

Chapter Objectives

- Explain the debt denomination dilemma for MNCs that need long-term debt financing.
- Illustrate how MNCs conduct analysis to make the debt denomination decision.
- Explain how currency swaps and parallel loans facilitate long-term debt financing.
- Explain how an MNC determines the optimal maturity when obtaining debt.
- Explain how an MNC decides between using fixed rate versus floating rate debt.

Long-Term Debt Financing

Subsidiaries of MNCs commonly finance their operations with the currency in which they invoice their products.

The MNC's cost of debt affects its required rate of return when it assesses proposed projects. Features of debt such as currency of denomination, maturity, and whether the rate is fixed or floating can affect the cost of debt, and therefore affect the feasibility of projects that are supported with the debt.

Debt Denomination Decision of Foreign Subsidiaries

- When a U.S.-based MNC's foreign subsidiary needs to borrow funds, it considers the following choices:
 - Borrow funds denominated in the local currency where it is located, and use funds generated from its local sales in the same currency to repay the debt.
 - Borrow funds denominated in dollars, and convert the dollars into the local currency in order to support existing operations or expansion there.

Foreign Subsidiary Borrows Its Local Currency

Many subsidiaries of MNCs finance their operations or expansion by borrowing in their local currency, which they also use to invoice their products. This strategy allows a foreign subsidiary to match the currency received from its sales with the currency needed to repay its debt. Because the subsidiary does not need to convert its currency received from sales into another currency to repay its debt, it avoids any exchange rate risk on its debt repayments.

Comparison of Long-Term Interest Rates among Countries — If subsidiaries of MNCs match the currency they borrow with the currency they use to invoice products, then their cost of debt will depend on the prevailing local interest rate of their host country. Exhibit 18.1 illustrates how long-term risk-free bond yields can vary among countries.

Exhibit 18.1 Annualized Bond Yields among Countries (based on 10-year maturity as of October 2018)

COUNTRY	ANNUALIZED BOND YIELD
Australia	2.6%
Brazil	12.2
Canada	2.4
Germany	0.5
Greece	4.1
India	8.4
Japan	0.1
New Zealand	2.6
Russia	8.6
South Korea	2.3
Turkey	18.2
United Kingdom	1.6
United States	3.0

Foreign Subsidiary Borrows Dollars

If a foreign subsidiary of a U.S.-based MNC is located in a developing country that has a high local interest rate, it can borrow dollars instead of the local currency. Because the U.S. interest rate is typically much lower than the interest rate in the developing country, this strategy offers an obvious advantage: The foreign subsidiary can borrow funds at a lower rate of interest.

Foreign Subsidiary Borrows Dollars and Hedges Exchange Rate Risk — A foreign subsidiary in a developing country could attempt to hedge its future loan payments in dollars. To do so, it would need to sell its local currency forward in exchange for dollars at future points in time to make the periodic loan repayments.

Debt Denomination Analysis: A Case Study (1 of 2)

Consider the case of Boise Co. (a U.S. company), which has a Mexican subsidiary that will need about 200 million Mexican pesos (MXP) to finance its Mexican operations over the next three years. Although the Mexican subsidiary will continue to exist after this time, focusing on a three-year period is sufficient to illustrate a common subsidiary financing dilemma when the host country interest rate is high. Assume the peso's spot rate is \$0.10, so the financing represents \$20 million (computed as $\text{MXP}200 \text{ million} \times \0.10). To finance its operations, Boise considers two financing alternatives:

1. **Peso loan.** Boise's Mexican subsidiary can borrow MXP200 million to finance the Mexican operations. Assume the interest rate on a three-year fixed-rate peso-denominated loan is 12 percent. If the Mexican subsidiary borrows Mexican pesos, it can match its cash inflow currency (from sales generated in Mexico) with the currency needed to repay the loan.
2. **Dollar loan.** The Mexican subsidiary can borrow \$20 million and convert the funds into MXP200 to finance the Mexican operations. The interest rate on a three-year fixed-rate dollar-denominated loan is 7 percent.

Debt Denomination Analysis: A Case Study (2 of 2)

Analyzing Debt Denomination Alternatives

- Assume that all loan principal is repaid at the end of three years. Exhibit 18.2 presents an analysis of the cash outflows associated with each debt financing method.
- **Accounting for Uncertainty of Financing Costs** — The estimated cost of debt financing when the subsidiary borrows a different currency than that of its host country is highly sensitive to the forecasted exchange rates.

Exhibit 18.2 Comparison of Two Alternative Loans with Different Debt Denominations for the Foreign Subsidiary

	YEAR 1	YEAR 2	YEAR 3
PESO LOAN OF MXP200,000,000 at 12%:	MXP24,000,000	MXP24,000,000	MXP24,000,000 + loan principal repayment of MXP200,000,000
U.S. DOLLAR LOAN OF \$20,000,000 at 7%: Loan repayment in U.S. dollars	\$1,400,000	\$1,400,000	\$1,400,000 + loan principal repayment of \$20,000,000
Forecasted exchange rate of peso	\$.10	\$.09	\$.09
Pesos needed to repay dollar loan	MXP14,000,000	MXP15,555,556	MXP237,777,778

Strategies to Hedge Foreign Financing

Using Currency Swaps

- A currency swap specifies the exchange of currencies at periodic intervals and may allow the MNC to have cash outflows in the same currency in which it receives most or all of its revenue. (Exhibits 18.3)

Using Parallel Loans

- If an MNC is not able to borrow a currency that matches its invoice currency, it might consider financing with a parallel (or back-to-back) loan so that it can match its invoice currency. In a parallel loan, two companies provide simultaneous loans with an agreement to repay those loans at some specified future time. (Exhibits 18.4 and 18.5)

Exhibit 18.3 Illustration of a Currency Swap

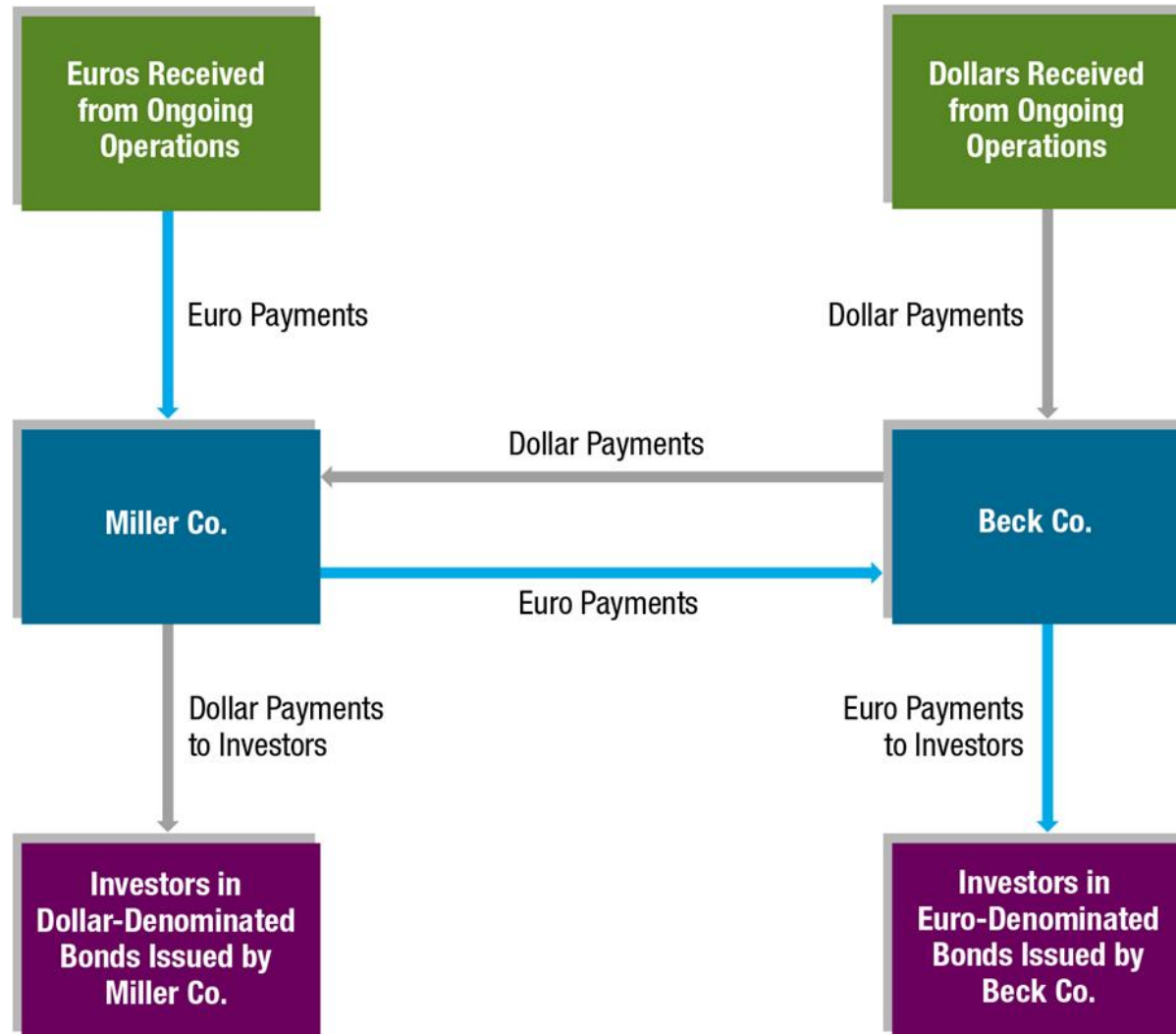
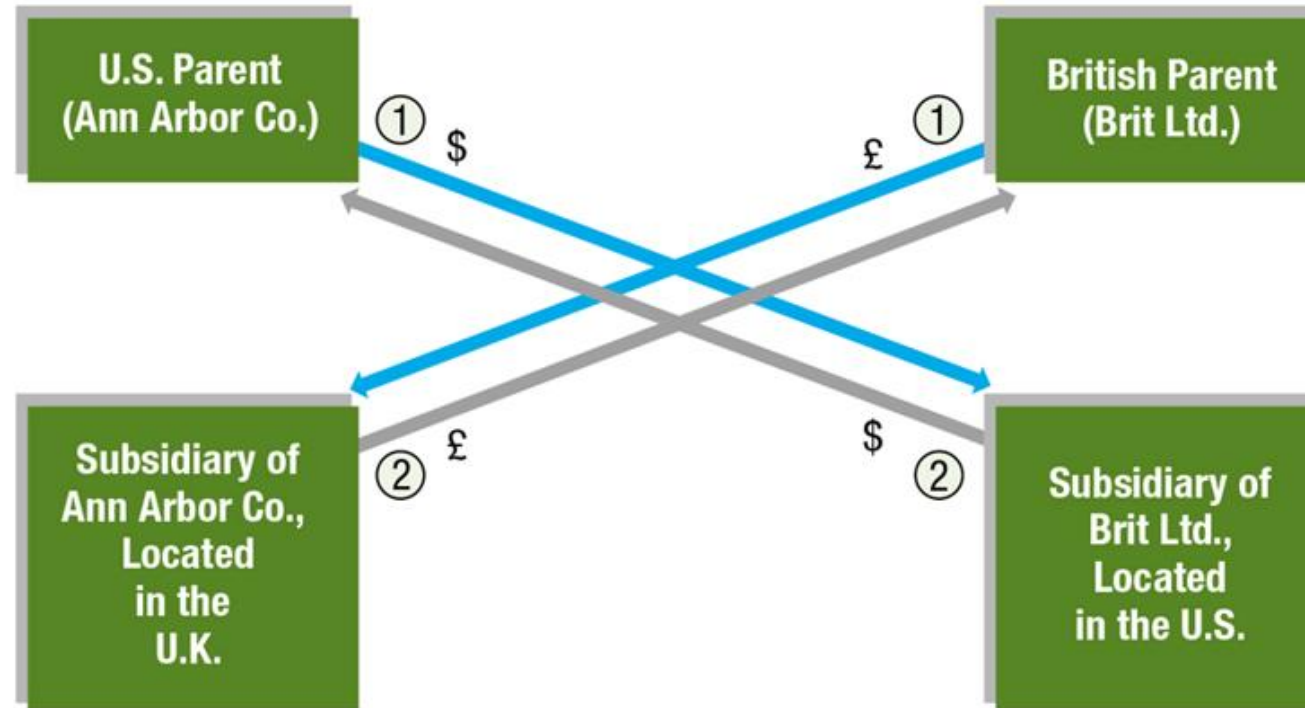
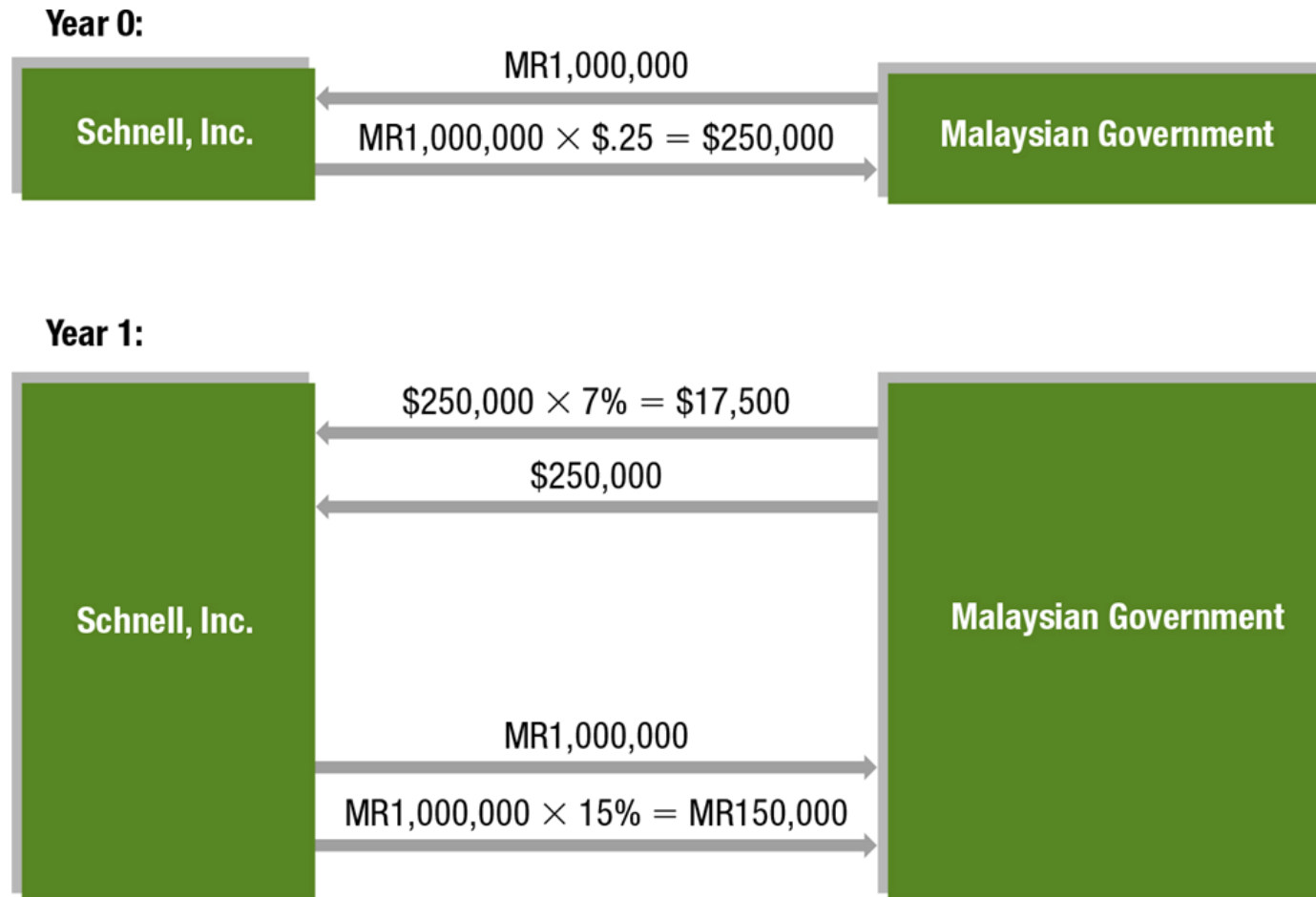


Exhibit 18.4 Illustration of a Parallel Loan



1. Loans are simultaneously provided by each parent to the other parent's subsidiary.
2. At a specified time in the future, the loans are repaid in the same currency that was borrowed.

Exhibit 18.5 Illustration of a Parallel Loan



Debt Maturity Decision

Assessment of the Yield Curve:

- MNCs assess the yield curve of the country in which they need funds. The shape of the yield curve, which illustrates the relationship between debt maturity and the annualized yield of the debt (cost of the debt), can vary among countries.

Financing Costs of Loans with Different Maturities

- When faced with an upward-sloping yield curve, the MNC may be tempted to finance the project with debt over a shorter maturity so as to achieve a lower cost of debt financing, even if it means that funds will still be needed beyond the life of the loan.

Exhibit 18.6 Loans of Different Maturities made to Foreign Subsidiary

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
5-year loan: Repayments based on fixed-rate loan of 8% for 5 years	SF3,200,000	SF3,200,000	SF3,200,000	SF3,200,000	SF3,200,000 + Repayment of SF40,000,000 in loan principal
3-year loan plus extension: Repayments based on fixed-rate loan of 6% for 3 years + forecasted interest rate of 9% in years 4 and 5	SF2,400,000	SF2,400,000	SF2,400,000	SF3,600,000	SF3,600,000 + Repayment of SF40,000,000 in loan principal

Fixed versus Floating Rate Debt Decision (1 of 6)

MNCs that wish to use a long-term maturity but wish to avoid the prevailing fixed rate may consider floating rate bonds. (Exhibit 18.7)

Financing Costs of Fixed versus Floating Rate Loans

- If an MNC considers financing with floating-rate loans it can first forecast the rate for each year, and that would determine the expected interest rate it would pay per year, allowing it to derive forecasted interest payments for all years of the loan.
- Floating rates are often tied to the **London Interbank Offer Rate (LIBOR)**.

Exhibit 18.7 Alternative Financing Arrangement with a Floating Rate Loan

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Forecast of LIBOR	3%	4%	4%	6%	6%
Forecast of interest rate applied to the floating rate loan	6%	7%	7%	9%	9%
5-year floating rate loan: Repayments based on floating rate loan of LIBOR + 3%	SF2,400,000	SF2,800,000	SF2,800,000	SF3,600,000	SF3,600,000 + Repayment of SF40,000,000 in loan principal

Fixed versus Floating Rate Debt Decision (2 of 6)

Hedging Interest Payments with Interest Rate Swaps (Exhibits 18.8 and 18.9)

- If MNCs are concerned that interest rates will rise, they may complement their floating rate debt with interest rate swaps to hedge the risk of rising interest rates.
- Financial institutions such as commercial and investment banks and insurance companies often act as dealers in interest rate swaps.
- In a **plain vanilla interest rate swap**, one participating firm makes fixed rate payments periodically in exchange for floating rate payments.
- The payments are based on a **notional value**.

Exhibit 18.8 Illustration of an Interest Rate Swap

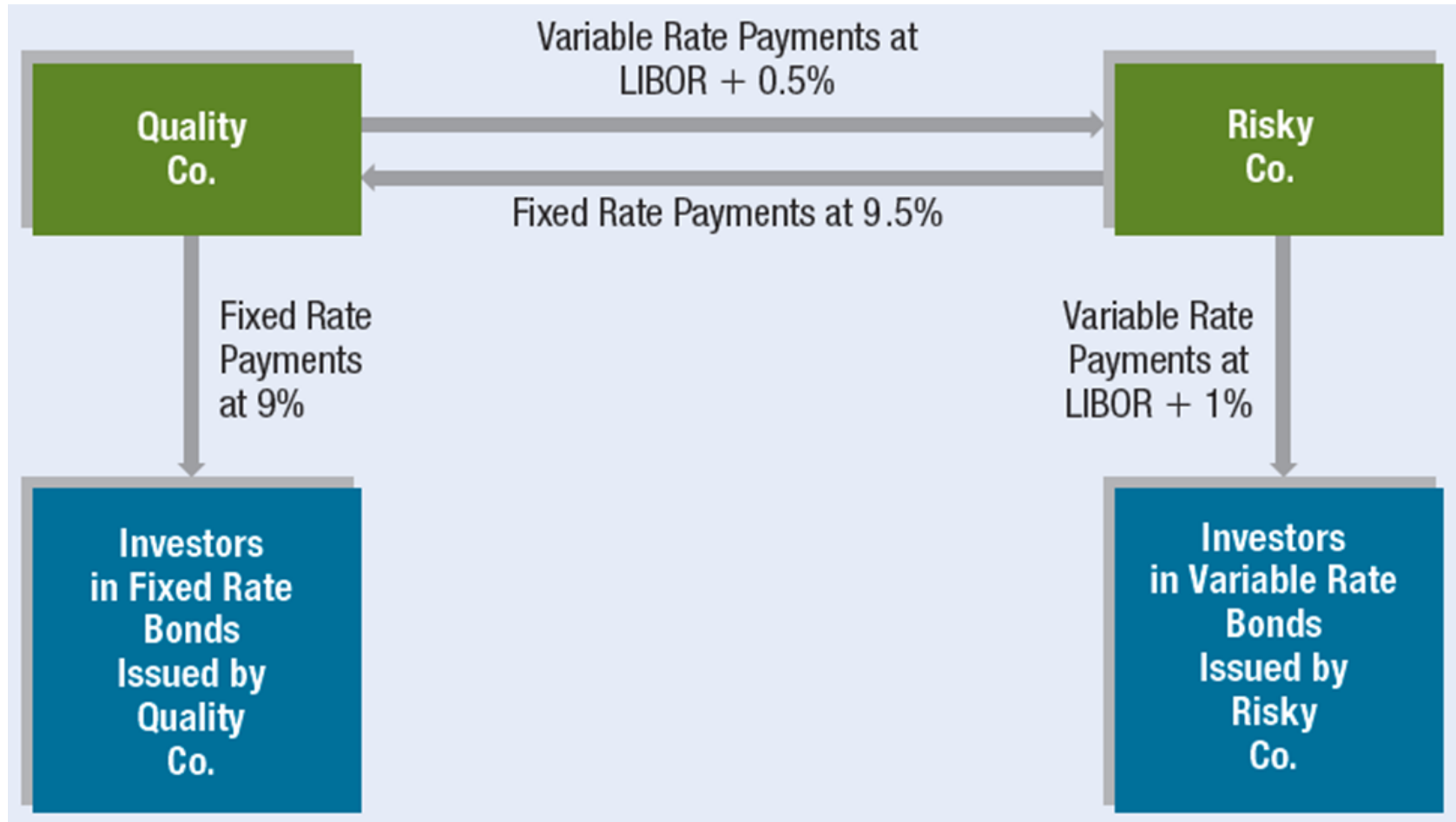


Exhibit 18.9 Expected Payments Resulting from Interest Rate Swap

YEAR	LIBOR	QUALITY CO.'S PAYMENT	RISKY CO.'S PAYMENT	NET PAYMENT
1	8.0%	$8.5\% \times \$50 \text{ million} = \4.25 million	$9.5\% \times \$50 \text{ million} = \4.75 million	Risky pays Quality \$0.5 million
2	7.0%	$7.5\% \times \$50 \text{ million} = \3.75 million	$9.5\% \times \$50 \text{ million} = \4.75 million	Risky pays Quality \$1 million
3	5.5%	$6.0\% \times \$50 \text{ million} = \3 million	$9.5\% \times \$50 \text{ million} = \4.75 million	Risky pays Quality \$1.75 million
4	9.0%	$9.5\% \times \$50 \text{ million} = \4.75 million	$9.5\% \times \$50 \text{ million} = \4.75 million	No payment is made
5	10.0%	$10.5\% \times \$50 \text{ million} = \5.25 million	$9.5\% \times \$50 \text{ million} = \4.75 million	Quality pays Risky \$0.5 million

Fixed versus Floating Rate Debt Decision (3 of 6)

Hedging Interest Payments with Interest Rate Swaps (continued)

- **Limitations of Interest Rate Swaps**
 - There is a cost of time and resources associated with searching for a suitable swap candidate and negotiating the swap terms.
 - Each swap participant faces the risk that the counter participant could default on payments.

Fixed versus Floating Rate Debt Decision (4 of 6)

Hedging Interest Payments with Interest Rate Swaps (continued)

- **Other Types of Interest Rate Swaps**

- **Accreting swap** — A swap in which the notional value is increased over time.
- **Amortizing swap** — A swap in which the notional value is reduced over time.
- **Basis (floating-for-floating) swap** — Involves the exchange of two floating rate payments.
- **Callable swap** — Gives the fixed rate payer the right to terminate the swap. The fixed rate payer would exercise this right if interest rates fall substantially.

Fixed versus Floating Rate Debt Decision (5 of 6)

Hedging Interest Payments with Interest Rate Swaps (continued)

- **Other Types of Interest Rate Swaps (continued)**

- **Forward swap** — An interest rate swap that is entered into today. However, the swap payments start at a specific future point in time.
- **Putable swap** — Gives the floating rate payer the right to terminate the swap. The floating rate payer would exercise this right if interest rates rise substantially.
- **Zero-coupon swap** — All fixed interest payments are postponed until maturity and are paid in one lump sum when the swap matures. However, the floating rate payments are due periodically.
- **Swaption** — Gives its owner the right to enter into a swap.

Fixed versus Floating Rate Debt Decision (6 of 6)

Hedging Interest Payments with Interest Rate Swaps (continued)

- **Standardization of the Swap Market**
 - **The International Swaps and Derivatives Association (ISDA)** is a global trade association representing leading participants in the privately negotiated derivatives industry.
 - Two primary objectives are:
 - the development and maintenance of derivatives documentation to promote efficient business conduct practices and
 - the promotion of the development of sound risk-management practices.

Summary (1 of 4)

- An MNC's subsidiary may prefer to use debt financing in a currency that matches the currency it receives from cash inflows. The cash inflows can be used to cover its interest payments on its existing loans. When a subsidiary issues debt in a currency that differs from the local currency it receives from sales, it is exposed to the risk that the local currency may depreciate over time.

Summary (2 of 4)

- An MNC's subsidiary may consider long-term financing in a foreign currency different from its local (host country) currency in order to reduce financing costs. It can forecast the exchange rates for the periods in which it will make loan payments and then can estimate the annualized cost of financing in that currency.

However, the actual cost of debt financing is uncertain because the subsidiary's forecasts of future exchange rate movements may not be accurate.

- MNCs can use currency swaps or parallel loans to hedge the exchange rate risk resulting from long term debt financing.

Summary (3 of 4)

- An MNC's subsidiary can select among various available debt maturities when financing its operations. It can estimate the annualized cost of financing for alternative maturities and then determine which maturity will result in the lowest expected annualized cost of financing.

Summary (4 of 4)

- For debt that has floating interest rates, the interest (or coupon) payment to be paid to investors is dependent on the future LIBOR and is therefore uncertain. An MNC can forecast LIBOR so it can derive expected interest rates it would be charged on the loan in future periods. It can apply these expected interest rates to estimate expected loan payments and can then derive the expected annualized cost of financing of the floating rate loan. Finally, it can compare the expected cost of financing on a floating rate loan to the known cost of financing on a fixed rate loan. In some cases, an MNC may engage in a floating rate loan, and use interest rate swaps to hedge the interest rate risk.