

Chapter

11

International Debt Financing

In 2010, Reliance Industries, an energy company and India's biggest company by market value, raised \$1.5 billion in the global bond markets, helped by two American banks (Bank of America Merrill Lynch and Citibank) and two British banks (HSBC and RBS). The banks directly approached investors in Singapore, Hong Kong, London, and the United States, and demand for the bonds was overwhelming, allowing aggressive pricing. This **global bond** deal was lauded as one of the corporate bond deals of the year in the February 2011 issue of *Euromoney*, a magazine specializing in international finance. The deal vividly illustrates how large companies use the international debt markets to pull in as many investors as possible to meet their financing needs. If Reliance had tried to raise \$1.5 billion in India, it would have faced a much higher cost of funding, and it might not have been able to raise nearly as much capital at the same terms.

The goal of this chapter is to describe the various funding sources for debt that are available to multinational corporations (MNCs) in an increasingly globalized world and to examine what makes MNCs choose particular options. It is critical for a financial manager to understand the various worldwide markets that can be tapped to borrow money, and this chapter covers important institutional details regarding international bonds and bank lending. At the same time, it is also important to realize that free lunches are hard to get, and we carefully discuss how to compare different debt options with different characteristics (e.g., in terms of maturity and currency denomination) on an apples-to-apples basis.

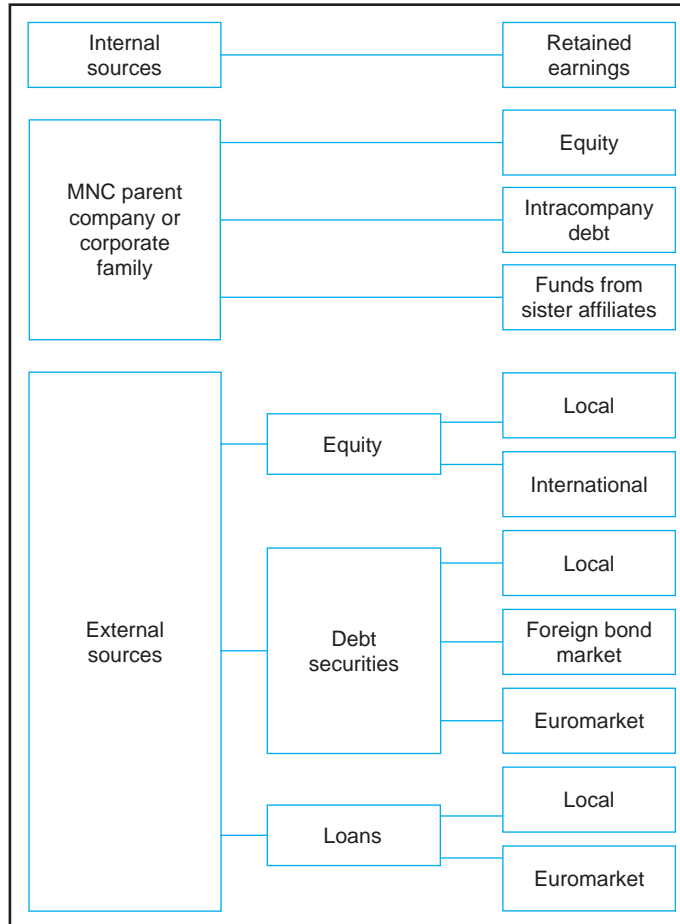
11.1 THE GLOBAL SOURCES OF FUNDS FOR INTERNATIONAL FIRMS

The sources of funds for an MNC (and its subsidiaries) can be split into two major categories: cash that is internally generated by the MNC and cash that is externally provided from the debt markets or the equity markets. Exhibit 11.1 surveys the various sources of funds for an MNC, starting on top with internal sources of funds reinvested in the company.

The potential sources of external capital are extremely wide ranging. Both bonds and stocks (debt and equity financing) can be issued by a firm and sold to investors, typically through the financial intermediation of an investment bank. These externally issued securities are often tradable in secondary markets.

In contrast, loans are obtained from specialized financial intermediaries, typically commercial banks, and the lender monitors the financial behavior of the firm to make sure she

Exhibit 11.1 Sources of Long-Term Capital for a Multinational Corporation



will get repaid. For all three types of external sources of funds (bank loans, debt securities, and equity), MNCs and their affiliates can tap either domestic or international markets. *Euromarket* refers to the external, or offshore, market for borrowing and lending that we first encountered in Chapter 6.

A foreign affiliate of an MNC can obtain funds from within the MNC or from the same external sources as mentioned in Exhibit 11.1. The affiliate's external borrowing ability may be enhanced when the parent company guarantees the loan. In addition to using debt and equity, MNCs often transfer funds across their affiliates by leading and lagging the payments of intracompany accounts.¹

The Financing Mix Around the World

The financial appetites of countries differ, and their firms use a different mix of funds to finance their activities. This is, of course, reflected in the way local affiliates of MNCs finance themselves. By and large, internally generated cash is the main source of funding for an MNC.

¹The use of leading and lagging payments to transfer funds between affiliates of an MNC is explicitly discussed in Chapter 19.

It is well known that public markets (equity and bonds) dominate the financial mix in the United States, whereas the bond market is the largest source of funds in Japan; in Europe, loans dominate as a financing source. These financing mixes are in constant flux and depend both on market conditions and more structural factors.

For example, the Japanese corporate finance model of the 1970s and 1980s, in which companies relied heavily on bank funds and banks, in turn, invested heavily in equities, led to a banking and economic crisis in the 1990s, which continued into the 2000s. As the Japanese economy suffered falling product prices (deflation), the Japanese stock and real estate markets crashed, which eroded the capital base of many banks. Simultaneously, many bank loans became nonperforming, further eroding the health of the banking system.

With banks unable or unwilling to supply new loans, Japanese MNCs entered international markets. It is fair to say that the high-quality Japanese MNCs, such as Sony, Toyota, and Canon, were much less affected by the crisis of the 1990s than were purely domestic firms. In fact, it is conceivable that the increased access to bond markets by well-performing companies, such as many export-oriented companies, worsened the balance sheet of the banks because their lending was concentrated to companies with a lower ability to repay their debts.

In Europe, there seemed to be a slow trend away from bank financing prior to the recent global financial crisis. The desire of banks to decrease leverage after the crisis implies that the size of the worldwide banking sector will shrink. With firms deleveraging, there was a marked slowdown in both bank lending and bond issuance. Nevertheless, debt financing in the form of either bonds or bank loans dominates the external financing that corporations seek. We now take a closer look at the different types of debt instruments that exist in global capital markets.

11.2 THE CHARACTERISTICS OF DEBT INSTRUMENTS

The main characteristics differentiating debt instruments are their currency of denomination, their maturity, the nature of their interest payments, their tradability, and their international character. This large variety of debt instruments arose as companies sought various ways to minimize their debt payments and avoid financial distress. Financial distress occurs when debt repayment is stopped or has become difficult. Although financial distress need not always lead to bankruptcy, it may make it more difficult and more costly for a firm to get financing, and it can adversely affect a firm's share price and the demand for its products.

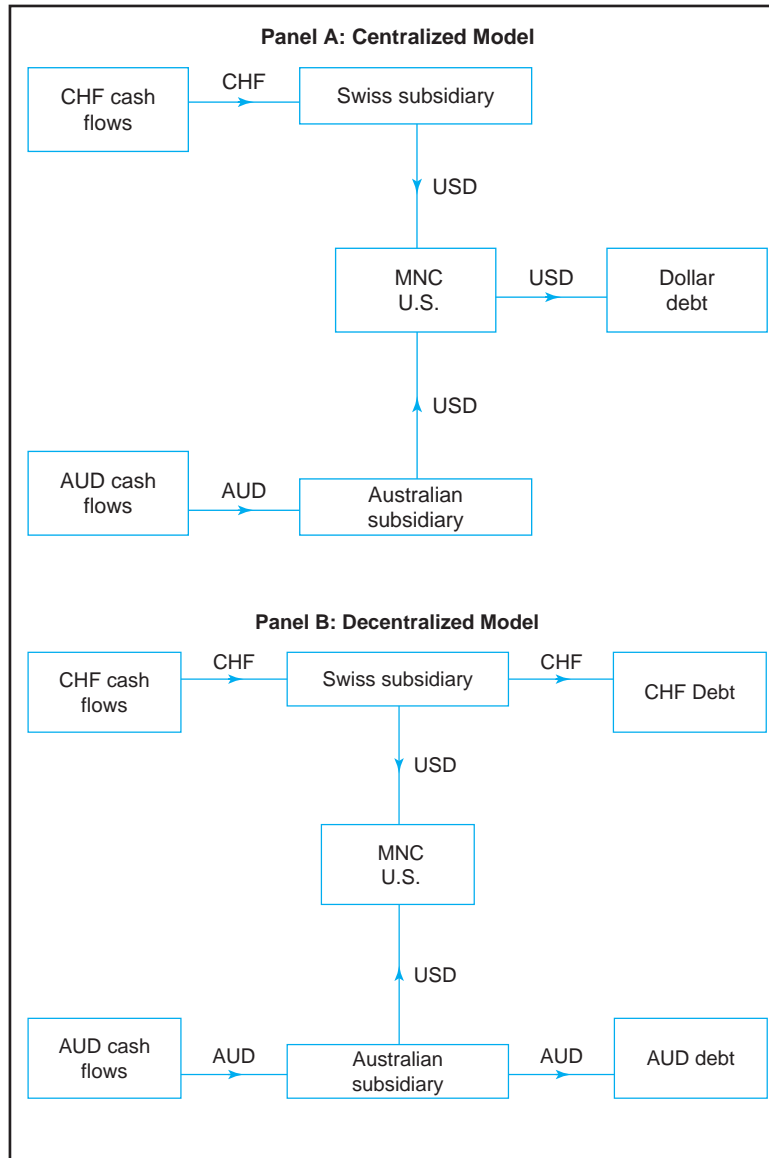
Currency of Denomination

When a purely domestic company issues debt denominated in a foreign currency, it faces the risk that the foreign currency will appreciate relative to the domestic currency, which would increase the cost of repaying the debt. However, for an MNC, it is quite natural to borrow in different currencies because the firm's revenues are also likely denominated in foreign currencies.

Centralized Versus Decentralized Debt Denomination

A U.S.-based MNC may, for example, prefer incurring dollar-denominated debt and, therefore, "centralize" its debt financing. We illustrate this **centralized debt denomination** model in Exhibit 11.2, using the example of a U.S. MNC with Swiss and Australian subsidiaries. Note that the debts for both the parent company and its foreign subsidiaries are denominated in dollars.

Exhibit 11.2 Centralized and Decentralized Debt Denomination



Note: The arrows indicate the direction of payment flows, either revenues or interest payments going from one entity to the other.

Alternatively, the parent company may maintain a **decentralized debt denomination** model, borrowing in the countries and currencies where the subsidiaries operate or to which it exports. In the decentralized model, also illustrated in Exhibit 11.2, the debt service payments (interest payments and principal repayment) are denominated in the currency in which the subsidiary's operating profits are generated. This is an example of balancing foreign assets against foreign liabilities and is often called a **balance-sheet hedge**.

From the perspective of an MNC, its foreign subsidiary is an asset that generates foreign currency profits. To hedge the risk of the foreign currency depreciating, which decreases the asset's value, a corporation should have an equivalent liability denominated in that foreign

currency. In this way, foreign currency debt forms a natural hedge for the cash flows from the subsidiary's operations.

Consider the example shown in Exhibit 11.2. Suppose the Australian dollar appreciates relative to the U.S. dollar. In the decentralized model, the Australian dollar debt becomes more costly to service in terms of the U.S. dollar. However, as long as the appreciation does not coincide with a major recession that reduces the demand for Australian products, the USD value of the AUD operating profits is also higher. Because the AUD operating profits are used to pay off the AUD debt, the firm is not adversely affected. Now, suppose the Australian dollar weakens. This puts a strain on the subsidiary's operating profits when expressed in U.S. dollars. But again, it does not make the AUD debt more of a burden for the parent company. Hence, the decentralized model naturally hedges foreign exchange risk.

In contrast, with the centralized model, if the AUD depreciates, the USD value of the subsidiary's operating profits goes down, which reduces the USD profits the parent firm earns. With debt denominated in USD, the debt becomes more difficult to pay. Of course, as we have learned, it is possible for an MNC following the centralized model to hedge against such a situation using forward contracts.

Is Issuing Debt in Low-Interest-Rate Countries a Good Idea?

This is surely not necessarily the case because a loan denominated in a currency in which the MNC does not generate cash flows brings with it exchange rate uncertainty. If uncovered interest rate parity (UIRP) holds, the expected cost of the loan in local currency should equal the cost of a domestic currency loan. Yet, MNCs often do rightfully borrow in unusual currencies for a variety of reasons, which we discuss in detail in Section 11.6.

Debt Portfolios

If you are the manager of an MNC, you could decide to issue debt in several currencies in order to diversify your company's currency exposure. Nonetheless, when MNCs source debt in other currencies, they typically hedge the currency risk. This can be done using forward contracts or currency swaps.

Maturity

Companies tend to structure their borrowing so that large principal repayments are not clustered together. That helps limit their refinancing risk: They do not have to come up with a large amount of cash at a point in time when cash flows are potentially low and market conditions for issuing more debt are unfavorable. For example, Almeida et al. (2009) show that firms whose long-term debt was largely maturing in the 2008 to 2009 credit squeeze reduced investment by 25% more than otherwise similar firms without such refinancing needs. To avoid such problems, firms spread out the due dates on loans and debt instruments. Some firms engage in maturity matching. They attempt to finance current assets (such as accounts receivable and inventories) with short-term debt and to finance fixed assets (investments) with long-term debt.

When companies issue long-term debt, the maturity is typically governed by standards in the particular debt market in which they issue the debt or by investor demand. For example, Eurobonds mostly mature in less than 10 years and typically in exactly 5 years. By contrast, U.S. corporate bonds can have quite long maturities, typically 20 to 30 years. In fact, when the maturity is less than 10 years, the bonds are called *notes*. In 2010 to 2011, many corporations started to issue very long-dated debt. Norfolk Southern, a U.S. railway operator, sold \$250 million worth of 100-year bonds in August 2010. The 100-year maturity issue is not the first of its kind. In 1993, the Walt Disney Company issued \$300 million worth of 100-year bonds. The Disney 100-year bonds were immediately dubbed "Sleeping Beauties" after the fairy tale princess and heroine in the popular Disney animated film by the same name

(because she slept for 100 years under a magic spell). At the end of 2010, the Mexican government also issued 100-year U.S. dollar-denominated bonds.

Of course, the record for the longest maturity goes to perpetual bonds, or consols, which never pay back the face value of the bond. HSBC, a British bank, sold \$3.4 billion worth of perpetuals in mid-2010; and in early 2011, several units of Tata, the Indian conglomerate, issued or planned on issuing several dollar-denominated perpetual bonds, starting with a \$500 million issue by Tata Steel. Such long-dated bonds are interesting to institutional investors with long-dated liabilities such as pension funds and insurance companies, but might the flurry of activity in long-dated issues also be explained by issuers trying to lock in the low interest rates prevailing after the crisis? To think about this formally, we need to think about the relationship between short- and long-term interest rates, which we do in the next section.

The Nature of Interest Rate Payments: Fixed-Rate Versus Floating-Rate Debt

Borrowers pay the interest on debt instruments at regular intervals (for example, annually or semiannually), and the amount may be fixed (**fixed-rate debt**), or it may vary, or float, over time (**floating-rate debt**), based on changes in the prevailing reference interest rate, typically a short-term borrowing rate in the interbank market such as LIBOR (see Chapter 6).

When to Use Floating-Rate Debt

The choice between fixed-rate and floating-rate debt depends on a variety of factors. When short-term interest rates are below long-term interest rates, you might be tempted to conclude that MNCs should choose floating-rate debt to reduce their immediate funding costs. However, higher long-term rates likely reflect investors' expectations that short-term rates will rise, so it is not at all clear that *ex post* the company will save on financing costs. Let's illustrate this with a numeric example.

Example 11.1 Cost of Debt Comparisons Across Maturities

Dig-It-Up is a Canadian mining company that wants to borrow CAD2,000,000 for 2 years. Dig-It-Up is able to borrow at the following zero-coupon annual interest rates:

	1 Year	2 Years
CAD	3%	5%

As Chapter 6 notes, if Dig-It-Up borrows for 2 years, its only payment would be the principal plus the compound interest at maturity:

$$\text{CAD}2,000,000 \times [1 + 0.05]^2 = \text{CAD}2,205,000 \quad (11.1)$$

If the company does not want to incur either interest rate or currency risk, it should lock in a loan for 2 years at the 5% rate. However, the 3% 1-year rate looks more attractive initially. Wouldn't borrowing the money for 1 year at a 3% interest rate and then renewing the loan for another 1 year lower the cost of debt for Dig-It-Up?

The problem, of course, is that we do not know what the interest rate will be 1 year in the future. After 1 year, Dig-It-Up would have to repay the loan plus 3% interest. It would do so by borrowing that amount with another 1-year loan, at the prevailing interest rate, whatever it is. After 2 years, Dig-It-Up would then have to repay the principal

plus interest. That is, with the unknown future interest rate denoted as i_{fut} , the total repayment would be

$$\text{CAD}2,000,000 \times [1 + 0.03] \times [1 + i_{\text{fut}}] \quad (11.2)$$

Comparing Equation (11.2) with Equation (11.1) demonstrates that the second option involves interest rate risk. The second alternative could turn out to be cheaper, but it might not. The break-even rate that makes the *ex post* cost of the two loans the same satisfies

$$[1 + 0.03] \times [1 + i_{\text{fut}}] = 1.05^2$$

By solving for i_{fut} , we find

$$i_{\text{fut}} = 1.05^2/1.03 - 1 = 7.04\%$$

As long as the 1-year interest rate 1 year from now remains below 7.04%, the company would be better off having borrowed sequentially in the short-term markets rather than in the longer term market. This might look like an extreme change in the prevailing interest rate, but such a change can, indeed, happen. If the firm borrows in the short term, it risks having to refinance in 1 year at a rate higher than 7.04%.

The Expectations Hypothesis

The **expectations hypothesis**, or *expectations theory*, of the term structure is the best-known theory governing the relationship between long rates and expected future short rates. In fact, the expectations theory maintains that the break-even rate is exactly the rate that the market expects for future short-term borrowing. If this were not the case, many companies would borrow short term, and short-term rates would increase because of the heavy demand for funds borrowed.

The theory also implies that long-term interest rates are a weighted average of the current short-term rate and expected future short-term rates. In the example, the long-term rate, 5%, is in between the current short rate of 3% and the higher expected future short rate of 7.04%. In this case, Dig-It-Up should be indifferent between borrowing short term and long term. Why? Because the savings the company realizes at the start of the borrowing period will be lost when short-term rates rise later on, as expected. By the same token, issuing a short-maturity or a long-maturity bond should lead to the same debt costs, on average.

The empirical evidence regarding the expectations hypothesis is mixed, however. The theory holds up better in the United Kingdom than in the United States, Germany, or Japan. Bekaert et al. (2007) argue that although there is some statistical evidence against the theory, the deviations are economically small. That said, it is possible that borrowing at a floating rate—which is what Dig-It-Up would essentially be doing if it took out two short-term loans—would give the company a natural hedge if its cash flows were positively correlated with interest rates. In other words, the company is likely to experience high-interest-rate expenses on its floating debt when its revenues are high and low-interest-rate expenses when its revenues are poor.² Large companies and MNCs can also constantly modify the fixed-rate versus floating-rate composition of their debt by making use of the interest rate swap markets. In fact, as we will see in Chapter 21, they frequently do.

²Ang et al. (2008) document that although cash flows tend to be procyclical, nominal interest rates are actually countercyclical, but real interest rates are procyclical.

Faulkender (2005) examined why firms in the United States issued fixed- or floating-rate debt. He found evidence that firms tend to issue more floating-rate debt when the yield curve is steep and more fixed-rate debt when the yield curve is flat. This is consistent with a naïve market timing strategy aiming to lower short-term debt costs. Faulkender surmises, partly based on interviews with corporate treasurers, that some managers seek to lower short-term interest rate expenses in order to report higher quarterly earnings, whereas others really believe that they can anticipate future interest movements and genuinely lower debt costs with such market timing behavior.

Tradability of Debt

Intermediated and Direct Debt

When debt is intermediated, financial institutions such as commercial or investment banks first attract funds from investors and then make loans, possibly to MNCs. One of the major trends in recent years has been for large MNCs to issue bonds directly to investors. The process whereby corporate borrowing takes the form of a tradable security issued in the public market, rather than a non-tradable loan provided by financial intermediaries, is called **financial disintermediation**. Note that even though financial institutions do not provide the funds directly to corporations issuing bonds, they typically still play an intermediary role in selling the securities to the investing public.

Financial disintermediation occurs for many reasons. Deregulation, such as that in the United States in 1981 and Japan in 1986, removed restrictions that had allowed banks to attract low-cost funds from depositors. Stricter regulation of bank capital (for example, through the Basel Accord requirements, discussed later in the chapter) pushed up banks' costs of funds and gave them an incentive to seek profits on activities not recorded on their balance sheets, such as intermediating the selling of securities. Finally, the information revolution also means that information regarding any company can be found much more easily than in the past, which is a necessary ingredient for a successful direct debt market.

Private Placements

Privately placed bonds lie between bank loans and publicly traded bonds. **Private placement bonds** are not sold to the market at large but are placed privately with sophisticated, well-endowed investors, such as pension funds, life insurance companies, or university endowments. Consequently, they are less tradable than standard bonds. In the United States, private placements are regulated by the Securities Act of 1933 and must conform to a number of conditions to ensure that the investors are sufficiently informed and qualified to judge the merits of the investment.

The International Character of Debt

In Chapter 6, we encountered the external capital market. An *external debt market* involves debt sold to investors outside the borders of the country issuing the currency in which the debt is denominated. In contrast, an *internal debt market* involves debt that is denominated in the currency of the host country and sold within that country.

In the long-term debt markets, it is customary to distinguish between domestic and international bonds. **Domestic bonds** are issued and traded within an internal debt market. **International bonds** are traded outside the country of the issuer. There are two types of international bonds. **Foreign bonds** are issued in a domestic market by a foreign borrower, denominated in the domestic currency, marketed to domestic residents, and regulated by the domestic authorities. Over the years, various foreign bonds have earned nicknames. For example, there are Yankee bonds in the United States, bulldog bonds in the United Kingdom, Samurai bonds in Japan, Matadors in Spain, and Rembrandts in the Netherlands.

The other type of international bond is a **Eurobond**, which is denominated in one or more currencies but is traded in external markets outside the borders of the countries issuing the currencies.

We can split up bond issues in a particular country with the following diagram:

	Issued by Residents	Issued by Non-Residents
Domestic Currency	A. Domestic bond	B. Foreign bond
Foreign Currency	C. Eurobond	D. Eurobond

The sum of segments B and D comprises the *external*, or *cross-border*, bond market. The international bond market comprises segments B, C, and D. The next section provides much more detail on the international bond market.

11.3 A TOUR OF THE WORLD'S BOND MARKETS

Size and Structure of the World Bond Market

Exhibit 11.3 reports the amounts outstanding in the world's various bond markets for the years 2000 and 2010. In most countries, government bonds constitute the most important segment of the bond market. The largest government market in 2000 was in the United States with over USD8 trillion outstanding. In 2010, the Japanese government bond market became similar in size to the United States, but the U.S. data for 2010 exclude agency debt, which is now included in the corporate category. Together with Euroland, these countries account for more than 75% of the global bond market. Government bonds are defined broadly and include federal, state, and local government issues. In emerging markets, government issues made up 72% of total local currency debt in 2000, with this share decreasing to less than 50% by 2010. Overall, countries with large government sectors tend to have large government bond markets.

Corporations can issue bonds in the domestic or international bond markets. However, the domestic bond market is still the larger of the two. With USD7.8 trillion outstanding in 2000 and over USD14 trillion in 2010, the U.S. corporate bond market is the largest in the world, but other markets have seen rapid development in this segment recently. The international bond market represents almost 30% of the global bond market, but this share has been rapidly growing over time, as Exhibit 11.4 shows.

Because of its growing importance, we devote a separate subsection to the international bond market. We first discuss some important features of domestic bond markets, which will prove useful when we discuss international bonds.³

Domestic Bond Markets

Domestic bonds are regulated by the domestic governments of the countries in which they are issued. These agencies include the Securities and Exchange Commission (SEC) in the United States, the Financial Services Authority (FSA) in the United Kingdom, and the Ministry of Finance (MOF) and the Financial Services Agency (FSA) in Japan.

³In the following section, we use Bank for International Settlements statistics on "debt securities." These include securities with a maturity of less than 1 year, which are typically called "money market" securities, rather than "bonds."

Exhibit 11.3 The Size and Structure of the World Bond Market (in billions of U.S. dollars)

Panel A: End of 2000										
Country	Total Outstanding	% World Bond Mkt	Government		Corporate		Foreign		Eurobond	
			U.S. \$ bn	% of Gov	U.S. \$ bn	% of Corp	U.S. \$bn	% of For	US \$ bn	% of Total
United States	15,417.5	49.1	8,025.9	46.0	4,515.9	57.4	495.4	60.8	2,380.3	45.3
Euroland	6,223.8	19.8	3,125.0	17.9	1,027.7	16.9	0.0	0.0	1,771.1	33.7
Japan	5,549.3	17.7	3,995.6	22.9	973.0	12.4	72.6	8.9	508.1	9.7
United Kingdom	1,065.3	3.4	416.7	2.4	70.6	0.9	122.3	15.0	455.7	8.7
Canada	540.6	1.7	385.0	2.2	103.4	1.3	0.4	0.0	51.8	1.0
Switzerland	277.5	0.9	45.6	0.3	89.1	1.1	113.4	13.9	29.4	0.8
Australia	182.1	0.6	69.7	0.4	80.5	1.0	6.6	0.8	30.3	0.6
Total										
Developed	29,804.1	95.0	16,314.6	93.5	7,422.5	94.4	815.1	100.0	5,251.9	100.0
Emerging Markets	1,598.7	5.0	1,161.7	6.5	437.0*	5.6	NA	NA	NA	NA
Total	31,402.8	100.0	17,476.3	100.0	7,859.5	100.0	815.1	100.0	5,251.9	100.0

Panel B: End of 2010									
Country	Total Outstanding	% World Bond Mkt	Government		Corporate		International		
			U.S. \$ bn	% of Gov	U.S. \$ bn	% of Corp	U.S. \$ bn	% of For	% of Total
United States	31,841.6	35.7	10,326.9	29.2	14,754.6	52.1	6,760.1		26.4
Euroland	23,871.9	26.7	6,377.0	18.0	6,364.6	22.5	10,559.1		41.3
Japan	12,835.5	14.4	10,536.0	29.8	1,921.0	6.8	378.5		1.5
United Kingdom	4,514.5	5.1	1,223.2	3.5	326.8	1.2	2,964.5		11.6
Canada	1,928.7	2.2	931.4	2.6	405.1	1.4	592.2		2.3
Switzerland	701.5	0.8	115.1	0.3	142.1	0.5	444.3		1.7
Australia	1,393.2	1.6	253.7	0.7	591.0	2.1	548.5		2.1
Total Developed	77,938.3	87.3	30,235.5	85.4	24,931.2	88.0	23,130.8		90.4
Emerging Markets	11,341.6	12.7	5,151.9	14.6	3,390.0	12.0	1,367.3		5.3
Total	89,279.9	100.0	35,387.4	100.0	28,321.2	100.0	25,574.3		100.0

Notes: Data for Panel A is from Merrill Lynch, *Size and Structure of the World Bond Market: 2001*, April 2001. In the United States, agency debt is included in the government category. Panel B is compiled from data in the *BIS Quarterly Review*, December 2010, Tables 12–16. Corporate issuance comprises domestic bonds by corporations and financial institutions. International issues by international agencies and offshore centers are not part of the developed or emerging market category totals. The BIS makes no distinction between foreign bonds and Eurobonds. Agency debt is not included in the government category for the United States.

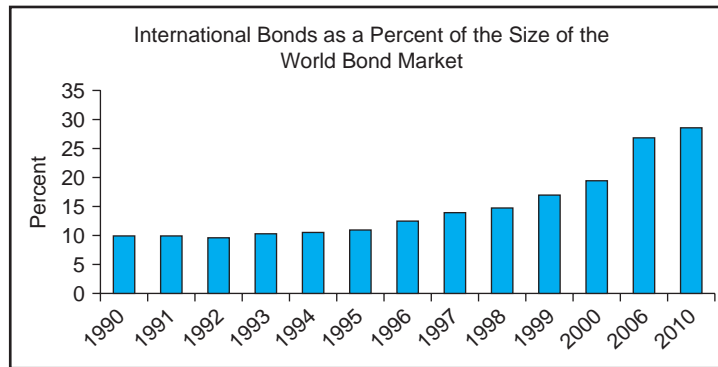
*Asia only.

In the United States, a company issuing debt securities to the public in amounts greater than \$1.5 million is required to prepare and file a registration statement with the SEC that includes a financial history of the company, the state of its existing business, and how the funds raised through the public offering are to be used. After the registration statement is filed with the SEC, there is a waiting period of 20 days during which the SEC reviews the accuracy and completeness of the registration statement. The issue is then priced and sold. Exceptions to this rule include short-term securities maturing within 9 months and private placements.

New public issues in Japan must be approved by the MOF. The registration process forces the issuers to maintain records of the owners of corporate and government bonds, thereby facilitating the calculation and payment of accrued interest. Registration also facilitates tax collection on the semiannual interest that the bonds pay.

Unlike the United States and Japan, governments and corporations in most western European countries issue bearer bonds, which are not registered in the name of a specific

Exhibit 11.4 The Internationalization of the World Bond Market



Source: Merrill Lynch, *Size and Structure of the World Bond Market: 2001*, April 2001, along with author computations based on data from *BIS Quarterly Review*, June 2007 and June 2010.

owner. Historically, the bearer would actually cut an interest coupon from the bond's certificate and redeem the value of the coupon at the banking institution listed on the bond as a paying agent. The principal advantage of such bearer bonds was that they retain the anonymity of the bondholder, which makes them perfect for tax evasion. Because it is inconvenient to present bond coupons for payment of interest, bearer bonds were usually issued with annual coupons. Currently, bearer bonds usually operate by book entry, whereby investors buy and sell their interests in a global note representing the entire bond issue that is held by a custodian.

Domestic bond market prices and yield quotation conventions and withholding taxes differ from country to country. In many countries, corporate bonds are traded over the counter by commercial and investment banks as well as listed on the local stock exchange.

The International Bond Market

The Foreign Bond Market

Foreign bonds are issued by non-residents in a country's domestic capital market and are subject to domestic regulations rather than the trading conventions of the borrower's country. For example, in the United States, foreign bonds must go through the SEC's registration process, a costly process that requires disclosure of financial information.

To make the U.S. bond market more competitive with the less-regulated Eurobond market, the SEC allowed shelf registration (since 1982) and instituted Rule 144A (since 1990). With **shelf registration**, an issuer can preregister a securities issue and then shelve the securities for later sale, when financing is actually needed. As such, foreign companies can issue bonds quickly in the United States when they need financing, but they still must disclose lots of information, which some borrowers might find expensive and/or objectionable. Through **Rule 144A**, qualified institutional investors in the United States can invest in private placement issues that do not have to meet the strict information disclosure requirements of publicly traded issues.

In 2010 and 2011, the Samurai foreign bond market was particularly "hot," as Fujikawa (2011) notes. As one example, in early 2011, South Korea's KT Corporation, a telecom company, issued a 2-year JPY20 billion Samurai bond.

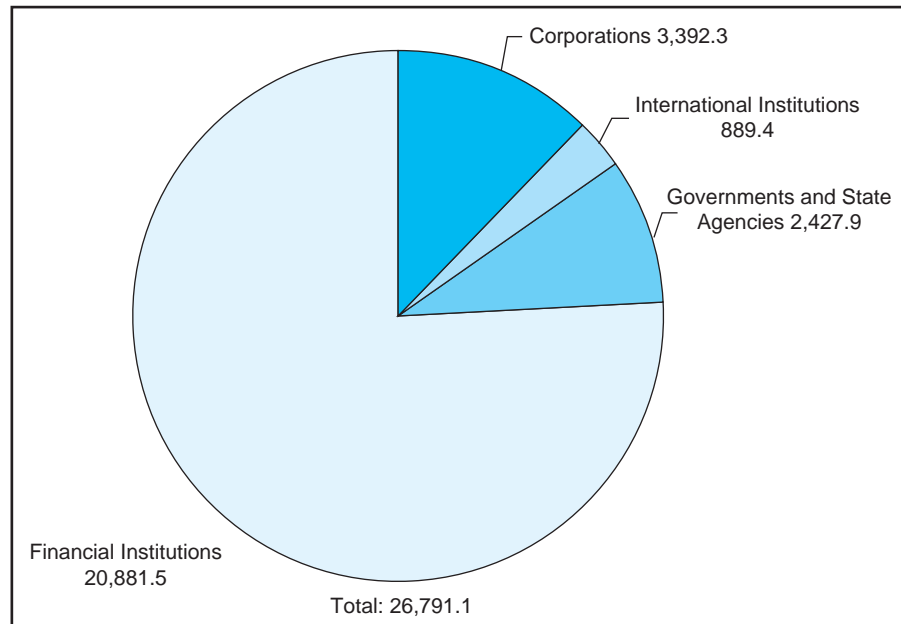
The Eurobond Market⁴

Eurobonds (which are issued simultaneously in the capital markets of several nations) need not comply with the regulatory restrictions that apply to domestic issues. For example, in March 2010, America Movil, Latin America's largest mobile operator, issued a \$2 billion Eurobond with a 10-year maturity, a 5% semiannual coupon that sold at \$993.56 per \$1,000 face value. The bonds were sold by an international group of banks led by J.P. Morgan, Citigroup, and Goldman Sachs.

Although major MNCs, national and regional governments and their agencies, and supranational organizations, such as the World Bank, the Asian Development Bank, and organizations associated with the European Union, all issue Eurobonds, the most important borrowers in the international bond market (which combines Eurobonds and foreign bonds) are financial institutions. Exhibit 11.5 shows that financial institutions accounted for well over 75% of the \$26.8 trillion of outstanding bonds in June 2010. Corporate borrowers have about \$2 trillion outstanding, governments about \$3.4 trillion, and international institutions about \$0.9 trillion.

A withholding tax on interest payments in the U.S. domestic and foreign bond markets fueled the growth of the Eurobond market in the 1960s. Because taxes could be avoided on bearer bonds, investors were willing to accept lower yields on them. Many U.S. firms took advantage of this opportunity to lower their funding cost. The financial infrastructure in London (where most of the trading in Eurobonds takes place) and the liquidity of the London market have also helped the Eurobond market flourish. Although these withholding taxes and other regulations have since been abolished, the Eurobond market continues to thrive

Exhibit 11.5 Borrowers in the International Bond Market (amounts outstanding, September 2010, in billions of USD)



Source: Compiled from *BIS Quarterly Review*, December 2010, Tables 12A–12D.

⁴For a comprehensive study of the Eurobond market between 1980 and 2000, see Claes et al. (2002).

because, unlike any other capital market, it remains largely untaxed, unregulated, and convenient. Despite attempts to improve the competitive position of the U.S. bond market relative to the Eurobond market via shelf registration, Rule 144A, and so forth, the SEC disclosure requirements and registration procedure remain time consuming and costly for some U.S. and non-U.S. issuers.

The Primary Market for Eurobonds

When a bond issue is large, the borrower often benefits by issuing the bonds in a variety of locations. A borrower wanting to issue a Eurobond contacts an investment bank to serve as **lead manager** (or *bookrunner*) of a group of investment and commercial banks, or **syndicate**, that bring the bonds to market. From 1980 to 2000, more than 90% of Eurobond issues were coordinated by a single bookrunner. The lead manager usually invites co-managers to form a managing group to help negotiate terms with the borrower, ascertain market conditions, and manage the issuance.

A subset of the banks in the syndicate serve as underwriters for the issue. That is, they commit their own capital to buy the issue from the borrower at a discount, which is called the underwriting spread. Most of the underwriters are also part of the group that sells the bonds to the investing public. The various members of the underwriting syndicate receive a portion of the spread, depending on the number and the type of functions they perform. The lead manager obviously receives the full spread, but a bank serving only as a member of the selling group receives a smaller portion.

Since 1989, most Eurobond syndicates have used the fixed-price re-offer method to issue bonds. In this system, syndicate members agree to sell bonds only at a predetermined price until the lead manager feels the deal is largely placed, or until the market moves significantly. Then “the deal breaks syndicate,” and bonds are free to trade at whatever level the market sets, depending on supply and demand. However, the lead manager is expected to carry on buying the bonds at the re-offer price. One problem with this system appears to be that some syndicate members do not attempt to distribute the bonds to institutional or retail investors but sell their allotments back to the lead manager anonymously, in the meantime pocketing the underwriting fees. It takes about 5 to 6 weeks from the date the borrower decides to issue Eurobonds until the net proceeds from the sale are received.

The Secondary Market for Eurobonds

After being issued, Eurobonds trade in the secondary market, which is an over-the-counter market, comprising market makers and brokers connected by an array of telecommunications equipment, with principal trading in London. Trading is also done in other major European money centers, such as Zurich, Luxembourg, Frankfurt, and Amsterdam. Many commercial banks, investment banks, and securities trading firms hold large portfolios of Eurobonds. These institutions act as market makers in the Eurobond market quoting two-way (buy and sell) prices on the bonds at which they will trade. Most Eurobond transactions are cleared through Euroclear, which is a bank in Brussels that is owned by the many financial institutions using its services and that specializes in multiple cross-border settlement services.

Global Bonds

A 10-year \$1.5 billion offering by the World Bank in 1989 was the first global bond issued simultaneously in a domestic market and in the Eurobond market. This is particularly important in the United States because U.S. investors can generally only buy Eurobonds after a 40-day waiting period due to the fact that they are not registered. Borrowers issuing global bonds must be large and creditworthy, and they must borrow in actively traded currencies.

Miller and Puthenpurackal (2005) analyzed a large number of global bond issues and found that such bonds lower borrowing costs by approximately 20 basis points relative to non-global bonds.

Dragon Bonds

A **Dragon bond** is a Eurobond targeted at the Asian market (outside Japan) with Asian syndication. Lehman Brothers launched Dragon bonds in November 1991 with an issue by the Asian Development Bank. Whereas Dragon bonds are launched during Asian market hours and listed in Hong Kong and Singapore, they are cleared in Europe through major clearance organizations such as Euroclear and Clearstream. Secondary market trading is also still concentrated in Europe, primarily in London.

The Blurring of the Distinctions in the International Bond Market

The acceleration of globalization, including tax harmonization, financial deregulation, and the widespread relaxation of capital controls, has blurred traditional distinctions between domestic and international bonds, especially in Euroland. Panel A of Exhibit 11.3 uses the official definitions of the Bank for International Settlements (BIS), which has long been a leading source for international debt statistics. It divides the Eurobond market according to the currency of issue. However, the increased globalization of the world's bond markets has caused what were once distinctive market features to be more common across markets. In addition, global consolidation of the financial service industry and opportunities for foreign intermediaries to participate fully in domestic issuance make national distinctions somewhat nebulous. Finally, some statistical offices do not provide sufficient information to distinguish between foreign and traditional Eurobonds. As a result, the more recent BIS data used in Panel B no longer make this distinction.

The Types of Debt Instruments in the International Bond Market

Three main types of bonds are issued in the international bond market. We discuss them in the order of their relative importance and end the section by discussing the currency denomination of international bonds.

Straight Fixed-Rate Issues

Straight fixed-rate bond issues have a set maturity date at which the issuer promises to repay the principal or face value of the bond. During the life of the bond, fixed coupon payments, which are a percentage of the face value, are paid as interest to the bondholders. These bonds are sometimes called *bullet bonds*.

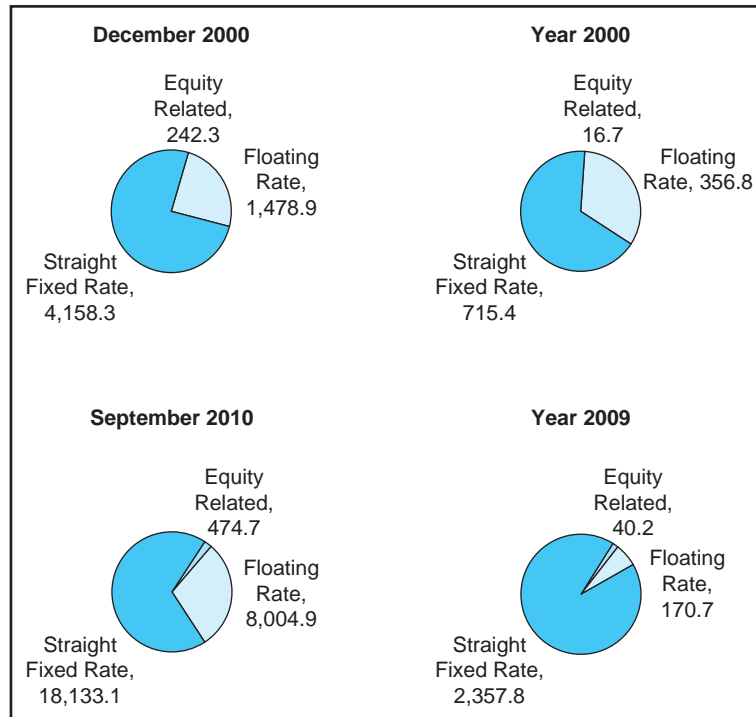
A special category of straight fixed-rate bonds is zero-coupon bonds, which are sold at a discount from face value and do not pay any coupon interest. At maturity, the investor receives the full face value. Zero-coupon bonds have been denominated primarily in U.S. dollars and Swiss francs. Zero-coupon bonds are attractive to investors who want to avoid the risk of reinvesting coupon receipts at possibly lower interest rates. Under U.S. tax law, interest on a zero-coupon bond is taxable as it accrues, even though there is no actual cash flow to the investor.

Exhibit 11.6 shows that the vast majority of international bonds outstanding in both 2000 and 2010 were straight fixed-rate bonds, with a share of about 70%.

Floating-Rate Notes

Floating-rate notes (FRNs) constitute about 30% of the total amount of international bonds outstanding. FRNs are typically medium-term bonds, with maturities between

Exhibit 11.6 Types of International Bonds Issued in the Marketplace (in billions of U.S. dollars)



Note: The pies on the left represent amounts outstanding, whereas the pies on the right refer to new issues during that particular year.

Source: BIS Quarterly Review, December 2010, Table 13B.

1 and 10 years and with coupon payments indexed to a reference interest rate. Common reference rates are 3-month and 6-month LIBOR, and coupons are paid quarterly or semi-annually, consistent with the maturity underlying the reference rate. Most companies pay a spread above the relevant LIBOR rate, which reflects the company's credit risk (see Section 11.5). For example, in February 2011, Anheuser-Busch Inbev, the Belgian beer company, issued a 5-year FRN that paid 55 basis points (0.55%) over the 3-month USD LIBOR at a price of \$998.17 per \$1,000 face value. The discount to face value increased the effective spread.

At the beginning of every 3-month period, the next quarterly coupon payment is *reset* to be $\frac{1}{4} \times (\text{LIBOR} + 0.55\%)$ of face value, where LIBOR is an annual percentage rate. As an example, suppose the 3-month U.S. dollar LIBOR is 2.5%. Then, the interest paid on a \$1,000 face value FRN is

$$\frac{1}{4} \times (0.0250 + 0.0055) \times \$1,000 = \$7.63$$

Equity-Related Bonds

As Exhibit 11.6 shows, equity-related bonds are a small component of the international bond market. This category of bonds consists of two closely related securities: convertible bonds and bonds with warrants. A **convertible bond** is a straight bond that is convertible into equity prior to maturity. The bondholder has the option to convert the bond into a certain number of shares, which is fixed when the bond is issued. Alternatively, the bond can have an attached

warrant, which grants the bondholder the right to purchase a certain amount of common stock of the company at a specified price. Investors accept lower coupon rates on convertible bonds than on comparable straight fixed-coupon bonds because of the added option value of the conversion feature. Bonds with warrants differ in that the warrant is detachable and can trade separately from the bond.

The difference between the market value of the convertible bond and that of the straight bond involves the value of the conversion option. Companies often issue convertible bonds and warrants when it is difficult to assess the riskiness of the debt, such as when the firm is involved in projects with very uncertain cash flows or when investors are worried that managers may not act in their interests. The convertible bond gives investors a piece of the equity action when the projects turn out to be successful. While rapidly growing firms with heavy capital expenditures find the lower interest rates paid on these bonds to be particularly helpful, convertible bonds are not cheap debt because the firm also issues a valuable conversion option.

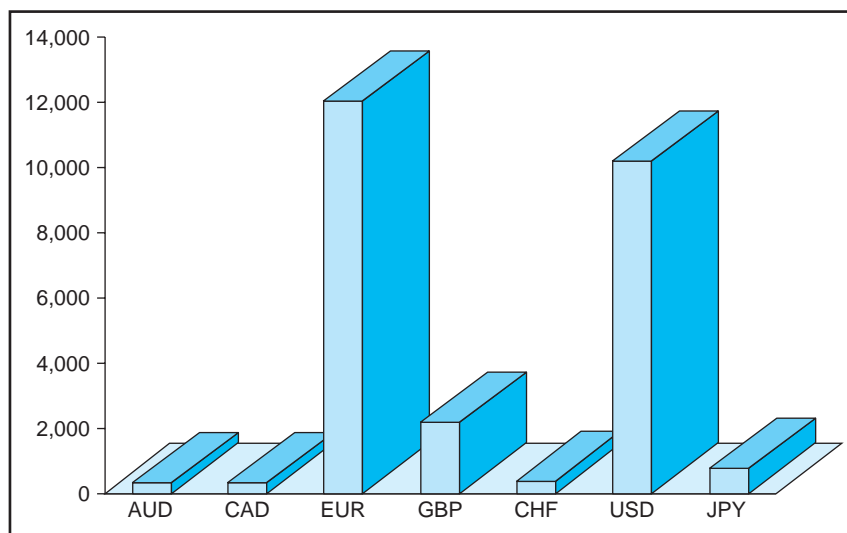
In international markets, convertible bonds were very popular in the 1980s among Japanese companies. Many of the embedded equity options subsequently proved to be worthless when the Japanese bull market crashed toward the end of the 1980s.

Currency of Denomination

Historically, U.S. dollar-denominated bonds dominated international bond markets. As Exhibit 11.7 indicates, euro-denominated bonds now dominate. The only other currencies in which bonds are widely denominated are the pound, yen, and Swiss franc (in that order).

A special type of international bond is a **dual-currency bond**, which became popular in the mid-1980s. A dual-currency bond is a straight fixed-rate bond issued in one currency, say yen, which pays coupon interest in that same currency, but the promised repayment of principal at maturity is denominated in another currency, say U.S. dollars. The interest rates on these bonds are often higher than those on comparable straight

Exhibit 11.7 Currency of Issuance in the International Bond Market (September 2010, outstanding amounts, in billions of U.S. dollars)



Source: Compiled based on *BIS Quarterly Review*, December 2010, Table 13B.

fixed-rate bonds. The amount of the dollar principal repayment at maturity is set when the bond is issued. Frequently, however, the amount allows for some appreciation of the stronger currency.

The dual-currency bond can be viewed as a combination of a straight yen bond and a long-term forward contract to sell the dollar principal back for yen. The yen market value of a dual-currency bond should therefore equal the sum of the present value of the yen coupon stream discounted at the yen market rate of interest plus the present value in yen of the dollar principal converted to yen at the forward exchange rate and discounted at the yen market rate of interest. Whether the bond is a good investment *ex post* depends on the movement of the dollar relative to the yen over the life of the bond.

Japanese firms have historically been large issuers of dual-currency bonds, with coupon payments in yen and the principal repayment in U.S. dollars. Use of yen/dollar dual-currency bonds can be an attractive way for Japanese MNCs to establish or expand U.S. subsidiaries. The yen proceeds can be converted to dollars to finance the capital investment in the United States, and during the early years, the coupon payments can be made by the parent firm in yen. At maturity, the dollar principal repayment can be made from dollar profits earned by the subsidiary.

On Dim Sum and Original Sin

Bond markets in developing countries are still relatively underdeveloped, especially when considering local currency-denominated debt. In developed countries, the local currency-denominated bond market represents more than 130% of gross domestic product (GDP), although it represents barely over 20% of GDP in developing economies (see Burger et al., 2010). International economists have dubbed this inability of corporations and governments in developing countries to issue debt denominated in their own currency as “original sin.”

Original sin has been blamed for many global economic malaises. It contributed to the crises in Mexico, Southeast Asia, and Russia (or at least made their consequences worse, when depreciating currencies exacerbated the debt burdens). Some have even argued that original sin was one of the root causes of the 2007 to 2010 global crisis. In the years preceding the crisis, the global supply of savings increased substantially. This “global savings glut,” as Federal Reserve Chairman Bernanke (2005) called it, originated partly in emerging economies, many of which ran sizable current account surpluses. Lacking well-developed local financial markets, their savings were channeled to more developed financial markets, particularly to the United States. The desire to build up official reserves following the crises of the 1990s certainly also played a role. These forces allowed the United States to run high current account deficits and contributed to what macro-economists called significant “global imbalances” (see Caballero et al., 2008).

Foreign demand for U.S. Treasury bonds may have helped lower their yields, which in turn contributed to excessive leverage by U.S. financial institutions and stoked the global financial crisis. It is conceivable that better developed financial markets in developing economies could have resulted in a more even distribution of the “global savings glut.” From this perspective, developing financial markets in developing countries, including local currency-denominated bonds, may contribute to global financial stability.

The first signs of recovery after the global financial crisis seem to indicate that “original sin” may be on its way out. Many corporations and governments in developing countries have been able to raise significant sums of money in international bond markets, issuing bonds in their own currency. For example, one of Latin America’s deals of 2010 according to *Euromoney* was the Republic of Chile’s 10-year bond issue, with a U.S. dollar tranche of \$1 billion and a Chilean peso tranche equivalent to \$556 million. On the corporate side, Emgesa, a Colombian electric power company, issued a global bond (equivalent to USD400 million) in January 2011 that was denominated in Colombian pesos (even though all payments will be made in USD) with buyers nicely spread out over the United States, Latin America, and Europe.

Clearly, investors in the developed world now show an appetite for local currency-denominated debt issued by emerging market companies. So, surely, Chinese debt must be in high demand? Unfortunately, strict capital controls

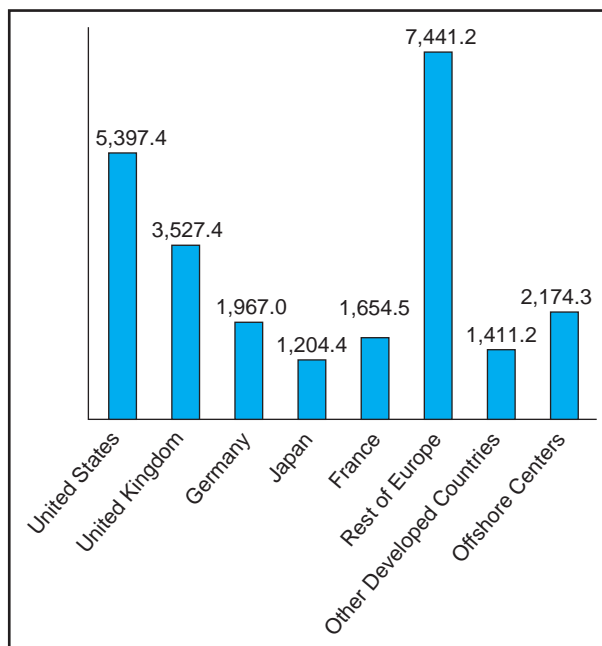
prevent foreign investors from buying China’s domestic yuan debt. Fortunately, the Chinese government is allowing, even encouraging, an offshore yuan market to develop, especially in Hong Kong. Foreign investors can now feast on “Dim Sum” bonds, which are issued in Hong Kong but denominated in Chinese yuan. While the issuers are typically Chinese companies, this need not be the case. Another “deal of the year” for 2010, according to *Euromoney*, was VTB Bank’s CNY1 billion Dim Sum 3-year notes. VTB Bank is a Russian, state-owned bank!

In early 2011, Dim Sum bonds began to run out of steam as the Chinese government made it more difficult to put the yuan raised through such bonds to work in China. Several companies, especially Chinese real estate groups such as Evergrande Real Estate, started to issue so-called “synthetic yuan bonds,” which are denominated in yuan but trade in dollars. Surprisingly, the Chinese government imposes fewer restrictions on deploying money raised that way in mainland China investments (see Stein, 2011).

11.4 INTERNATIONAL BANKING

The growth and increasing integration of the world economy since the end of World War II has been paralleled by an expansion of global banking activities as commercial banks have followed their customers into foreign markets. We use two criteria to differentiate international from domestic banking activities: the location and the counterparty. If either the borrower or the depositor is a non-resident, the transaction is viewed as international. However, a transaction is also typically categorized as international if it occurs in a non-domestic currency. Exhibit 11.8 reports the international claims (lending) for the majority of the world’s banks, categorized by borrowing country.

Exhibit 11.8 Consolidated Foreign Claims of Reporting Banks (by borrowing country, in billions of U.S. dollars), June 2010



Note: This exhibit was constructed using data from Table 9A, Consolidated Foreign Claims of Reporting Banks on Individual Countries, *BIS Quarterly Review*, December 2010, pages A54–A61.

These claims are on a worldwide consolidated basis, covering all “international” contractual lending by the head office and its branches and subsidiaries. More specifically, it includes

- Cross-border claims in all currencies (that is, the borrower is a foreign entity relative to the bank’s country)
- Local claims (the borrower is domestic but borrows in non-local currencies)
- Local currency positions of reporting banks’ foreign affiliates with local residents

The five main countries of international banking activity are the United States, the United Kingdom, Germany, Japan, and France. This reflects the roles of New York, London, Frankfurt, Paris, and Tokyo as major international financial centers, and it also correlates with the sizes of these countries’ economies. Lots of activity also happens in offshore banking centers, with the Cayman Islands accounting for more than 30%.

In this section, we first offer a brief survey of banks as important multinationals. We then summarize some important international banking regulations, known as the BIS standards. Finally, we survey the different organizational forms through which international banks assist their multinational clients, clarifying the differences between, for example, branches, subsidiaries, and offshore banking centers.

Banks as MNCs

Commercial banks usually develop a complete line of financial services to facilitate the overseas transactions of their customers. In addition to commercial credit, these ancillary financial services include trading in foreign currency spot, forward, option, and swap markets; risk management services; international trade financing; and working capital and cash management.

Unlike domestic banks, international banks participate in the Eurocurrency market and are frequently members of international loan syndicates, lending out large sums of money to MNCs or governments. International banks also underwrite Eurobonds and foreign bonds, which are investment banking activities. Banks that perform both traditional commercial banking and investment banking functions are called **merchant banks**. Banks that provide a wide array of services, including securities activities, are known as **universal banks**, or **full-service banks**.

The formation of the European Union (EU) and intensifying global competition have led to mergers and acquisitions in the banking industry. The merger and acquisition activity was particularly hectic at the end of the 1990s. For example, following the formation of the EU, banks were allowed to operate within Europe using a single banking license instead of needing licenses in each country in which they did business. It was generally expected that this relaxation in the rules would result in a consolidation of the European banking industry, as large banks gobbled up small banks. However, that really did not happen. By and large, banks didn’t consolidate from country to country, but instead, consolidated *within* countries. It is certainly possible that these domestic mergers were an effort by domestic banks to stave off being taken over by “foreigners” (foreign banks).

The exception was in Central Europe, where almost all the major banks are in foreign hands. When the Iron Curtain came down in 1989, Central Europe was stuck with an inefficient and rudimentary financial system after years of communism. Central European governments soon realized that an influx of foreign capital and banking know-how and technology were badly needed. They consequently encouraged the foreign acquisition of their domestic banks. Somewhat surprisingly, the large international banks were not the main acquirers, but rather a number of medium-sized players with regional focus. These included a number of Austrian banks, such as Erste Bank, Bank Austria (owned by the Italian bank UniCredit), and Raiffeisen International, and a small Belgian bank, KBC.

The global economic integration process has transformed the banking sector from a localized, heavily regulated sector into one of the most global sectors in the world. Bekaert et al. (2011) measure how close market valuations of various industries in different countries are to global averages. They argue that under fairly mild assumptions, globally integrated and interconnected sectors would show smaller differences. By this measure, in 1980 to 1984, the banking sector was one of the most “local” and segmented sectors in the world; in 2000 to 2005, it was one of the most globalized sectors in the world. The BIS’s “80th Annual Report” (2010) shows that international lending (the international claims studied in Exhibit 11.8) as a percentage of total lending steadily increased for most countries over the first decade of the 21st century.

At the same time, the banking sector also became a larger part of the economy, both in terms of market valuation and value added (with the exception of Japan, where the banking sector collapsed after the crisis in the early 1990s), after successive waves of consolidation. In hindsight, the 2007 to 2010 crisis taught us that the banking sector probably became too big and too highly leveraged. The 2010 BIS annual report computed the banking sector’s precrisis leverage ratio to be on the order of 18. That is, for every dollar of equity, a typical bank would have \$19 of assets. Some banks were much more levered than this average ratio. Clearly, even a small shock to asset values can bring such thinly capitalized banks to the brink of insolvency. Moreover, the international interconnections enabled the spillover of stress across borders. Here we simply note that the crisis had a profound effect on the sector. A number of banks, such as Bank of America and Wells Fargo, became larger by gobbling up (close to) bankrupt rivals. Governments in several countries took equity stakes in banks, which, to date, have not been fully divested. (The U.S. government sold its final stake in Citigroup in December 2010.) All of these developments have had a profound effect on the relative size and identity of the top global banks. Exhibit 11.9 lists the 25 largest banks in the

Exhibit 11.9 The Largest Banks Ranked by Market Capitalization

Ranking March 2010	Bank	Country	Assets (in billions of USD)	Market Capitalization (in billions of USD)
1	ICBC	China	1,428.46	242.23
2	China Construction Bank	China	1,106.20	184.32
3	HSBC Holdings	UK	2,355.83	178.27
4	Bank of America	USA	2,223.30	167.63
5	JPMorgan Chase	USA	2,031.99	166.19
6	Bank of China	China	1,016.31	147.00
7	Wells Fargo	USA	1,253.65	141.69
8	Banco Santander	Spain	1,438.68	107.12
9	Citigroup	USA	1,856.65	96.54
10	BNP Paribas	France	2,952.22	86.67
12	Royal Bank of Canada	Canada	608.05	78.17
13	Commonwealth Bank	Australia	500.20	75.10
14	Mitsubishi UFJ Financial	Japan	1,999.58	72.17
15	Westpac Banking Group	Australia	519.03	70.99
16	Bank of Communications	China	392.83	57.34
17	Barclays	UK	2,223.04	56.15
18	Toronto-Dominion Bank	Canada	517.28	55.43
19	Banco Bradesco	Brazil	281.40	54.50
20	AZN Banking	Australia	420.52	53.72
21	Lloyds Banking Group	UK	1,650.78	50.25
22	National Australia Bank	Australia	574.41	48.80
23	BBVA-Banco Bilbao Vizcaya	Spain	760.32	48.20
24	Bank of Nova Scotia	Canada	460.93	47.26
25	US Bancorp	USA	281.18	46.89

Source: “The Global 2000,” Forbes.com, April 2010.

world, based on market capitalization. The top 10 include five Anglo-Saxon banks and three Chinese banks. The ascent of the Chinese banks is a relatively recent phenomenon, which results not only from the rapid development of the Chinese economy and the relatively high valuation of its stock market, but also from China being relatively insulated from the 2007 to 2010 global crisis.

Bank Consolidation Gone Awry

In 2007, Barclays, the 17th-largest bank, bid €63.9 billion for ABN AMRO, the 26th-largest bank with 4,500 branches across 53 countries. This bid was topped by a consortium led by Royal Bank of Scotland (RBS; the ninth-largest bank), which bid €70.5 billion. Under the RBS bid, Fortis NV of Belgium would take ABN AMRO's Dutch operations and its wealth and asset management operations, Banco Santander Central Hispano SA would take ABN AMRO's Brazilian and Italian operations, and RBS would get the rest, including ABN AMRO's investment banking arm. This deal was the largest in the financial industry to date.

A look behind the scenes of this acquisition reveals how bad business decisions can not only bankrupt a business, but also imperil the economy at large. RBS went from a small Scottish retail bank to one of the largest banks in the world in less than 20 years, mostly through aggressive acquisitions that included the takeover of NatWest, a large British bank in 2000. While many of the acquisitions were value enhancing, the ABN AMRO deal

proved to be the swan song. RBS appeared not to realize how deeply exposed ABN AMRO was to subprime mortgages. As the crisis unfolded, losses at ABN AMRO started to mount. Moreover, Fortis, the Belgian-Dutch acquirer, found it increasingly hard to fund itself in the money markets, as its own exposures to toxic assets became more transparent. In September 2008, in the middle of the integration process between ABN AMRO and RBS and the separation process of assets with Fortis, the problems at both ABN AMRO and Fortis became so severe that the banks were partly nationalized and the Fortis bank split again into Belgian and Dutch parts, with the Belgian part being sold to France's BNP Paribas. In October 2008, RBS's corporate clients lost confidence in the bank and started to withdraw deposits. The bank had to be bailed out by the U.K. government, who took an equity stake that it had to increase to 84% by November 2009! As part of the recovery process, many of RBS's acquisitions will undoubtedly be unwound.

Types of International Banking Offices

Exhibit 11.10 provides an overview of the organizational forms that banks may use for their international banking activities.

Exhibit 11.10 Organization Structure of International Banking

Characteristic	International Bank							
	Domestic Bank	Correspondent Bank	Representative Office	Foreign Branch	Subsidiary/Affiliate Bank	Offshore Bank	International Banking Facility	Edge Act Bank
Location	Domestic	Foreign	Foreign	Foreign	Foreign	Foreign	Domestic	Domestic
Loans/deposits to foreigners	No	—	No	Yes	Yes	Yes	Yes	Yes
Separate legal entity	No	—	No	No	Yes	No	No	Yes

Note: This exhibit was inspired by Exhibit 6.2 in Eun and Resnick (1997), p. 145

Correspondent Banks

When commercial banks do not have their own banking operation in a major financial center, they establish a correspondent relationship with a local bank to conduct trade financing, foreign exchange services, and other activities on their behalves. Correspondent relationships allow a bank to service its multinational corporate clients without having to locate their banking personnel in many countries. However, the **correspondent bank** may not be able to give the same level of services as it would if it had its own facilities.

Representative Offices

A **representative office** is a small service facility that is staffed by parent bank personnel and designed to assist the clients of the parent bank in their dealings with the bank's correspondents or with information about local business practices and credit evaluation of the MNC's foreign customers. Although it does not provide direct banking functions to the MNCs, it represents a higher level of service than pure correspondent banking.

Foreign Branches

A **foreign branch** is legally part of the parent bank, but it operates like a local bank. A foreign branch allows the parent bank to offer its domestic, foreign, and international customers direct, seamless service in multiple countries. However, setting up a foreign branch is much more expensive than partnering with a correspondent bank. Foreign branch banks are also subject to both the banking regulations of their home countries *and* the countries in which they operate. However, foreign branches of U.S. banks are not subject to U.S. reserve requirements and are not required to have federal deposit insurance, which guarantees depositors up to \$250,000 if the bank fails. Banks fund the Federal Deposit Insurance Corporation (FDIC) by paying insurance premiums expressed as a percentage of their deposits. Hence, both reserve requirements and deposit insurance drive up the cost of funds for banks and would prevent branches of U.S. banks from operating on the same level playing field as the local banks. Conversely, when a foreign bank locates a branch in the United States, the branch is treated like a domestic bank, and it is subject to all the same U.S. regulations.

Subsidiary and Affiliate Banks

Like a branch, a **subsidiary bank** is also wholly or partly owned by a parent bank, but it is incorporated in the foreign country in which it is located. An **affiliate bank** is only partly owned but not controlled by a foreign parent bank. Affiliate and subsidiary banks are subject to the banking laws of the countries in which they are incorporated. Prior to the repeal of the Glass Steagall Act in 1999, that meant, for example, that a U.S. parent bank was prohibited from engaging in investment banking activities, but its subsidiaries located abroad were not. Nevertheless, U.S. parent banks generally preferred to expand their operations overseas via branch banks.

Offshore Banking Centers⁵

An **offshore banking center** is a center that satisfies most of a number of conditions. First, the bulk of financial activity on both sides of the bank's balance sheet—that is, both borrowing and lending—is offshore, that is with non-residents as counterparties. Second, the transactions are typically initiated outside the financial center. Third, the majority of the financial institutions involved are controlled by non-residents doing business primarily with non-residents. Finally, the centers typically offer low or zero taxation, moderate or light financial regulation, banking secrecy, and anonymity on transactions.

Offshore banking centers can be found in the Bahamas, Bahrain, Bermuda, the Cayman Islands, Jersey, Hong Kong, the Netherlands Antilles, Panama, Singapore, Vanuatu, and

⁵See, for instance, "Offshore Financial Centers" (2002).

the West Indies, among other countries. Offshore banks engage in foreign currency loans, the floating of Eurobonds, over-the-counter trading in derivatives, and deposit taking from individual customers seeking to lower their tax liabilities. In some countries, international banks establish “shell branches,” which have only a very limited physical presence in these nations—sometimes only post office boxes!

Clearly, a lack of financial regulation can lead to tax evasion and financial crime. Consequently, various international organizations, such as the BIS, the Organization for Economic Cooperation and Development (OECD), and the European Union, have joined forces in an effort to supervise the activities taking place in these centers. A major impetus to these efforts was the collapse of BCCI (Bank of Credit and Commerce International) in 1991. For years, BCCI (dubbed by some as the “Bank of Crooks and Criminals International”) laundered drug money, faked loans, and hid losses without regulators noticing.

In the wake of the terrorist attacks of September 2001, the United States substantially expanded its antiterrorism legislation, including the power to seize money from foreign banks doing business in the United States, without notifying the foreign government. So far, the new tool has primarily been used in fraud and money-laundering cases. However, in 2009, the U.S. government forced UBS, a Swiss bank, to disclose the names of a number of accounts held by tax-evading U.S. citizens, an apparent violation of Swiss banking secrecy laws.

Edge Act Banks

Edge Act banks are federally chartered subsidiaries of U.S. banks that are physically located in the United States but are allowed to engage in a full range of international banking activities. Such activities include accepting deposits from foreign customers, trade financing, and transferring international funds. Edge Act banks are not prohibited from owning equity in U.S. corporations, as are domestic commercial banks. Consequently, U.S. parent banks own foreign subsidiaries and affiliate banks through an Edge Act setup.

International Banking Facilities

An **international banking facility (IBF)** is a separate set of asset and liability accounts that is segregated on the parent bank’s books, so it is not a unique physical or legal entity. Any U.S.-chartered depository institution (including a U.S. branch, a subsidiary of a foreign bank, or a U.S. office of an Edge Act bank) can operate an IBF. An IBF operates as a foreign bank in the United States and is consequently not subject to domestic reserve requirements or FDIC insurance regulation. However, IBFs may only accept deposits from non-U.S. citizens and make loans to foreigners. The bulk of an IBF’s activities relate to interbank business.

The U.S. Federal Reserve established IBFs in an effort to allow U.S. banks to recapture business lost to offshore banks. Other countries created similar institutions. Examples include the Japanese Offshore Market (JOM) and the Bangkok International Banking Facilities in Thailand. These initiatives, along with the relaxation of financial regulations worldwide to allow offshore banking activities to be conducted by domestic banks, have slowed the growth of genuine offshore banking activities.

International Banking Regulation

The increasing globalization of the world’s financial markets and the growth of international banking activities created the need for an international supervisory framework to prevent failures in one banking system from spilling over into other countries and to prevent a race to the bottom in bank regulation. Recall that banks hold capital (equity capital and other reserves) to protect depositors against losses. A bank’s assets consist of the securities it buys and the loans it provides. The liabilities of the bank are the deposits it accepts from its customers, the borrowing the bank does in securities markets, and the bank’s equity capital. The important

role banks play in allocating capital in most countries makes their business losses resulting from companies not repaying their loans a regulatory concern, and most countries require banks to have a minimum capital-to-asset ratio as a safety cushion against losses.

The failure of one bank can set off a bank run—as worried depositors withdraw funds at many banks. Worse, bank failures in one country can lead to a global financial crisis or at least spill over into other countries. To mitigate this “systemic risk,” the risk that the entire financial system can fail as a result of the failure of one bank or a few banks, central banks desire international regulation to ensure that an adequate level of capital is maintained in the international banking system. Nevertheless, bank runs have occurred regularly, and the existing regulations did not stave off the 2007 to 2010 banking crisis.

In addition, the variety of different national regulations potentially gives an unfair advantage to banks from countries with laxer regulatory standards, which could decrease the safety of the international banking system overall. International regulations create a more level playing field. A case in point occurred during the 1980s when central bankers from the G10 countries became worried that increased international competition in the banking industry due to globalization and deregulation had eroded the capital base of international banks. Japanese banks, for example, had aggressively built up their international loan portfolios by making low-cost loans. These banks gained market share, but subsequently, many of them went bankrupt. This background set the stage for the 1988 Basel Accord.

International Capital Adequacy: The 1988 Basel Accord

The **Basel Accord** of 1988 requires internationally active banks in the G10 countries to hold capital equal to at least 8% of a basket of assets measured in different ways, according to their riskiness. The accord was put together by the Basel Committee on Banking Supervision, a committee of banking supervisory authorities that was established in 1975 by the central banks of the G10 countries. It consists of senior banking supervisors and representatives of the central banks of Belgium, Canada, France, Germany, Italy, Japan, Luxembourg, the Netherlands, Sweden, Switzerland, the United Kingdom, and the United States. It usually meets at the BIS in Basel, Switzerland.

The 1988 Basel Accord was primarily concerned with default or credit risk. To measure the riskiness of a bank’s asset portfolio, the assets are classified into four buckets, according to debtor category. The first category requires no capital charge and consists of items such as Treasury bills and bonds, which have zero credit risk. Claims on other banks receive only a 20% weighting, meaning that only 20% of the claim is counted against the 8% capital requirement. Some claims receive a 50% weighting, but virtually all claims on the non-bank private sector receive a 100% weight and hence the full capital charge.

One difficulty in establishing the riskiness of a bank’s activities is that many bank activities are not recorded on the balance sheet. These so-called off-balance sheet activities involve trading financial instruments and generating income from fees and loan sales. Good examples include foreign exchange trading activities and interest rate and currency swaps. The Basel Accord attempted to establish ways to measure the riskiness of these activities, using complex conversion factors. Over time, it was also recognized that the regulatory framework should not only apply to credit risk but to market risk as well. Market risk is the risk of losses in trading positions when prices move adversely. In 1996, the Basel Accord was amended, and trading positions in bonds, equities, foreign exchange, and commodities were removed from the credit risk category and given explicit capital charges. During the 1990s, well over 100 countries adopted the measures set forth in the Basel Accord, making it the world standard on banking regulation.

A New Capital-Adequacy Framework or Basel II

The Basel Accord was also subject to criticism. First, the simple bucket approach with a flat 8% charge for loans made to the private sector gave banks an incentive to move high-quality

assets off their balance sheets. The enormous growth in **asset securitization**—the packaging of assets or obligations (mortgages or car loans, for example) into securities for sale to third parties—played a large role in this development. Banks found that they could sell a portfolio of higher-quality loans for an amount slightly greater than the value of the original loans, making the banks profits and reducing their capital charges. Of course, the practice also reduced the average quality of bank loan portfolios. Second, financial institutions gradually developed more sophisticated models to measure risk than the simple approach adopted in the Basel Accord. Finally, the 1988 accord did not sufficiently recognize the use of techniques to mitigate credit risk, such as collateral, guarantees, or hedges.

In response to these criticisms, the Basel Committee started work on a new accord, Basel II, in 1999, hoping to implement it in each country by the end of 2006. The new accord has three pillars. The first pillar still requires the bank capital ratio (the ratio of bank capital to risk-weighted assets) to be 8%. However, now three types of risk are explicitly and separately recognized: credit risk, market risk, and operational risk. This last risk category is new. Operational risk is the risk of direct or indirect loss resulting from inadequate or failed internal processes, people, and systems or from external events, such as computer failure, poor documentation, or fraud.

Changes to the old accord had already allowed banking institutions to choose between the Basel Committee guidelines to measure market risk or to use internally developed models. In 1994, JPMorgan made its internally developed model (RiskMetrics) publicly available and introduced the *VaR* terminology. *VaR* stands for **value at risk**. It measures the dollar loss that a given portfolio position can experience with 5% probability over a given length of time. If the weekly *VaR* is \$100,000, it means that the position (or set of positions) could lose \$100,000 in about 1 out of 20 weeks. Using the logic developed in Chapter 3, the *VaR* depends on the conditional volatility of the underlying asset returns. Importantly, internal models of risk take into account the risk reduction allowed by holding a diversified portfolio of imperfectly correlated assets.

For credit risk measurement, the new accord gives banks two options: They can use either a standardized approach for credit risk measurement or an “internal-rating-based approach.” The standardized approach maintains the old framework, but now the differentiated risk weightings are based on a rating provided by an external credit assessment institution. Moreover, these weightings take into account the use of collateral, guarantees, and hedging techniques. Under the internal-ratings-based approach, banks are allowed to use their internal estimates of creditworthiness to assess the credit risk of their portfolios, subject to strict methodological and disclosure standards.

The second pillar of the accord involves a supervisory review process. That is, bank supervisors must ensure that each bank has sound internal processes in place to assess capital adequacy commensurate with its risks. The final pillar stresses market discipline through disclosure. The new accord describes disclosure requirements related to the internal risk assessment methods a bank uses to compute its capital adequacy. This information is essential to ensure that market participants (including the multinational clients of the banks) better understand the bank’s risk profile and solvency.

Basel III and the Crisis⁶

By 2006, Basel II had been implemented by the European Union; in the United States, the implementation literally ran aground when the global financial crisis hit. The crisis nonetheless laid bare many deficiencies of the old system. For example, the internal-ratings-based approach underestimates true capital needs because most quantitative models overestimate the power of diversification to reduce risk. During a crisis, many assets lose value together,

⁶See, for example, Eubanks (2010) and information on the Web site of the BIS.

and many banks hold similar positions, which increases the riskiness of bank portfolios. These problems were abundantly clear in the crisis.

The BIS, together with central banks and supervisory authorities, have tried to draw lessons from the crisis in developing a new capital adequacy framework, called Basel III. While not fully finalized yet, its major features are already known. First, core capital is defined more narrowly as retained earnings and common shares, which proved the only real buffer banks had during the crisis, and the amount of such capital banks must hold is being increased from 2% to 4.5%. Second, Basel III proposes a “capital conservation buffer,” also in the form of core capital (2.5% of the bank’s risk-weighted assets), as a cushion against future periods of stress. Third, Basel III recommends that local authorities require a countercyclical capital buffer such that when the economy is doing well and lending is less risky, banks are forced to hold more capital to avoid excessive risk taking and to build up a capital buffer that can be drawn upon in periods of stress. Fourth, because the crisis entailed a drying up of market liquidity, regulators want to trace and monitor funding liquidity of banks. Fifth, leverage played a huge role in the financial crisis. As we noted earlier, the banking sector is the most leveraged industry in the world. There are plans to introduce a maximum leverage ratio.

All of these changes are scheduled to be gradually phased in over several years. In the meantime, many countries worry about inconsistencies between the new international rules and their own, mostly new, banking regulation. In the United States, for example, the Dodd–Frank Wall Street Reform and Consumer Protection Act was signed into law by President Barack Obama on July 21, 2010, and it contains many provisions regarding bank regulation, including capital requirements. Senator Dodd explicitly worried about international regulatory arbitrage with financial institutions shopping for the weakest regulator.

11.5 INTERNATIONAL BANK LOANS

In addition to tapping the bond markets, MNCs can also obtain loans from their banks. We next discuss several of the options and end with a discussion of how the differences between alternative financing options have become blurred.

Eurocredits

In Chapter 6, we discussed the interbank market known as the Eurocurrency market—the market where banks borrow from and lend to each other for short periods of time outside the jurisdiction of their countries. Banks operating in the Eurocurrency market are known as **Eurobanks**. Eurobanks not only make short-term loans but also extend them to other financial institutions and to corporations, sovereign governments, and international organizations at medium to longer maturities. These long-term debts are known as **Eurocredits**.

Two characteristics differentiate Eurocredits from similar debt instruments offered by domestic banks. First, the loans tend to be extended by a syndicate of banks that share the risk of the loan. Second, Eurocredits are typically issued at floating interest rates. That is, the rate charged is typically LIBOR plus a spread that reflects the credit risk of the borrower.

Example 11.2 The Role of Floating-Rate Debt

Suppose BNP Paribas pays 1.85% on dollar deposits with 6-month maturities and lends dollars for 6 months at 1.95% earning a 10-basis point spread. Also, assume that BNP Paribas has extended a 5-year Eurocredit denominated in dollars to the Swedish

company Ericsson. Ericsson borrows for 5 years because it may need capital long term, and it may be concerned about an increase in **credit spreads** or that it could be denied credit when it tries to roll over short-term debt. Assume that the 5-year U.S. Treasury bond yield is 5%. If the interest rate on the loan is fixed, BNP Paribas will charge 5% plus a spread to account for Ericsson's credit risk. If the rate is floating, BNP Paribas will charge LIBOR (that is, 1.95%) plus a credit spread, but the rate will be reset every 6 months.

Suppose that the credit spread both for a 5-year floating-rate loan and for a fixed-rate loan to Ericsson is 1%. At first glance, it would appear that BNP Paribas might be better off to offer Ericsson a fixed-rate loan. The bank would then not only earn the credit spread but also earn the difference between the short-term and long-term interest rates (5% versus 1.85%).

Many banks practice this maturity transformation; that is, taking in short-term deposits and providing long-term loans, which is sometimes called "riding the yield curve." However, this strategy is not without risk. It works only if average long-term rates are higher than short-term rates. Whereas this tends to be true in most countries, on average, it is not always true. In fact, we already discussed how the expectations hypothesis theory states that when short-term rates are lower than long-term rates, the market anticipates an increase in short-term rates. Hence, by extending a fixed-rate loan, BNP Paribas incurs the risk that short-term interest rates will rise and that in the future, it must pay its depositors a much higher interest rate than the current 1.85%, and even higher than the $5\% + 1\% = 6\%$ they obtain from Ericsson.

By extending a floating-rate loan, BNP Paribas simply cashes in the credit spread on the Ericsson loan as long as the firm continues to pay interest on the loan. Hence, floating-rate loans protect banks against interest rate risk while protecting firms from rollover risk.

Types of Eurocredits

There are two main types of Eurocredits: term credits and revolving credits. A *term loan* has a fixed maturity and a fixed amount. In contrast, a *credit line* allows the borrower to withdraw as a loan any amount of money up to a fixed limit. In a term loan, the borrower has a fixed draw-down period over which it may take up the loan. A term credit does not involve any other regular expenses except for the interest rate expense. With revolving credit, the borrower has the right to borrow up to a "committed" amount at the prevailing interest rate, plus a preset credit spread during an agreed-upon period specified in the loan. However, the bank charges a commitment fee for the unused portion of the committed amount.

For instance, a borrower may have the right to issue 6-month promissory notes worth up to CHF50 million at an interest rate of 6-month LIBOR plus 1.00% per annum. This is similar to a standard credit line, except that it cannot be revoked during the lifetime of the loan. The commitment of the credit line is potentially very valuable when a company's credit standing deteriorates. Because an MNC can always borrow elsewhere if the market-required spread drops, the fixed spread can be viewed as an option contract.

Syndicates

A syndicate consists of a group of banks that take different roles in the debt-arranging process:

- The lead manager negotiates with the borrower on terms and conditions and prepares a placement memorandum that describes the borrower's financial condition and gives

details about the proposed loan. The lead manager then invites other banks to participate in the loan.

- Because the funding is not yet arranged at the time of the negotiations, the lead manager often contacts a smaller number of managing banks to underwrite the loan—that is, to guarantee to make up for the shortage of funds if there is a shortage.
- The banks that provide the actual funding are called *participating banks*.
- The *paying agent* is the bank that receives the service payments from the borrower and distributes them to the participating banks.

Any given bank can play multiple roles. For instance, the lead bank is almost invariably also the largest underwriter (hence the name *lead manager*) and often provides funding as well. The main objective of syndication is to spread the risks of default. Because of the paying agent system, if the borrower defaults, the default is considered against all banks of the syndicate. This structure ensures that the borrower does not pay off the larger banks while ignoring the smaller debt holders. As in domestic banking, the borrower often signs promissory notes, one for each payment. The advantage of receiving promissory notes is that they are tradable. That is, if the lending bank needs funds, it can pass on the promissory note to another financial institution as security for a new loan, or it can sell the promissory note.

If demand by other banks to take part in the loan is good, then the borrower can potentially increase the amount of the loan. On the other hand, if there is insufficient demand, the managing banks (with the lead manager) may have to make up the difference. If the managing banks have previously guaranteed to the borrower the full amount of the proposed loan, the credit is said to be “fully underwritten.” On the other hand, if the credit is on a “best efforts” basis, the managing banks have only promised to try their best. If there is not sufficient demand in the latter case, the size of the loan may be scaled down, or the terms may be changed.

Fees and Borrowing Costs

There are several types of costs to a Eurocredit borrower in addition to the obligation to repay the loan principal. These costs can be divided into two categories: periodic costs and the up-front cost.

The up-front cost is typically a one-time fee of 1.0% to 2.5% of the total amount of the credit, which is paid to the lead manager and managing banks for organizing and managing the loan. This amount is deducted from the principal; that is, a 1% fee means that the borrower receives only 99% of the face value of the loan. In practice, the managing banks pass along a portion of this fee to the participating banks.

Periodic costs include the interest paid on the amount of the credit actually in use. If the interest agreement calls for 6-month LIBOR plus a 1.5% spread, the borrower makes periodic interest payments on the amount of the credit drawn (that is, the amount of the loan the borrower has actually received) equal to the new 6-month LIBOR established at the beginning of the current 6-month period, plus 1.5%. In addition, there will be a commitment fee (probably in the range of 0.25% to 0.75%) to be paid periodically on the unused portion of the credit in the case of a revolving credit. Finally, there is usually a small fee paid to the paying agent bank to cover administrative expenses. In summary:

$$\begin{aligned} \text{Periodic costs} &= (\text{Amount of total credit drawn}) \times (\text{Reference rate} + \text{Spread}) \\ &\quad + (\text{Amount of total credit not drawn}) \times (\text{Commitment fee}) \\ &\quad + \text{Agent fee} \end{aligned}$$

The reference rate is usually LIBOR for floating-rate loans or the long-term high-quality government bond rate for fixed-rate loans. The spread depends on the default risk of the borrower, the political risk in the borrower’s country, the maturity, and the up-front cost.

Many large banks have increasingly specialized in managing loans as middlemen. That is, they lead manage syndicated loans to receive up-front fees for their management services, and afterward, they sell off much of their loan share to smaller banks or thrift institutions. This practice stems not only from the comparative advantage of some banks in providing management services, but also from the new Basel Committee regulatory guidelines discussed earlier.

In principle, the fees are compensation for the services of the intermediaries, while the spread is a compensation for default risk. However, one can trade a higher up-front fee for a lower spread and vice versa. For instance, borrowers often accept a high up-front fee in return for a lower spread because the spread is sometimes seen as a quality rating. Importantly, both fees and credit spread must be taken into account to determine the effective cost of a loan, as we demonstrate in Section 11.6.

History and Size of Eurocredits

Exhibit 11.11 shows international syndicated credit facilities signed for selected years. At the beginning of the 1980s, the international syndicated loan market was well established. What is remarkable is the importance of borrowers from developing countries as opposed to developed markets. Equally striking is how the market almost completely dried up around 1985. We come back to these facts in Chapter 14 because they are intimately related to the Debt Crisis, a phenomenon that dominated the economies of many developing countries in the 1980s. After 1990, the market picked up again and grew dramatically for the next 17 years, with borrowers increasingly coming from the developed markets and the corporate sector. For example, in the mid-1990s, the new loans primarily refinanced outstanding loans or financed acquisitions, infrastructure projects, or the restructuring of national industries such as telecommunications. In 2000, a syndicated loan of \$30 billion, the largest ever, supported the hostile takeover of Mannesmann A.G. by Vodafone. In 2006, the total market size exceeded \$2 trillion and continued to grow until the global financial crisis of 2007 to 2010.

While syndicated deals totaled a record \$2.7 trillion in 2007, the market collapsed during the financial crisis. The decline was much sharper for developed countries than for emerging markets. Chui et al. (2010) argue that the collapse was due to both demand and supply factors. For example, the crisis largely wiped out the demand for acquisition finance, which often is facilitated using Eurocredits. At the same time, many banks curtailed the supply of credit because it became more difficult to securitize loans. Giannetti and Laeven (2010) argue that banks particularly reduced loans to foreign borrowers; that is, there was a “flight home” effect during the crisis. De Haas and Van Horen (2011) claim that banks were retreating from markets where they had less information about the borrowers.

The Secondary Market

Another major development since the early 1980s has been the increasing tendency for banks to trade Eurocredits in the secondary market. The main impetus for this market was the debt

Exhibit 11.11 International Syndicated Credits (in billions of U.S. dollars)

	1980	1985	1995	2000	2006	2009
Total	82.8	19.0	370.2	1,464.9	2,121.2	1,022.6
Developed Countries	39.9	9.5	329.4	1,331.7	1,822.3	792.7
Developing Countries	41.9	9.3	40.8	94.5	237.6	195.4

Note: The two numbers do not necessarily add to the total because of two omitted categories, “offshore centers” and “international institutions.”

Source: BIS Quarterly Review, various issues.

problem of developing countries in the 1980s. In addition, the Basel agreements on capital adequacy also presented many banks with the choice of increasing capital or removing assets from their balance sheets by selling in the secondary market.

The Euronote Market

The Euronote market is a clear example of the blurring of the distinctions between loan and security markets. The main distinction in this market is between short-term Euronotes (Euro-commercial paper and other short-term paper) and medium-term notes, although the option to issue short-term paper included in several medium-term note programs creates some overlap between the two market segments in terms of actual drawings.

Euronotes

International banks responded to the competition from the Eurobond market by creating facilities for sales of short-term, negotiable promissory notes, called **Euronotes**. In a basic Euronote facility, a syndicate of banks commits to distribute the borrower's notes (the "Euronotes") for a specified period, typically 5 to 7 years, with maturities ranging between 1, 3, 6, and 12 months. If the notes are underwritten, the syndicate banks stand ready to buy them at previously guaranteed rates. Such facilities have names, such as note issuance facility (NIF), standby note issuance facility (SNIF), or revolving underwriting facility (RUF). They give borrowers long-term continuous access to short-term money underwritten by banks at a fixed spread. Euronotes are more flexible than floating-rate notes and are usually cheaper than syndicated loans. Banks eager to beef up their earnings without fattening their loan portfolios (which would then require them to add expensive equity capital) made Euronote facilities an important segment of the Euromarket. More recently, the notes have appeared in non-underwritten form, called Euro-commercial paper (Euro-CP).

Euro Medium-Term Notes

Since the mid-1980s, a growing number of firms have been bypassing financial intermediaries and issuing **Euro-medium-term notes (Euro-MTNs)** directly to the market. Euro-MTNs bridge the maturity gap between Euro-CP and longer-term international bonds, with maturities as short as 9 months to as long as 10 years.

The first basic characteristic of a Euro-MTN is that the notes are offered continuously or periodically rather than all at once, like a bond issue, which gives issuers the flexibility to take advantage of changes in the shape and level of the yield curve and of the specific needs of investors with respect to amount, maturity, currency, and interest rate form (fixed or floating). Second, unlike conventional underwritten debt securities, medium-term notes can be issued in relatively small denominations, which makes them more flexible than the Eurobond and Eurocredit markets. Third, the costs of setting up a Euro-MTN program are much smaller than the total cost of a Eurobond issue, although its basic characteristics (coupon structure rates, maturity) are similar. Fourth, medium-term notes are not underwritten; securities firms place the paper as agents instead. Fifth, unlike public bond issues, the amounts and timing of medium-term notes sales are not disclosed. Such a lack of visibility allows companies to raise funds quickly and discreetly, without the risk of a complex public offering.

For example, suppose an MNC optimally needs USD10 million of 6-month money, USD21.0 million of 16-month money, and USD15.5 million of 24-month money. The bond market—with its high issuance costs—could not economically supply such small or precise amounts of debt, but a Euro-MTN program offers the flexibility to accomplish this precise financing need. As a concrete example, in February 2011, TeliaSonera AB, a Swedish telecom company, issued a €750 million 9-year note, under its existing €9 billion Euro-MTN program.

Exhibit 11.12 Top Arrangers of International Debt

Jan, 1, 2010–Dec. 31, 2010	2010				2009	
	Firm	Volume (\$ Million)	Rank	Mkt Share	Deal Count	Rank
Barclays Capital	271,165	1	8.2	787	1	8.2
Deutsche Bank AG	243,584	2	7.4	1013	3	6.3
JP Morgan	214,715	3	6.5	856	2	6.6
HSBC Bank PLC	184,511	4	5.6	790	4	6.0
UBS	146,430	5	4.5	548	13	2.7
BNP Paribas Group	138,562	6	4.2	621	7	4.8
Credit Suisse	134,321	7	4.1	536	11	3.6
Bank of America Merrill Lynch	129,107	8	3.9	469	8	4.2
RBS	127,983	9	3.9	623	6	5.2
Citigroup	120,195	10	3.7	493	5	5.4
Goldman Sachs & Co	114,323	11	3.5	351	10	3.9
Morgan Stanley	104,766	12	3.2	413	9	4.2
UniCredit Group	90,706	13	2.8	356	14	2.4
Credit Agricole CIB	81,639	14	2.5	345	15	2.4
Societe Generale	76,146	15	2.3	270	12	2.8
RBC Capital Markets	59,935	16	1.8	421	23	1.2
WestLB AG	53,923	17	1.6	414	24	1.1
Natixis	52,488	18	1.6	205	22	1.3
Intesa Sanpaolo SpA	46,067	19	1.4	125	19	1.5
DZ Bank AG	45,994	20	1.4	394	18	1.6
Industry Total	3,288,250		100%	9,829		100%

Source: Bloomberg 2010 Global Fixed Income League Tables, International Bonds Table.

The Major Debt Arrangers

The success of Euronotes and Euro-MTNs has blurred the line between bond and loan markets. As a result, today, the loan and securities divisions of most major financial institutions are no longer separate and distinct. When an MNC must raise money, bankers may offer the MNC loans or the opportunity to issue a Eurobond or initiate a Euronote facility. In arranging security issues, banks earn fee income. Whereas loans allow banks to earn the spread between the interest rate they charge and the interest they pay depositors in addition to fee income, they also incur a capital charge in the BIS capital adequacy framework, which banks may want to avoid. In fact, there appears to be a trend toward relationship lending, where banks provide loans only when the borrower conducts securities or advisory business with the bank.

Exhibit 11.12 shows the top 20 global debt arrangers. “Debt” in the table combines Eurocredits, international bonds, and medium-term notes. The top 20 banks account for close to 60% of the market in arranging global debt. Not surprisingly, there is regional specialization; for example, Deutsche Bank is the number one when western European borrowers are considered; but JPMorgan Chase has been in the top five for quite some time.

11.6 COMPARING THE COSTS OF DEBT

In this section, we first review how the costs of debt of various instruments can be compared. We then reflect on the fundamental sources of the costs of debt. This brings us to the topic of a firm’s credit risk and how banks measure it. Finally, we reflect on how firms can minimize their costs of debt in international financial markets and illustrate this process with some examples.

In examining the cost of alternative debt instruments, it is important to compare “oranges with oranges.” In Chapter 6, we reviewed the term structure of interest rates. Interest rates for short maturities may be lower or higher than interest rates for longer maturities. Similarly, Chapter 6 revealed interest rates on different currencies to be very different. According to the expectations theory of interest rates and foreign exchange, these differences reflect expected movements in asset prices, which should eventually equalize the cost of debt for a given maturity. We illustrated how low-interest-rate currency debt does not mean cheap debt, and we used a numeric example to show how debt costs of different maturities cannot be compared (see Example 11.1).

As you can see, it is important to compare debt instruments of nearly similar amounts that have the same maturity and cash flow patterns, are expressed in the same currency, and share the same interest rate structure. Take, for example, Eurobonds versus U.S. bonds: Because fixed-rate Eurobonds normally pay their coupons once a year, whereas U.S. bonds pay semiannually, to compare the cost of debt between the two, the interest rates have to be expressed on the same basis. A semiannual yield can be annualized by using the formula

$$\text{Annual yield} = (1 + \text{Semiannual yield})^2 - 1$$

Typically, the semiannual yield will be expressed in per annum terms; that is, to obtain the semiannual yield, one takes the annualized yield and divides by 2. For example, suppose that a Eurobond carries an annual interest rate cost of 7.00%, and a U.S. corporate bond carries an interest rate of 6.95%. Both have a maturity of 5 years; but in the U.S. corporate bond market, coupons are paid semiannually, whereas in the Eurobond market, coupons are paid annually. To compare the two bonds, we must therefore annualize the U.S. corporate bond rate:

$$\text{Semiannual yield} = \frac{6.95\%}{2} = 3.475\%$$

$$\text{Annual yield} = (1 + 0.03475)^2 - 1 = 7.07\%$$

So, this U.S. corporate bond actually has a slightly higher interest rate cost.

The All-in-Cost Principle

To compare alternative debt securities, the **all-in-cost (AIC) principle** is typically used. The AIC is the discount rate or internal rate of return that equates the present value of all the future interest rate and principal payments to the net proceeds (face value minus fees) received by the issuer.

To illustrate the AIC principle, let’s consider a Eurobond issued by GE Capital (in 2002). The bond has a face value of €2 billion; the maturity is 5 years; the price is €995.18 per €1,000 face value; the coupon is 5.125%; and the fees are 0.275%. To compute the AIC, we must trace the actual cash flows to and from GE Capital, which look as follows:

GE CAPITAL'S CASH FLOW (IN MILLIONS OF EUROS)		
Year	Cash Flows	Present Value of Cash Flows at 5.30%
0	1,984.86	1,984.86
1	(102.50)	(97.34)
2	(102.50)	(82.44)
3	(102.50)	(87.79)
4	(102.50)	(83.37)
5	(2,102.50)	(1,624.03)
		0.00

The net proceeds of the loan are less than €2,000 million for two reasons: GE Capital must pay 0.275% on €2,000 million (which is €5.5 million!) in fees to pay for the syndication, and the bond sold for 99.518% of face value. Hence, the net amount is

$$€2,000 \text{ million} \times [0.99518 - 0.00275] = €1,984.86 \text{ million}$$

The annual coupon payment is simply €2,000 million \times 0.05125 = €102.50 million; the last payment (year 5) reflects the repayment of the principal plus the last coupon payment.

The AIC is the internal rate of return of all the cash flows; in other words, it is the interest rate that makes the initial proceeds equal to the present value of all the future payments GE Capital must make. In mathematical terms, the internal rate of return, y , solves

$$1,984.86 = \frac{102.50}{(1+y)} + \frac{102.50}{(1+y)^2} + \frac{102.50}{(1+y)^3} + \frac{102.50}{(1+y)^4} + \frac{2,102.50}{(1+y)^5}$$

Software programs such as Excel have built-in commands (IRR) that compute internal rates of return for a given set of cash flows. In this example, $y = 5.30\%$. The right-hand column of the cash flow table presents the present values for each cash flow at 5.30% and demonstrates that they sum to zero. Because the present value of the cash outflows equals the net proceeds of the loan, GE Capital is said to have an AIC of 5.30%. If GE Capital wants to borrow in dollars, at fixed interest rates, for 5 years, it should try to borrow at the lowest possible AIC.

Components of the AIC

The AIC has three components: the “default-free” interest rate, the credit spread, and transaction costs. The default-free interest rate is the rate available on risk-free government securities of the same maturity. For the GE Capital example, the relevant government rate would be the 5-year rate on Bunds, German government bonds, which was 4.67% at the time GE Capital issued the bond. Hence, GE Capital paid $5.30\% - 4.67\% = 0.63\%$, or 63 basis points above the government rate.

This differential has two sources. The first is simply transaction costs. The fees that GE Capital paid to arrange the bond reduced its net proceeds and increased the effective interest rate payable on the loan. To see how much these transaction costs contribute, we compute the rate the company would pay if the fees were zero. The internal rate of return becomes 5.24%. Hence, transaction costs add only $5.30\% - 5.24\% = 0.06\%$, or 6 basis points to the AIC of the loan. Nevertheless, this is a significant cost because it amounts to €5.5 million.

The final component of the cost is the credit spread, the difference between the borrowing cost of the government and the borrowing cost of GE Capital, which in this case is $5.24\% - 4.67\% = 0.57\%$, or 57 basis points. The credit spread reflects the market’s assessment of the ability of the company to repay its debt and is typically closely associated with a company’s **credit rating**.

To sum up, the cost of a loan can be split up into three components:

$$\begin{aligned} \text{Total cost} &= \text{Risk-free rate} + \text{Credit spread} + \text{Transaction cost} \\ 5.30\% &= 4.67\% + 0.57\% + 0.06\% \end{aligned}$$

Credit Ratings

Companies compete in providing information on the creditworthiness of corporate and government borrowers. Moody’s Investors Service and Standard & Poor’s (S&P) are the best-known credit-rating organizations that provide credit ratings on U.S. domestic bonds and most international bonds, too. They classify bond issues into categories based on the creditworthiness of the borrower. The ratings are based on an analysis of current

information regarding the likelihood of default and the specifics of the debt obligation. The ability of a firm to service its debt depends on the firm's financial structure, its profitability, the stability of its cash flows, and its long-term growth prospects. The ratings only reflect creditworthiness—not exchange rate uncertainty.

In addition to Moody's and S&P, the European Rating Agency (Eurorating) and the Japan Credit Rating Agency (JCR) are major rating agencies. Until a few years ago, the capital markets in Europe and Japan were less "credit risk" sensitive than the U.S. capital market, making it possible to tap the capital market without an official rating. The corporate bond and Eurobond markets have now matured to the point that this has become very difficult.

Rating Schemes

The rating schemes used by Moody's and S&P are summarized in Exhibit 11.13. Moody's rates bonds into nine major categories, from Aaa, Aa, A, Baa, and Ba down to C; S&P uses AAA, AA, A, and BBB down to C. Ratings of Aaa to Baa for Moody's and AAA to BBB for S&P are known as investment-grade ratings. For these issues, interest payments and principal appear safe at the time of the rating. Many prominent institutional investors such as pension funds are only allowed to purchase investment-grade bonds. As a result, MNCs have a huge incentive to achieve investment-grade ratings. For bonds rated lower than investment grade, investors should assign some substantial probability to future payment problems, and hence, these issues are called "speculative." Within each of the nine categories, Moody's has three numeric modifiers, 1, 2, and 3, to place an issue, respectively, at the upper, middle, or lower end of the category, whereas S&P uses + and - modifiers.

Government borrowers are called **sovereign borrowers**. Sovereign borrowing is a sizable portion of the international bond market. In rating a sovereign borrower, S&P analyzes

Exhibit 11.13 Credit Ratings for Bond Issuers

Credit Quality	Standard & Poor's	Moody's
Investment Grade		
	AAA	Aaa
Highest quality	AA+	Aa1
	AA	Aa2
High quality	AA-	Aa3
	A+	A1
Highest middle quality	A	A2
	A-	A3
	BBB+	Baa1
Middle quality	BBB	Baa2
	BBB-	Baa3
Speculative Grade		
	BB+	Ba1
Predominantly speculative	BB	Ba2
	BB-	Ba3
	B+	B1
Low quality	B	B2
	BB-	B3
Very low quality	CCC	Caa
Highly speculative	CC	Ca
Lowest quality	C	C
In Default		
	D	

Note: Data are from the Web sites of Standard & Poor's and Moody's.

its degree of political and economic risk, which we discuss in Chapter 14. The rating assigned to a sovereign government is particularly important because it affects the ratings applied to corporations within that country.

Rating Agencies Receive an F During the Crisis

Rating agencies suffered severe criticism during the crisis. First, large numbers of securitized investments, based on subprime mortgage loans, received investment-grade (even the highest) ratings and afterward turned out to be worthless. While it is possible that the rating agencies did not fully understand these complex securities, there is no doubt that investors were misled about the safety of these investments. Second, Moody's and Standard & Poor's maintained at least A ratings on AIG and Lehman Brothers up until mid-September of 2008. Lehman Brothers declared bankruptcy on September 15, 2008; the

federal government provided AIG with its first of four multibillion-dollar bailouts the next day. Not surprisingly, the rating agencies have been investigated by the SEC and the U.S. government regarding the role they played in the crisis. After all, the agencies are paid by the bank or company issuing the security and asking for a rating. This business model generates an obvious conflict of interest, as the rating agencies may not be inclined to give their clients a bad rating, thereby jeopardizing future revenues. In any case, the performance of the rating agencies during the crisis surely deserves a failing grade.

Minimizing the Cost of Debt Internationally

Why Source Debt Internationally?

This chapter illustrates the rich diversity of global debt markets. Nevertheless, we have also cautioned that this world of opportunities does not necessarily mean that an MNC can easily lower its cost of capital by sourcing debt internationally. There may be other reasons than “price” to issue offshore. For example, as indicated before, large companies in emerging markets may face a relatively illiquid and small funding market at home and can access more complete, liquid, and diversified funding sources abroad. Companies worried about future refinancing needs may find it useful to diversify funding sources. While liquidity crises may be correlated across countries, it is likely that some countries are less affected than others. Companies may also source debt in different currencies simply to hedge foreign currency revenues.

If an MNC wants to minimize its fixed-interest cost of debt for a given maturity and currency of denomination, the AIC measured in the headquarters' currency is the correct number to minimize. We already discussed that when UIRP does not hold, sourcing debt in low-interest-rate countries may be less costly. If the low-interest-rate currency does not appreciate as predicted by the interest rate differential, the MNC will have lowered its cost of debt. This also entails risk. An unexpected appreciation of the currency beyond the built-in appreciation implied by the forward rate will increase the MNC's cost of debt relative to borrowing at home.

Many companies issue debt in foreign currencies but hedge the currency risk. In the previous section, we learned that the AIC has three components. Hence, there are three channels through which foreign borrowing can lower the AIC:

1. Transaction costs are lower.
2. The credit spread is lower.
3. The “hedged” foreign interest rate is lower than the local risk-free rate.

Whereas the first channel is pretty easy to understand, it will be helpful to go back to the Dig-It-Up example to illustrate the second and third channels.

Example 11.3 International Credit Spreads and the AIC

Suppose we supplement the data for 1-year borrowing for Dig-It-Up, the Canadian MNC from Example 11.1, as follows:

	LIBOR (r)	Dig-It-Up's Rates (i)
CAD	2.50	3.00
AUD	4.75	5.00

The column labeled Dig-It-Up's Rates refers to the actual 1-year borrowing rates that Dig-It-Up faces in both markets compared to the LIBOR rates that are for AAA credits. Hence, Dig-It-Up faces a 50-basis point credit spread in CAD, but only a 25-basis point spread in AUD. In what currency should Dig-It-Up borrow if the borrowing transaction costs are similar? Because Dig-It-Up is Canadian based, if it borrows in AUD, it must hedge the currency risk by buying AUD forward. Assume that the spot rate is AUD1.10/CAD. If covered interest rate parity holds, the forward rate will be

$$F = S \times \frac{[1 + r(\text{AUD})]}{[1 + r(\text{CAD})]} = \frac{\text{AUD}1.10}{\text{CAD}} \times \frac{1.0475}{1.025} = \frac{\text{AUD}1.1241}{\text{CAD}}$$

The relevant interest rates for the covered interest rate parity (CIRP) relation are the LIBOR rates, $r(\text{AUD})$ and $r(\text{CAD})$.

Because interest rate parity is satisfied, we know that an AAA company borrowing at 4.75% in Australia dollars would face an effective Canadian dollar interest rate of 2.50% when hedging the AUD currency risk by buying the necessary AUD funds in the forward market to pay off the loan. Of course, if CIRP were not to hold, this is another way to capitalize on different borrowing costs across countries. For the developed countries, we argued that CIRP holds up very well, but for many emerging markets, this may not be the case.

However, Dig-It-Up does not have an AAA credit rating, and so it faces the higher borrowing costs displayed in the table. The "hedged" CAD borrowing cost for Dig-It-Up when borrowed in AUD can be calculated by examining the hedged costs of repayment. Dig-It-Up would borrow AUD1.10 to get CAD1. It would owe interest at 5%, and it can hedge the AUD interest and principal payment by buying AUD at the forward rate of AUD1.1241/CAD. Its hedged borrowing cost will therefore be

$$\text{AUD}1.10 \times [1 + 0.05] \times \frac{1}{\text{AUD}1.1241/\text{CAD}} - 1 = 2.75\%$$

Note that 2.75% is lower than 3.00% by 25 basis points, the cost of borrowing directly in CAD. The reason is that Dig-It-Up faces a credit spread in Australia that is 25 basis points lower than in Canada!

Example 11.3 suggests that in efficient, integrated markets, credit spreads ought to be equalized across countries; otherwise, companies should all borrow in the countries where credit spreads are lowest and then hedge the exchange rate risk. This reasoning is correct for the example, but the statement is generally only true for "multiplicative" credit spreads rather than the "absolute" credit spreads that are commonly used. The absolute credit spread simply reflects the difference between the company's interest rate and the risk-free rate, whereas the

multiplicative spread is somewhat smaller, reflecting the (gross) rate at which the risk-free rate must be scaled up to obtain the company's interest rate. Our example lists absolute credit spreads (designated $acsp$):

$$\begin{aligned} acsp(\text{CAD}) &= i(\text{CAD}) - r(\text{CAD}) = 0.50\% \\ acsp(\text{AUD}) &= i(\text{AUD}) - r(\text{AUD}) = 0.25\% \end{aligned}$$

However, the credit spreads across currencies are really only comparable when expressed in multiplicative form. The multiplicative credit spread ($mcsp$) in this case is defined as

$$\begin{aligned} 1 + i(\text{CAD}) &= [1 + mcsp(\text{CAD})] \times [1 + r(\text{CAD})] \\ 1 + i(\text{AUD}) &= [1 + mcsp(\text{AUD})] \times [1 + r(\text{AUD})] \end{aligned}$$

Only if $mcsp(\text{CAD}) = mcsp(\text{AUD})$ will the cost of borrowing in CAD and in AUD while hedging the currency risk be equivalent. To see this, note that the cost of borrowing in AUD, while hedging the currency risk, is

$$[1 + i(\text{AUD})] \times \frac{S(\text{AUD}/\text{CAD})}{F(\text{AUD}/\text{CAD})}$$

with S and F representing the spot and forward rates. Using CIRP, we obtain

$$[1 + i(\text{AUD})] \times \frac{[1 + r(\text{CAD})]}{[1 + r(\text{AUD})]} = [1 + mcsp(\text{AUD})] \times [1 + r(\text{CAD})]$$

This value equals $[1 + i(\text{CAD})]$ only if $mcsp(\text{AUD}) = mcsp(\text{CAD})$. For our example, note that

$$\begin{aligned} mcsp(\text{CAD}) &= \frac{1.03}{1.025} - 1 = 0.49\% \\ mcsp(\text{AUD}) &= \frac{1.05}{1.0475} - 1 = 0.24\% \end{aligned}$$

In other words, absolute or multiplicative credit spreads are almost indistinguishable when interest rates are low. However, at higher interest rate levels, discrepancies between relative and absolute credit spreads increase.

Example 11.4 Credit Spreads at High-Interest-Rate Levels

Suppose the 1-year interest rate on Mexican pesos (for an AAA credit) is 50% and that a multinational corporation faces a 1-year MXN borrowing cost of 60%. Hence, the absolute credit spread is $acsp(\text{MXN}) = 60\% - 50\% = 10\%$, and the multiplicative credit spread is

$$mcsp(\text{MXN}) = 6.67\% = \left[\frac{1 + 0.60}{1 + 0.50} - 1 \right] \times 100$$

The risky company's borrowing cost in the United States will be identical to its borrowing cost in Mexico as long as its multiplicative credit spread in the United States is also 6.67%. If the USD interest rate for an AAA credit is 5%, the USD interest rate equivalent to 60% in Mexico is $1.05 \times 1.0667 = 12\%$. Hence, the absolute credit spread in U.S. dollars that is equivalent to an absolute credit spread of 10% in Mexican pesos is only $12\% - 5\% = 7\%$!

Credit Spreads Across Countries

There are many reasons companies face different (multiplicative) credit spreads in different markets. One reason is that credit perceptions differ across markets. For example, in the not-so-recent past, European and Japanese retail investors were less concerned about credit risks, especially when the brand-name products produced by an MNC were familiar in the marketplace. Ford Motor Credit, for example, successfully raised €1.5 billion in the international bond markets in 2003 even though some U.S. credit analysts were worried about a deterioration of Ford's creditworthiness. European retail and institutional investors were obviously less concerned. As a result, Ford was able to lower the yield offered on the bonds relative to what it would have been in the U.S. corporate bond market.

How could such credit spread differentials persist? If credit spreads are larger in one country than in another, investors would like to sell short securities in countries with low credit spreads (where security prices are high) and invest in comparable securities in countries with high credit spreads (where security prices are low) while hedging their currency risk. This arbitrage is not so easy for several reasons. First, transactions costs can be significant when the securities are traded in the secondary market. Second, the arbitrage is risky because the company involved may go bankrupt, in which case finding out what the securities are actually worth could take a long time. Also, the arbitrageur will still be left with an open forward contract that must be paid. This leaves the arbitrageur exposed to currency risk. Nevertheless, such attempted arbitrage clearly takes place in international markets, and, as it does, the credit rate differentials between local and international markets narrow.

Finally, there are cyclical variations in credit spreads that are not necessarily perfectly correlated across countries. Credit spreads tend to be countercyclical, widening in economic downturns and falling in economic booms. MNCs can react to such cycles in an effort to exploit them, but, in general, opportunities to lower the cost of debt through credit spread arbitrage are decreasing over time because of the ongoing globalization process.

Empirical Evidence

A number of academic studies have tried to systematically examine why firms source debt internationally and, more specifically, whether they exploit deviations from covered and/or uncovered interest rate parity. In fact, McBrady and Schill (2007) studied the currency composition of international bonds issued by governments and government agencies, finding concrete evidence that they try to source debt in the currencies that produce the lowest AICs after hedging. This is concrete evidence that yield arbitrage is one motive for international bond issues, as these governments do not tend to have a hedging motive for sourcing debt in different currencies. McBrady et al. (2010) show that large firms with high ratings attempt to exploit covered yield differentials across countries. The yield benefits appear small, less than 10 basis points on average. The fact that emerging-market and non-investment-grade issuers do not take advantage of such opportunities is simply due to the fact that hedging the cash flows in the currency they want (e.g., through swaps) is too expensive for them, swamping the yield advantage. The authors also demonstrate some evidence of opportunistic behavior in firms issuing in low-yield currencies when the interest differential is particularly large. In both cases, the yield differentials dissipate after issuances, suggesting that international bond issuances may in fact help enforce interest rate parity (both covered and uncovered) at longer horizons.

Black and Munro (2010) largely confirm these findings for Asian-Pacific borrowers. They note that the bulk of foreign borrowing is hedged into local currency using derivative markets or is used as a hedge against foreign currency income (for exporters for instance). They also show that many non-investment-grade borrowers in the markets they study escape a poorly developed local market by borrowing offshore. Brown et al. (2009) focus on loans to small businesses in Eastern Europe, where foreign currency borrowing has increased substantially over the past decade. They find that firms with foreign currency

revenues borrow more in foreign currency. They cannot confirm “carry trade behavior” (unhedged borrowing in low-interest-rate currencies) but do show that when banks (e.g., foreign banks) have less access to information about a firm’s revenue streams, more foreign currency borrowing occurs.

POINT-COUNTERPOINT

Financing Chocolate Globalization

When Suttle bursts into Freedy’s room one sunny afternoon, he finds Ante and Freedy glued to the computer screen, surrounded by heaps of paper. “Hey guys, fancy a quick afternoon coffee?” Freedy and Ante both sigh, and Freedy says, “I am afraid we’ve got to really continue working because we must finish this case for tomorrow’s class on corporate finance. And, unfortunately, we are not making much progress right now.”

“Well, maybe I can help. What is it about?” Suttle asks. Ante throws a small package of papers Suttle’s way. “Here, read for yourself,” says Ante. “The more I learn about finance, the less I understand what the heck is going on.” Suttle is soon engaged in reading the case while Ante and Freedy wrestle with their spreadsheets.

The case is about the financing of an acquisition of a private U.S. chocolate company, Worshey’s, by a Swiss, multinational food product company, Cote D’Argent, with its own line of chocolate products. The financial team of Cote D’Argent is looking at three possibilities: a straight Eurobond in euros, a straight Eurobond denominated in yen, and a yen/euro dual-currency bond. All bonds have a maturity of 5 years, with annual coupons. The case asks which type of bond the company should pick and why. It also asks why there might be differences in financing costs across the three different instruments. Suttle finds it so fascinating that he starts to really investigate the numbers of the case. The details on the three bonds are as follows:

Face Value	<u>Euro Eurobond</u> €100 million	<u>Yen Eurobond</u> ¥14 billion	<u>Yen/Euro Dual-Currency Eurobond</u> ¥14 billion
Price as a % of face value	100%	101%	98%
Fees	1.25%	0.90%	0.90%
Coupon (annual)	4.10%	1.00%	2.00%
Final redemption	Par	Par	€104.90 million

The two yen-related bonds would be arranged through a syndicate run by Kozuma, a Japanese investment bank. Kozuma is negotiating aggressively with Cote D’Argent to consider the yen instruments. Kozuma is also suggesting that Cote D’Argent should immediately hedge out the currency risk by using forward contracts and is offering the following exchange rates (in yen/euros): Spot rate: 140.00; Forward rates: 1-year, 136.78; 2-year, 133.03; 3-year, 128.87; 4-year, 124.50; 5-year, 120.12. The Eurobond issue would be run by a syndicate headed by Kneutsche Bank, a German universal bank.

After digesting the numbers, Suttle asks, “What are your conclusions so far?” Ante excitedly points toward the spreadsheets onscreen: “Either the case is not realistic, or we have made a huge mistake: The dual-currency bond is too good to be true! I first thought that taking on yen debt would be great: The interest rate is so low! However, Freedy convinced me that Cote D’Argent might not want to take on currency risk, and the low interest rates simply reflect the fact that the euro trades at a huge forward

discount relative to the yen. You can see from the forward exchange rates that there is a large implicit yen appreciation, from ¥140/€ to almost ¥120/€. So, we decided to compute the cost of debt for hedged cash flows using the forward exchange rates to convert yen into euros.”

“Wow, I am impressed,” Suttle says. “Did you also take the fees into account?”

“Oh yeah!” answers Freedy, “We computed the all-in cost as you should. Here are our spreadsheets.”

Suttle takes a peek at the spreadsheets, which present Cote D’Argent’s cash flows:

Year	(¥/€) Rates	I. Euro Eurobond	II. Yen Eurobond		III. Yen/Euro Dual-Currency Eurobond	
		Euro Cash Flows	Yen Cash Flows	Euro Cash Flows	Yen Cash Flows	Euro Cash Flows
0	140.00	98.75	14,014	100.10	13,594	97.10
1	136.78	(4.10)	(140)	(1.02)	(280)	(2.05)
2	133.03	(4.10)	(140)	(1.05)	(280)	(2.10)
3	128.87	(4.10)	(140)	(1.09)	(280)	(2.17)
4	124.50	(4.10)	(140)	(1.12)	(280)	(2.25)
5	120.12	(104.10)	(14,140)	(117.72)	(280)	(107.23)
All-In Costs		4.38%		4.11%		3.73%

Note: The year 0 cash flows are price as a percentage of face value minus fees. The interest rate on the euro Eurobond is 4.1%, the interest rate on the yen Eurobond is 1%, and the yen interest rate on the dual-currency Eurobond is 2%. Euro cash flows are calculated with the respective exchange rate in column 2. The final payment on the dual-currency Eurobond is €104.90 plus the euro value of the yen interest payment.

Suttle inquires, “So, the AIC is the internal rate of return that equates the present value of the future cash outlays with today’s euro revenues, net of fees, right?”

“Yeah, of course,” shouts Ante. “Maybe you can tell me why the dual-currency bond is so cheap. Clearly, Kozuma either made a mistake, or they are plain stupid to have given Cote D’Argent a deal like that. If Japanese investors really invest in this bond, they must be pretty irrational.”

Freedy interjects, “Well, I think that is the wrong perspective. Perhaps the Japanese investors simply want some exposure to long-term euro risk, plus they are getting a nice coupon. They might be betting that the €104.90 million that they are getting back in 5 years will be still worth ¥14,000 million, in which case they get a great deal, relative to the 1% bond. But the forward value of the €104.90 million is only €104.90 million \times ¥120.12/€ = ¥12,601 million, so they are definitely taking a risk.”

After Suttle takes another look at the spreadsheets, he summarizes the situation: “I think your computations are right, and yes, both yen alternatives are cheaper than the euro alternative, with the dual-currency bond clearly offering the lowest cost of debt to Cote D’Argent. The company should use that bond to finance the acquisition.”

“Why can there be such substantial differences? I think there are grains of truth in what both of you are saying,” continues Suttle. “It is possible that Japanese investors, which are probably the target market for the dual-currency bonds, are indeed blinded by the high yen coupon rate because interest rates in Japan are very close to zero. They are likely aware of the currency risk, though. Japanese investors are really betting on the euro being stronger than implied by forward rates.

“I believe there is some empirical evidence for the fact that high-yield currencies do not depreciate by as much as implied by forward exchange rates, but it is not clear that investors would like to speculate on this with a bond,” says Suttle. “Besides, smart investors could try

to set up an arbitrage with the dual-currency bond. The yield is too low, so you'd like to sell the bond and 'buy' the underlying cash flows in, say, Treasury markets and exchange rate markets. However, such arbitrage is not risk free because Cote D'Argent may default on the bond. Moreover, transaction costs in long-date forward contracts are high. Also, there might not be a very liquid secondary market for these bonds. Hence, I am not so worried about the 27-basis point difference between the yen Eurobond and the euro Eurobond. It might be due to a difference in credit perceptions in Europe and Japan and may be hard to arbitrage. Cote D'Argent's chocolate is really popular in Japan, so some investors might very well like to buy the company's bonds. It is also striking that the fees Kozuma demands are lower than the fees for the euro Eurobond. It may be that this is part of a relationship-banking ploy. Kozuma might be keen to work with Cote D'Argent in an effort to do other, more profitable business with the company later on. However, the fact that the dual-currency bond is another 40 basis points cheaper is surprising. It is possible that for some Japanese investors, the dual-currency bond is advantageous from a tax or competitive viewpoint. For example, the dual-currency bond may be viewed as entirely domestic, even though, in truth, it is not."

"All right, Suttle. I think we've got it solved. Let's go for coffee," Ante declares.

"And let's have a nice bar of Cote D'Argent chocolate with it," Freedy yells. "What I really wonder about is why such a fine chocolate company would want to acquire such a horrible Worshey's product."

"You Euro-snob," shouts Ante. "I love my Worshey's!"

11.7 SUMMARY

This chapter analyzes debt financing in a global world. Its main points are the following:

1. Debt is only one source of funds for MNCs. MNCs can also issue equity or finance projects using their internally generated funds.
2. Debt instruments differ in currency of denomination, maturity, nature of interest rate payments, tradability, and international character.
3. Under a decentralized debt-denomination model, MNCs issue debt in different currencies to hedge the cash flows they earn in these currencies from their foreign subsidiaries. If the debt is centralized—that is, issued in the currency of the MNC's headquarters—the profits from the MNC's foreign subsidiaries are subject to additional currency risk.
4. Issuing debt in low-interest-rate currencies does not reduce a company's debt costs if international markets are efficient.
5. MNCs can issue short-term or floating-rate debt, or they can issue long-term fixed-rate debt. As with the currency of denomination, there is no free lunch here: If short-term rates are lower than long-term rates, this may be an indication of impending interest rate increases.
6. MNCs can borrow from a financial institution, in which case the debt is called *intermediated debt*.
7. Alternatively, they can issue securities to investors in the capital markets. The trend toward direct issues is called *financial disintermediation*.
8. International bonds are traded outside the country of the issuer. If they are issued in a particular domestic bond market, they are called *foreign bonds*. If they are issued simultaneously in various markets, outside the specific jurisdiction of any country, they are called *Eurobonds*.
9. The foreign bond and Eurobond markets make up about 30% of the global bond market.
10. Because foreign bonds are subject to local regulations, in some countries, such as the United States, they require a lengthy registration process.
11. Eurobonds are placed among investors with the help of a syndicate of financial institutions.
12. The acceleration of globalization, including tax harmonization, financial deregulation, and the relaxation of capital controls, has blurred traditional distinctions between domestic and international bonds. Global bonds, for example, are issued simultaneously in a domestic market and in the Eurobond market.
13. Bonds can have a fixed interest rate (straight issues), no interest at all (zero-coupon bonds), or a floating interest rate that varies with LIBOR rates. Convertible bonds allow the holder to convert the

- bonds into shares, or stock. Dual-currency bonds are issued in one currency and pay interest in that currency, but the final principal payment is in another currency.
13. Banks are MNCs and are subject to international banking regulation in the form of capital adequacy standards set by the Basel Committee.
 14. To engage in international banking activities, banks may use correspondent banks, representative offices, foreign branches, affiliate banks, or subsidiary banks. These different organizational forms determine the degree of service and control exercised by the parent bank.
 15. Offshore banking centers conduct international banking activities in a “lightly” regulated setting. International banking activities can also be organized in the United States via an Edge Act bank or international banking facility.
 16. Eurocredits are long-term bank loans extended by a syndicate of banks in countries other than the country in whose currency the loans are denominated. Most Eurocredits are of the floating-rate variety, with the interest rates set at a spread above LIBOR.
 17. Euronotes and Euro-medium-term notes give borrowers access to short- or long-term loans via the intermediation of financial institutions. These securities blur the distinctions between debt and loan markets.
 18. To compare the cost of debt across markets, debt instruments must have approximately the same maturity, be expressed in the same currency, and be of the same rate structure (fixed or floating), and their interest rates must be expressed on the same basis (that is, annualized appropriately).
 19. The all-in cost (AIC) is the discount rate, or internal rate of return, that equates the present value of all future interest rate and principal payments to the net proceeds received by the issuer. The AIC can be split up into three components: the risk-free rate, the credit spread, and transaction costs.
 20. S&P and Moody’s rate the credit risk of debt instruments based on the creditworthiness of the borrower.
 21. MNCs should minimize the AIC of their debts expressed in the local currency of the country in which they are headquartered. Opportunities to reduce these costs appear to be related to differences in credit spreads across countries.
 22. As markets become more internationally integrated, opportunities to lower the cost of capital in global markets may diminish.

QUESTIONS

1. What are the three main sources of financing for any firm?
2. What is the difference between a centralized and decentralized debt denomination for an MNC?
3. Will an MNC issuing debt in low-interest-rate currencies necessarily lower its cost of funds? Why?
4. Should an MNC borrow primarily short term when short-term interest rates are lower than long-term interest rates? Or should it keep the maturity the same but use a floating-rate loan rather than a fixed-rate loan? Explain.
5. What is financial disintermediation?
6. What are the two main segments of the international bond market, and what types of regulations apply to them?
7. What is the difference between a foreign bond and a Eurobond?
8. Why might U.S. investors continue to purchase Eurobonds, despite the fact that the U.S. corporate bond market is well developed?
9. What is a global bond, and what role does the global bond market play in the blurring of the distinctions in the international bond market?
10. What are the differences between a straight bond, a floating-rate note, and a convertible bond?
11. What is a dual-currency bond?
12. What kind of activities do international banks engage in?
13. Why is there a need for international banking regulation?
14. What are the differences between credit risk, market risk, and operational risk?
15. What is systemic risk?
16. Which activity would require the largest capital charge under the 1988 Basel Accord: a loan to another bank or a loan to a large MNC? Would this necessarily be true under the Basel II rules?
17. What is VaR?
18. What is the difference between a foreign branch and a subsidiary bank?

19. What is an offshore center?
20. What is the difference between an Edge Act bank and an international banking facility?
21. What is the difference between a Eurocredit, a Euro-note, and a Euro-medium-term note?
22. Why are Eurocredits not extended by one bank but by a large syndicate of banks?
23. What is the all-in cost of a 5-year loan? What are its main components?
24. What is a credit rating? What is a credit spread?
25. Should corporations issue bonds in countries where they face the lowest credit spreads? Be very specific about the concept of credit spread you use.

PROBLEMS

1. In 1985, R. J. Reynolds (RJR for short) acquired Nabisco Brands and financed the deal with a variety of financial instruments, including three dual-currency Eurobonds. The first dual-currency bond, lead-managed by Nikko, raised JPY25 billion (equivalent to USD105.5 million at the time of issue). Coupons were paid in yen, but the required final principal payment was not JPY25 billion but USD115.956 million. The coupon was 7.75%, even though a comparable fixed-rate Euroyen bond at that time carried only a 6.375% coupon. The actual 5-year forward rate at the time was around JPY200/USD.
 - a. Given the “fat” coupon, is this bond necessarily a great deal for the investors?
 - b. At maturity, in August 1990, the exchange rate was actually JPY144/USD. Was the bond a good deal for investors?
2. GBA Company wishes to raise \$5,000,000 with debt financing. The funds will be repaid with interest in 1 year. The treasurer of GBA Company is considering three sources:
 - i. Borrow USD from Citibank at 1.50%
 - ii. Borrow EUR from Deutsche Bank at 3.00%
 - iii. Borrow GBP from Barclays at 4.00%

If the company borrows in euros or British pounds, it will not cover the foreign exchange risk; that is, it will change foreign currency for dollars at today’s spot rate and buy foreign currency back 1 year later at the spot rate prevailing then. The GBA Company has no operations in Europe.

A representative of GBA contacts a local academic to provide projections of the spot rates 1 year in the future. The academic comes up with the following table:

Currency	Spot Rate	Projected Rate 1 Year in the Future
USD/GBP	1.50	1.55
USD/EUR	0.95	0.85

 - a. What is the expected interest rate cost for the loans in EUR and GBP?
 - b. What are the projected USD/GBP rate and USD/EUR rate for which the expected interest costs would be the same for the three loans?
 - c. Should the country borrow in the currency with the lowest interest rate cost? Why or why not? Would your answer change if GBA did generate cash flows in the United Kingdom and continental Europe?
3. FE Company wishes to raise \$1,000,000 with debt financing. The treasurer of FE Company considers two possible instruments:
 - i. A 2-year floating-rate note at 1% above the 1-year dollar LIBOR rate on which interest is paid once a year
 - ii. A 2-year bond with an interest rate of 5%

Currently, the dollar LIBOR is 1.50%.

 - a. Is it obvious which security the Treasurer should pick?
 - b. Suppose the Treasurer believes that the 1-year LIBOR rate 1 year from now will rise to 4.50%. Which security has the lowest expected AIC if borrowing fees are similar for the two instruments?
4. K3 Company wants to borrow \$100 million for 5 years. Investment bankers propose to either do a syndicated Eurocredit or issue a Eurobond. The Eurocredit would be denominated in dollars, but the Eurobond would be denominated in different currencies for different markets (these issues are called tranches):
 - Terms: Syndicated Eurocredit
 - Amount: USD100 million
 - Up-front fees: USD1.25%
 - Interest rate: Interest payable every 6 months; LIBOR plus 1.00%
 - Terms: Eurobond
 - Tranche 1: USD 50 million, Interest rate: 3.50%
 - Tranche 2: ¥5,952 million (equivalent of USD50 million), Interest rate 1.5%
 - a. What are the net proceeds in USD for K3 for the Eurocredit loan?

- b. Assuming that the 6-month LIBOR in USD is currently at 2.00%, what is the effective annual interest cost for K3 for the first 6 months of the loan?
 - c. Compute an effective annualized interest rate cost (all-in cost) for the USD tranche of the Eurobond.
 - d. What information would you need to obtain the dollar all-in cost of the yen tranche?
 - e. What elements would you take into account to choose between the two possibilities?
5. Suppose Intel wishes to raise USD1 billion and is deciding between a domestic dollar bond issue and a Eurobond issue. The U.S. bond can be issued at a 5-year maturity with a coupon of 4.50%, paid semi-annually. The underwriting, registration, and other fees total 1.00% of the issue size. The Eurobond carries a lower annual coupon of 4.25%, but the total costs of issuing the bond runs to 1.25% of the issue size. Which loan has the lowest all-in cost?
6. Web Question: In 2010, Coca-Cola FEMSA, a bottler in Mexico, issued a \$500 million 10-year bond. Look up more details about this issue. What type of bond is it? How was it rated? What is the credit spread associated with the bond?

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