

EURODOLLARS*

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The Nature of the Eurodollar Eurodollars are deposit liabilities, denominated in United States dollars, of banks located outside the United States.¹ Eurodollar deposits may be owned by individuals, corporations, or governments from anywhere in the world. The term Eurodollar dates from an earlier period when the market was located primarily in Europe. Although the bulk of Eurodollar deposits are still held in Europe, today dollar-denominated deposits are held in such places as the Bahamas, Bahrain, Canada, the Cayman Islands, Hong Kong, Japan, Panama, and Singapore, as well as in European financial centers.² Nevertheless, dollar-denominated deposits located anywhere in the world outside the United States are still referred to as Eurodollars.

Banks in the Eurodollar market and banks located in the United States compete to attract dollar-denominated funds worldwide. Since the Eurodollar market is relatively free of regulation, banks in the Eurodollar market can operate on narrower margins or spreads between dollar borrowing and lending rates than can banks in the United States. This allows Eurodollar deposits to compete effectively with deposits issued by banks located in the United States. In short, the Eurodollar market has grown up as a means of separating the United States dollar from the country of jurisdiction or responsibility for that currency, the United States. It has done so largely to reduce the regulatory costs involved in dollar-denominated financial intermediation.

* This article was written for *Instruments of the Money Market*, 5th ed., Federal Reserve Bank of Richmond. The focus is on Eurodollar instruments per se rather than on the economics of the Eurodollar market. The author is a Research Officer at the Federal Reserve Bank of Richmond.

¹ Dollar-denominated deposits at a bank located outside the United States are Eurodollars, even if the bank is affiliated with a bank whose home office is in the United States.

² See Ashby [1] and [2] for discussions of Europe's declining share of the global Eurocurrency market. The Eurocurrency market includes, along with Eurodollars, foreign currency-denominated deposits held at banks located outside a currency's home country.

The Size of the Eurodollar Market Measuring the size of the Eurodollar market involves looking at the volume of dollar-denominated loans and deposits on the books of banks located outside the United States. However, dollar-denominated loans and deposits may not match. Consequently, a decision must be made whether to measure the volume of Eurodollars from the asset or liability side of the bank balance sheet.

A liability side measure may be too broad, since it may include foreign currency liabilities incurred to fund loans to domestic residents denominated in domestic currency. Strictly speaking, this is a traditional type of international financial intermediation. Measuring Eurodollar market volume from dollar-denominated assets, however, may also overstate the size of Eurodollar volume since these assets may reflect nothing more than traditional foreign lending funded with domestic currency-denominated deposits supplied by domestic residents.

In practice, Eurodollar volume is measured as the dollar-denominated deposit liabilities of banks located outside the United States. For example, the Bank for International Settlements (BIS) defines and measures Eurodollars as dollars that have "been acquired by a bank outside the United States and used directly or after conversion into another currency for lending to a nonbank customer, perhaps after one or more redeposits from one bank to another."³

Under a liability side measure such as the one used by the BIS, the sum of all dollar-denominated liabilities of banks outside the United States measures the gross size of the Eurodollar market. For some purposes, it is useful to net part of interbank deposits out of the gross to arrive at an estimate of Eurodollar deposits held by original suppliers to the Eurodollar market. Roughly speaking, to construct the net size measure, deposits owned by banks in the Eurodollar market are netted out. But deposits owned by banks located outside of the Eurodollar market area are not netted out because these banks are considered to be

³ Bank for International Settlements, *1964 Annual Report*, p. 127.

original suppliers of funds to the Eurodollar market. For still other purposes, such as comparing the volume of deposits created in the Eurodollar market with the United States monetary aggregates, it is useful to further net out all bank-owned Eurodollar deposits. Doing so leaves only the nonbank portion of the net size measure, or what might be called the net-net size of the Eurodollar market.

The most readily accessible estimates of the size of the Eurodollar market are compiled by Morgan Guaranty Trust Company of New York and reported in its monthly bank letter *World Financial Markets*.⁴ Morgan's estimates are based on a liability side measure and include data compiled by the BIS. However, Morgan's estimates are somewhat more comprehensive. Morgan reports estimates of the size of the entire Eurocurrency market based roughly on all foreign-currency liabilities and claims of banks in major European countries and eight other market areas.

As of mid-1980 Morgan estimated the gross size of the Eurocurrency market at \$1,310 billion.⁵ The net size was put at \$670 billion.⁶ Morgan also reports that Eurodollars made up 72 percent of gross Eurocurrency liabilities, putting the gross size of the Eurodollar market at \$943 billion.⁷ No net Eurodollar market size is given. However, 72 percent of the net size of the Eurocurrency market yields \$482 billion as an approximate measure of the net size of the Eurodollar market. Finally, Morgan reports Eurodollar deposits held by nonbanks at \$200 billion, and those held by United States nonbank residents as less than \$50 billion.⁸

M2 is the narrowest United States monetary aggregate that includes Eurodollar deposits. M2 includes overnight Eurodollar deposits held by United States nonbank residents at Caribbean branches of Federal Reserve member banks. As of June 1980,

⁴ See Morgan Guaranty Trust Company of New York, *World Financial Markets* (January 1979), pp. 9-13, for a discussion of Morgan's method of measuring the size of the Eurodollar market. Other useful discussions of issues involved in measuring the Eurodollar market's size are found in Dufey and Giddy [9, pp. 21-34] and Mayer [11].

⁵ Morgan Guaranty (December 1980), p. 15. Most of the growth of the Eurocurrency market has occurred in the last two decades. For instance, Dufey and Giddy [9, p. 22] reports Morgan's earliest estimate of the gross size of the Eurocurrency market as only \$20 billion in 1964. See Dufey and Giddy [9, Chapter III] for a discussion of the growth of the Eurocurrency market.

⁶ Morgan Guaranty (December 1980), p. 15.

⁷ *Ibid.*

⁸ *Ibid.*, p. 4.

M2 measured \$1,587 billion; its Eurodollar component was \$2.9 billion.⁹

Even though it is conceptually appropriate to include term Eurodollar deposits held by United States nonbank residents in M3, they are only included in L, the broadest measure of money and liquid assets reported by the Federal Reserve, because the data used to estimate their volume is available with a long lag relative to other data in M3. M3 was approximately \$1,846 billion in June 1980; the Eurodollar component of L was \$51.8 billion.¹⁰ Eurodollar deposits owned by United States nonbank residents continue to grow rapidly, but these comparisons show clearly that such Eurodollar deposits still account for a relatively small portion of United States nonbank resident holdings of money and liquid assets.

Incentives For Development of the Eurodollar Market¹¹ By accepting deposits and making loans denominated in United States dollars outside the United States, banks can avoid many United States banking regulations. In particular, banks located outside the United States are not required to keep noninterest-bearing reserves against Eurodollar deposits. These foreign banks hold balances with United States banks for clearing purposes only. Moreover, there is no required Federal Deposit Insurance Corporation insurance assessment associated with Eurodollar deposits. Virtually no restrictions exist for interest rates payable on Eurodollar deposits or charged on Eurodollar loans; and there are few restrictions on the types of assets allowed in portfolio.

⁹ Board of Governors of the Federal Reserve System, H.6 statistical release, "Money Stock Measures and Liquid Assets" (February 20, 1981), pp. 1, 4.

¹⁰ *Ibid.*, pp. 1, 5. The figure for U. S. nonbank resident Eurodollar holdings given by the Federal Reserve exceeds that reported by Morgan because the Federal Reserve includes in its figure Eurodollar CDs held in the name of U. S. banks that are being held for the beneficial interest of U. S. nonbank residents.

Eurodollar deposits included in L are those held by U. S. nonbank residents at all banks in the United Kingdom, Canada, and at branches of U. S. banks in other countries. These account for nearly all U. S. nonbank resident Eurodollar holdings. Some overnight Eurodollar deposits issued to U. S. nonbank residents by banks other than Caribbean branches of member banks are only included in L because current data do not separate these overnight Eurodollars from term Eurodollars.

At present, Eurodollars held by non-U. S. residents are not included in any of the U. S. monetary aggregates. As improved data sources become available, the possible inclusion of Eurodollars held by non-U. S. residents other than banks and official institutions could be reviewed. See Board of Governors of the Federal Reserve System, *Federal Reserve Bulletin* (February 1980), p. 98.

¹¹ See Dufey and Giddy [9, pp. 110-12] for more discussion of the conditions that made large-scale Eurodollar market growth possible.

In most Eurodollar financial centers, entry into Eurodollar banking is virtually free of regulatory impediments. In addition, banks intending to do Eurodollar business can set up in locations where tax rates are low. For example, Eurodollar deposits and loans negotiated in London or elsewhere are often booked in locations such as Nassau and the Cayman Islands to obtain more favorable tax treatment.

Foreign monetary authorities are generally reluctant to regulate Eurodollar business because to do so would drive the business away, denying the host country income, tax revenue, and jobs. Even if the United States monetary authorities could induce a group of foreign countries to participate in a plan to regulate their Euromarkets, such a plan would be ineffective unless every country agreed not to host unregulated Eurodollar business. In practice, competition for this business has been fierce, so even if a consensus should develop in the United States to regulate Eurodollar business, it would be extremely difficult to impose regulations on the entire Eurodollar market.

Instruments of the Eurodollar Market¹² The overwhelming majority of money in the Eurodollar market is held in fixed-rate time deposits (TDs). The maturities of Eurodollar TDs range from overnight to several years, with most of the money held in the one-week to six-month maturity range. Eurodollar time deposits are intrinsically different from dollar deposits held at banks in the United States only in that the former are liabilities of financial institutions located outside the United States. The bulk of Eurodollar time deposits are interbank liabilities. They pay a rate of return which, although fixed for the term of the deposit, is initially competitively determined.¹³

From their introduction in 1966, the volume of negotiable Eurodollar certificates of deposit (CDs) outstanding reached roughly \$50 billion at the beginning of 1980.¹⁴ Essentially, a Eurodollar CD is a negotiable receipt for a dollar deposit at a bank located outside the United States.

¹² Dobbs-Higginson [8, pp. 55-61], Dufey and Giddy [9, pp. 228-32], and Stigum [16, Chapters 15 and 16] contain useful surveys of Eurodollar instruments.

¹³ See Stigum [16, p. 433] and Dufey and Giddy [9, p. 227] for discussions of Eurodollar deposit rate tiering according to perceived issuing bank creditworthiness.

¹⁴ Bank of England, Financial Statistics Division, International Banking Group. This data only includes London dollar CDs. But until recently, virtually all Eurodollar CDs have been issued in London. See "Out-of-Towners," *The Economist* (July 12, 1980), p. 89.

On average over the past seven years, fixed-rate three-month Eurodollar CDs have yielded approximately 30 basis points below the three-month time deposit London Interbank Offer Rate (LIBOR).¹⁵ LIBOR is the rate at which major international banks are willing to offer term Eurodollar deposits to each other.

An active secondary market allows investors to sell Eurodollar CDs before the deposits mature. Secondary market makers' spreads for short-term fixed-rate CDs are usually 5 or 10 basis points.¹⁶

Eurodollar CDs are issued by banks to "tap" the market for funds. Consequently, they have come to be called Tap CDs. Such Tap CDs are commonly issued in denominations of from \$250,000 to \$5 million. Some large Eurodollar CD issues are marketed in several portions in order to satisfy investors with preferences for smaller instruments. These are known as Tranche CDs. Tranche CDs are issued in aggregate amounts of \$10 million to \$30 million and offered to individual investors in \$10,000 certificates with each certificate having the same interest rate, issue date, interest payment dates, and maturity.

In recent years Eurodollar Floating Rate CDs (FRCDs) and Eurodollar Floating Rate Notes (FRNs) have come into use as a means of protecting both borrower and lender against interest rate risk. Specifically, these "floaters" shift the burden of risk from the principal value of the paper to its coupon.

Eurodollar FRCDs and FRNs are both negotiable bearer paper. The coupon or interest rate on these instruments is reset periodically, typically every three or six months, at a small spread above the corresponding LIBOR. Eurodollar FRCDs yield, depending on maturity, between $\frac{1}{8}$ and $\frac{1}{4}$ percent over six-month LIBOR.¹⁷ They are an attractive alternative to placing six-month time deposits at the London Interbank Bid Rate. Eurodollar FRN issues have usually been brought to market with a margin of $\frac{1}{8}$ to $\frac{1}{4}$ percent over either the three- or six-month LIBOR or the mean of the London Interbank Bid and Offer Rates.¹⁸ To determine LIBOR for

¹⁵ This spread was calculated from data in Salomon Brothers, *An Analytical Record of Yields and Yield Spreads* (1980).

¹⁶ Dobbs-Higginson [8, p. 59].

¹⁷ Credit Suisse First Boston Limited, "A Description of the London Dollar Negotiable Certificate of Deposit Market" (January 1980), p. 3.

¹⁸ Salomon Brothers, *Eurodollar Floating Rate Notes: A Guide to the Market* (1980), p. 3. The spread between interbank bid and offer rates is normally $\frac{1}{8}$ percent, so an issue priced at $\frac{1}{4}$ percent over the mean of the bid and offer rates would return $\frac{3}{16}$ percent over LIBOR.

Eurodollar FRNs, "the issuer chooses an agent bank who in turn polls three or four Reference Banks—generally, the London offices of major international banks. Rates are those prevailing at 11:00 a.m. London time two business days prior to the commencement of the next coupon period."¹⁹

Eurodollar FRCDs have been issued in maturities from 1½ to 5 years and are employed as an alternative to short-term money market instruments. Eurodollar FRNs have been issued in maturities from 4 to 20 years, with the majority of issues concentrated in the 5- to 7-year range. Eurodollar FRNs tend to be seen as an alternative to straight fixed-interest bonds, but they can in principle be used like FRCDs. Eurodollar FRNs have been issued primarily, but not exclusively, by banks.

A secondary market exists in Eurodollar FRCDs and FRNs, although dealer spreads are quite large. Secondary market makers' spreads for FRCDs are normally ¼ percent of principal value.²⁰ The spread quoted on FRNs in the secondary market is generally ½ percent of principal value.²¹

Interest Rate Relationships Between Eurodollar Deposits and Deposits at Banks in the United States Arbitrage keeps interest rates closely aligned between Eurodollar deposits and deposits with roughly comparable characteristics at banks located in the United States. This is illustrated in Charts 1 and 2. Chart 1 shows yields on Federal funds and overnight Eurodollar deposits. Chart 2 shows yields on Eurodollar CDs and CDs issued by banks located in the United States.

The Relative Riskiness of Eurodollar Deposits and Dollar Deposits Held in the United States²² There are three basic sources of risk associated with holding Eurodollars. The first concerns the chance that authorities where a Eurodollar deposit is held may interfere in the movement or repatriation of interest or principal of the deposit. But this risk factor does not necessarily imply that Eurodollar deposits are riskier than dollar deposits held in the United States. The riskiness of a Eurodollar deposit relative to a dollar deposit held in the United States can depend on the deposit holder's residence. For

¹⁹ Ibid., p. 7.

²⁰ Dobbs-Higginson [8, p. 59].

²¹ Ibid., p. 56.

²² See Dufey and Giddy [9, pp. 187-90] and Tyson [17] for more discussion of the riskiness of Eurodollars.

United States residents, Eurodollars may appear riskier than domestic deposits because of the possibility that authorities in the foreign country where the deposit is located may interfere in the movement or repatriation of the interest or principal of the deposit. Foreign residents, Iranians for example, may feel that the United States Government is more likely to block their deposits than the British Government. Consequently, Iranians may perceive greater risk from potential government interference by holding dollar deposits in the United States than by holding Eurodollar deposits in London.

A second element of risk associated with Eurodollars concerns the potential for international jurisdictional legal disputes. For example, uncertainty surrounding interaction between United States and foreign legal systems compounds the difficulty in assessing the likelihood and timing of Eurodollar deposit payment in the event of a Eurodollar issuing bank's failure.

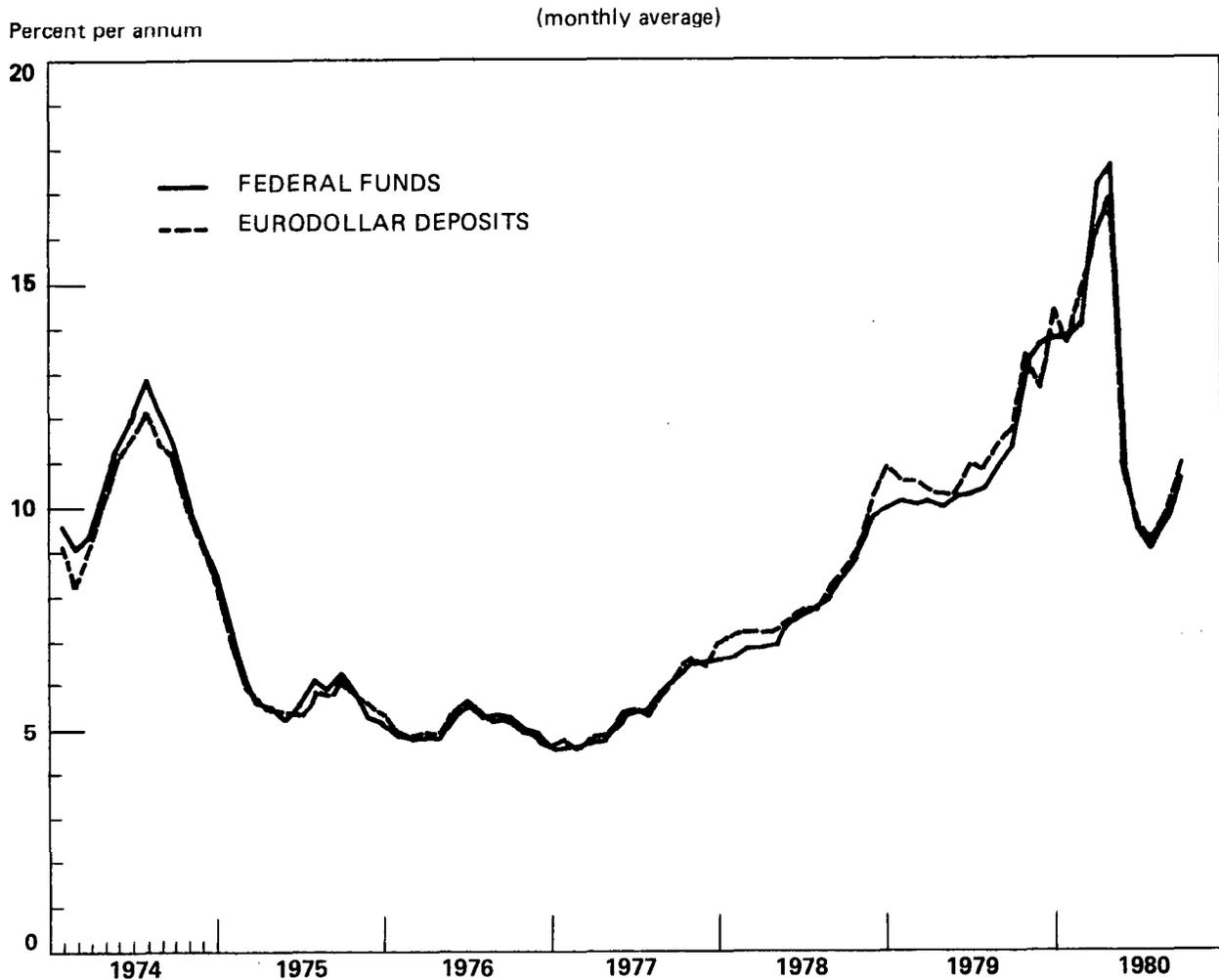
A third type of risk associated with holding Eurodollars concerns the relative soundness per se of foreign banks compared to banks located in the United States. Specifically, it has been argued that Eurodollars are absolutely riskier than deposits held in the United States because deposits held in the United States generally carry deposit insurance of some kind while Eurodollar deposits generally do not. In addition, it has been argued that in event of a financial crisis banks located in the United States are more likely to be supported by the Federal Reserve System, whereas neither Federal Reserve support nor the support of foreign central banks for Eurodollar banking activities in their jurisdiction is certain.

A related factor compounding the three basic risk factors identified above is the greater cost of evaluating foreign investments compared with domestic investments. Acquiring information on the soundness of foreign banks is generally more costly than assessing the soundness of more well-known domestic banks. This means that for a given level of expenditure on information acquisition, investors must generally accept more ignorance about the soundness of a foreign bank than a domestic bank.

Two comments on this argument are relevant here. First, the fact that it is more costly to evaluate foreign than domestic investments does not imply that Eurodollar deposits are inherently riskier than deposits held in the United States. If a depositor resides in the United States the argument implies that a given expenditure on research will generally

Chart 1

YIELDS ON FEDERAL FUNDS AND OVERNIGHT EURODOLLAR DEPOSITS



Source: Morgan Guaranty Trust Company of New York, *World Financial Markets*.

yield more information about the safety of deposits located in the United States than in the Eurodollar market. But if the depositor resides outside the United States, the reverse may be true.

Having said this, it must be pointed out that the amount of financial disclosure required by regulatory authorities abroad is generally not as great as in the United States. This fact may make it more difficult to evaluate the soundness of non-U. S. banks than U. S. banks for any depositor, regardless of his residence.

Second, to a large extent assessing the safety of Eurodollar deposits relative to deposits in banks located in the United States is made easier by the fact

that many banks in the Eurodollar market are affiliated with and bear the name of a bank whose home office is in the United States. For example, a London branch of a United States bank is as closely associated with its home office as a branch located in the United States.

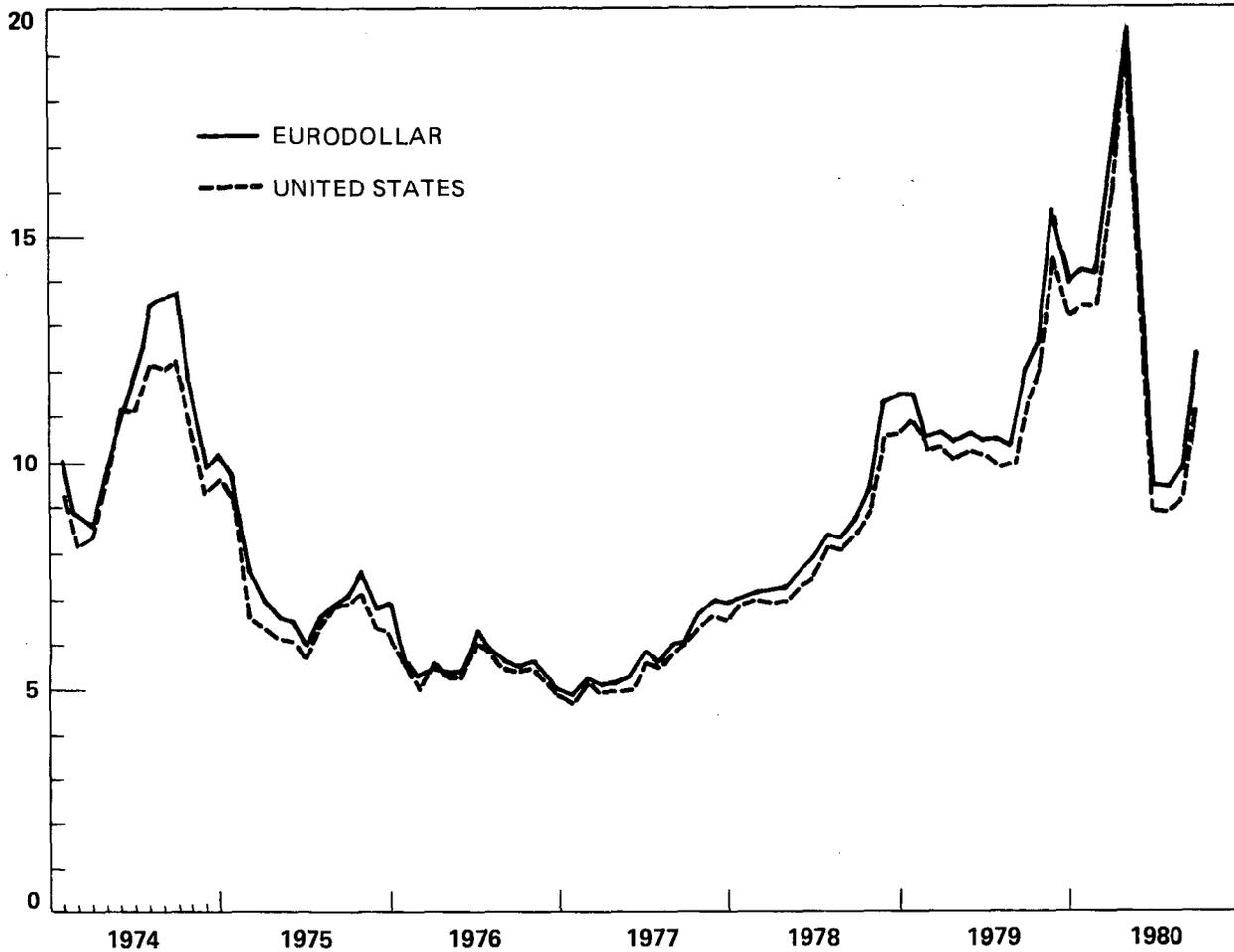
However, foreign offices bearing the name of a United States bank, usually in a slightly altered form, have been set up as subsidiaries. Under most legal systems, a branch can not fail unless its head office fails; but a subsidiary can fail even if its parent institution remains in business. Technically, a foreign office can bear the name of a United States bank in some form, and yet the parent institution may not be

Chart 2

**YIELDS ON UNITED STATES AND EURODOLLAR
THREE-MONTH CERTIFICATES OF DEPOSIT**

Percent per annum

(at or near the first of the month)



Source: Salomon Brothers, *An Analytical Record of Yields and Yield Spreads*, Part IV, Table 2.

legally bound to stand fully behind the obligations of its foreign office. This suggests that a foreign office named after a parent United States bank may not be as sound as its namesake, although the parent bank, unquestionably, has great incentive to aid the foreign office in meeting its obligations in order to preserve confidence in the bank's name.

On the whole, it is difficult to assess the relative riskiness of Eurodollar deposits and dollar deposits held in the United States. Some factors affecting relative risk can be identified, but their importance is difficult to measure. What is more, perceived relative riskiness can depend on the residence of the depositor. The extent to which risk-related factors

affect the interest rate relationship between Eurodollar deposits and comparable deposits at banks in the United States remains unclear.

Summary From the depositor's point of view, Eurodollar deposits are relatively close substitutes for dollar deposits at banks located in the United States. Eurodollar deposits are able to compete effectively with deposits offered by banks located in the United States because Eurodollar deposits are free of reserve requirements and most other regulatory burdens imposed by the United States monetary authorities on banks located in the United States. In fact, the tremendous growth of the Eurodollar market

in the last two decades has largely been the result of efforts to move dollar financial intermediation outside the regulatory jurisdiction of the United States monetary authorities.

Host countries have competed eagerly for Euro-dollar business by promising relatively few regulations, low taxes, and other incentives to attract a

portion of the Eurodollar banking industry. Financial intermediation in United States dollars is likely to continue to move abroad as long as incentives exist for it to do so. Since these incentives are not likely to disappear soon, the Eurodollar market's share of world dollar financial intermediation is likely to continue growing.

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