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I. International Banking Services

- Int’l banks do everything domestic banks do and:
  - Arrange trade financing
  - Arrange foreign exchange
  - Offer hedging services
  - Offer investment banking services

- Low marginal costs
  - Managerial and marketing knowledge developed at home can be used abroad with low marginal costs.
- Knowledge advantage
  - The foreign bank subsidiary can draw on the parent bank’s knowledge of personal contacts and credit investigations for use in that foreign market.
- Home nation information services
  - Local firms in a foreign market may be able to obtain more complete information on trade and financial markets in the multinational bank’s home nation than is obtainable from foreign domestic banks.
- Prestige
  - Very large multinational banks have high perceived prestige, which can be attractive to new clients.
- Regulatory advantage
  - Multinational banks are often not subject to the same regulations as domestic banks.

II. Reasons for International Banking

The World’s 10 Largest Banks

1. Deutsche Bank Germany
2. HSBC Holdings United Kingdom
3. BNP Paribas France
4. Mitsubishi UFJ Financial Group Japan
5. Barclays United Kingdom
6. JPMorgan Chase United States
7. Bank of America United States
8. ICBC China
9. Mizuho Financial Japan
10. Citigroup United States
Reasons for International Banking

- Wholesale defensive strategy
  - Banks follow their multinational customers abroad to avoid losing their business at home and abroad.
- Retail defensive strategy
  - Multinational banks also compete for retail services such as travelers checks and the tourist and foreign business market.
- Transactions costs
  - Multinational banks may be able to circumvent government currency controls.
- Growth
  - Foreign markets may offer opportunities for growth not found domestically.
- Risk reduction
  - Greater stability of earnings with diversification.

III. Types of International Banking Offices (not exam material)

- Correspondent bank
- Representative offices
- Foreign branches
- Subsidiary and affiliate banks
- Edge Act banks
- Offshore banking centers
- “Shell” branches
- International banking facilities

Correspondent Bank

- A correspondent banking relationship exists when two banks maintain (demand) deposits with each other.
- Correspondent banking allows a bank’s MNC client to conduct business worldwide through his/her local bank or its correspondents.

Representative Offices

- 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 dealings with the bank’s correspondents.
  - assist with information about local business customs and credit evaluation of the MNC’s local customers.

Foreign Branches

- A foreign branch bank operates like a local bank, but is legally part of the parent.
  - Subject to both the banking regulations of home country and foreign country.
  - Can provide a much fuller range of services than a representative office.
- Branch banks are the most popular way for U.S. banks to expand overseas.

Subsidiary and Affiliate Banks

- A subsidiary bank is a locally incorporated bank wholly or partly owned by a foreign parent.
- An affiliate bank is one that is partly owned but not controlled by the parent.
- U.S. parent banks like foreign subsidiaries because they allow U.S. banks to underwrite securities.
Edge Act Banks

- **Edge Act banks** are federally chartered subsidiaries of U.S. banks that are physically located in the U.S. and are allowed to engage in a full range of international banking activities.
  - Edge Act = 1919 amendment to Section 25 of the 1914 Federal Reserve Act.

Offshore Banking Centers

- An **offshore banking center** is a country whose banking system is organized to permit external accounts beyond the normal scope of local economic activity.
- The host country usually grants complete freedom from host-country governmental banking regulations.
- The IMF recognizes the following as major offshore banking centers:
  - The Bahamas, Bahrain, the Cayman Islands, Hong Kong, the Netherlands Antilles, Panama, and Singapore.

“Shell” Branches

- **Shell branches** need to be nothing more than a post office box
  - The actual business is done
    - by the parent bank
    - at the parent bank
  - The purpose was to allow U.S. banks to compete internationally without the expense of setting up operations “for real”

International Banking Facilities

- An **international banking facility**
  - is a separate set of accounts that are segregated on the parent’s books.
  - is not a unique physical or legal identity.
- Any U.S. bank can have one.
- International banking facilities have captured a lot of the Eurodollar business that was previously handled offshore.

IV. Capital Adequacy Standards

*(not exam material)*

- **Bank capital adequacy** = the amount of equity capital and other securities a bank holds as reserves.
- Three pillars of capital adequacy:
  - Minimum capital requirements
  - Supervisory review process
  - Effective use of market discipline
- While traditional bank capital standards protect depositors from traditional credit risk, they may not be sufficient protection from derivative risk.
  - Barings Bank collapsed in 1995 but looked good on paper relative to capital adequacy standards of the day.

New Capital Adequacy Standards

- The Basel II Accord was endorsed by G10 central banks and bank supervisors.
  - Set out details of a more risk-sensitive minimum capital requirements.
  - Key variables the bank had to estimate:
    - the probability of default
    - the loss given default for each asset on their books
  - this is why the VAR is talked about so often
New Capital Adequacy Standards

- The Basel III Accord has been endorsed by 27 major member jurisdictions
  - As of end-2013, all 27 had adopted it
  - Ongoing (2014) implementation
  - > http://www.bis.org/bcbs/index.htm

IV. International Money Market
(back to exam material)

- Eurocurrency = time deposit in an international bank located in a country different than the country that issued the currency.
  - Eurodollars = U.S. dollar-denominated time deposits in banks located abroad.
  - Euroyen are yen-denominated time deposits in banks located outside of Japan.
  - The foreign bank doesn’t have to be located in Europe.

Eurocurrency Market

- Most Eurocurrency transactions are interbank transactions in the amount of $1,000,000 and up.
- Common reference rates include:
  - LIBOR (London Interbank Offered Rate)
  - PIBOR (Paris Interbank Offered Rate)
  - SIBOR (Singapore Interbank Offered Rate)
  - EURIBOR (= rate at which interbank time deposits of € are offered by one prime bank to another)

B. Eurocredits

- Eurocredits are short- to medium-term loans of Eurocurrency.
  - The loans are denominated in currencies other than the home currency of the Eurobank.
  - Often the loans are too large for one bank to underwrite; a number of banks form a syndicate to share the risk of the loan.
- Eurocredits feature an adjustable rate.
  - On Eurocredits originating in London, the base rate is LIBOR.

C. Euronotes

- Euronotes are short-term notes underwritten by a group of international investment banks or international commercial banks.
  - They are sold at a discount from face value and pay back the full face value at maturity.
  - Maturity is typically three to six months.

D. Eurocommercial Paper

- Unsecured short-term promissory notes
  - issued by corporations and banks
- Placed directly with the public
  - through a dealer
- Maturities typically range from 1-6 months
- Eurocommercial paper, while typically U.S. dollar denominated, is often of lower quality than U.S. commercial paper
  - > as a result, yields are higher.
E. Eurodollar Interest Rate Futures  
(\text{NOT Exam Material})
- Widely used futures contract for hedging short-term U.S. dollar interest rate risk.
- The underlying asset is a \textit{hypothetical} $1,000,000,000 90-day Eurodollar deposit—the contract is cash settled.
- Traded on the CME and the Singapore International Monetary Exchange.
- The contract trades in the March, June, September, and December cycle.

**Reading Eurodollar Futures Quotes**

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<th>OPEN</th>
<th>HIGH</th>
<th>LOW</th>
<th>SETTLE</th>
<th>CHG</th>
<th>YLD</th>
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<td>Eurodollar (CME)—\text{1,000,000; pts of 100%}</td>
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<td>96.58</td>
<td>96.55</td>
<td>96.56</td>
<td>-</td>
<td>3.44</td>
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Eurodollar futures prices are stated as an index number of three-month LIBOR calculated as \( F = 100 - \text{LIBOR} \).

The closing price for the June contract is 96.56, thus the implied yield is 3.44 percent = 100 – 96.56. Since it is a 3-month contract one basis point corresponds to a $25 price change: .01 percent of $1 million represents $100 on an annual basis.

F. Forward Rate Agreements  
(\text{NOT Exam Material})
- An interbank contract that involves two parties, a buyer and a seller.
- The buyer agrees to pay the seller the increased interest cost on a notational amount if interest rates fall below an agreed rate.
- The seller agrees to pay the buyer the increased interest cost if interest rates increase above the agreed rate.

**Forward Rate Agreements: Uses**

- Forward rate agreements can be used to:
  - Hedge assets that a bank currently owns against interest rate risk.
    - For example, a bank that has made a three-month Eurodollar loan against an offsetting six-month Eurodollar deposit could protect itself by selling a "three against six" FRA.
  - Speculate on the future course of interest rates.

**Forward Rate Agreements: Example**

- A three against nine FRA is on a six-month interest rate for a six-month period beginning three months from now.

\[
\frac{\text{Notional Amount} \times (SR - AR) \times \text{days}}{360} + \frac{\text{SR} \times \text{days}}{360} \]

**Setting a Forward Rate Agreement**

- At the end of the agreement period, the loser pays the winner an amount equal to the present value of the difference between the settlement rate (SR) and the agreement rate (AR), sized according to the length of the agreement period and the notional amount.
Settling a FRA

- A €5,000,000, 4%, 3 against 9 FRA entered into January 1, 2011 has the following terms:

  - If on 3/1/11 the SR = 5% the seller pays the buyer €24,918.74.
  - If on 3/1/11 the SR = 3% the buyer pays the seller €25,169.62.

Forward Rate Agreements

- FRAs are designed so the buyer will have the same future value of interest expense (i.e., a perfect hedge at the agreed-up rate) for any value of LIBOR at maturity of the FRA.

- Calculate the FV of interest expense:
  - If LIBOR at expiration is 3 percent:
    \[ \frac{5,025,169.62 \times (1 + .03 \times \frac{184}{360})}{1 + \frac{SR}{360} \times \frac{184}{360}} = \frac{5,102,222.22 \times (1 + .03 \times \frac{184}{360})}{1 + \frac{SR}{360} \times \frac{184}{360}} \]
  - If LIBOR at expiration is 5 percent:
    \[ \frac{5,102,222.22 \times (1 + .05 \times \frac{184}{360})}{1 + \frac{SR}{360} \times \frac{184}{360}} = \frac{5,102,222.22 \times (1 + .04 \times \frac{184}{360})}{1 + \frac{SR}{360} \times \frac{184}{360}} \]

V. International Debt Crisis

- Some of the largest banks in the world were endangered when loans were made to sovereign governments of some less-developed countries.

- At the height of the crisis, Third World countries owed $1.2 trillion.

- Like many calamities, it is easy to see in retrospect that, it’s a bad idea to put too many eggs in one basket, especially if you don’t know much about that basket.

1. Debt-for-Equity Swaps

- For part of debt rescheduling agreements among the bank lending syndicates and the debtor nations:
  - Creditor banks would sell their loans for U.S. dollars at discounts from face value to MNCs desiring to make equity investment in subsidiaries or local firms in the LDCs.
  - LDC central bank would buy the bank debt from a MNC at a smaller discount than the MNC paid, but in local currency.
  - MNC would use the local currency to make pre-approved new investment in the LDC that was economically or socially beneficial to the LDC.

2. Japanese Banking Crisis

- The history of the Japanese banking crisis is a result of a complex combination of events and the structure of the Japanese financial system.

- Japanese commercial banks have historically served as the financing arm and center of a collaborative group know as keiretsu.

- Keiretsu members have cross-holdings of one another’s equity and ties of trade and credit.
Japanese Banking Crisis

- The collapse of the Japanese stock market set in motion a downward spiral for the entire Japanese economy and in particular Japanese banks.
- This put massive amounts of bank loans to corporations in jeopardy.
- It is unlikely that the Japanese banking crisis will be rectified anytime soon.
  - The Japanese financial system does not have a legal infrastructure that allows for restructuring of bad bank loans.
  - Japanese bank managers have little incentive to change because of the Keiretsu structure.

3. The Asian Crisis

- This crisis followed a period of economic expansion in the region financed by record private capital inflows.
- Bankers from the G-10 countries actively sought to finance the growth opportunities in Asia by providing businesses with a full range of products and services.
- This led to domestic price bubbles in East Asia, particularly in real estate.
- Additionally, the close interrelationships common among commercial firms and financial institutions in Asia resulted in poor investment decision making.
- The Asian crisis is only the latest example of banks making a multitude of poor loans—spurred on by competition from other banks to make loans in the “hot” region.

4. Global Financial Crisis

- Officially began in the United States in December of 2007.
- The origin of the credit crunch can be traced back to the low interest rate environment created by the Federal Reserve Bank in the early part of this century.
  - The fed funds target rate fell from 6.5 percent set on May 16, 2000, to 1.0 percent on June 25, 2003, and stayed below 3.0 percent until May 3, 2005.
- Many banks and mortgage lenders lowered their credit standards to attract new home buyers who could afford to make mortgage payments at the current low interest rates, or “teaser” rates that were temporarily set at a low level during the early years of an adjustable-rate mortgage, but would likely reset to a higher rate later on.
- Many of these home buyers would not have qualified for mortgage financing under more stringent credit standards, nor could they afford the loan at the eventual higher rates of interest.

Global Financial Crisis

- Typically, an SIV raises short-term funds in the commercial paper market to finance longer-term investment in MBSs and other asset-backed securities.
  - SIVs are frequently highly levered, with ratios of 10 to 15 times the amount of equity raised.
  - Since yield curves are typically upward sloping, the SIV might earn 25 percent by doing this. Obviously, SIVs are subject to the interest rate risk of the yield curve inverting (that is, short-term rates rising above long-term rates), thus necessitating the SIV to refinance the MBS investment at short-term rates in excess of the rate being earned on the MBS.
- SIVs must contend with default risk. If the underlying mortgage borrowers default on their home loans, the SIV will lose investment value.

Global Financial Crisis

- These so-called subprime mortgages were typically not held by the originating bank making the loan, but instead were resold for packaging into mortgage-backed securities (MBSs).
  - Between 2001 and 2006, the value of subprime mortgages increased from $190 billion to $600 billion.
- Conceptually, mortgage-backed securities make sense. Each MBS represents a portfolio of mortgages, thus diversifying the credit risk that the investor holds.
- Structured Investment Vehicles (SIVs) have been one large investor in MBS. An SIV is a virtual bank, frequently operated by a commercial bank or an investment bank, but which operates off the balance sheet.

Global Financial Crisis

- Collateralized Debt Obligations (CDOs) have been another big investor in MBS.
- A CDO 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. Investors include insurance companies, mutual funds, hedge funds, other CDOs, and even SIVs. MBSs and other asset-backed securities have served as collateral for many CDOs.
Global Financial Crisis

- To cool the growth of the economy, the Fed steadily increased the fed funds target rate at meetings of the Federal Open Market Committee, from a low of 1.00 percent on June 25, 2003, to 5.25 percent on June 29, 2006.
- In turn, mortgage rates increased. Many subprime borrowers found it difficult, if not impossible, to make mortgage payments in a cooling economy, especially when their adjustable-rate mortgages were reset at higher rates.

- When subprime debtors began defaulting on their mortgages, commercial paper investors were unwilling to finance SIVs. Liquidity worldwide essentially dried up.
- The spread between the three-month Eurodollar rate and three-month U.S. Treasury-bills (the TED spread), frequently used as a measure of credit risk, increased from about 30 basis points in March 2007 to 200 basis points in November 2007, as investors became fearful of placing funds in even the strongest international banks.
- Additionally, many CDOs found themselves stuck with the highest risk tranches of MBS debt, which they had not yet placed or were unable to place as subprime foreclosure rates around the country escalated.
- Commercial and investment banks have been forced to write down over $170 billion of subprime debt to date, with as much as $285 billion expected.

Global Financial Crisis

- At this point, the story of the global financial crisis is still unfolding. Many lessons should be learned from it:
  - Credit rating agencies need to refine their models for evaluating esoteric credit risk created in MBSs and CDOs.
  - Borrowers must be more wary of putting complete faith in credit ratings.
  - Bankers seem to scrutinize credit risk less closely when they serve only as mortgage originators rather than the paper holders themselves.
- As things have turned out, when the subprime mortgage crisis hit, commercial and investment banks found themselves exposed, in one fashion or another, to more mortgage debt than they realized they held.