CHAPTER 9
THE EUROCURRENCY MARKET

Chapter Overview

This chapter examines the principles underlying the formation of the Eurocurrency market and describes the pricing and policy issues that pertain to the Eurocurrency market.

The chapter begins with a historical overview, which highlights the effect of regulation on the development of the Eurocurrency markets. The offshore market can be likened to a parallel market that offers similar services to the onshore market, but in a different regulatory climate. These regulatory differences permit offshore markets to offer higher deposit rates and lower lending rates than in the traditional onshore market. The chapter describes the process of deposit creation and statistics on the growth of the market.

Then the chapter analyzes the pricing of Eurocurrency deposits and loans. The offshore market exists by driving a wedge into the onshore financial market: it provides a similar financial service at a lower cost. Barriers are needed to keep the onshore and offshore markets separate and permit a coexistence of both markets. An analysis of market share and pricing across competing offshore centers is also provided following a discussion of the impact of capital controls and taxes on the pricing of Eurocurrency deposits and loans.

The chapter discusses in some detail the important implications of the Eurocurrency market for both private enterprises and public policy makers. Depositors are concerned over the risk of capital controls, blocked funds, or other events that could affect the timely return of the deposits or the amount returned. The Wells Fargo-Citibank case is presented to illustrate the risk in cross-borderer transactions. Borrowers are concerned over the cost of funding, rollover of a maturing loan, and how a bank would treat a borrower in default. Public policy makers are concerned over the effectiveness of national monetary control, the deposit multiplier, disparities in market regulations, and competition for markets.

Chapter Outline

Historical Overview
  The Origins of Supply and Demand for Offshore Banking
  Onshore Banking Regulations Boost the Offshore Market
  The Offshore Markets Endure
  Growth of the Eurocurrency Market

Pricing of Eurocurrency Deposits and Loans
  Pricing in the Case of One Currency and Two Financial Centers
  Can Offshore and Onshore Markets Coexist?
  The Impact of Capital Controls and Taxes
  Market Share and Pricing in Competing Offshore Centers
  The General Case with Many Currencies and Many Financial Centers
Policy Matters - Private Enterprises
   Concerns of Depositors
   Concerns of Borrowers
Policy Matters - Public Policymakers
   Offshore Markets and Macroeconomic Stability
   Could the Offshore Markets Expand Indefinitely?
   Approaches to Regulating Offshore Markets
   Competing for Markets: U.S. Policy Initiatives
   Offshore Markets: European Policy Concerns

Summary
Supplementary Notes

Definitions of Eurocurrency or Eurocurrency market

The Eurocurrency market is the market for deposits placed under a regulatory regime different than the regulations applied to the deposits used to execute domestic transactions. (The current Levich textbook, p.276)

The money market for borrowing and lending currencies that are held in the form of deposits in banks located outside the countries in which those currencies are issued as legal tender. Eurodollar: A dollar-denominated deposit in a bank outside the United States or at International Banking Facilities (IBFs) in the United States. (Grabbe, 1991, p.393)

Eurocurrency: A currency deposited in a bank located in a country other than the country issuing the currency. Eurodollar: A U.S. dollar deposited in a bank outside the United States. A Eurodollar is one type of Eurocurrency. (Eiteman, Stonehill, and Moffett, 8th edition, p. 825)

The Eurocurrency market is simply a market for bank time deposits and loans denominated in a currency other than that of the country in which the bank is located. The international money market consists of the Eurocurrency market and its linkages to the major domestic money markets. (Gunter Dufey and Ian Giddy, The International Money Market, 2nd edition, p. 5)

What are Eurodollars and Eurocurrencies? Here is a short, accurate definition: A Eurodollar deposit is a U.S.-dollar-denominated bank deposit outside the United States. … Eurocurrency deposits are a generalization of Eurodollars and include other externally held currencies. (Maurice D. Levi, International Finance, 2nd edition, p.258)

International Banking Facilities (IBFs)

IBFs were allowed in the U.S. in December 1981. An IBF is essentially a “separate set of books” established within an existing U.S. banking institution: a U.S. chartered depositary institution, a U.S. branch or agency of a foreign bank, or a U.S. office of an Edge Act corporation. (An Edge Act corporation is a special type of bank authorized to engage in international banking and allowed to branch across state lines in the United States) An IBF is exempt from deposit reserve requirements, interest rate ceilings, and federal deposit insurance. Dollar deposits at IBFs are subject to a lower regulatory burden than ordinary dollar deposits in U.S. banks. IBF deposits are tantamount to Eurodeposits, but they available only to nonresidents, and IBF accounts may not be used to conduct transactions within the United States. (Based on Levich, p.277 and p.304)
International Banking Facilities’ (IBFs) major characteristics: No reserve requirements, no interest ceilings on deposits; minimum maturity of two business days for nonbank deposits; nonbank transactions can be in minimum amounts of $100,000; foreign residency required for loans and deposits.

International Banking Facility (IBF)
• Not a separate entity, but a set of accounts on the books of the bank, agency, or branch.
• May accept deposits from and extend credit to foreign residents, parent, and IBFs.
• Not subject to U.S. reserve requirements of interest rate ceilings.


Dollar restrictions in the 1960s and early 1970s (based on Grabbe, 2nd edition)

By 1960 total foreign dollar claims on the United States were greater than the total value of the U.S. gold stock when gold was valued at $35 per ounce. The European countries began to realize that the United States could no longer keep its part of the Bretton Woods agreement to convert dollars into gold at $35 per ounce.

The inability to convert dollars into gold at $35 per ounce was therefore treated as a political problem by the U.S. administration. Kennedy said he feared only two things: nuclear was and a deficit in the balance of payments. The concern over the deficit led to a series of credit restrictions and capital controls under Kennedy and Lyndon Johnson.

July 18, 1963

Kennedy proposed an Interest Equalization Tax (IET) on American purchase of foreign securities.

February, 1965

IET was extended to apply to loans with a maturity of one to three years when these loans were made by U.S. banks and financial institutions to designated foreign borrowers.

The U.S. voluntary Foreign Credit Restraint Program (FCRP) was also instituted. This program involved the setting of quotas -- maximum amount -- on lending by U.S. banks to U.S. multinationals involved in foreign direct investment.

1966

U.S. money market rates increased sharply, exceeding the interest rate ceilings for bank deposits imposed by Regulation Q, to which large CDs were also subject. In the three previous periods when the CD rates threatened to exceed interest rate ceilings -- July 1963,
November 1964 and December 1965 -- the Fed raised Regulation Q ceilings. In the summer of 1966, however, the Fed did not raise the ceilings, in order to pursue a tight anti-inflationary monetary policy. U.S. banks suffered a large outflow of funds to competing money market instruments such as commercial paper and Treasury bills. Forced to seek alternative sources of funds, U.S. commercial banks discovered the eurodollar market as a major and convenient source of funds.

U.S. money-center banks began to establish branches in major international financial centers, enabling them to deal in eurodollars.

But, establishing and maintaining an office in London was (is) expensive: Big banks bigger, small banks smaller

November 1967

The British pound sterling was devalued from $2.80 to $2.40. 14.3% capital loss for those who held pound reserves. raised question of other reserve assets: the dollar demand for gold rose U.S. Air Force made an emergency airlift of gold from Fort Knox to London, and the floor of the weighing room at the Bank of England collapsed from the accumulated tonnage of gold bars.

January 1, 1968

IET and FCRP were made legally mandatory. This set of controls gave companies an incentive to borrow dollars from sources not subject to these quotas.

The effect of the IET and FCRP was to give a strong impetus to the rate of growth of a new international money market that had slowly begun to emerge: the eurodollar market.

Those that already had networks of foreign branches could easily transfer their foreign lending bases from home offices. Other large banks established new foreign branches in London and other major international financial centers. Thus the number of U.S. foreign banks branches increased rapidly from the mid-1960s.

March 1968

The effort to control the private market price of gold was abandoned. A two-tier system began: Official transactions in gold were insulated from the free market price. Central banks would trade gold among themselves at $35 per ounce but would not trade with the private market.

Late 1960s
Fed allowed U.S. banks to open "shell" branches in the Bahamas. A shell branch is just a bookkeeping operation for eurodollar banking activities conducted at the U.S. home office. This allowed small regional banks, as well as big banks, to offer eurodollar facilities without incurring the expense of opening fullblown branch in Europe.

Early 1970s

Incentive for establishing overseas deposit-taking facilities free of Regulation Q was greatly diminished.

1. Effective September 1969, Fed imposed on all member banks a 10% reserve requirement on any increase in the net liabilities of U.S. offices to their overseas branches.

2. Effective June 1970, Regulation Q interest rate ceilings were suspended for large domestic CDs with maturities of 30 through 89 days.

3. In May 1973 the Fed suspended Regulation Q ceilings even for CDs maturing in 90 days or more.

==> U.S. banks no longer needed their foreign branches for eurodollar funding for home offices.

Oil crisis in 1973, and the subsequent scramble for international loans by oil importing countries, provided the ideal setting for rapid increases in international lending.

Eurocurrency Spreads

A number of fundamental factors explain the smaller spread in the Eurocurrency markets.

1. Operations: It is a wholesale market; it typically operates in units of $1 million; it services large and well-known clients; all these lead to low overhead cost.

2. Regulations: No deposit insurance; market interest on voluntary reserves; tax incentives.

3. Asset-liability management: Clients are known with high-quality credits → smaller default risk; floating rate interest + maturity matching → reduced interest rate risk; no prepayment risk.
Answers to end-of-chapter questions

1. What are the main factors that contributed to the creation and development of the Eurocurrency markets?

The incentive to establish the Eurocurrency market came from regulations in the British and American markets that added to the cost of doing business onshore. In Britain, the Bank of England restricted the use of sterling to finance foreign trade and external loans. In the United States, interest rate ceilings (Regulation Q) gave depositors an incentive to move funds offshore to earn higher market rates of interest. In summary, a high Net Regulatory Burden in the onshore market gave depositors and borrowers an incentive to set up alternative banking arrangements in another regulatory setting.

2. What is the difference between onshore markets and offshore markets?

The onshore market is the regulatory environment where domestic currency is used for transactions with domestic institutions. Thus, US$ for deposits and loans in the United States, DM for deposits and loans in Germany, and so forth form the onshore market. The offshore market is usually the regulatory environment where foreign currency is used for transactions with domestic institutions. Thus, US$ for deposits and loans in London, DM for deposits and loans in Zurich, and so forth form the offshore market. The final part of the offshore market are distinct offshore banking centers (in the United States, the term is International Banking Facility) that permit domestic currency transaction with non-residents subject to a lower regulatory burden.


True. The U.S. offshore market for US$ in the United States is known as an International Banking Facility. An IBF operates at a lower level of regulation than the normal U.S. banking system. The IBF allows transactions only for non-residents, and funds cannot be used for transactions within the United States.

4. Describe the multiplier effect in the case of the creation of Eurodollars. Take a basic example.

The multiplier effect in the Eurodollar market comes from the practice of fractional reserve banking. For every $100 deposit, if a bank holds 10% in reserve, it can lend out $90 of the initial deposit. This $90 deposit in turn generates a $9 reserve in the next bank and an $81 loan. This generates another $81 deposit, an $8.10 reserve in the next bank and a $72.90 loan. The sum of $100 + $90 + $81 + $72.90 + ... eventually reaches $1,000 or $100 divided by the percentage reserve.
5. What are the International Banking Facilities and why were they created? Discuss why the IBFs did not impact London’s market share of the Eurocurrency market.

An International Banking Facility is a U.S. institution -- a separate set of books within a U.S. bank that is allowed to accept deposits and make loans under a smaller regulatory burden than applied to other U.S. banks. For example, there are no mandatory reserve requirements in an IBF but transactions with U.S. residents are precluded. The IBF permits offshore banking activities to occur within the geographic borders of the United States. The IBF primarily attracted depositors from offshore centers in the Caribbean and time zones similar to those in North America. Apparently, European depositors enjoyed the convenience of London as an offshore center, valued their historic banking relationships, or harbored some doubts about the safety of IBF deposits.

6. Describe the relationship between the onshore deposit rate, the offshore deposit rate, the onshore lending rate and the offshore lending rate. Look in today’s newspaper (Wall Street Journal or Financial Times) and see if this relationship holds for the US$ rates. What about for DM or UK£ rates?

Theory suggests that the onshore lending rate (R_L, NY Prime) exceeds the offshore lending rate (R_L', LIBOR), which exceeds the offshore deposit rate (R_D', LIBID), which exceeds the onshore deposit rate (R_D, Fed Funds or NY deposit rate).

7. What kind of risk does a depositor incur when maintaining an offshore account? What kind of risk does a borrower incur when maintaining an offshore loan?

An offshore depositor incurs a political risk representing the possibility that the offshore center will impose an exchange control, capital control or tax that will interrupt his planned access to the funds when the deposit matures. A borrower does not normally incur political risk by taking an offshore loan. (One exception is with Eurobonds issued from the Netherlands Antilles under a covenant that makes interest payments exempt from U.S. withholding tax. Bond issuers often pledge that if this withholding tax exemption is ever rescinded, the issuer will "gross-up" interest payments to offset the withholding tax.) Borrowers accept interest rate risk if the loan is in floating rate terms.

8. From the standpoint of a depositor, what factors differentiate the appeal of two offshore banking centers?

An offshore depositor assesses competing centers on the basis of the deposit rate, political risk, and convenience. We argued that offshore rates will be very similar across various centers, which implies that depositors will be attracted to those centers which they deem the least risky and most convenient for use.
9. What did the Wells Fargo Asia vs. Citibank case demonstrate as far as legal issues of Eurocurrency markets are concerned?

The Wells Fargo vs. Citibank case demonstrated that parties are subject to risk in the offshore market when an exchange control or capital control program is suddenly imposed. In this specific case, Citibank's behavior was judged improper since the normal mode of repayment of an offshore deposit was via a transfer from the bank's New York account. Citibank had claimed that because the deposit was a contract entered into in the Philippines, that Citibank must adhere to the Philippine exchange control law while it was in place.

10. How would a firm choose between onshore and offshore borrowing? What kind of interest rate expectations would favor onshore borrowing as opposed to offshore borrowing?

Usually a firm would prefer to obtain borrowing on offshore terms because the offshore reference rate (LIBOR) is generally lower than the onshore reference rate (PRIME). However, since the reference rate is only one element of the total cost, other factors must be figured. Bank loans generally include an "add-on" in the pricing. So the actual loan price could be PRIME + 0.25% or 105% of LIBOR. The bank could also require compensating balances or some level of business activity to support the loan. If required balances are higher offshore, this raises the cost of the offshore loan. The bank may also charge commitment fees which could vary between offshore and onshore lending. The borrower must assess the all-in cost of these several factors.

Interest rate expectations play a role if the tenure of the loan is long enough to include an interest rate reset. Consider a 6-month loan that includes one reset after three months. If I believe that interest rates will decline, an offshore loan priced according to 3-month LIBOR will provide an opportunity for a lower interest rate in three months if market forces push rates lower. An onshore loan indexed to PRIME provides a similar opportunity, except that PRIME is an administered rate and only falls if bank managers make the decision to lower the prime rate.

11. How could firms and financial institutions use the Eurocurrency markets to hedge their interest risk exposure?

Eurocurrency futures contracts can be used to offset exposure to interest rate risk in the Eurocurrency market. The 3-month Eurocurrency futures contracts is one of the most heavily traded contract. Expiration dates extend out as far as 10 years ahead, so loans that are continually roll-over every three months and reset at uncertain rates can be hedged using these contracts.

12. Are the Eurocurrency markets a threat to the stability of the world financial system? Give both sides of the argument.

Originally, the Eurocurrency markets provoked fears among policymakers because the markets were growing extremely fast and there was no explicit regulatory supervision of the market. People feared that a loan default or panic withdrawals at one Eurobank could lead to
a domino effect across other Eurobanks and perhaps threaten the integrity of the onshore banking system. Now economists feel that Eurobanking is less risky. It is understood that Eurobanks can operate at minimal risk by issuing term deposits matched by floating-rate loans. And the Basle Concordat has explicitly assigned the regulatory responsibility for Eurobanks should bankruptcy occur in any offshore branch.

13. Discuss the control mechanisms that are available to national financial market regulators to limit the possible negative impact of the Eurocurrency markets. What are the limitations facing national financial market regulators?

Financial market regulators could control the Euromarkets on a "territorial" basis, by setting reserve requirements for both onshore and offshore deposits within their domestic territory. This approach might not be effective since Eurobanking is free to move to another country that offers more lenient regulation. The "domiciliary" approach is another method which imposes regulations where the headquarters of the bank is domiciled and applies to all of their worldwide activities. This approach could be more effective since international banks tend to be headquartered in major countries, and agreement at this level would cover all future international activities.

14. Define the term “Japan Premium” as it is used in the Eurocurrency market. What factors have contributed to the Japan Premium?

Banks with deteriorating credit rating will have to pay a premium for borrowing relative to more highly rated banks.
In 1995, due to the bursting of an economic bubble in Japan in the early 90’s and the gradual disclosure of bank information, a small “Japanese premium” (the extra cost of LIBOR funding for Japanese banks) developed in the offshore market, forcing Japanese banks to pay a fraction of a percent higher than other banks. Factors that have contributed to the Japan Premium include bank fraud, and other factors that cause the deterioration of banks’ credit rating. Such factors include, but are not limited to: losses in real estate loans, losses in developing countries’ sovereign debt, falling equity prices.

Answers of-end-chapter exercises

1. Suppose the Eurodollar deposit rate in London is 6.5% and the dollar deposit rate in New York is 6%.
   a. What factors could explain the interest rate differential between the two locations?
   b. Suppose the British Treasury imposes a 0.1% tax on deposits taken in London. What impact will this have on funds deposited in London?
c. Suppose that all offshore centers are subject to the same 0.1% tax on deposits? What impact will this have on the offshore markets?

d. Back to the original proposition, suppose the Fed increases short-term rates in the United States by one-half percentage point. What impact would you expect in the offshore rates?

SOLUTIONS:

a. Banks can pay greater interest offshore because they are subject to greater regulatory costs in the onshore market, such as reserve requirements held without interest, FDIC insurance fees, higher costs for compliance, taxes. Depositors usually demand higher interest on offshore deposits because of additional risks.

b. If a tax is imposed, other centers will probably gain market share over London. Funds would migrate to such location as Zurich, Paris, Singapore, Bermuda, or the US through IBFs. The supply curve to London shifts to the left and up by the amount of the tax.

c. A general tax on offshore deposits would lower the attractiveness of all offshore centers. There would be an incentive to develop new offshore centers not subject to this tax. However, because of the hysteresis phenomenon, centers may be slow to lose deposits.

d. Offshore rates are closely connected with onshore rates. So the Fed move to raise interest rates by 0.5% should result in a similar jump in offshore rates. The jump offshore could be greater than 0.5% because of the impact of reserve requirements; that is, the absolute value of the offshore/onshore spread increases with the absolute level of interest rates. The rise in offshore rates may have preceded the Fed move since offshore rates are more market-driven than onshore rates.

2. Atlantic Richfield, a big US oil and gas company, has a large amount of debt indexed to short-term Eurodollar rates. A $100 million facility at Bankers Trust is due in three months in mid-December 1993. Atlantic Richfield pays LIBOR + 1/4% and the Treasurer expects to "roll-over" the $100 million for another three months. The Treasurer is expecting interest rate to go up during the next three months.

a. Use Table 6.4 to illustrate how Atlantic Richfield could hedge its interest rate exposure using futures traded on the CME. Show all the steps, now and in three months. [For convenience, assume that CME maturity dates coincide with the firm's roll-over dates.]
b. Suppose in three months that LIBOR is 4%. Will the firm have a gain or a loss from its hedge? How large is the gain or loss in dollar terms? How much interest (in dollars) will the firm pay to Bankers Trust for the three-month period commencing in December?

c. What if LIBOR is 3.25% in mid-December? Will the firm have a gain or a loss from its hedge? How large is the gain or loss in dollar terms? How much interest (in dollars) will the firm pay to Bankers Trust for the three-month period commencing in December?

SOLUTIONS:

a. The firm hedges by selling $100 million worth of December Eurodollar futures at 96.40. This locks in a LIBOR rate of 3.6%. In three months, Atlantic will establish a LIBOR rate of 3.6% for the next three months, either by making delivery of the Eurodollar deposits or by buying back the futures at the current price. If rates go up, the firm will make a profit on its futures position that will compensate for the higher cost of funds. If rates go down, the firm will lose on its futures position. Loss on the futures will compensate gain from lower cost of funds.

b. If LIBOR is 4% in three months, the futures will trade at 96.0, generating a profit of .40 for the firm. In dollar terms, the gain is 0.0040*100,000,000/4 = $100,000. This gain offsets the increase in rates and gives the firm an effective LIBOR of 3.6%. The firm's interest payments to Bankers Trust are LIBOR+1/4% on $100 million for three months or 0.0425*100,000,000/4 = $1,062,500.

c. If LIBOR is 3.25% in three months, the futures will trade at 96.75, generating a loss of .75 for the firm. In dollar terms, the loss is 0.0075*100,000,000/4 = $187,500. This loss offsets the decline in rates and gives the firm an effective LIBOR of 4.0%. The firm's interest payments to Bankers Trust are LIBOR+1/4% on $100 million for three months or 0.035*100,000,000/4 = $875,000.

3. General Motors finances itself, among other channels, by using one-year, floating-rate notes whose rates are re-calculated every three months at LIBOR+1/8. A new $250,000,000 issue is planned for mid-September 2001 with a one-year maturity.

a. Describe how GM could hedge its interest payments for the year. [For convenience, assume that CME maturity dates coincide with the firm's roll-over dates.]

b. Using Table 9.3, what is the yearly rate that GM can secure if it hedges?

c. Calculate GM's total costs for the $250,000,000 issue assuming that it hedges.
SOLUTIONS:

4. The ABC firm is considering borrowing $50,000,000 for one year either at a fixed rate of 6.50% in the US domestic market or at a floating rate indexed to three-month LIBOR + 1/4 in the Eurocurrency market. Currently, 3-month LIBOR is 5.25% and expected to remain constant for the year.

a. How much would ABC save if it uses the Euromarkets and these expectations are met? [For convenience, assume that CME maturity dates coincide with the firm's roll-over dates.]

b. What are the risks in using a Euromarket loan?

c. Calculate the eventual saving for ABC in the case where LIBOR increases by .50% every three months.

SOLUTIONS:
5. Suppose that three-month Eurodollars are quoted in the interbank markets at 6.0% - 6.125% by London banks, and 6.25% - 6.375% by Singapore banks.

a. Explain how you could attempt to make arbitrage profits in the above case.

b. How large is the profit from arbitraging $1,000,000 in this case?

c. What risks and/or costs do you face in attempting the arbitrage?

SOLUTIONS:

b. The potential profit is 0.00125 * $1,000,000 / 4 = $312.50. Remember, these are per annum interest rates for a three-month period.

c. The trader carries the political risk of deposits in Singapore. If funds were blocked in Singapore, he might not be able to pay back his London loan. Time differences between London and Singapore may also increase the difficulty of this transaction.

6. Consider Watanabe Bank in Japan. It has a portfolio of $10 billion in loans to AA-rated companies. The loans are priced at US$ LIBOR + 25 bp. The bank also has a portfolio of $5 billion in loans to BBB-rated companies. These loans are priced at US$ LIBOR + 50 bp.

a. Suppose that the Watanabe Bank is subject to a “Japan Premium” in the Euromarket equal to 10 bp. Calculate the impact on the bank’s revenues as a result of the Japan Premium.

b. Now suppose the Japan Premium rises to 30 bp. Again, Calculate the impact on the bank’s revenues as a result of the Japan Premium.

c. Suppose that the Japan Premium is predicted to remain at 30 bp for some time. What changes would you recommend for the bank’s lending strategy? What other changes could you propose to improve the bank’s profitability?

SOLUTIONS:

b. The Watanabe Bank’s revenue will be reduced by $15 billion X 10 X 0.01% = 15 million as a result of the Japan Premium.

b. If the Japan Premium rises to 30 bp, the bank’s revenue will be reduced by $15 billion X 30 X 0.01% = 45 million.
c. If the Japan Premium is going to remain at 30 bp for some time, I would recommend the bank to be more conservative in its lending strategy (that is, target more at the AA-rated clients) to reduce the possibility of default. While doing so, the bank could expect the Japanese Premium to diminish gradually.

To improve its profitability, the bank can increase its AA-rated customer base, or concentrate more on expanding its domestic market. On the other hand, if the bank instead also considers lending to customers with worse than AA ratings for higher interest rates, the bank’s customer default rate may increase further and cause more severe credit rating deterioration (which may very possibly form a vicious cycle).