchange rate risk,
- explain how an MNC assesses the potential benefits from financing with a low-interest rate currency that differs from its cash inflow currency,
- explain how an MNC determines the optimal maturity when obtaining debt, and
- explain how an MNC decides between using fixed rate versus floating rate debt.

Multinational corporations (MNCs) typically use long-term sources of funds to finance long-term projects. They have access to both domestic and foreign sources of funds. It is worthwhile for MNCs to consider all possible forms of financing before making their final decisions. Financial managers must be aware of their sources of long-term funds so that they can finance international projects in a manner that maximizes the wealth of the MNC.

The MNC's cost of debt affects its required rate of return when it assesses proposed projects. Features of debt such as currency of denomination, maturity, and whether the rate is fixed or floating can affect the cost of debt and thereby affect the feasibility of projects that are supported with the debt. Thus, MNCs can enhance their value by determining specific debt features that can reduce their cost of debt.

18-1 Financing to Match the Inflow Currency

Subsidiaries of MNCs finance their operations with the currency in which they invoice their products. This matching strategy can reduce the subsidiary's exposure to exchange rate movements because it allows the subsidiary to use a portion of its cash inflows to cover the cash outflows for repaying its debt. In this way, the amount of the subsidiary's funds that will ultimately be remitted to the parent (and converted into the parent's currency) is reduced.

Many MNCs, including Honeywell and The Coca-Cola Co., issue bonds in some of the foreign currencies they receive from operations. PepsiCo issues bonds in several foreign currencies and uses the proceeds (in those same currencies) resulting from foreign operations to make interest and principal payments. IBM and Nike have issued bonds denominated in yen at low-interest rates and use yen-denominated revenue to make the interest payments.

EXAMPLE

General Electric has issued bonds denominated in Australian dollars, British pounds, Japanese yen, New Zealand dollars, and Polish zloty to finance its foreign operations. Its subsidiaries in Australia use Australian dollar inflows to pay off their Australian debt. Its subsidiaries in Japan use Japanese yen inflows to pay off their yen-denominated debt. By using various debt markets, General Electric can match its cash inflows and outflows in a particular currency. The decision to obtain debt in currencies where it receives cash inflows reduces the company's exposure to exchange rate risk.

Spectra Energy Corp. is based in Houston, but it has large operations in Canada. It issues bonds in Canadian dollars and uses revenue, denominated in Canadian dollars, from its Canadian operations to make payments on the bond debt. This arrangement reduces the amount of cash that Spectra receives from its Canadian subsidiaries and that is exposed to exchange rate risk. ●

The matching strategy just described is especially desirable when the foreign subsidiaries are based in countries where interest rates are relatively low. The MNC achieves a low financing rate and also reduces its exchange rate risk by matching its debt outflow payments with the currency denominating its cash inflows. This can help to stabilize the firm's cash flow.

China's government has only recently allowed MNCs to issue debt denominated in the Chinese yuan. This enables them to match yuan inflows that they receive from their Chinese subsidiaries with yuan outflows that are used to make coupon payments on the bonds they issued. Another attractive feature of the yuan-denominated loans is that interest rates are low, and there is a large pool of Chinese investors interested in purchasing yuan-denominated bonds issued by credible MNCs.

Bonds are issued by MNCs to fund foreign acquisitions. The firm denominates these bonds in the inflow currency so that it can use cash inflows from an acquired target to repay the acquisition financing costs.

EXAMPLE Garrett Co. is a U.S. firm that is about to acquire a company in Singapore for 150 million Singapore dollars (S$). It converts cash into S$100 million and will need to borrow the remainder to finance this acquisition. Garrett Co. anticipates that the target company will generate substantial profits in Singapore dollars each year but is concerned that the Singapore dollar could depreciate over time. Garrett decides to issue bonds denominated in 50 million Singapore dollars, and it will use the proceeds to cover its balance due on the target. It plans to use the target's annual profits in Singapore dollars to make coupon payments on the bonds each year. The profits that are used to finance the debt are never converted into U.S. dollars and so are not subject to exchange rate fluctuations. ●

18-1a Using Currency Swaps to Execute the Matching Strategy

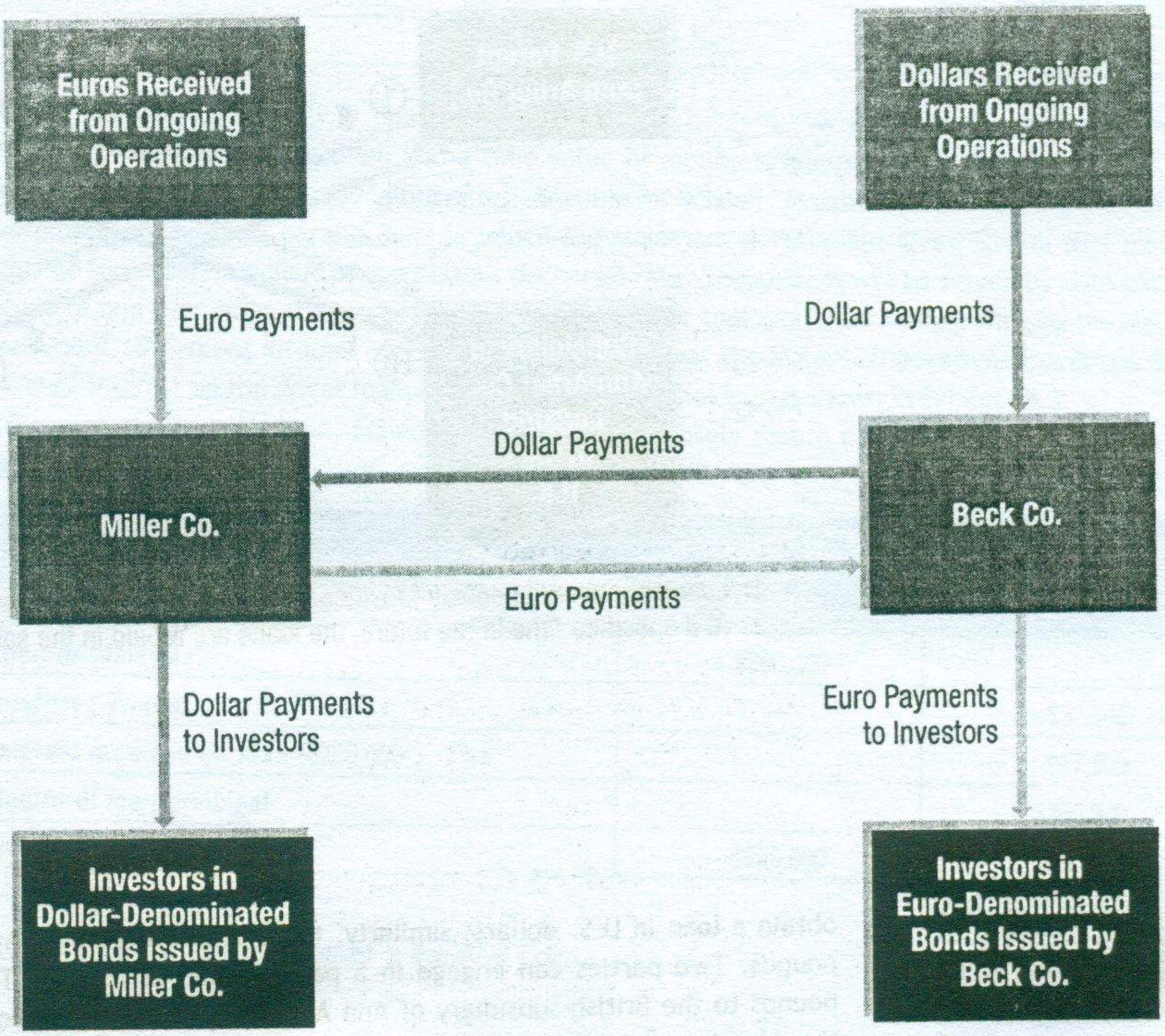
In some cases, an MNC may not be able to borrow a currency that matches its invoice currency in order to reduce exchange rate risk. Under these conditions, the MNC may want to engage in a currency swap, which specifies the exchange of currencies at periodic intervals. A currency swap may allow the MNC's cash outflows to be denominated in the same currency as the one in which it receives most or all of its revenue, and this reduces the MNC's exposure to exchange rate movements.

EXAMPLE Miller Co., a U.S. firm, has a European subsidiary that desires to issue a bond denominated in euros because it could make payments with euro inflows to be generated from existing operations. However, Miller Co. is not well known to the investors who would consider purchasing euro-denominated bonds. Meanwhile, Beck Co. of Germany desires to issue dollar-denominated bonds because its cash inflows are mostly in dollars. However, it is not well known to the investors who would purchase these bonds.

If Miller is known in the dollar-denominated market and if Beck is known in the euro-denominated market, then the following transactions are appropriate. Miller issues dollar-denominated bonds while Beck issues euro-denominated bonds. Miller will provide euro payments to Beck in exchange for dollar payments. This swap of currencies allows the companies to make payments to their respective bondholders without concern about exchange rate risk. This type of currency swap is illustrated in Exhibit 18.1. ●

The swap just described eliminates exchange rate risk for both Miller Co. and Beck Co. because both firms are able to match their cash outflow currency with the cash inflow currency. Miller essentially passes the euros it receives from ongoing operations through to Beck and passes the dollars it receives from Beck through to investors in the dollar-denominated bonds. So even though Miller receives euros from its ongoing operations, the currency swap allows it to make dollar payments to the investors without having to be concerned about exchange rate risk.

Exhibit 18.1 Illustration of a Currency Swap



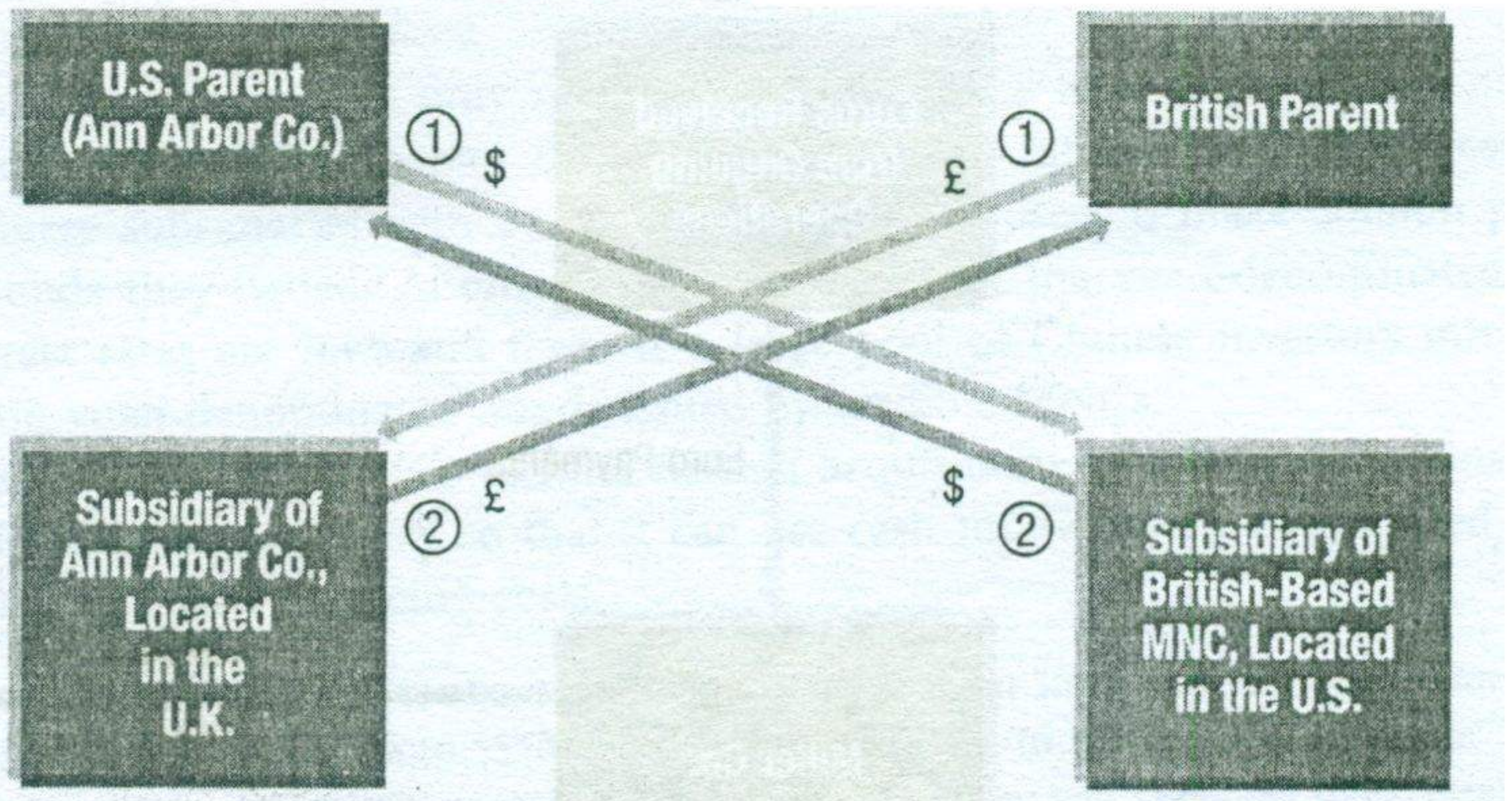
Ford Motor Co., Johnson & Johnson, and many other MNCs use currency swaps. Many MNCs simultaneously swap interest payments and currencies. The Gillette Co. engaged in swap agreements that converted $500 million in fixed rate, dollar-denominated debt into variable rate, multiple currency debt. PepsiCo enters into interest rate swaps and currency swaps to reduce its borrowing costs. The large commercial banks that serve as financial intermediaries for currency swaps sometimes take positions. That is, they may agree to swap currencies with firms rather than searching for suitable swap candidates.

18-1b Using Parallel Loans to Execute the Matching Strategy

If an MNC is not able to borrow a currency that matches its invoice currency, it might also consider financing with a parallel (or back-to-back) loan so that it can match its invoice currency. In a parallel loan, two parties provide simultaneous loans with an agreement to repay at some specified future time.

EXAMPLE Ann Arbor Co. desires to expand its British subsidiary, while a British-based MNC desires to expand its American subsidiary. Ann Arbor Co., because it is based in the United States, can more easily

Exhibit 18.2 Illustration of a Parallel Loan



1. Loans are simultaneously provided by each parent to the other parent's subsidiary.
2. At a specified time in the future, the loans are repaid in the same currency that was borrowed.

obtain a loan in U.S. dollars; similarly, the British-owned MNC has easier access to loans in British pounds. Two parties can engage in a parallel loan as follows. The British MNC provides a loan in pounds to the British subsidiary of Ann Arbor Co., while Ann Arbor Co. provides a loan in dollars to the American subsidiary of the British-based MNC (see Exhibit 18.2). At the time specified by the loan contract, the loans are repaid. The British subsidiary of Ann Arbor Co. uses its pound-denominated revenues to repay the British MNC that provided the loan; at the same time, the American subsidiary of the British-based MNC uses its dollar-denominated revenues to repay the loan from Ann Arbor Co. ●

The use of parallel loans is particularly attractive if the MNC is conducting a project in a foreign country, will receive the cash flows in the foreign currency, and is worried that the foreign currency will depreciate substantially. If the foreign currency is not heavily traded then other hedging alternatives, such as forward or futures contracts, may not be available, yet the project may have a negative net present value (NPV) if the cash flows remain unhedged.

EXAMPLE Schnell, Inc., has been approached by the government of Malaysia to engage in a project there over the next year. Schnell's investment in the project is 1 million Malaysian ringgit (MR), and the project is expected to generate cash flows of MR1.4 million next year. The project will terminate at that time.

The current value of the ringgit is $.25, but Schnell believes that this currency will depreciate substantially over the next year. Specifically, it believes the ringgit will have a value of $.20 next year. Furthermore, Schnell will have to borrow for one year in order to pursue the project and will incur financing costs of 13 percent over the next year.

If Schnell pursues the project, it will incur a net outflow now of MR1,000,000 × $.25 = $250,000. Next year, it will also have to pay the financing costs of $250,000 × 13% = $32,500. If the ringgit depreciates to $.20, then Schnell will receive MR1,400,000 × $.20 = $280,000 next year. For each year, the cash flows are summarized below.

	YEAR 0	YEAR 1
Investment	–$250,000	
Interest payment		–$32,500
Project cash flow	0	$280,000
Net	–$250,000	$247,500

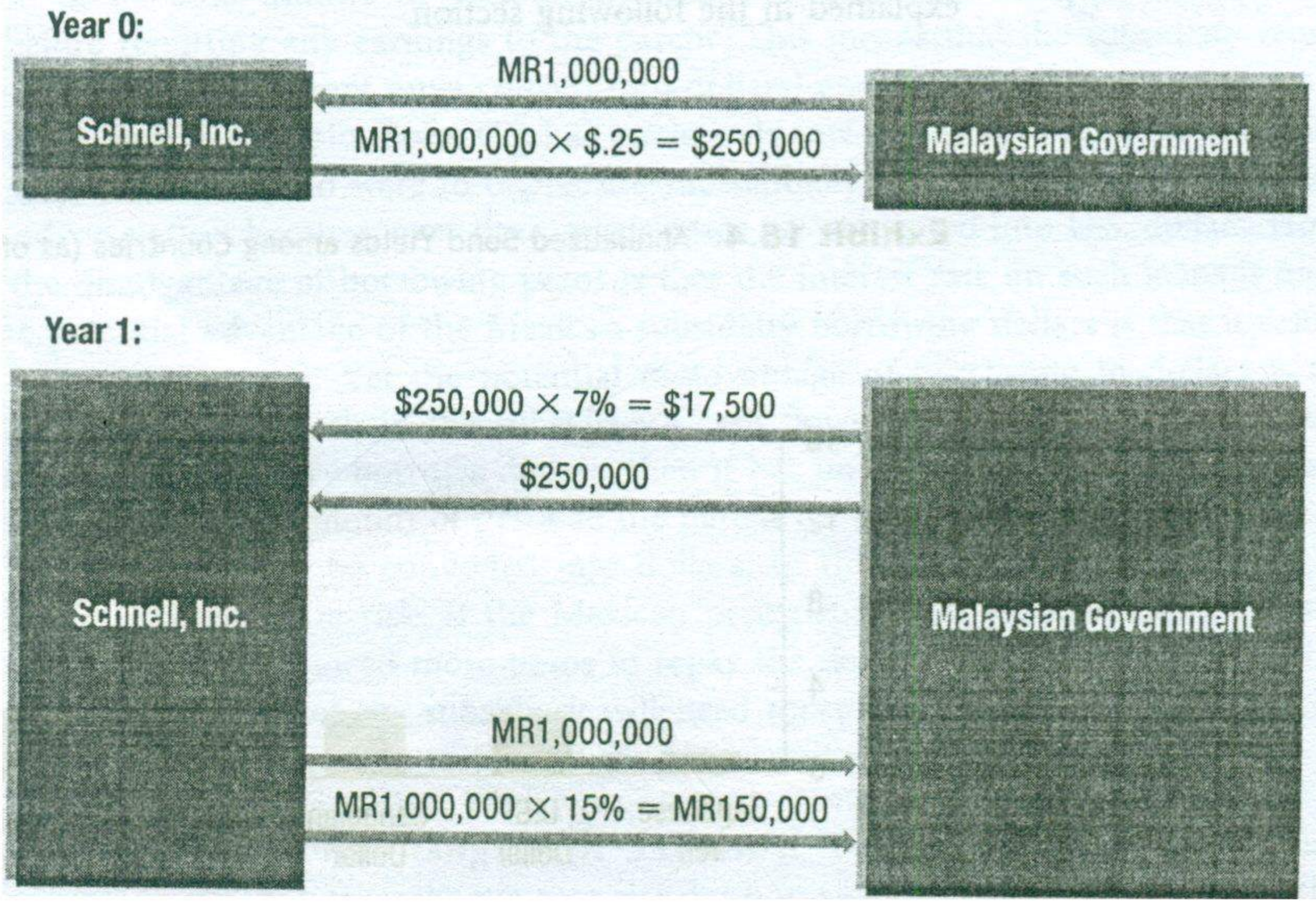
The cash inflows to Schnell in one year (shown in the bottom row for year 1) would be less than Schnell's initial investment, even if the time value of money is ignored.

However, a parallel loan may improve the outcome for Schnell. Assume that Schnell and the Malaysian government engage in a parallel loan in which the Malaysian government gives Schnell MR1 million in exchange for a loan in dollars at the current exchange rate. These loans will be repaid by both parties at the end of one year when the project is completed. Assume that next year Schnell will pay the Malaysian government 15 percent interest on the MR1 million and that the Malaysian government will pay Schnell 7 percent interest on the dollar loan. Graphically, the parallel loan is shown in Exhibit 18.3.

By using the parallel loan, Schnell is able to more closely match its cash inflows and outflows in ringgit, as shown here:

	SCHNELL DOLLAR CASH FLOWS	
	YEAR 0	YEAR 1
Loan to Malaysia	–$250,000	
Interest payment		–$32,500
Interest received on loan ($250,000 × 7%)		$17,500
Return of loan principal		$250,000
Net cash flow	–$250,000	$235,000

Exhibit 18.3 Illustration of a Parallel Loan



	SCHNELL RINGGIT CASH FLOWS	
	YEAR 0	YEAR 1
Loan from Malaysia	MR1,000,000	
Investment in project	–MR1,000,000	
Interest paid on loan (MR1,000,000 × 15%)		–MR150,000
Return of loan		–MR1,000,000
Project cash flow		MR1,400,000
Net cash flow	0	MR250,000

Based on the forecasted spot rate of $.20 in one year, the net cash flow in year 1 of MR250,000 is expected to be MR250,000 × $.20 = $50,000. Thus, the total dollar cash flows when using the parallel loan are $235,000 + $50,000 = $285,000. Overall, Schnell's net cash flows in year 1 more than offset its initial cash outflow of $250,000. In addition, the parallel loan reduces the ringgit amount that Schnell must convert to dollars at project termination from MR1.4 million to MR250,000. Thus, the parallel loan reduces Schnell's exposure to the potential depreciation of the ringgit. ●

18-2 Debt Denomination Decision by Subsidiaries

If subsidiaries of MNCs match the currency they borrow with the currency they use to invoice products, then their cost of debt will depend on the local interest rate of their host country. Exhibit 18.4 illustrates how long-term risk-free bond yields can vary among countries. The cost of debt to a subsidiary in any of these countries would be slightly higher than the risk-free rates shown here because it would contain a credit risk premium. The cost of debt financing in Japan is typically low because the risk-free bond rate there is low. At the other extreme, the cost of debt financing in Brazil (as shown here) and some other countries can be very high. A subsidiary in a host country where interest rates are high might consider borrowing in a different currency in order to avoid the high cost of local debt. The analysis used to determine which currency to borrow is explained in the following section.

Exhibit 18.4 Annualized Bond Yields among Countries (as of January 2009)

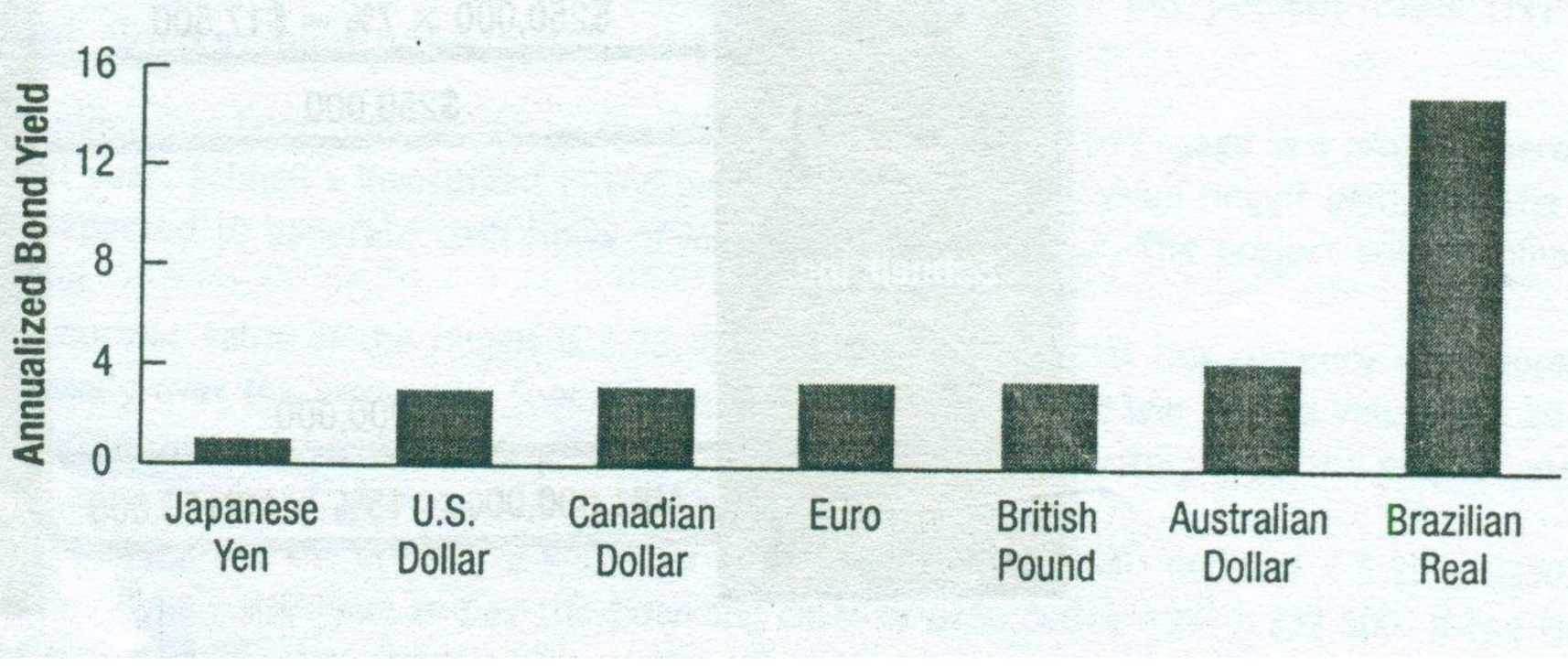
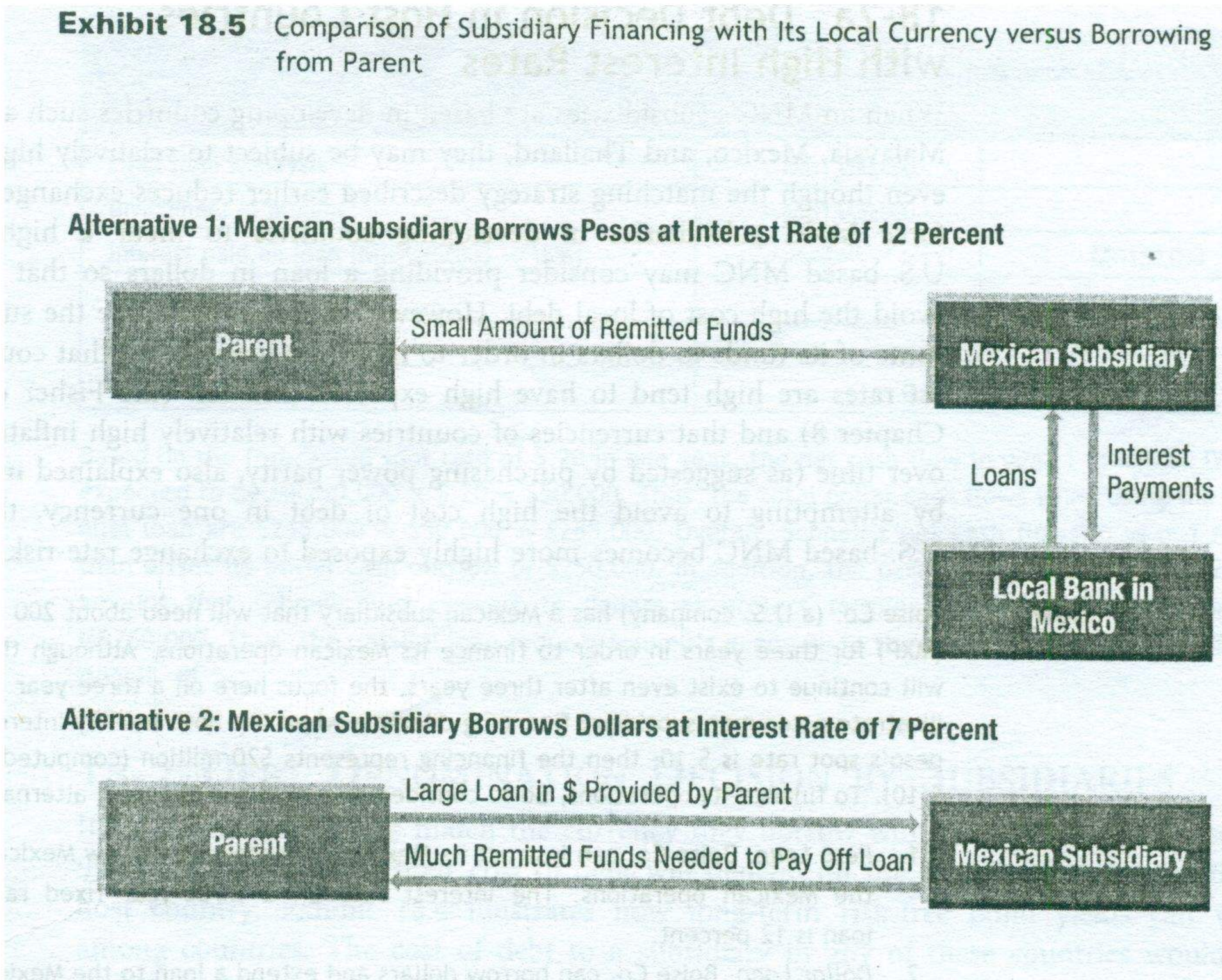


Exhibit 18.5 Comparison of Subsidiary Financing with Its Local Currency versus Borrowing from Parent



contracts may be available on some currencies for five years or longer, which could allow the subsidiary to hedge its future loan payments in a particular currency. However, this hedging strategy may not be enough for the subsidiary to achieve a lower debt financing rate than it could by borrowing its host country currency, as illustrated next.

EXAMPLE Recall that the Mexican subsidiary of Boise Co. wants to borrow 200 million Mexican pesos for three years to support its operations and that the prevailing fixed interest rate on peso-denominated debt is 12 percent versus 7 percent on dollar-denominated debt. The Mexican subsidiary considers borrowing $20 million and then converting these dollars to pesos to support its operations. It would need also to convert pesos to dollars when making interest payments of $2,100,000 (computed as 7% × $20,000,000) for each of the next three years. The subsidiary is concerned that the peso could depreciate against the dollar over time, which would increase the amount of pesos needed to cover the loan payments. Therefore, it wants to hedge these loan payments with forward sales of pesos in exchange for $2,100,000 over each of the next three years. However, even if a financial institution that is willing to accommodate this request with forward contracts over the next three years, the subsidiary will not benefit from this strategy. Recall from Chapter 7 that, from a U.S. perspective, interest rate parity causes the forward rate of a foreign currency to exhibit a discount that reflects the difference between the interest rate of that currency and the interest rate on dollars. In this example, the interest rate on borrowing Mexican pesos is much higher than the interest rate on borrowing U.S. dollars. Hence the peso's forward rate will contain a substantial discount, which means that the Mexican subsidiary of Boise Co. would be selling pesos forward at a substantial discount in order to obtain dollars so that it could make loan payments. This discount would largely offset the interest rate advantage of borrowing dollars, so the financing costs would not be reduced with this forward hedge strategy. ●

Even if a subsidiary cannot effectively hedge its financing position, it might still consider financing with a currency that differs from its host country. Its final debt denomination decision will likely be based on its forecasts of exchange rates, as illustrated next.

Comparing Financing Costs between Debt Denomination If an MNC parent considers financing subsidiary operations in a host country where interest rates are high, then it must estimate the financing costs for both financing alternatives.

EXAMPLE Recall that the Mexican subsidiary of Boise Co. could obtain a MXP200 million loan at an annualized interest rate of 12 percent over three years or, alternatively, it could borrow $20 million from its parent at an annualized interest rate of 7 percent over three years. Assume that all loan principal is repaid at the end of three years. The annualized cost of each financing alternative is shown in Exhibit 18.6. The subsidiary's payments on the peso-denominated loan is simply based on the interest rate (12 percent) applied to the loan amount, since there is no exchange rate risk to the Mexican subsidiary when borrowing its local currency. Next, the annualized cost of financing the dollar loan is the discount rate that equates the payments to the loan proceeds (MXP200 million) at the time the loan is created; this rate is estimated to be 12 percent (the same as the interest rate because there is no exchange rate risk).

The estimated cost of financing with dollars requires forecasts of exchange rates at the intervals when loan payments are made to the U.S. parent (see Exhibit 18.6). Assume that the subsidiary forecasts that the peso's spot rate will be $.10 in one year, $.09 in two years, and $.09 in three years. Given the required loan repayments in dollars and the forecasted exchange rate of the peso, the amount of pesos needed to repay the loan per year can be estimated as shown in Exhibit 18.6. Next, the Mexican subsidiary's annualized cost of financing with a dollar loan can be determined: it is the discount rate that equates the payments to the loan proceeds ($20 million) at the time the loan is created. A series of calculations yields a rate of 10.82 percent, which is less than the 12 percent rate for the Mexican peso loan. ●

Although the annualized cost of financing the subsidiary is slightly lower when dollars are used, the cost is subject to exchange rate fluctuations and is therefore uncertain. In contrast, the Mexican subsidiary's cost of financing with the peso-denominated loan is certain. Hence Boise Co. will decide to finance the Mexican subsidiary with dollar-denominated debt only if it is confident that the peso will not weaken any more than its prevailing forecasts over the next three years.

Accounting for Uncertainty of Financing Costs The estimated cost of debt financing by the subsidiary when it borrows a different currency than that of its host country is highly sensitive to the forecasted exchange rates. An MNC that uses inaccurate exchange rate forecasts could make the wrong decision regarding the currency in which to denominate its subsidiary's debt. It can at least account for the uncertainty surrounding the point estimates of exchange rates by using sensitivity analysis, in which alternative forecasts of the exchange rate are tested for each period in which a loan payment will be provided. The firm would initially use its best guess for each period to estimate the cost of financing. Then, it would repeat the process based on unfavorable conditions. Finally, it would repeat the process under more favorable conditions. For each set of exchange rate forecasts, the MNC can estimate the cost of financing. This process results in a different estimate of the cost of financing for each of the three sets of forecasts used.

Exhibit 18.6 Peso Loan versus Dollar Loan to Foreign Subsidiary

	YEAR 1	YEAR 2	YEAR 3
PESO LOAN OF MXP200,000,000 at 12%:	MXP24,000,000	MXP24,000,000	MXP24,000,000 + loan principal repayment of MXP200,000,000
U.S. DOLLAR LOAN OF $20,000,000 at 7%: Loan repayment in U.S. dollars	$1,400,000	$1,400,000	$1,400,000 + loan principal repayment of $20,000,000
Forecasted exchange rate of peso	$.10	$.09	$.09
Pesos needed to repay dollar loan	MXP14,000,000	MXP15,555,556	MXP237,777,778

Alternatively, an MNC can apply simulation in which it develops a probability distribution for the exchange rate for each period in which an outflow payment will be provided. It can feed those probability distributions into a computer simulation program. The program will randomly draw one possible value from the exchange rate distribution for the end of each year and determine the outflow payments based on those exchange rates. Thus, the cost of financing is determined. The procedure described up to this point represents one iteration.

Next, the program will repeat the procedure by again randomly drawing one possible value from the exchange rate distribution at the end of each year. This will provide a new schedule of outflow payments reflecting those randomly selected exchange rates. The cost of financing for this second iteration is also determined. The simulation program continually repeats this procedure as many times as desired, perhaps 100 times or so.

Every iteration provides a possible scenario of future exchange rates, which is then used to determine the annual cost of financing if that scenario occurs. Thus, the simulation generates a probability distribution of annual financing costs that can then be compared with the known cost of financing if the subsidiary borrows its local currency. Through this comparison, the MNC can determine the probability that borrowing a currency other than its local currency (of its host country) will achieve a lower annualized cost of financing than if it borrows its local currency.

18-2b Debt Denomination to Finance a Project

When an MNC considers a new project, it must consider what currency to borrow when financing the project. This decision is similar to the one discussed in the previous section, where an MNC's subsidiary decides how to finance its operations. However, this decision is more specific because it is focused on financing a specific project.

Input Necessary to Conduct an Analysis Consider the case of Lexon Co. (a U.S. firm), which considers a new project that would require an investment of 80 million Argentine pesos (AP). Because the spot rate of the Argentine peso is presently $.50, the project's initial outlay requires the equivalent of $40 million. If Lexon implements this project, it will use equity to finance half of the investment, or $20 million; it will use debt to finance the remainder. For its debt financing, either Lexon will borrow $20 million (and convert those funds into pesos) or it will borrow AP40 million. Hence the focus of this problem is on the currency to borrow to support the project. Lexon will pay an annualized interest rate of 9 percent if it borrows U.S. dollars or 15 percent if it borrows Argentine pesos. The project will be terminated in one year. At that time, the debt will be repaid, and any earnings generated by the project will be remitted to Lexon in the United States. The project is expected to generate revenue of AP200 million at the end of one year, and operating expenses in Argentina will be AP10 million payable at the end of one year. Lexon expects that the Argentine peso will be valued at $.40 in one year. This project will not generate any revenue in the United States, but Lexon does expect to incur operating expenses of $10 million in the United States. Lexon's cost of equity is 18 percent.

Analysis of Financing Alternatives for the Project By applying capital budgeting analysis to each possible financing mix, Lexon can determine which financing mix will result in a higher net present value. As explained in Chapter 14, an MNC can account for exchange rate effects due to debt financing by directly estimating the debt payment cash flows along with all other cash flows in the capital budgeting process. Since the debt payments are completely accounted for within the cash flow estimates, it follows that the initial outlay represents the parent's equity investment and that the capital budgeting analysis determines the net present value of the parent's equity investment.

Exhibit 18.7 Analysis of Lexon's Project Based on Two Financing Alternatives (millions of currency units)

		RELY ON U.S. DEBT ($20 MILLION BORROWED) AND EQUITY OF $20 MILLION	RELY ON ARGENTINE DEBT (40 MILLION PESOS BORROWED) AND EQUITY OF $20 MILLION
1.	Argentine revenue	AP200	AP200
2.	– Argentine operating expenses	– AP10	– AP10
3.	– Argentine interest expenses (15% rate)	– AP0	– AP6
4.	= Argentine earnings before taxes	= AP190	= AP184
5.	– Taxes (30% tax rate)	– AP57	– AP55.2
6.	= Argentine earnings after taxes	= AP133	= AP128.8
7.	– Principal payments on Argentine debt	– AP0	– AP40
8.	= Amount of pesos to be remitted	= AP133	= AP88.8
9.	× Expected exchange rate of Argentine pesos	× $.40	× $.40
10.	= Amount of dollars received from converting pesos	= $53.2	= $35.52
11.	– U.S. operating expenses	– $10	– $10
12.	– U.S. interest expenses (9% rate)	– $1.8	– $0
13.	+ U.S. tax benefits on U.S. expenses (based on 30% tax rate)	+ $3.54	+ $3
14.	– Principal payments on U.S. debt	– $20	– $0
15.	= Dollar cash flows	= $24.94	= $28.52
16.	Present value of dollar cash flows, discounted at the cost of equity (assumed to be 18%)	$21.135	$24.17
17.	– Initial equity outlay	– $20	– $20
18.	= NPV	= $1.135	= $4.17

If neither alternative has a positive NPV then the proposed project will not be undertaken. If both alternatives have positive NPVs, the project will be financed with the financing mix that is expected to generate a higher NPV.

The analysis of the two financing alternatives is provided in Exhibit 18.7. Rows 1 and 2 show the expected revenue and operating expenses in Argentina, which are the same for both alternatives. Row 3 shows that borrowing dollars results in zero Argentine interest expenses whereas the alternative of borrowing pesos results in interest expenses of AP6 million pesos (15% × 40 million pesos). Row 4 shows Argentine earnings before taxes, which is computed as row 1 minus rows 2 and 3. The tax rate is applied to the Argentine earnings before taxes (row 4) in order to derive the taxes paid in Argentina (row 5) and Argentine earnings after taxes (row 6).

Row 7 accounts for the repayment of Argentine debt. This is a key difference between the two financing alternatives, and it explains why the amount of pesos remitted to Lexon in row 8 is so much larger if dollar-denominated debt is used instead of peso-denominated debt. The expected exchange rate of the peso in row 9 is applied to the amount of pesos to be remitted in row 8 in order to determine the amount of dollars received in row 10. The U.S. operating expenses are shown in row 11. The U.S. interest expenses, shown in row 12, are computed as 9% × $20 million = $1.8 million if dollar-denominated debt is used. Row 13 accounts for the tax savings to Lexon from incurring expenses in the United States due to the project, which are estimated as the 30 percent U.S. tax rate multiplied by the U.S. expenses shown in rows 11 and 12. The principal payment of U.S. dollar-denominated debt is shown in row 14.

Dollar cash flows resulting from the project in row 15 can be estimated as the amount of dollars received from Argentina (row 10) minus the U.S. expenses (rows 11 and 12) plus tax benefits due to U.S. expenses (row 13) minus the principal payment on U.S. debt (row 14). The present value of the dollar cash flows resulting from the project (shown in row 16) is determined by discounting the cash flows in row 15 at Lexon's cost of equity, which is 18 percent. The initial equity outlay of $20 million (in row 17) is subtracted from the present value of cash flows in row 16 to derive the NPV in row 18. The result is an NPV of $1.125 million if Lexon uses dollar-denominated debt to partially finance the project yet an NPV of $4.17 million if it uses Argentine peso–denominated debt.

Although peso-denominated debt has a higher interest rate than dollar-denominated debt, Lexon can substantially reduce the weak peso's adverse effects by using peso-denominated debt. Consequently, Lexon should finance this project with peso-denominated debt. The results here do not imply that foreign debt should always be used to finance a foreign project. The advantage of using foreign debt to offset foreign revenue (reduce exchange rate risk) must be weighed against the cost of that debt.

Adjusting the Analysis for Other Conditions The Lexon example was intentionally simplified to illustrate the process of analyzing two financing alternatives for a particular project. However, the analysis can easily be adjusted to account for more complicated conditions. The analysis shown for a single year in Exhibit 18.7 could be applied to multiple years. For each year, the revenue and expenses would be recorded and the debt payments would be explicitly accounted for. The key is that the analysis directly accounts for all interest and principal payments on the debt as well as any other cash flows. Then the present value of the cash flows can be compared to the initial equity outlay to determine whether the equity investment is feasible.

18-3 Debt Maturity Decision

Regardless of the currency that an MNC uses to finance its international operations, it must also decide on the maturity that it should use for its debt. An MNC normally uses a long-term maturity when financing subsidiary operations that will continue for a long-term period. But the firm might consider a maturity that is shorter than the time period in which it will need funds, especially when the annualized interest rates on debt are relatively low for particular maturities.

18-3a Assessment of the Yield Curve

Before making the debt maturity decision, MNCs assess the yield curve of the country in which they need funds.

The shape of the yield curve, which illustrates the relationship between annualized yield and debt maturity, can vary among countries. Some countries tend to have an upward-sloping yield curve, which means that the annualized yields are lower for short-term debt maturities than for long-term debt maturities. One explanation given for the upward slope is that investors may require a higher rate of return on long-term debt as compensation for lower liquidity (tying up their funds for a longer period of time). Put another way, an upward-sloping yield curve suggests that more creditors prefer to loan funds for shorter loan maturities and therefore charge a lower annualized interest rate for these maturities.

18-3b Financing Costs of Loans with Different Maturities

When there is an upward-sloping yield curve, the MNC may be tempted to finance the project with debt over a shorter maturity in order to achieve a lower cost of debt financing,

which is the rate at which banks lend funds to each other. As LIBOR increases, so does the coupon rate of a floating rate bond. A floating coupon rate can be an advantage to the bond issuer during periods of decreasing interest rates, when otherwise the firm would be locked in at a higher coupon rate over the life of the bond. However, a floating rate is a disadvantage during periods of rising interest rates. In some countries, such as those in South America, most long-term debt has a floating interest rate.

18-4a Financing Costs of Fixed versus Floating Rate Loans

If an MNC considers financing with floating rate loans whose rate is tied to LIBOR, then it can forecast the LIBOR for each year to estimate its annual interest rate. This allows the firm to forecast interest payments for all years of the loan. It can then estimate the annualized cost of financing based on the anticipated loan interest payments and repayment of loan principal.

EXAMPLE

Reconsider the case of Scottsdale Co., which plans to borrow SF40 million at a fixed rate for three years and to obtain a loan extension for two additional years. It is now considering an alternative financing arrangement in which it obtains a floating rate loan from a bank at an interest rate equal to LIBOR + 3 percent. The company's analysis of this loan is provided in Exhibit 18.9 To forecast the interest payments paid on the floating rate loan, Scottsdale must first forecast the LIBOR for each year. Assume the forecasts are as given in the first row. The interest rate applied to its loan each year is LIBOR + 3 percent, as shown in row 2. Row 3 discloses the results when the loan amount of SF40,000,000 is multiplied by this interest rate in order to estimate the interest expenses each year, and the repayment of principal is also included in year 5. The annualized cost of financing is determined as the discount rate that equates the payments to the loan proceeds of SF40,000,000. For the floating rate loan, the annualized cost of financing is 7.48 percent. This value is lower than the 8 percent annualized cost of the five-year fixed rate loan in the previous example, but it is higher than the 7.08 percent annualized cost of that example's three-year fixed rate loan plus loan extension. Based on this comparison, Scottsdale decides to obtain the three-year fixed rate loan with the loan extension. ●

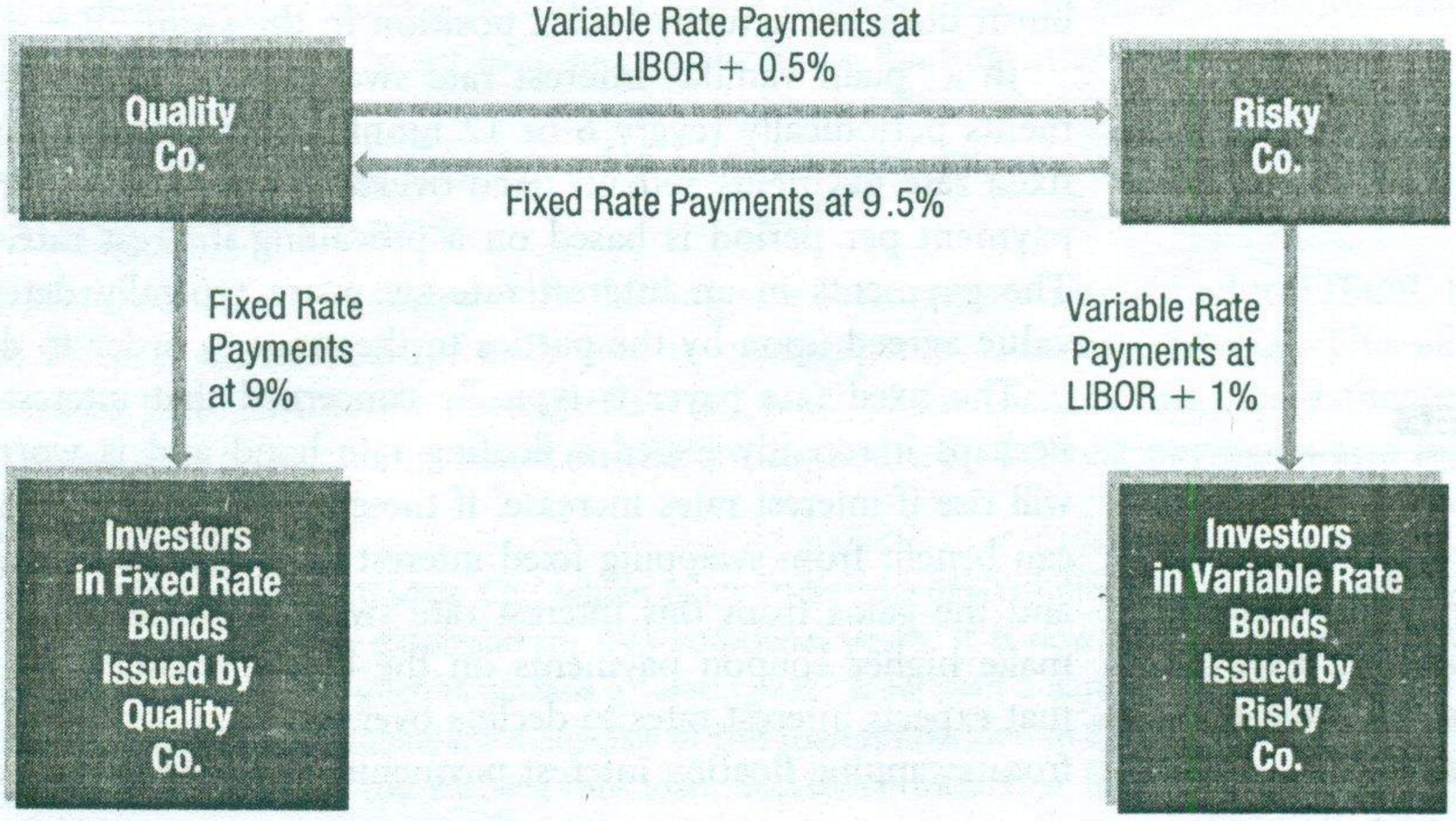
18-4b Hedging Interest Payments with Interest Rate Swaps

In some cases, MNCs may finance with floating rather than fixed rate debt because the prevailing floating rate terms at the time of the debt offering were more favorable. However, if the MNCs are concerned that interest rates will rise over time, they may complement their floating rate debt with interest rate *swaps* in order to hedge the risk of rising interest rates. The interest rate swaps allow them to reconfigure their future cash flows in a manner that offsets their outflow payments to creditors (lenders or bondholders). In this way, MNCs can reduce their exposure to interest rate movements. Many MNCs use interest rate swaps, including Ashland, Inc., Campbell Soup Co., Intel Corp., Johnson Controls, and Union Carbide.

Exhibit 18.9 Alternative Financing Arrangement with a Floating Rate Loan

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Forecast of LIBOR	3%	4%	4%	6%	6%
Forecast of interest rate applied to the floating rate loan	6%	7%	7%	9%	9%
5-year floating rate loan: Repayments based on floating rate loan of LIBOR + 3%	SF2,400,000	SF2,800,000	SF2,800,000	SF3,600,000	SF3,600,000 + Repayment of SF40,000,000 in loan principal

Exhibit 18.10 Illustration of an Interest Rate Swap



YEAR	LIBOR	QUALITY CO.'S PAYMENT	RISKY CO.'S PAYMENT	NET PAYMENT
1	8.0%	8.5% × $50 million = $4.25 million	9.5% × $50 million = $4.75 million	Risky pays Quality $.5 million
2	7.0%	7.5% × $50 million = $3.75 million	9.5% × $50 million = $4.75 million	Risky pays Quality $1 million
3	5.5%	6.0% × $50 million = $3 million	9.5% × $50 million = $4.75 million	Risky pays Quality $1.75 million
4	9.0%	9.5% × $50 million = $4.75 million	9.5% × $50 million = $4.75 million	No payment is made
5	10.0%	10.5% × $50 million = $5.25 million	9.5% × $50 million = $4.75 million	Quality pays Risky $.5 million

Limitations of Interest Rate Swaps Two limitations of the swap just described are worth mentioning. First, there is a cost of time and resources associated with searching for a suitable swap candidate and negotiating the swap terms. Second, each swap participant faces the risk that its counterpart could default on payments.

Other Types of Interest Rate Swaps Continuing financial innovation has resulted in various additional types of interest rate swaps in recent years. Listed below are some examples.

- *Accretion swap.* An accretion swap is a swap in which the notional value is increased over time.
- *Amortizing swap.* An amortizing swap is essentially the opposite of an accretion swap. In an amortizing swap, the notional value is reduced over time.

- *Basis (floating-for-floating) swap.* A basis swap involves the exchange of two floating rate payments. For example, a swap between one-year LIBOR and six-month LIBOR is a basis swap.
- *Callable swap.* As the name suggests, a callable swap gives the fixed rate payer the right to terminate the swap. The fixed rate payer would exercise this right if interest rates fall substantially.
- *Forward swap.* A forward swap is an interest rate swap that is entered into today. However, the swap payments do not start until a specified future time.
- *Putable swap.* A putable swap gives the floating rate payer the right to terminate the swap. The floating rate payer would exercise this right if interest rates rise substantially.
- *Zero-coupon swap.* In a zero-coupon swap, all fixed interest payments are postponed until maturity and are paid in one lump sum when the swap matures. However, the floating rate payments are due periodically.
- *Swaption.* A swaption gives its owner the right to enter into a swap. The exercise price of a swaption is a specified fixed interest rate at which the swaption owner can enter the swap at a specified future date. A payer swaption gives its owner the right to switch from paying floating to paying fixed interest rates at the exercise price; a receiver swaption gives its owner the right to switch from receiving floating rate to receiving fixed rate payments at the exercise price.

WEB

www.bloomberg.com
Long-term interest rates for major currencies such as the Canadian dollar, Japanese yen, and British pound for various maturities.

Standardization of the Swap Market As the swap market has grown in recent years, one association in particular is frequently credited with its standardization. The **International Swaps and Derivatives Association** (**ISDA**) is a global trade association that represents leading participants in privately negotiated derivatives, such as interest rate, currency, commodity, credit, and equity swaps as well as related products.

The ISDA's two primary objectives are (1) developing and maintaining documentation on derivatives to promote efficient business conduct practices and (2) encouraging the development of sound risk management practices. One of the ISDA's most notable accomplishments is the development of the ISDA **Master Agreement**. This agreement provides participants in the private derivatives markets with the opportunity to establish the legal and credit terms between them for an ongoing business relationship. The key advantage of such an agreement is that the general legal and credit terms do not have to be renegotiated each time the parties enter into a transaction. Consequently, the ISDA Master Agreement has contributed greatly to the standardization of the derivatives market.[1]

SUMMARY

- An MNC's subsidiary may prefer to use debt financing in a currency that matches the currency it receives from cash inflows. The cash inflows can be used to cover its interest payments on its existing loans. When MNCs issue debt in a foreign currency that differs from the currency they receive from sales, they may use currency swaps or parallel loans to hedge the exchange rate risk resulting from the debt financing.
- An MNC's subsidiary may consider long-term financing in a foreign currency different from its local (host country) currency in order to reduce financing costs. It can forecast the exchange rates for the periods in which it will make loan payments and then can estimate the annualized cost of financing in that currency.

  When determining the debt denomination to finance a specific project, an MNC can conduct

[1]For more information about interest rate swaps, see Robert A. Strong, *Derivatives: An Introduction,* 2e (Mason, Ohio: South-Western, 2005), and the ISDA (www.isda.org).

the capital budgeting by deriving the NPV based on the equity investment, and the cash flows from the debt can be directly accounted for within the estimated cash flows. This allows for explicit consideration of the exchange rate effects on all cash flows after considering debt payments. By applying this method (which was developed in Chapter 14), an MNC can assess the feasibility of a particular project based on various debt financing alternatives.

- An MNC's subsidiary can select among various available debt maturities when financing its operations. It can estimate the annualized cost of financing for alternative maturities and then determine which maturity will result in the lowest expected annualized cost of financing.
- For debt that has floating interest rates, the interest (or coupon) payment to be paid to investors is dependent on the future LIBOR and is therefore uncertain. An MNC can forecast LIBOR so it can derive expected interest rates it would be charged on the loan in future periods. It can apply these expected interest rates to estimate expected loan payments and can then derive the expected annualized cost of financing of the floating rate loan. Finally, it can compare the expected cost of financing on a floating rate loan to the known cost of financing on a fixed rate loan. In some cases, an MNC may engage in a floating rate loan, and use interest rate swaps to hedge the interest rate risk.

Point Counter-Point

Will Currency Swaps Result in Low Financing Costs?

Point Yes. Currency swaps have created greater participation by firms that need to exchange their currencies in the future. Thus, firms that finance in a low interest rate currency can more easily establish an agreement to obtain the currency that has the low interest rate.

Counter-Point No. Currency swaps will establish an exchange rate that is based on market forces. If a forward rate exists for a future period, the swap rate should be somewhat similar to the forward rate. If it were not as attractive as the forward rate, the participants would use the forward market instead. If a forward market does not exist for the currency, swap rate should still reflect market forces. The exchange rate at which a low-interest currency could be purchased will exceed the prevailing spot rate because otherwise MNCs would borrow the low-interest currency and simultaneously purchase the currency forward so that they could hedge their future interest payments.

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. Explain why a firm may issue a bond denominated in a currency different from its home currency to finance local operations. Explain the risk involved.

2. Tulane, Inc. (based in Louisiana), considers issuing a 20-year Swiss franc-denominated bond. The proceeds are to be converted to British pounds to support the firm's British operations. Tulane, Inc., has no Swiss operations but prefers to issue the bond in francs rather than pounds because the coupon rate is 2 percentage points lower. Explain the risk involved in this strategy. Do you think the risk here is greater or less than it would be if the bond proceeds were used to finance U.S. operations? Why?

3. Some large companies based in Latin American countries could borrow funds (through issuing bonds or borrowing from U.S. banks) at an interest rate that would be substantially less than the interest rates in their own countries. Assuming that they are perceived to be creditworthy in the United States, why might they still prefer to borrow in their local countries when financing local projects (even if they incur interest rates of 80 percent or more)?

4. A respected economist recently predicted that, even though Japanese inflation would not rise, Japanese interest rates would rise consistently over the next 5 years. Paxson Co., a U.S. firm with no foreign operations, has recently issued a Japanese yen-denominated bond to finance U.S. operations. It chose the yen

denomination because the coupon rate was low. Its vice president stated, "I'm not concerned about the prediction because we issued fixed rate bonds and are therefore insulated from risk." Do you agree? Explain.

QUESTIONS AND APPLICATIONS

1. Floating Rate Bonds

a. What factors should be considered by a U.S. firm that plans to issue a floating rate bond denominated in a foreign currency?

b. Is the risk of issuing a floating rate bond higher or lower than the risk of issuing a fixed rate bond? Explain.

c. How would an investing firm differ from a borrowing firm in the features (i.e., interest rate and currency's future exchange rates) it would prefer a floating rate foreign currency-denominated bond to exhibit?

2. Risk from Issuing Foreign Currency-Denominated Bonds What is the advantage of using simulation to assess the bond financing position?

3. Exchange Rate Effects

a. Explain the difference in the cost of financing with foreign currencies during a strong-dollar period versus a weak-dollar period for a U.S. firm.

b. Explain how a U.S.-based MNC issuing bonds denominated in euros may be able to offset a portion of its exchange rate risk.

4. Bond Offering Decision Columbia Corp. is a U.S. company with no foreign currency cash flows. It plans to issue either a bond denominated in euros with a fixed interest rate or a bond denominated in U.S. dollars with a floating interest rate. It estimates its periodic dollar cash flows for each bond. Which bond do you think would have greater uncertainty surrounding these future dollar cash flows? Explain.

5. Borrowing Combined with Forward Hedging Cedar Falls Co. has a subsidiary in Brazil, where local interest rates are high. It considers borrowing dollars and hedging the exchange rate risk by selling the Brazilian real forward in exchange for dollars for the periods in which it would need to make loan payments in dollars. Assume that forward contracts on the real are available. What is the limitation of this strategy?

6. Financing That Reduces Exchange Rate Risk Kerr, Inc., a major U.S. exporter of products to Japan, denominates its exports in dollars and has no other international business. It can borrow dollars at 9 percent to finance its operations or borrow yen at 3 percent. If it borrows yen, it will be exposed to exchange rate risk. How can Kerr borrow yen and possibly reduce its economic exposure to exchange rate risk?

7. Exchange Rate Effects Katina, Inc., is a U.S. firm that plans to finance with bonds denominated in euros to obtain a lower interest rate than is available on dollar-denominated bonds. What is the most critical point in time when the exchange rate will have the greatest impact?

8. Financing Decision Cuanto Corp. is a U.S. drug company that has attempted to capitalize on new opportunities to expand in Eastern Europe. The production costs in most Eastern European countries are very low, often less than one-fourth of the cost in Germany or Switzerland. Furthermore, there is a strong demand for drugs in Eastern Europe. Cuanto penetrated Eastern Europe by purchasing a 60 percent stake in Galena, a Czech firm that produces drugs.

a. Should Cuanto finance its investment in the Czech firm by borrowing dollars from a U.S. bank that would then be converted into koruna (the Czech currency) or by borrowing koruna from a local Czech bank? What information do you need to know to answer this question?

b. How can borrowing koruna locally from a Czech bank reduce the exposure of Cuanto to exchange rate risk?

c. How can borrowing koruna locally from a Czech bank reduce the exposure of Cuanto to political risk caused by government regulations?

Advanced Questions

9. Bond Financing Analysis Sambuka, Inc., can issue bonds either in U.S. dollars or in Swiss francs. Dollar-denominated bonds would have a coupon rate of 15 percent; Swiss franc-denominated bonds would have a coupon rate of 12 percent. Assuming that Sambuka can issue bonds worth $10 million in either currency, that the current exchange rate of the Swiss

franc is $.70, and that the forecasted exchange rate of the franc in each of the next 3 years is $.75, what is the annual cost of financing for the franc-denominated bonds? Which type of bond should Sambuka issue?

10. Bond Financing Analysis Hawaii Co. just agreed to a long-term deal in which it will export products to Japan. It needs funds to finance the production of the products that it will export. The products will be denominated in dollars. The prevailing U.S. long-term interest rate is 9 percent versus 3 percent in Japan. Assume that interest rate parity exists and that Hawaii Co. believes that the international Fisher effect holds.

a. Should Hawaii Co. finance its production with yen and leave itself open to exchange rate risk? Explain.

b. Should Hawaii Co. finance its production with yen and simultaneously engage in forward contracts to hedge its exposure to exchange rate risk?

c. How could Hawaii Co. achieve low-cost financing while eliminating its exposure to exchange rate risk?

11. Cost of Financing Assume that Seminole, Inc., considers issuing a Singapore dollar-denominated bond at its present coupon rate of 7 percent, even though it has no incoming cash flows to cover the bond payments. It is attracted to the low financing rate because U.S. dollar-denominated bonds issued in the United States would have a coupon rate of 12 percent. Assume that either type of bond would have a 4-year maturity and could be issued at par value. Seminole needs to borrow $10 million. Therefore, it will issue either U.S. dollar-denominated bonds with a par value of $10 million or bonds denominated in Singapore dollars with a par value of S$20 million. The spot rate of the Singapore dollar is $.50. Seminole has forecasted the Singapore dollar's value at the end of each of the next 4 years, when coupon payments are to be paid. Determine the expected annual cost of financing with Singapore dollars. Should Seminole, Inc., issue bonds denominated in U.S. dollars or Singapore dollars? Explain.

END OF YEAR	EXCHANGE RATE OF SINGAPORE DOLLAR
1	$.52
2	.56
3	.58
4	.53

12. Interaction between Financing and Invoicing Policies Assume that Hurricane, Inc., is a U.S. company that exports products to the United Kingdom, invoiced in dollars. It also exports products to Denmark, invoiced in dollars. It currently has no cash outflows in foreign currencies, and it plans to issue bonds in the near future. Hurricane could likely issue bonds at par value in (1) dollars with a coupon rate of 12 percent, (2) Danish krone with a coupon rate of 9 percent, or (3) pounds with a coupon rate of 15 percent. It expects the krone and pound to strengthen over time. How could Hurricane revise its invoicing policy and make its bond denomination decision to achieve low financing costs without excessive exposure to exchange rate fluctuations?

13. Swap Agreement Grant, Inc., is a well-known U.S. firm that needs to borrow 10 million British pounds to support a new business in the United Kingdom. However, it cannot obtain financing from British banks because it is not yet established within the United Kingdom. It decides to issue dollar-denominated debt (at par value) in the United States, for which it will pay an annual coupon rate of 10 percent. It then will convert the dollar proceeds from the debt issue into British pounds at the prevailing spot rate (the prevailing spot rate is one pound = $1.70). Over each of the next 3 years, it plans to use the revenue in pounds from the new business in the United Kingdom to make its annual debt payment. Grant, Inc., engages in a currency swap in which it will convert pounds to dollars at an exchange rate of $1.70 per pound at the end of each of the next 3 years. How many dollars must be borrowed initially to support the new business in the United Kingdom? How many pounds should Grant, Inc., specify in the swap agreement that it will swap over each of the next 3 years in exchange for dollars so that it can make its annual coupon payments to the U.S. creditors?

14. Interest Rate Swap Janutis Co. has just issued fixed rate debt at 10 percent. Yet, it prefers to convert its financing to incur a floating rate on its debt. It engages in an interest rate swap in which it swaps variable rate payments of LIBOR plus 1 percent in exchange for payments of 10 percent. The interest rates are applied to an amount that represents the principal from its recent debt issue in order to determine the interest payments due at the end of each year for the next 3 years. Janutis Co. expects that the LIBOR will be 9 percent at the end of the first year, 8.5 percent at the end of the second year, and 7 percent at the end of the third year. Determine the financing rate that Janutis Co. expects to pay on its debt after considering the effect of the interest rate swap.

15. Financing and the Currency Swap Decision Bradenton Co. is considering a project in which it will export special contact lenses to Mexico. It expects that it will receive 1 million pesos after taxes at the end of each year for the next 4 years and after that time its business in Mexico will end as its special patent will be terminated. The peso's spot rate is presently $.20. The U.S. annual risk-free interest rate is 6 percent, while Mexico's annual risk-free interest rate is 11 percent. Interest rate parity exists. Bradenton Co. uses the 1-year forward rate as a predictor of the exchange rate in 1 year. Bradenton Co. also presumes the exchange rates in each of years 2 through 4 will also change by the same percentage as it predicts for year 1. Bradenton searches for a firm with which it can swap pesos for dollars over each of the next 4 years. Briggs Co. is an importer of Mexican products. It is willing to take the 1 million pesos per year from Bradenton Co. and will provide Bradenton Co. with dollars at an exchange rate of $.17 per peso. Ignore tax effects. Bradenton Co. has a capital structure of 60 percent debt and 40 percent equity. Its corporate tax rate is 30 percent. It borrows funds from a bank and pays 10 percent interest on its debt. It expects that the U.S. annual stock market return will be 18 percent per year. Its beta is .9. Bradenton would use its cost of capital as the required return for this project.

a. Determine the NPV of this project if Bradenton engages in the currency swap.

b. Determine the NPV of this project if Bradenton does not hedge the future cash flows.

16. Financing and Exchange Rate Risk The parent of Nester Co. (a U.S. firm) has no international business but plans to invest $20 million in a business in Switzerland. Because the operating costs of this business are very low, Nester Co. expects this business to generate large cash flows in Swiss francs that will be remitted to the parent each year. Nester will finance half of this project with debt. It has these choices for financing the project:

- obtain half of the funds needed from parent equity and the other half by borrowing dollars,
- obtain half of the funds needed from parent equity and the other half by borrowing Swiss francs, or
- obtain half of the funds that are needed from parent equity and obtain the remainder by borrowing an equal amount of dollars and Swiss francs.

The interest rate on dollars is the same as the interest rate on Swiss francs.

a. Which choice will result in the most exchange rate exposure?

b. Which choice will result in the least exchange rate exposure?

c. If the Swiss franc were expected to appreciate over time, which financing choice would result in the highest expected net present value?

17. Financing and Exchange Rate Risk Vix Co. (a U.S firm) presently serves as a distributor of products by purchasing them from other U.S. firms and selling them in Europe. It wants to purchase a manufacturer in Thailand that could produce similar products at a low cost (due to low labor costs in Thailand) and export the products to Europe. The operating expenses would be denominated in Thai currency (the baht). The products would be invoiced in euros. If Vix Co. can acquire a manufacturer, it will discontinue its existing distributor business. If Vix Co. purchases a company in Thailand, it expects that its revenue might not be sufficient to cover its operating expenses during the first 8 years. It will need to borrow funds for an 8-year term to ensure that it has enough funds to pay all of its operating expenses in Thailand. It can borrow funds denominated in U.S. dollars, in Thai baht, or in euros. Assuming that its financing decision will be primarily intended to minimize its exposure to exchange rate risk, which currency should it borrow? Briefly explain.

18. Financing and Exchange Rate Risk Compton Co. has a subsidiary in Thailand that produces computer components. The subsidiary sells the components to manufacturers in the United States. The components are invoiced in U.S. dollars. Compton pays employees of the subsidiary in Thai baht and makes a large monthly lease payment in Thai baht. Compton financed the investment in the Thai subsidiary by borrowing dollars from a U.S. bank. Compton has no other international business.

a. Given the conditions, is Compton affected favorably, unfavorably, or not at all by depreciation of the Thai baht? Briefly explain.

b. Assume that interest rates in Thailand declined recently, so the Compton subsidiary considers obtaining a new loan in Thai baht. Compton would use the proceeds to pay off its existing loan from a U.S. bank. Will this form of financing increase, reduce, or have no impact on its economic exposure to exchange rate movements? Briefly explain.

19. Selecting a Loan Maturity Omaha Co. has a subsidiary in Chile that wants to borrow from a local bank at a fixed rate over the next 10 years.

a. Explain why Chile's term structure of interest rates (as reflected in its yield curve) might cause the subsidiary to borrow for a different term to maturity.

b. If Omaha is offered a more favorable interest rate for a term of 6 years, explain the potential disadvantage compared to a 10-year loan.

c. Explain how the subsidiary can determine whether to select the 6-year loan or the 10-year loan.

20. Project Financing Dryden Co. is a U.S. firm that plans a foreign project in which it needs $8,000,000 as an initial investment. The project is expected to generate cash flows of 10 million euros in 1 year after the complete repayment of the loan (including the loan interest and principal). The project has zero salvage value and is terminated at the end of 1 year. Dryden considers financing this project with:

- all U.S. equity,
- all U.S. debt (loans) denominated in dollars provided by U.S. banks,
- all debt (loans) denominated in euros provided by European banks, or
- half of funds obtained from loans denominated in euros and half obtained from loans denominated in dollars.

Which form of financing will cause the project's NPV to be the least sensitive to exchange rate risk?

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 *International Financial Management* text companion website. Go to www.cengagebrain.com (students) or www.cengage.com/login (instructors) and search using **ISBN 9781133947837.**

Blades, Inc. Case

Use of Long-Term Financing

Recall that Blades, Inc., is considering the establishment of a subsidiary in Thailand to manufacture Speedos, Blades' primary roller blade product. Alternatively, Blades could acquire an existing manufacturer of roller blades in Thailand, Skates'n'Stuff. At the most recent meeting of the board of directors of Blades, Inc., the directors voted to establish a subsidiary in Thailand because of the relatively high level of control it would afford Blades.

The Thai subsidiary is expected to begin production by early next year, and the construction of the plant in Thailand and the purchase of necessary equipment to manufacture Speedos are to commence immediately. Initial estimates of the plant and equipment required to establish the subsidiary in Bangkok indicate costs of approximately 550 million Thai baht. Since the current exchange rate of the baht is $0.023, this translates to a dollar cost of $12.65 million. Blades currently has $2.65 million available in cash to cover a portion of the costs. The remaining $10 million (434,782,609 baht), however, will have to be obtained from other sources.

The board of directors has asked Ben Holt, Blades' chief financial officer , to line up the necessary financing to cover the remaining construction costs and purchase of equipment. Holt realizes that Blades is a relatively small company whose stock is not widely held. Furthermore, he believes that Blades' stock is currently undervalued because the company's expansion into Thailand has not been widely publicized at this point. Because of these considerations, Holt would prefer debt to equity financing to raise the funds necessary to complete construction of the Thai plant.

Holt has identified two alternatives for debt financing: issue the equivalent of $10 million yen-denominated notes or issue the equivalent of approximately $10 million baht-denominated notes. Both types of notes would have a maturity of 5 years. In the fifth year, the face value of the notes will be repaid together with the last annual interest payment. Notes denominated in yen (¥) are available in increments of ¥125,000, while baht-denominated notes are issued in increments of 50,000 baht. Since the baht-denominated notes are issued in increments of 50,000 baht (THB), Blades needs to issue THB434,782,609/50,000 = 8,696 baht-denominated notes. Furthermore, since the current exchange rate of the yen in baht is THB0.347826/¥, Blades needs to obtain THB434,782,609/THB0.347826 = ¥1,250,000,313. Since yen-denominated notes would be issued in increments of 125,000 yen, Blades would have to issue ¥1,250,000,313/¥125,000 = 10,000 yen-denominated notes.

Due to recent unfavorable economic events in Thailand, expansion into Thailand is viewed as relatively risky; Holt's research indicates that Blades would have to offer a coupon rate of approximately 10 percent on the yen-denominated notes to induce investors to purchase these notes. Blades could issue baht-denominated notes at a coupon rate of 15 percent. Whether Blades decides to issue baht- or yen-denominated notes, it would use the cash flows generated by the Thai subsidiary to pay the interest on the notes and to repay the principal in 5 years. For example, if Blades decides to issue yen-denominated notes, it would convert baht into yen to pay the interest on these notes and to repay the principal in 5 years.

Although Blades can finance with a lower coupon rate by issuing yen-denominated notes, Holt suspects that the effective financing rate for the yen-denominated notes may actually be higher than for the baht-denominated notes. This is because forecasts for the future value of the yen indicate an appreciation of the yen (versus the baht) in the future. Although the precise future value of the yen is uncertain, Holt has compiled the following probability distribution for the annual percentage change of the yen versus the baht:

ANNUAL % CHANGE IN YEN (AGAINST THE BAHT)	PROBABILITY
0%	20%
2	50
3	30

Holt suspects that the effective financing cost of the yen-denominated notes may actually be higher than for the baht-denominated notes once the expected appreciation of the yen (against the baht) is taken into consideration.

Holt has asked you, a financial analyst at Blades, Inc., to answer the following questions for him:

1. Given that Blades expects to use the cash flows generated by the Thai subsidiary to pay the interest and principal of the notes, would the effective financing cost of the baht-denominated notes be affected by exchange rate movements? Would the effective financing cost of the yen-denominated notes be affected by exchange rate movements? How? Construct a spreadsheet to determine the annual effective financing percentage cost of the yen-denominated notes issued in each of the three scenarios for the future value of the yen. What is the probability that the financing cost of issuing yen-denominated notes is higher than the cost of issuing baht-denominated notes?
2. Using a spreadsheet, determine the expected annual effective financing percentage cost of issuing yen-denominated notes. How does this expected financing cost compare with the expected financing cost of the baht-denominated notes?
3. Based on your answers to the previous questions, do you think Blades should issue yen- or baht-denominated notes?
4. What is the trade-off involved?

Small Business Dilemma

Long-Term Financing Decision by the Sports Exports Company

The Sports Exports Company continues to focus on producing footballs in the United States and exporting them to the United Kingdom. The exports are denominated in pounds, which has continually exposed the firm to exchange rate risk. It is now considering a new form of expansion where it would sell specialty sporting goods in the United States. If it pursues this U.S. project, it will need to borrow long-term funds. The dollar-denominated debt has an interest rate that is slightly lower than the pound-denominated debt.

1. Jim Logan, owner of the Sports Exports Company, needs to determine whether dollar-denominated debt or pound-denominated debt would be most appropriate for financing this expansion, if he does expand. He is leaning toward financing the U.S. project with dollar-denominated debt since his goal is to avoid exchange rate risk. Is there any reason why he should consider using pound-denominated debt to reduce exchange rate risk?
2. Assume that Logan decides to finance his proposed U.S. business with dollar-denominated debt, if he does implement the U.S. business idea. How could he use a currency swap along with the debt to reduce the firm's exposure to exchange rate risk?

INTERNET/EXCEL EXERCISES

1. The Bloomberg Web site (www.bloomberg.com) provides interest rate data for many countries and various maturities. Go to the Market Data section of the Web site and then to Rates & Bonds and then click on "Australian Bonds." Consider a subsidiary of a U.S.-based MNC that is located in Australia. Assume that when it borrows in Australian dollars, it would pay 1 percent more than the risk-free (government) rates shown on the Web site. What rate would the subsidiary pay for 1-year debt? For 5-year debt? For 10-year debt? Assuming that it needs funds for 10 years, do you think it should use 1-year debt, 5-year debt, or 10-year debt? Explain your answer.

2. Assume that you conduct business in Argentina, Brazil, and Canada. You consider expanding your business overseas. You want to estimate the annual cost of equity in these countries in case you decide to obtain equity funding there. Go to finance.yahoo.com/intlindices?e=americas and click on the index ^MERV (which represents the Argentina stock market index). Click on "1y" just below the chart provided. Then scroll down and click on "Historical Prices." Obtain the stock market index value 8 years ago, 7 years ago, ..., 1 year ago, and as of today. Insert the data on an electronic spreadsheet. Use the mean annual return (percentage change in value) over the last 8 years as a rough estimate of your cost of equity in each of these countries.

Then start over and repeat the process for Brazil (click on the index ^BVSP). Then start over and repeat the process for Canada (click on the index ^GSPTSE). Which country has the lowest estimated cost of equity? Which country has the highest estimated cost of equity?

ONLINE ARTICLES WITH REAL-WORLD EXAMPLES

Find a recent article available that describes an actual international finance application or a real-world example about a specific MNC's actions that reinforces one or more of the concepts covered in this chapter.

If your class has an online component, your professor may ask you to post your summary there and provide the Web link of the article so that other students can access it. If your class is live, your professor may ask you to summarize your application in class. Your professor may assign specific students to complete this assignment for this chapter or may allow any students to do the assignment on a volunteer basis.

For recent online articles and real-world examples applied to this chapter, consider using the following search terms (and include the current year as a search term to ensure that the online articles are recent).

1. company AND foreign debt
2. Inc. AND foreign debt
3. [name of an MNC] AND debt
4. international AND debt
5. international AND financing
6. Company AND foreign financing
7. Inc. AND foreign financing
8. subsidiary AND debt
9. subsidiary AND financing
10. subsidiary AND leverage

PART 4 INTEGRATIVE PROBLEM

Long-Term Asset and Liability Management

Gandor Co. is a U.S. firm that is considering a joint venture with a Chinese firm to produce and sell DVDs. Gandor will invest $12 million in this project, which will help to finance the Chinese firm's production. For each of the first 3 years, 50 percent of the total profits will be distributed to the Chinese firm, while the remaining 50 percent will be converted to dollars to be sent to the United States. The Chinese government intends to impose a 20 percent income tax on the profits distributed to Gandor. The Chinese government has guaranteed that the after-tax profits (denominated in yuan, the Chinese currency) can be converted to U.S. dollars at an exchange rate of $.20 per yuan and sent to Gandor Co. each year. At the current time, no withholding tax is imposed on profits sent to the United States as a result of joint ventures in China. Assume that after considering the taxes paid in China, an additional 10 percent tax is imposed by the U.S. government on profits received by Gandor Co. After the first 3 years, all profits earned are allocated to the Chinese firm.

The expected total profits resulting from the joint venture per year are as follows:

YEAR	TOTAL PROFITS FROM JOINT VENTURE (yuan)
1	60 million
2	80 million
3	100 million

Gandor's average cost of debt is 13.8 percent before taxes. Its average cost of equity is 18 percent. Assume that the corporate income tax rate imposed on Gandor is normally 30 percent. Gandor uses a capital structure composed of 60 percent debt and 40 percent equity. Gandor automatically adds 4 percentage points to its cost of capital when deriving its required rate of return on international joint ventures. Though this project has particular forms of country risk that are unique, Gandor plans to account for these forms of risk within its estimation of cash flows.

Gandor is concerned about two forms of country risk. First, there is the risk that the Chinese government will increase the corporate income tax rate from 20 to 40 percent (20 percent probability). If this occurs, additional tax credits will be allowed, resulting in no U.S. taxes on the profits from this joint venture. Second, there is the risk that the Chinese government will impose a withholding tax of 10 percent on the profits that are sent to the United States (20 percent probability). In this case, additional tax credits will not be allowed, and Gandor will still be subject to a 10 percent U.S. tax on profits

received from China. Assume that the two types of country risk are mutually exclusive. That is, the Chinese government will adjust only one of its taxes (the income tax or the withholding tax), if any.

Questions

1. Determine Gandor's cost of capital. Also, determine Gandor's required rate of return for the joint venture in China.
2. Determine the probability distribution of Gandor's net present values for the joint venture. Capital budgeting analyses should be conducted for these three scenarios:
   - *Scenario 1.* Based on original assumptions
   - *Scenario 2.* Based on an increase in the corporate income tax by the Chinese government
   - *Scenario 3.* Based on the imposition of a withholding tax by the Chinese government
3. Would you recommend that Gandor participate in the joint venture? Explain.
4. What do you think would be the key underlying factor that would have the most influence on the profits earned in China as a result of the joint venture?
5. Is there any reason for Gandor to revise the composition of its capital (debt and equity) obtained from the United States when financing joint ventures like this?
6. When Gandor was assessing this proposed joint venture, some of its managers recommended that Gandor borrow the Chinese currency rather than dollars to obtain some of the necessary capital for its initial investment. They suggested that such a strategy could reduce Gandor's exchange rate risk. Do you agree? Explain.