QUESTIONS

1. Briefly discuss some of the services that international banks provide their customers and the market place.

Answer: International banks can be characterized by the types of services they provide that distinguish them from domestic banks. Foremost, international banks facilitate the imports and exports of their clients by arranging trade financing. Additionally, they serve their clients by arranging for foreign exchange necessary to conduct cross-border transactions and make foreign investments and by assisting in hedging exchange rate risk in foreign currency receivables and payables through forward and options contracts. Since international banks have established trading facilities, they generally trade foreign exchange products for their own account.

Two major features that distinguish international banks from domestic banks are the types of deposits they accept and the loans and investments they make. Large international banks both borrow and lend in the Eurocurrency market. Moreover, depending upon the regulations of the country in which it operates and its organizational type, an international bank may participate in the underwriting of Eurobonds and foreign bonds.

International banks frequently provide consulting services and advice to their clients in the areas of foreign exchange hedging strategies, interest rate and currency swap financing, and international cash management services. Not all international banks provide all services. Banks that do provide a majority of these services are known as universal banks or full service banks.

2. Briefly discuss the various types of international banking offices.

Answer: The services and operations which an international bank undertakes is a function of the regulatory environment in which the bank operates and the type of banking facility established.

A correspondent bank relationship is established when two banks maintain a correspondent bank account with one another. The correspondent banking system provides a means for a bank’s MNC clients to conduct business worldwide through his local bank or its contacts.
A representative office is a small service facility staffed by parent bank personnel that is designed to assist MNC clients of the parent bank in its dealings with the bank’s correspondents. It is a way for the parent bank to provide its MNC clients with a level of service greater than that provided through merely a correspondent relationship.

A foreign branch bank operates like a local bank, but legally it is a part of the parent bank. As such, a branch bank is subject to the banking regulations of its home country and the country in which it operates. The primary reason a parent bank would establish a foreign branch is that it can provide a much fuller range of services for its MNC customers through a branch office than it can through a representative office.

A subsidiary bank is a locally incorporated bank that is either wholly owned or owned in major part by a foreign subsidiary. An affiliate bank is one that is only partially owned, but not controlled by its foreign parent. Both subsidiary and affiliate banks operate under the banking laws of the country in which they are incorporated. U.S. parent banks find subsidiary and affiliate banking structures desirable because they are allowed to engage in security underwriting.

Edge Act banks are federally chartered subsidiaries of U.S. banks which are physically located in the United States that are allowed to engage in a full range of international banking activities. A 1919 amendment to Section 25 of the Federal Reserve Act created Edge Act banks. The purpose of the amendment was to allow U.S. banks to be competitive with the services foreign banks could supply their customers. Federal Reserve Regulation K allows Edge Act banks to accept foreign deposits, extend trade credit, finance foreign projects abroad, trade foreign currencies, and engage in investment banking activities with U.S. citizens involving foreign securities. As such, Edge Act banks do not compete directly with the services provided by U.S. commercial banks. Edge Act banks are not prohibited from owning equity in business corporations as are domestic commercial banks. Thus, it is through the Edge Act that U.S. parent banks own foreign banking subsidiaries and have ownership positions in foreign banking affiliates.

An offshore banking center is a country whose banking system is organized to permit external accounts beyond the normal economic activity of the country. Offshore banks operate as branches or subsidiaries of the parent bank. The primary activities of offshore banks are to seek deposits and grant loans in currencies other than the currency of the host government.
In 1981, the Federal Reserve authorized the establishment of International Banking Facilities (IBF). An IBF is a separate set of asset and liability accounts that are segregated on the parent bank’s books; it is not a unique physical or legal entity. IBFs operate as foreign banks in the U.S. IBFs were established largely as a result of the success of offshore banking. The Federal Reserve desired to return a large share of the deposit and loan business of U.S. branches and subsidiaries to the U.S.

3. How does the deposit-loan rate spread in the Eurodollar market compare with the deposit-loan rate spread in the domestic U.S. banking system? Why?

Answer: Competition has driven the deposit-loan spread in the domestic U.S. banking system to about the same level as in the Eurodollar market. That is, in the Eurodollar market the deposit rate is about the same as the deposit rate for dollars in the U.S. banking system. Similarly the lending rates are about the same. In theory, the Eurodollar market can operate at a lower cost than the U.S. banking system because it is not subject to mandatory reserve requirements on deposits or deposit insurance on foreign currency deposits.

4. What is the difference between the Euronote market and the Eurocommercial paper market?

Answer: Euronotes are short-term notes underwritten by a group of international investment or commercial banks called a “facility.” A client-borrower makes an agreement with a facility to issue Euronotes in its own name for a period of time, generally three to 10 years. Euronotes are sold at a discount from face value, and pay back the full face value at maturity. Euronotes typically have maturities of from three to six months. Eurocommercial paper is an unsecured short-term promissory note issued by a corporation or a bank and placed directly with the investment public through a dealer. Like Euronotes, Eurocommercial paper is sold at a discount from face value. Maturities typically range from one to six months.

5. Briefly discuss the cause and the solution(s) to the international bank crisis involving less-developed countries.

Answer: The international debt crisis began on August 20, 1982 when Mexico asked more than 100 U.S. and foreign banks to forgive its $68 billion in loans. Soon Brazil, Argentina and more than 20 other developing countries announced similar problems in making the debt service on their bank loans. At the height of the crisis, Third World countries owed $1.2 trillion!
The international debt crisis had oil as its source. In the early 1970s, the Organization of Petroleum Exporting Countries (OPEC) became the dominant supplier of oil worldwide. Throughout this time period, OPEC raised oil prices dramatically and amassed a tremendous supply of U.S. dollars, which was the currency generally demanded as payment from the oil importing countries.

OPEC deposited billions in Eurodollar deposits; by 1976 the deposits amounted to nearly $100 billion. Eurobanks were faced with a huge problem of lending these funds in order to generate interest income to pay the interest on the deposits. Third World countries were only too eager to assist the equally eager Eurobankers in accepting Eurodollar loans that could be used for economic development and for payment of oil imports. The high oil prices were accompanied by high interest rates, high inflation, and high unemployment during the 1979-1981 period. Soon, thereafter, oil prices collapsed and the crisis was on.

Today, most debtor nations and creditor banks would agree that the international debt crisis is effectively over. U.S. Treasury Secretary Nicholas F. Brady of the first Bush Administration is largely credited with designing a strategy in the spring of 1989 to resolve the problem. Three important factors were necessary to move from the debt management stage, employed over the years 1982-1988 to keep the crisis in check, to debt resolution. First, banks had to realize that the face value of the debt would never be repaid on schedule. Second, it was necessary to extend the debt maturities and to use market instruments to collateralize the debt. Third, the LDCs needed to open their markets to private investment if economic development was to occur. Debt-for-equity swaps helped pave the way for an increase in private investment in the LDCs. However, monetary and fiscal reforms in the developing countries and the recent privatization trend of state owned industry were also important factors.

Treasury Secretary Brady’s solution was to offer creditor banks one of three alternatives: (1) convert their loans to marketable bonds with a face value equal to 65 percent of the original loan amount; (2) convert the loans into collateralized bonds with a reduced interest rate of 6.5 percent; or, (3) lend additional funds to allow the debtor nations to get on their feet. The second alternative called for an extension the debt maturities by 25 to 30 years and the purchase by the debtor nation of zero-coupon U.S. Treasury bonds with a corresponding maturity to guarantee the bonds and make them marketable. These bonds have come to be called Brady bonds.
6. What are the approaches available to an internationally active bank for valuing its credit risk under Basel II.

Answer: For valuing credit risk, banks may choose among the standardized approach, the internal rating-based (IRB) approach, and the securitization approach. The standardized approach provides for risk-weighting assets from five categories based on external credit agencies assessments of the credit risk inherent in the asset. The IRB approach allows banks that have received supervisory approval to rely on their own internal estimates of risk in determining the capital requirement for a given exposure. The key variables the bank must estimate to value credit risk under this approach are the probability of default and the loss given default for each asset. The securitization approach provides for determining the securitized value of a cash flow stream and then risk-weighting the value according to the standardized approach or (if the bank has received supervisory approval) by applying the IRB approach to determine the capital requirement.

7. Briefly discuss structured investment vehicles (SIVs).

Answer: A structured investment vehicle is a virtual bank, frequently operated by a commercial bank or an investment bank, but which operates off balance sheet. Typically, an SIV raises short term funds in the commercial paper market to finance longer-term investment in MBS and other asset-backed securities. SIVs are frequently highly levered, with ratios of 10 to 15 times the amount equity raised.

8. Briefly discuss collateralized debt obligations (CDOs).

Answer: A collateralized debt obligation is a corporate entity constructed to hold a portfolio of fixed-income assets as collateral. The portfolio of fixed-income assets is divided into different tranches, each representing a different risk class: AAA, AA-BB, or unrated. CDOs serve as an important funding source for fixed-income securities. An investor in a CDO is taking a position in the cash flows of a particular tranche, not in the fixed-income securities directly. The investment is dependent on the metrics used to define the risk and reward of the tranche.
PROBLEMS

1. Grecian Tile Manufacturing of Athens, Georgia, borrows $1,500,000 at LIBOR plus a lending margin of 1.25 percent per annum on a six-month rollover basis from a London bank. If six-month LIBOR is 4 ½ percent over the first six-month interval and 5 3/8 percent over the second six-month interval, how much will Grecian Tile pay in interest over the first year of its Eurodollar loan?

Solution: $1,500,000 x (.045 + .0125)/2 + $1,500,000 x (.05375 + .0125)/2
= $43,125 + $49,687.50 = $92,812.50.

2. A bank sells a “three against six” $3,000,000 FRA for a three-month period beginning three months from today and ending six months from today. The purpose of the FRA is to cover the interest rate risk caused by the maturity mismatch from having made a three-month Eurodollar loan and having accepted a six-month Eurodollar deposit. The agreement rate with the buyer is 5.5 percent. There are actually 92 days in the three-month FRA period. Assume that three months from today the settlement rate is 4 7/8 percent. Determine how much the FRA is worth and who pays who--the buyer pays the seller or the seller pays the buyer.

Solution: Since the settlement rate is less than the agreement rate, the buyer pays the seller the absolute value of the FRA. The absolute value of the FRA is:

$$3,000,000 \times \frac{(.04875-.055) \times 92/360}{[1 + (.04875 \times 92/360)]}$$
= $3,000,000 \times \frac{-.001597}{(1.012458)}$
= $4,732.05.

3. Assume the settlement rate in problem 2 is 6 1/8 percent. What is the solution now?

Solution: Since the settlement rate is greater than the agreement rate, the seller pays the buyer the absolute value of the FRA. The absolute value of the FRA is:
\[
$3,000,000 \times \left[ (0.06125 - 0.055) \times \frac{92}{360} \right] / \left[ 1 + (0.06125 \times \frac{92}{360}) \right]
\]
\[
= $3,000,000 \times \left[ \frac{0.001597}{1.015653} \right]
\]
\[
= $4,717.16.
\]

4. A “three-against-nine” FRA has an agreement rate of 4.75 percent. You believe six-month LIBOR in three months will be 5.125 percent. You decide to take a speculative position in a FRA with a $1,000,000 notional value. There are 183 days in the FRA period. Determine whether you should buy or sell the FRA and what your expected profit will be if your forecast is correct about the six-month LIBOR rate.

Solution: Since the agreement rate is less than your forecast, you should buy a FRA. If your forecast is correct your expected profit will be:

\[
$1,000,000 \times \left[ (0.05125 - 0.0475) \times \frac{183}{360} \right] / \left[ 1 + (0.05125 \times \frac{183}{360}) \right]
\]
\[
= $1,000,000 \times \left[ \frac{0.001906}{1.026052} \right]
\]
\[
= $1,857.61.
\]

5. Recall the FRA problem presented as Example 11.2. Show how the bank can alternatively use a position in Eurodollar futures contracts (Chapter 7) to hedge the interest rate risk created by the maturity mismatch it has with the $3,000,000 six-month Eurodollar deposit and rollover Eurocredit position indexed to three-month LIBOR. Assume that the bank can take a position in Eurodollar futures contracts that mature in three months and have a futures price of 94.00.

Solution: To hedge the interest rate risk created by the maturity mismatch, the bank would need to buy (go long) three Eurodollar futures contracts. If on the last day of trading, three-month LIBOR is 5 1/8%, the bank will earn a profit of $6,562.50 from its futures position. This is calculated as:

\[
[94.875 - 94.00] \times 100 \text{ bp} \times $25 \times 3 \text{ contracts} = $6,562.50.
\]

Note that this sum differs slightly from the $6,550.59 profit that the bank will earn from the FRA for two reasons. First, the Eurodollar futures contract assumes an arbitrary 90 days in a three-month period, whereas the FRA recognizes that the actual number of days in the specific three-month period is 91 days. Second, the Eurodollar futures contract pays off in future value terms, or as of the end of the three-month period, whereas the FRA pays off in present value terms, or as of the beginning of the three-month period.
6. The Fisher effect (Chapter 6) suggests that nominal interest rates differ between countries because of differences in the respective rates of inflation. According to the Fisher effect and your examination of the one-year Eurocurrency interest rates presented in Exhibit 11.3, order the currencies from the eight countries from highest to lowest in terms of the size of the inflation premium embedded in the nominal interest rates for March 3, 2005.

Solution: According to the Fisher effect, the one-year Eurocurrency interest rates suggest that the inflation premiums for the countries representing the eight currencies ordered from highest to lowest are: British sterling, U.S. dollar, Canadian dollar, Danish krone, Euro, Singapore dollar, Swiss franc, and Japanese yen.

7. An internationally active bank has a $500 million portfolio of investments and bank credits. $100 million are claims on sovereigns with a AAA credit rating, $100 million are claims on corporates with a AAA credit rating, $100 million are claims on sovereigns with a single A credit rating, $100 million are claims on corporates with a single A credit rating, and $100 million are claim on corporates with a single B credit rating. What is the minimum level of capital according to Basel II the bank must maintain using the standardized approach for valuing credit risk? Be sure to show both the value of the risk-weighted assets and the amount of bank capital.

Solution: The standardized approach provides for risk-weighting assets from five categories based on external credit agencies assessments of the credit risk inherent in the asset. For example, AAA claims on sovereigns have a risk-weighting of zero percent, AAA claims on corporates and single A claims on sovereigns have a risk-weighting of 20 percent, single A claims on corporates and BBB claims on sovereigns have a risk-weighting of 50 percent, whereas corporate claims below BB- have a risk-weighting of 150 percent. Therefore, the value of the risk weighted assets = ($100 million x 0.0) + ($100 million x .20) + ($100 million x .20) + ($100 million x .50) + ($100 million x 1.50) = $240 million. The minimum capital requirement on risk weighted assets is 8 percent according to Basel II. Therefore $19.2 million (= $240 million x .08) of capital is required at the minimum.
MINI CASE: DETROIT MOTORS’ LATIN AMERICAN EXPANSION

It is September 1990 and Detroit Motors of Detroit, Michigan, is considering establishing an assembly plant in Latin America for a new utility vehicle it has just designed. The cost of the capital expenditures has been estimated at $65,000,000. There is not much of a sales market in Latin America, and virtually all output would be exported to the United States for sale. Nevertheless, an assembly plant in Latin America is attractive for at least two reasons. First, labor costs are expected to be half what Detroit Motors would have to pay in the United States to union workers. Since the assembly plant will be a new facility for a newly designed vehicle, Detroit Motors expects minimal resistance from its U.S. union in establishing the plant in Latin America. Secondly, the chief financial officer (CFO) of Detroit Motors believes that a debt-for-equity swap can be arranged with at least one of the Latin American countries that has not been able to meet its debt service on its sovereign debt with some of the major U.S. banks.

The September 10, 1990, issue of Barron’s indicated the following prices (cents on the dollar) on Latin American bank debt:

<table>
<thead>
<tr>
<th>Country</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>21.75</td>
</tr>
<tr>
<td>Mexico</td>
<td>43.12</td>
</tr>
<tr>
<td>Argentina</td>
<td>14.25</td>
</tr>
<tr>
<td>Venezuela</td>
<td>46.25</td>
</tr>
<tr>
<td>Chile</td>
<td>70.25</td>
</tr>
</tbody>
</table>

The CFO is not comfortable with the level of political risk in Brazil and Argentina, and has decided to eliminate them from consideration. After some preliminary discussions with the central banks of Mexico, Venezuela, and Chile, the CFO has learned that all three countries would be interested in hearing a detailed presentation about the type of facility Detroit Motors would construct, how long it would take, the number of locals that would be employed, and the number of units that would be manufactured per year. Since it is time-consuming to prepare and make these presentations, the CFO would like to approach the most attractive candidate first. He has learned that the central bank of Mexico will redeem
its debt at 80 percent of face value in a debt-for-equity swap, Venezuela at 75 percent, and Chile 100 percent. As a first step, the CFO decides an analysis based purely on financial considerations is necessary to determine which country looks like the most viable candidate. You are asked to assist in the analysis. What do you advise?

Suggested Solution for Detroit Motors’ Latin American Expansion

Regardless in which LDC Detroit Motors establishes the new facility, it will need $65,000,000 in the local currency of the country to build the plant. The analysis involves a comparison of the dollar cost of enough LDC debt from a creditor bank to provide $65,000,000 in local currency upon redemption with the LDC central bank.

If Detroit Motors builds in Mexico, it will need to purchase $81,250,000 (= $65,000,000/.80) in Mexican sovereign debt in order to have $65,000,000 in pesos after redemption with the Mexican central bank. The cost in dollars will be $35,035,000 (= $81,250,000 x .4312).

If Detroit Motors builds in Venezuela, it will need to purchase $86,666,667 (= $65,000,000/.75) in Venezuelan sovereign debt in order to have $65,000,000 in bolivars after redemption with the Venezuelan central bank. The cost in dollars will be $40,083,333 (= $86,666,667 x .4625).

If Detroit Motors builds in Chile, it will need to purchase $65,000,000 (= $65,000,000/1.00) in Chilean sovereign debt in order to have $65,000,000 in pesos after redemption with the Chilean central bank. The cost in dollars will be $45,662,500 (= $65,000,000 x .7025).

Based on the above analysis, Detroit Motors should consider approaching Mexico about the possibility of a debt-for-equity swap to build an assembly facility in Mexico. Of course, there are many other factors, such as tax rates, shipping costs, labor costs that need also to be considered. Assuming all else is equal, however, Mexico appears to be the most attractive candidate.
APPENDIX 11A QUESTION

1. Explain how Eurocurrency is created.

Answer: The core of the international money market is the Eurocurrency market. A Eurocurrency is a time deposit of money in an international bank located in a country different from the country that issues the currency. For example, Eurodollars are deposits of U.S. dollars in banks located outside of the United States. As an illustration, assume a U.S. Importer purchases $100 of merchandise from a German Exporter and pays for the purchase by drawing a $100 check on his U.S. checking account (demand deposit). If the funds are not needed for the operation of the business, the German Exporter can deposit the $100 in a time deposit in a bank outside the U.S. and receive a greater rate of interest than if the funds were put in a U.S. time deposit. Assume the German Exporter deposits the funds in a London Eurobank. The London Eurobank credits the German Exporter with a $100 time deposit and deposits the $100 into its correspondent bank account (demand deposit) with the U.S. Bank (banking system) to hold as reserves. Two points are noteworthy. First, the entire $100 remains on deposit in the U.S. Bank. Second, the $100 time deposit of the German Exporter in the London Eurobank represents the creation of Eurodollars. This deposit exists in addition to the dollars deposited in the U.S. Hence, no dollars have flowed out of the U.S. banking system in the creation of Eurodollars.