CHAPTER 12 INTERNATIONAL BOND MARKETS
SUGGESTED ANSWERS AND SOLUTIONS TO END-OF-CHAPTER QUESTIONS AND PROBLEMS

QUESTIONS

1. Describe the differences between foreign bonds and Eurobonds. Also discuss why Eurobonds make up the lion’s share of the international bond market.

Answer: The two segments of the international bond market are: foreign bonds and Eurobonds. A foreign bond issue is one offered by a foreign borrower to investors in a national capital market and denominated in that nation’s currency. A Eurobond issue is one denominated in a particular currency, but sold to investors in national capital markets other than the country which issues the denominated currency.

Eurobonds make up over 80 percent of the international bond market. The two major reasons for this stem from the fact that the U.S. dollar is the currency most frequently sought in international bond financing. First, Eurodollar bonds can be brought to market more quickly than Yankee bonds because they are not offered to U.S. investors and thus do not have to meet the strict SEC registration requirements. Second, Eurobonds are typically bearer bonds that provide anonymity to the owner and thus allow a means for evading taxes on the interest received. Because of this feature, investors are generally willing to accept a lower yield on Eurodollar bonds in comparison to registered Yankee bonds of comparable terms, where ownership is recorded. For borrowers the lower yield means a lower cost of debt service.

2. Briefly define each of the major types of international bond market instruments, noting their distinguishing characteristics.

Answer: The major types of international bond instruments and their distinguishing characteristics are as follows:

**Straight fixed-rate** bond issues have a designated maturity date at which the principal of the bond issue is promised to be repaid. During the life of the bond, fixed coupon payments that are some percentage rate of the face value are paid as interest to the bondholders. This is the major international bond type. Straight fixed-rate Eurobonds are typically bearer bonds and pay coupon interest annually.

**Floating-rate notes (FRNs)** are typically medium-term bonds with their coupon payments indexed to some reference rate. Common reference rates are either three-month or six-month U.S. dollar LIBOR. Coupon payments on FRNs are usually quarterly or semi-annual, and in accord with the reference rate.
A **convertible bond** issue allows the investor to exchange the bond for a pre-determined number of equity shares of the issuer. The *floor value* of a convertible bond is its straight fixed-rate bond value. Convertibles usually sell at a premium above the larger of their straight debt value and their conversion value. Additionally, investors are usually willing to accept a lower coupon rate of interest than the comparable straight fixed coupon bond rate because they find the call feature attractive. **Bonds with equity warrants** can be viewed as a straight fixed-rate bond with the addition of a call option (or warrant) feature. The warrant entitles the bondholder to purchase a certain number of equity shares in the issuer at a pre-stated price over a pre-determined period of time.

**Zero coupon bonds** are sold at a discount from face value and do not pay any coupon interest over their life. At maturity the investor receives the full face value. Another form of zero coupon bonds are stripped bonds. A **stripped bond** is a zero coupon bond that results from stripping the coupons and principal from a coupon bond. The result is a series of zero coupon bonds represented by the individual coupon and principal payments.

A **dual-currency bond** is a straight fixed-rate bond which is issued in one currency and pays coupon interest in that same currency. At maturity, the principal is repaid in a second currency. Coupon interest is frequently at a higher rate than comparable straight fixed-rate bonds. The amount of the dollar principal repayment at maturity is set at inception; frequently, the amount allows for some appreciation in the exchange rate of the stronger currency. From the investor’s perspective, a dual currency bond includes a long-term forward contract.

**Composite currency bonds** are denominated in a currency basket, such as SDRs or ECUs, instead of a single currency. They are frequently called *currency cocktail bonds*. They are typically straight fixed-rate bonds. The currency composite is a portfolio of currencies: when some currencies are depreciating others may be appreciating, thus yielding lower variability overall.

3. Why do most international bonds have high Moody’s or Standard & Poor’s credit ratings?

Answer: Moody’s Investors Service and Standard & Poor’s provide credit ratings on most international bond issues. It has been noted that a disproportionate share of international bonds have high credit ratings. The evidence suggests that a logical reason for this is that the Eurobond market is only accessible to firms that have good credit ratings to begin with.
4. What factors does Standard & Poor’s analyze in determining the credit rating it assigns to a sovereign government?

Answer: In rating a sovereign government, S&P’s analysis centers around an examination of: political risk, income and economic structure, economic growth prospects, fiscal flexibility, general government debt burden, offshore and contingent liabilities, monetary flexibility, external liquidity, public-sector external debt burden, and private-sector debt burden. The rating assigned to a sovereign is particularly important because it usually represents the ceiling for ratings S&P will assign to an obligation of an entity domiciled within that country.

5. Discuss the process of bringing a new international bond issue to market.

Answer: A borrower desiring to raise funds by issuing Eurobonds to the investing public will contact an investment banker and ask it to serve as lead manager of an underwriting syndicate that will bring the bonds to market. The lead manager will usually invite other banks to form a managing group to help negotiate terms with the borrower, ascertain market conditions, and manage the issuance. The managing group, along with other banks, will serve as underwriters for the issue, i.e., they will commit their own capital to buy the issue from the borrower at a discount from the issue price. Most of the underwriters, along with other banks, will be part of a selling group that sells the bonds to the investing public. The various members of the underwriting syndicate receive a portion of the spread (usually in the range of 2 to 2.5 percent of the issue size), depending upon the number and type of functions they perform. The lead manager receives the full spread, and a bank serving as only a member of the selling group receives a smaller portion.

6. You are an investment banker advising a Eurobank about a new international bond offering it is considering. The proceeds are to be used to fund Eurodollar loans to bank clients. What type of bond instrument would you recommend that the bank consider issuing? Why?
Answer: Since the Eurobank desires to use the bond proceeds to finance Eurodollar loans, which are floating-rate loans, the investment banker should recommend that the bank issue FRNs, which are a variable rate instrument. Thus there will a correspondence between the interest rate the bank pays for funds and the interest rate it receives from its loans. For example, if the bank frequently makes term loans indexed to 3-month LIBOR, it might want to issue FRNs, also, indexed to 3-month LIBOR.

7. What should a borrower consider before issuing dual-currency bonds? What should an investor consider before investing in dual-currency bonds?
Answer: A dual currency bond is a straight fixed-rate bond which is issued in one currency and pays coupon interest in that same currency. At maturity, the principal is repaid in a second currency. Coupon interest is frequently at a higher rate than comparable straight fixed-rate bonds. The amount of the dollar principal repayment at maturity is set at inception; frequently, the amount allows for some appreciation in the exchange rate of the stronger currency. From the investor’s perspective, a dual currency bond includes a long-term forward contract. If the second currency appreciates over the life of the bond, the principal repayment will be worth more than a return of principal in the issuing currency. However, if the payoff currency depreciates, the investor will suffer an exchange rate loss. Dual currency bonds are attractive to MNCs seeking financing in order to establish or expand operations in the country issuing the payoff currency. During the early years, the coupon payments can be made by the parent firm in the issuing currency. At maturity, the MNC anticipates the principal to be repaid from profits earned by the subsidiary. The MNC may suffer an exchange rate loss if the subsidiary is unable to repay the principal and the payoff currency has appreciated relative to the issuing currency. Consequently, both the borrower and the investor are exposed to exchange rate uncertainty from a dual currency bond.
PROBLEMS:

1. Your firm has just issued five-year floating-rate notes indexed to six-month U.S. dollar LIBOR plus 1/4%. What is the amount of the first coupon payment your firm will pay per U.S. $1,000 of face value, if six-month LIBOR is currently 7.2%?

Solution: \[ 0.5 \times (0.072 + 0.0025) \times 1,000 = 37.25. \]

2. Consider 8.5 percent Swiss franc/U.S. dollar dual-currency bonds that pay $666.67 at maturity per SF1,000 of par value. What is the implicit SF/$ exchange rate at maturity? Will the investor be better or worse off at maturity if the actual SF/$ exchange rate is SF1.35/$1.00?

Solution: Implicitly, the dual currency bonds call for the exchange of SF1,000 of face value for $666.67. Therefore, the implicit exchange rate built into the dual currency bond issue is SF1,000/$666.67, or SF1.50/$1.00. If the exchange rate at maturity is SF1.35/$1.00, SF1,000 would buy $740.74 = SF1,000/SF1.35. Thus, the dual currency bond investor is worse off with $666.67 because the dollar is at a depreciated level in comparison to the implicit exchange rate of SF1.50/$1.00.

3. A five-year, 4 percent Euroyen bond sells at par. A comparable risk five year, 5.5 percent yen/dollar dual currency bond pays $833.33 at maturity per ¥100,000 of face value. It sells for ¥110,000. What is the implied ¥/$ exchange rate at maturity?

Solution: Since the dual currency bond is of comparable risk, it will yield 4 percent like the straight Euroyen bond selling at par. Thus,

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\begin{align*}
¥110,000 &= ¥5,500 \times PVIFA(n = 5, i = 4\%) + S_5(¥/$) \times ¥833.33 \times PVIF(n = 5, i = 4\%) \\
&= ¥5,500 \times 4.4518 + S_5(¥/$) \times ¥833.33 \times .8219 \\
&= ¥24,484.90 + S_5(¥/$) \times ¥684.91 \\
\end{align*}
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This implies that the expected \( S_5(¥/$) \) is 124.856.
MINI CASE: SARA LEE CORPORATION’S EUROBONDS

Sara Lee Corp. is serving up a brand name and a shorter maturity than other recent corporate borrowers to entice buyers to its first-ever dollar Eurobonds. The U.S. maker of consumer products, from Sara Lee cheesecake to Hanes pantyhose and Hillshire Farm meats, is selling $100 million in bonds with a 6 percent coupon. These are three-year bonds; other corporate bond sellers including Coca-Cola Co., Unilever NV, and Wal-Mart Stores, Inc., have concentrated on its five-year maturities.

“It is a well-known name and it is bringing paper to a part of the maturity curve where there is not much there,” said Noel Dunn of Goldman Sachs International. Goldman Sachs expects to find most buyers in the Swiss retail market, where “high-quality American corporate paper is their favorite buy,” Dunn said.

These are the first bonds out of a $500 million Eurobond program that Sara Lee announced in August 1995, and the proceeds will be used for general corporate purposes, said Jeffery Smith, a spokesman for the company.

The bond is fairly priced, according to Bloomberg Fair Value analysis, which compared a bond with similar issues available in the market. The bond offers investors a yield of 5.881 percent annually or 5.797 percent semiannually. That is 22 basis points more than they can get on the benchmark five-year U.S. Treasury note.

BFV analysis calculates that the bond is worth $100,145 on a $100,000 bond, compared with the re-offer price of $100,320. Anything within a $500 range on a $100,000 bond more or less than its BFV price is deemed fairly priced. Sara Lee is rated “AA-” by Standard & Poor’s Corp. and “A1,” one notch lower, by Moody’s Investors Service.

In July 1994, Sara Lee’s Netherlands division sold 200 million Dutch guilders ($127 million) of three-year bonds at 35 basis points over comparable Netherlands government bonds. In January, its Australian division sold 51 million British pounds ($78 million) of bonds maturing in 2004, to yield 9.43 percent.

What thoughts do you have about Sara Lee’s debt-financing strategy?
Suggested Solution to Sara Lee Corp.’s Eurobonds

Sara Lee is the ideal candidate to issue Eurobonds. The company has worldwide name recognition, and it has an excellent credit rating that allows it to place new bond issues easily. By issuing dollar denominated Eurobonds to Swiss investors, Sara Lee can bring new issues to market much more quickly than if it sold domestic dollar denominated bonds. Moreover, the Eurodollar bonds likely sell at a lower yield than comparable domestic bonds.

Additionally, it appears as if Sara Lee is raising funds in a variety of foreign currencies. Sara Lee most likely has large cash inflows in these same currencies that can be used to meet the debt service obligations on these bond issues. Thus Sara Lee is finding a use for some of its foreign currency receipts and does not have to be concerned with the exchange rate uncertainty of these part of its foreign cash inflows.