

# Foreign Bank Credit to U.S. Corporations: The Implications of Offshore Loans

by Robert N. McCauley and Rama Seth

International financial transactions have grown in recent years far faster than has our ability to understand their significance for national economies. A case in point is the rise in bank loans from banks outside the United States to U.S. businesses. The rapid growth of such loans bears on issues ranging from the extent of the corporate debt buildup in the United States in the late 1980s, to the progress of securities markets in displacing intermediated corporate credit, to the loss of market share in U.S. commercial lending by U.S.-owned banks.

This article argues that offshore bank loans to U.S. businesses in the 1980s surged as foreign banks availed themselves of an opportunity to avoid the cost of U.S. regulation, namely, the reserve cost of booking loans in the United States. The slowdown in the growth of offshore loans after the Federal Reserve removed the relevant reserve requirements in 1990 is consistent with this explanation.

In addition, the article points to three implications of the rapid pile-up of offshore credit to U.S. businesses:

- The accumulation of debt by U.S. firms was even more rapid than was generally thought in the late 1980s, and the recent drop in bank lending far less striking.
- More of the corporate funding was supplied by banks, including foreign banks, and less by the securities markets than is generally thought. In other words, the usual reckoning of banks' loss of corporate business to the securities markets in the 1980s overstates the case.
- Finally, the overwhelmingly foreign ownership of the banks responsible for the offshore lending

means that the foreign bank share of the U.S. commercial lending market is higher than the frequently cited 30 percent figure, which is based on loans booked in the United States. Instead, foreign banks have won a market share for themselves closer to 45 percent, putting commercial lending ahead of chemicals and automaking in the foreign command of the U.S. market.

## **The buildup of credit to U.S. firms from offshore**

The Bank for International Settlements aggregates data on crossborder loans provided by twenty-five banking authorities from industrial countries and offshore banking centers.<sup>1</sup> These data show a very rapid rise in bank loans to U.S. borrowers other than banks: from about \$50 billion in 1983 to \$278 billion in 1991 (Chart 1). Although publicly available information does not reveal where all the loans are booked, it is clear that the fastest growth has occurred in offshore centers, particularly in the Cayman Islands, and in "other industrial countries," which include Japan.

Those borrowing in the United States from banks abroad comprise not only commercial and industrial firms but also bank holding companies and their non-bank affiliates, securities firms, real estate companies, finance companies, and others. An estimate of the share of commercial and industrial loans in the offshore claims on U.S. nonbanks can be derived from the loans' share on the balance sheet of foreign banks' branches and agencies in the United States. This share is esti-

<sup>1</sup>See Bank for International Settlements, Monetary and Economic Department, *Guide to the BIS Statistics on International Banking* (Basle: Bank for International Settlements, February 1988).

mated to have remained steady at about 60 percent, at least since 1989.<sup>2</sup>

Estimated loans to commercial and industrial companies booked offshore rose from \$37 billion in 1983 to \$174 billion by the end of 1991 (Chart 2, solid line). These sums are more than double the offshore loans captured in the Treasury International Capital (TIC) reporting system and reflected in the flow of funds data on aggregate corporate indebtedness published by the Board of Governors of the Federal Reserve System (Chart 2, broken line). Note that in one case the lender reports and in the other case the borrower reports.<sup>3</sup> The flow of funds data were capturing about fifty cents of every dollar of estimated offshore loans during 1984-88,

<sup>2</sup>See notes to Table 1 for method of estimation. For at least one component of offshore loans to nonbanks, the 60 percent share is an underestimate. Commercial and industrial loans were 85 percent of loans to U.S. nonbanks made by foreign branches of U.S.-owned banks in 1990.

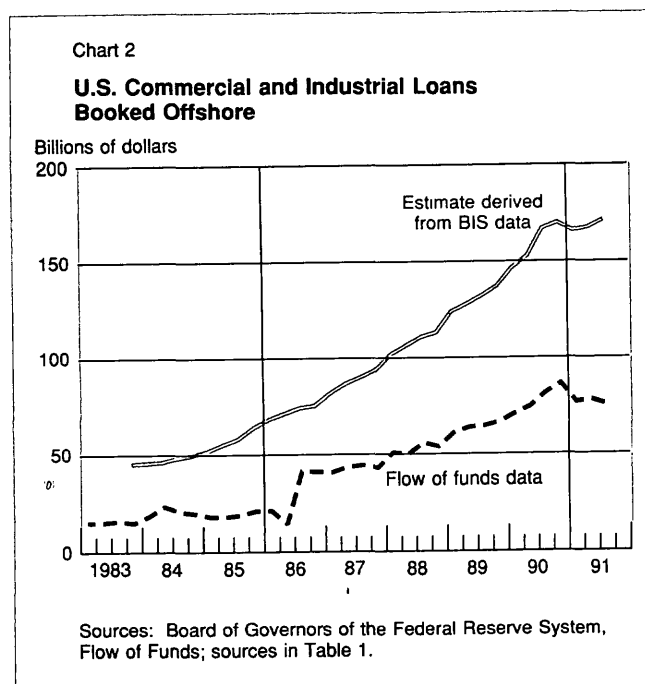
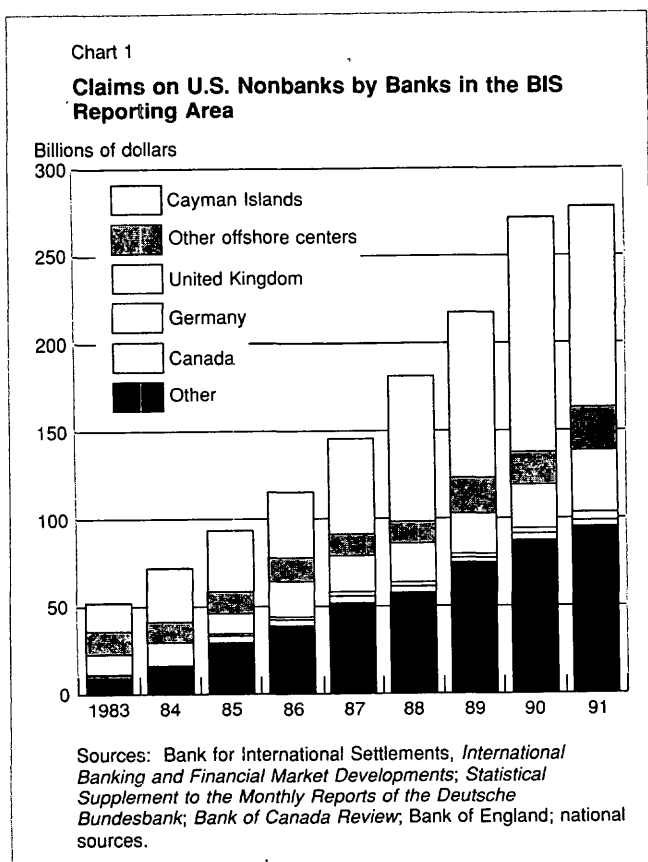
<sup>3</sup>Some of the problems with balance of payments data on nonbank flows are noted in "Final Report of the Working Party on the Measurement of International Capital Flows," International Monetary Fund, Washington, D.C., February 3, 1992 (See footnote 1 on p. 125.)

after which time they captured even less—only about forty cents of every dollar by 1991.

In the mid-1980s, the Treasury's concern about the accuracy and completeness of the balance of payments data on U.S. corporate borrowing from abroad led it to put in place a new reporting form. In introducing the new form, the Treasury wrote, "information drawn from Treasury interviews with a number of major banks and nonbank firms has indicated that large amounts of offshore loans to U.S. nonbank residents are not being properly reported on the TIC forms. In large part, under-reporting of foreign loans may arise because the non-bank borrower is unsure where the loan is actually booked. This confusion is particularly likely in instances where a U.S. firm is granted a loan from a foreign source but all loan servicing transactions are handled by a bank or other intermediary in the United States."<sup>4</sup> The result of the new reporting form was a jump in mid-1986 in the outstanding loans recorded by the Treasury (Chart 2, broken line). Nevertheless, the data reported to the Bank for International Settlements suggest to us that the U.S. data are still undercounting the offshore loans.

Foreign banks have made the bulk of the offshore loans to U.S. commercial and industrial firms. U.S.

<sup>4</sup>Letter "To All Nonbank Business Enterprises Reporting on Treasury International Capital C-Series Forms" from Gary A. Lee, Manager, Treasury International Capital Reporting System, Office of Data Management, Department of Treasury, May 1, 1986.



banks' branches held only \$22 billion in such loans at the end of 1991, while foreign banks held an estimated \$152 billion. Some of these loans are to U.S. affiliates of home country corporations. At least in the case of Japanese banks, however, such loans are not large enough to explain even their onshore loans.<sup>5</sup> We examine the reason for foreign banks' predominance below. First, however, we place offshore lending by foreign banks in the context of their overall penetration of the U.S. commercial banking market.

### Offshore credit and foreign banks' share of U.S. commercial lending

The conventional view of the foreign bank share of the U.S. commercial lending market only considers loans to businesses in the United States booked in the United States. Such loans totaled \$196 billion at the end of 1991, when all commercial and industrial loans in the United States were estimated to total \$603 billion. Subsidiaries accounted for \$50 billion and branches and agencies accounted for \$146 billion of the foreign banks' onshore lending.

Thus, the conventional view is that the foreign bank share had reached 33 percent in 1991, up from 15 percent in 1983. Sometimes loans to businesses in the United States booked at U.S. bank branches abroad,

branches of both U.S.-owned banks and foreign banks' U.S. subsidiaries, are included in the definition of the market, but their modest size leaves the conventional measure of the foreign bank share at 31 percent.

The view taken here is that the U.S. commercial lending market is better conceived as borrowing by businesses located in the United States: where a loan is booked is of secondary importance. To be sure, one reason for not considering commercial loans booked offshore by foreign banks is that we do not have a precise measure of them. The burden of our argument, however, is that a very accurate measure of a piece of the total is less useful than an approximate measure of the whole.

With this principle in mind, we calculate the foreign share of the U.S. commercial and industrial market to have grown from 18 percent in 1983 to 45 percent in 1991 (Table 1, first memorandum line). Estimated offshore loans by foreign banks rose from 4 to 20 percent of the total market; this growth offshore represented more than half the growth in foreign banks' market share. Indeed, the increase in the offshore component of foreign loans was more rapid than that in the onshore component in each of the years between 1983 and 1990 (lines II A and II B in Table 1). It is interesting that this pattern reversed itself between 1990 and 1991.

These estimates raise anew and with more force an old question: Why did foreign banks displace U.S. banks in their home market in the 1980s? In addition,

<sup>5</sup>See Rama Seth and Alicia Quijano, "Japanese Banks' Customers in the United States," Federal Reserve Bank of New York *Quarterly Review*, vol. 16, no. 1 (Spring 1991), pp. 79-82.

Table 1

### Foreign Bank Share of U.S. Commercial and Industrial Loan Market

Billions of Dollars Except As Noted

	1983	1984	1985	1986	1987	1988	1989	1990	1991-I	1991-II	1991-III	1991-IV
<b>Commercial and Industrial Loans to U.S. Addressees</b>	467	512	556	623	654	712	765	803	797	786	782	777
<b>I. Loans by U.S.-owned banks</b>	381	402	419	454	445	464	481	477	466	453	440	428
A Onshore	364	382	401	439	431	446	460	454	443	430	417	407
B Offshore	17	20	18	15	15	18	21	22	23	23	23	22
<b>II. Loans by foreign-owned banks<sup>†</sup></b>	86	110	137	169	209	248	284	327	332	333	342	348
A Onshore	66	78	92	109	130	153	168	179	185	186	191	196
B Estimated offshore <sup>‡</sup>	20	31	45	60	79	95	116	148	146	148	151	152
<b>Memo: Foreign Share (percent)</b>	18	21	25	27	32	35	37	41	42	42	44	45
A Onshore	14	15	17	18	20	21	22	22	23	24	24	25
B Offshore	4	6	8	10	12	13	15	18	18	19	19	20

Sources: Bank for International Settlements, Federal Financial Institutions Examination Council, Reports of Condition, Federal Reserve Form 2502, Federal Reserve Form 2951, *Federal Reserve Bulletin*, Statistical Table 4.3, Federal Reserve Bank of New York staff estimates.

Note: Banks in the United States include all banking institutions that file Reports of Condition with the Federal Financial Institutions Examinations Council.

<sup>†</sup>Includes branches, agencies, and subsidiaries with at least 10 percent foreign ownership.

<sup>‡</sup>These figures are estimated in two steps. We calculate the commercial and industrial proportion of total claims on nonbanks of branches and agencies of foreign banks in the United States. Then, assuming that the offshore proportion is the same, we apply this fraction, 60 percent, to the offshore claims on U.S. nonbanks of foreign banks. Also, 1991-I Bahamian and 1991-I and 1991-II Cayman Islands' figures for lending are carried over from end-1990.

the estimates raise a less familiar question: Why did foreign banks book such a high share of their new loans offshore in the late 1980s? We answer each question in turn.

### Reasons for foreign banks' gain in market share

Foreign banks appear to have drawn on two different kinds of advantages in bidding for U.S. corporate business in the 1980s. First, they could undercut the prevailing pricing and still satisfy the demands of their shareholders. Second, they could offer international services and thereby persuade U.S. corporate treasurers to switch some business.

### Price advantages

According to a recent study, Continental and Japanese banks enjoyed substantially lower costs of equity than did U.S. banks in the period 1984-90.<sup>6</sup> In other words, investors in equities in Frankfurt, Tokyo, and Zurich put a higher price on a given internationally comparable stream of bank earnings than did U.S. investors. Such pricing in turn allowed Continental and Japanese bank managers to target a smaller spread between the cost of funds and commercial lending rates than U.S., Canadian, or British bank managers could accept. U.S. banks' required spreads on commercial loans in the United States were on average more than 50 basis points, or one-half of 1 percent, wider than those of Japanese banks operating in the United States, 30 basis points wider than those of German and Swiss banks, and even 10 basis points wider than those of British and Canadian banks.<sup>7</sup> In the competitive world of commercial banking, these are telling differences.

Survey evidence supports the cost of capital interpretation of the penetration of foreign banks. Greenwich Associates conducted interviews with financial decision makers at U.S. corporations of various sizes in 1988 and found that firms trimmed the ranks of their U.S. banks while increasing the ranks of their foreign banks between 1987 and 1988 (Chart 3). Survey respondents cited "competitive loan pricing" as their principal reason for favoring foreign—and, in particular, Japanese—banks (Table 2).

### Nonprice advantages

The same surveys suggested that foreign banks benefited from their international presence in bidding for

<sup>6</sup>Steven A. Zimmer and Robert N. McCauley, "Bank Cost of Capital and International Competition," Federal Reserve Bank of New York Quarterly Review, vol. 15 (Winter 1991), pp. 33-59. See also Robert Z. Aliber, "International Banking: A Survey," Journal of Money, Credit, and Banking, vol. 16 (November 1984, part 2), pp. 661-78.

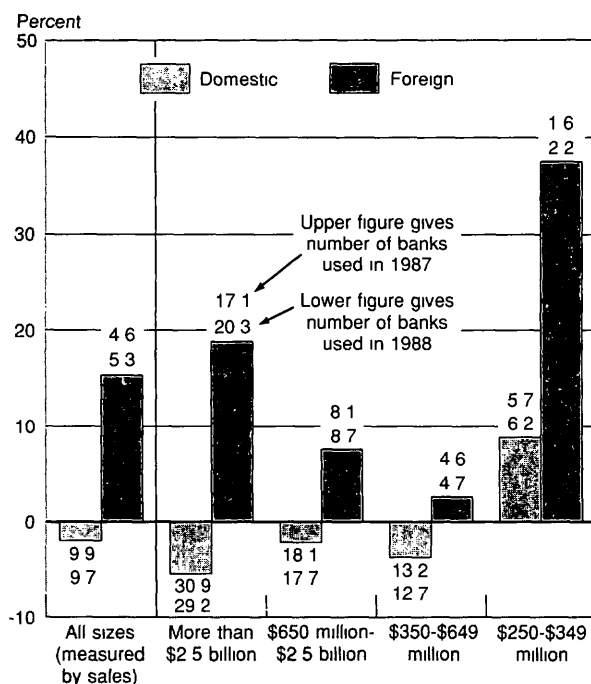
<sup>7</sup>Zimmer and McCauley, "Bank Cost of Capital," p. 49, Table 3. The table compares costs at branches.

U.S. customers. U.S. corporate treasurers indicated that international service capabilities and knowledge of innovative international banking alternatives made foreign banks more attractive lenders than domestic banks (Table 2).

### Reasons for foreign banks' offshore bookings

We hypothesize that foreign banks arbitrated regulatory differences in booking U.S. commercial loans offshore. Under Federal Reserve Regulation D, which governs reserve requirements, a foreign bank branch or agency had to post a non-interest-bearing 3 percent reserve when it sold a large so-called Yankee, or foreign bank, certificate of deposit in New York to fund a corporate loan (see box). In addition, once a foreign bank's U.S. offices had collectively run up net obligations to the bank's branches abroad, that bank had to post a sterile 3 percent reserve against additional Eurodollars borrowed abroad to fund U.S. assets, including corporate loans booked in the United States. But a foreign branch or agency so bound by the

Chart 3  
Percentage Change in the Number of U.S. and Foreign Banks Used by the Average U.S. Company between 1987 and 1988



Source: Greenwich Associates, *The Coming Shift in Bank Relationships* (Greenwich, Connecticut, 1988).

Eurodollar reserve requirement could avoid it by booking a loan to a U.S. firm at a branch abroad.<sup>8</sup> If the foreign bank chose a jurisdiction with a reserve requirement lower than 3 percent, quite possibly one with no reserve requirement, it could be said to have engaged in *regulatory arbitrage*

U.S. chartered banks could not play this game.<sup>9</sup> For them the Eurodollar reserve was assessed not only against net borrowings from affiliates abroad but also against loans to U.S. nonbanks booked at their foreign branches. The more inclusive reserve base entailed a requirement that U.S. chartered banks provide detailed information on their foreign branches and affiliates. As a result, a U.S. bank bound by the Eurodollar reserve requirement could not avoid it by booking a loan to a U.S. resident offshore.

<sup>8</sup>No explicit guidelines against booking loans from offshore centers were given to foreign banks in particular. The Board of Governors of the Federal Reserve System, however, had discouraged U.S. banks from running U.S. business through their foreign branches (See "Foreign Branches—Deposits Unconnected with Foreign Business," Section 3-698 in the Board's Interpretation of Regulation K, June 1981, pp. 3302-3303.)

<sup>9</sup>U.S. banks' foreign offices could, however, lend to multinationals' foreign offices free of reserves, and those offices in turn could relend the funds to their U.S. home offices. In this case, the regulatory arbitrage would show up in the balance of payments data as an intercompany loan, reducing U.S. direct foreign investment abroad (U.S.-based multinationals) or increasing direct foreign investment into the United States (foreign-based multinationals). For examples of the latter associated with acquisitions by British companies, see Robert N. McCauley and Dan P. Eldridge, "The British Invasion: Explaining the Strength of U.K. Acquisitions of U.S. Firms in the late 1980s," in *International Capital Flows, Exchange Rate Determination and Persistent Current Account Imbalances*, Bank for International Settlements, June 1990, pp. 323, 324.

Before we can confirm this interpretation of the rapid growth of foreign banks' offshore loans to U.S. firms, at least five conditions must be met.

- 1) Foreign banks must have been bound by the Eurodollar reserve requirement, or they would have no incentive to book offshore.
- 2) U.S.-chartered and foreign banks must have differed in their booking behavior, since only the foreign banks had the opportunity to arbitrage regulations.
- 3) The jurisdictions in which the offshore loans were booked in fact must have offered regulatory advantages.
- 4) The configuration of onshore and offshore rates must have favored offshore booking by foreign banks.
- 5) Finally, the reduction to zero of the Eurodollar reserve requirement at the end of 1990 should have made booking loans offshore much less attractive.

We examine each condition in turn

*Were foreign banks bound by the Eurodollar reserve requirement?*

Data collected by the Federal Reserve indicate that many foreign branches in the United States indeed had clear incentives to book their loans offshore. By 1990, 123 out of 245 U.S. branches and agencies of foreign banks, representing over 50 percent of total assets of branches and agencies, had a positive net related Eurocurrency liability (Chart 4); that is, they were bound by the Eurodollar reserve requirement. In addition, branches and agencies representing an additional 3.5 percent of total assets were nearly bound (that is, they

Table 2

### U.S. Corporations' Motives for Using Foreign Banks

A Reason Index

	All Foreign	Japanese	German	U K	Canadian	Swiss
Competitive loan pricing	15	27	1	0	0	-2
International service capabilities, domestic or offshore	11	-4	8	8	-3	9
Ability to propose innovative international banking alternatives	3	-3	-3	0	-3	6
Large lending capacity	-9	-14	-10	-14	-16	-13
Best at integrating merchant and commercial banking services	-9	-10	-14	-10	-10	-8
Reliable source of credit	-10	-17	-16	-12	-16	-9
Caliber of banking officers	-15	-28	-24	-17	-19	-17
Capital markets and corporate finance capabilities	-16	-20	-14	-24	-22	-5
Knowledge of innovative domestic banking alternatives	-18	-8	-6	-6	-6	-3
Historical relationship	-25	-39	-32	-36	-29	-39
Cash management	-46	-52	-58	-53	-41	-60

Source: Greenwich Associates, *The Coming Shift in Bank Relationships* (Greenwich, Connecticut, 1988), pp. 18-29.

Note: The index is the difference between the percentage of responses given for using foreign banks and that given for using domestic banks in 1988.

## Box

This box outlines the reserve requirements set forth in Regulation D Section 204.3 requires that "a depository institution, a U S branch or agency of a foreign bank, and an Edge or agreement corporation shall maintain reserves against its deposits and Eurocurrency liabilities."<sup>†</sup> Section 204.2 defines "Eurocurrency liabilities" as follows:

(1) for a depository institution or an Edge or agreement corporation organized under the laws of the United States, the sum, if positive, of the following

(i) net balances due to its non-United States offices and its international banking facilities ("IBFs") from its United States offices,

(ii) assets acquired from its United States offices and held by its non-United States offices, by its IBF, or by non-United States offices of an affiliated Edge or agreement corporation, . . .

(iii) *credit outstanding from its non-United States offices to United States residents* [emphasis added].

(2) for a United States branch or agency of a foreign bank, the sum, if positive, of the following

(i) net balances due to its foreign bank (including offices thereof located outside the United States) and its international banking facility after deducting an amount equal to 8 percent of . . . the United States branch's or agency's total assets . . . ;

(ii) assets (including participations) acquired from the United States branch or agency . . . and held by its foreign bank (including offices thereof located outside the United States), by its parent holding company, by its non-United States offices or an IBF of an affiliated Edge or agreement corpo-

ration, or by its IBFs.

Section 204 9 charts the reserve requirement ratios as follows:

Category	Reserve Requirement
Net Transaction Accounts	
\$0 to \$40.5 million	3% of amount
Over \$40.5 million	\$1,215,000 plus 12% of amount over \$40.5 million
Nonpersonal Time Deposits	
By original maturity (or notice period):	
less than 1½ years	3%
1½ years or more	0%
Eurocurrency Liabilities	3%

On December 4, 1990, the Federal Reserve Board announced that reserve requirements would be reduced to zero on previously reservable nonpersonal time deposits and Eurocurrency liabilities.<sup>‡</sup> The change was implemented in two steps. For depository institutions reporting weekly, the reserve ratios were reduced first to 15 percent in the reserve maintenance period beginning December 13 and then to zero in the maintenance period beginning December 27.

<sup>†</sup>Board of Governors of the Federal Reserve System, "Regulation D Reserve Requirements of Depository Institutions," 12 C.F.R. 204, as amended effective December 31, 1987.

<sup>‡</sup>Federal Reserve Bank of New York, "Reserve Requirements," Circular no. 10406, December 4, 1990. See also amendment to Section 204.9 in Board of Governors of the Federal Reserve System, "Supplement to Regulation D."

were 1 percent of their assets or less away from having a reservable net due to position in relation to their foreign offices).

Bound in aggregate by the Eurodollar reserve requirement, U.S. branches and agencies of foreign banks were maintaining substantial non-interest-bearing Eurodollar reserves, \$485 million in October 1990, and could therefore fund a loan to a U.S. corporation more cheaply by booking it offshore. We consider below why some foreign banks were paying the Eurodollar reserve.

*Did U.S. and foreign banks book differently?*

As described above, Regulation D called for different

treatment of foreign branches and agencies, on the one hand, and U.S. chartered banks, on the other. This asymmetry in treatment was mirrored by the asymmetry in behavior: foreign banks' offshore loans to U.S. firms more than quintupled between 1984 and 1990, while U.S.-chartered banks' offshore loans showed little growth by comparison—5 percent during the same period.

The difference in regulation depended not on ultimate ownership but on the U.S. charter. Regulation D treated foreign bank subsidiaries like U.S.-owned banks rather than like foreign branches in the United States. The fact that foreign bank subsidiaries used their foreign

branches no more than did U S -owned banks (Table 3) therefore strengthens the regulatory interpretation.

*Were foreign banks booking their U S. loans in jurisdictions with lower regulatory burdens?*

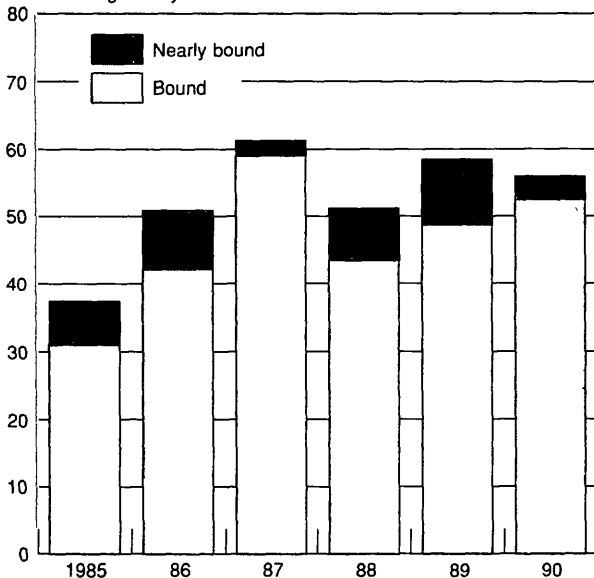
Most of the offshore loans to U S. nonbanks are booked in jurisdictions that impose no reserve requirements, such as offshore centers and the United Kingdom (Chart 1) Jurisdictions that do impose relatively high reserve requirements, such as Germany, have not seen much growth in their loans to U S nonbanks<sup>10</sup> We conjecture that the growth of loans from other industrial countries, including Japan, occurred in the Japan Off-

<sup>10</sup>Reserve requirements on domestic liabilities range as high as 12 percent in some cases (sight liabilities of more than DM 100 million) Under an extended compensation regulation, however, foreign currency liabilities to nonresidents in an amount equal to the book value of corresponding claims in foreign currency with maturities less than four years are exempt from reserve requirements

Chart 4

**Share of U.S. Branches and Agencies of Foreign Banks Bound by the Eurodollar Reserve Requirement**

Percent weighted by assets



Source Federal Reserve Form 2951

Notes Data are for Second District banks only, for October of each year Banks that had a positive net Eurodollar liability with related institutions are bound by the reserve requirement Banks that had a small net "due from" position with related institutions (less than 1 percent of their total assets) are classified as "nearly bound"

shore Market (JOM) in Tokyo Since December 1, 1986, this market has permitted foreign loans to be funded with money not subject to reserve requirements<sup>11</sup>

Clear evidence of regulatory arbitrage is seen in the use of shell branches in offshore centers such as the Cayman Islands (Table 4)<sup>12</sup> More than two-thirds of all

<sup>11</sup>The JOM in Japan is modeled after the IBF (international banking facility) in the United States In addition to the reserve requirement exemption, such facilities are also exempt from deposit insurance, withholding/stamp taxes, and some income taxes Moreover, they face no ceiling on deposit rates

<sup>12</sup>The distribution of assets across banks in the Cayman Islands further attests to the advantage enjoyed by foreign banks in

Table 3

**The Ratio of Commercial and Industrial Loans Booked Offshore to Those Booked in the United States**

1990, Billions of Dollars Except As Noted

	Loans Booked Offshore	Loans Booked Onshore	Ratio (Percent)
Banking institutions not chartered in the United States	147	127	116
U S -owned banks	22	454	5
U S subsidiaries of foreign banks	1	52	2

Source See Table 1

Note Because reserve requirements were removed in 1991, 1990 data are provided for reference

Table 4

**External Positions of Banks in the Cayman Islands in December 1990**

	Claims on	
	Banks	Nonbanks
Claims on residents of all countries (billions of dollars)	235	198
Claims on U S residents (billions of dollars)	106	134
As a share of total claims by all banks in the Cayman Islands (percent)	45	68
As a share of total overseas claims on U S residents (percent)	19	49
Share of banks not chartered in the United States (percent)	77	85

Sources National sources, Bank for International Settlements, *International Banking and Financial Market Developments*

loans to nonbanks booked in the Cayman Islands were to U.S. addressees in 1990, and these loans amounted to nearly 50 percent of all offshore loans made to U.S. nonbanks.

As an aside, we note that foreign banks from different countries took varying advantage of the regulatory arbitrage possibilities (Chart 5). Japanese banks, which had the biggest cost of capital advantage, engaged in regulatory arbitrage the least—perhaps, as suggested below, owing to the home country authorities' views. Japanese banks accounted for only 5 percent of nonbank loans made by all foreign banks in the Cayman Islands, as opposed to 72 percent of the commercial and industrial loans made by all foreign branches and agencies in the United States. Continental banks, by contrast, appear to have exploited arbitrage

opportunities.

The Japanese banks' small share of foreign bank assets in the Cayman Islands suggests that the Japanese share of the U.S. commercial banking market is overstated by loans booked in the United States. For example, adding estimated commercial loans booked in the Cayman Islands to those booked in the United States reduces the Japanese share in foreign bank loans to U.S. corporations from 60 percent to 40 percent.<sup>13</sup>

To be sure, Japanese banks stood out in the 1980s for their increasing market share of U.S. commercial lending. But contrary to the view that Japanese firms take every opportunity to gain advantage over their U.S. competitors, in this case the Japanese banks placed a slow third behind European and Canadian banks in exploiting shell branches.

*Footnote 12 continued*

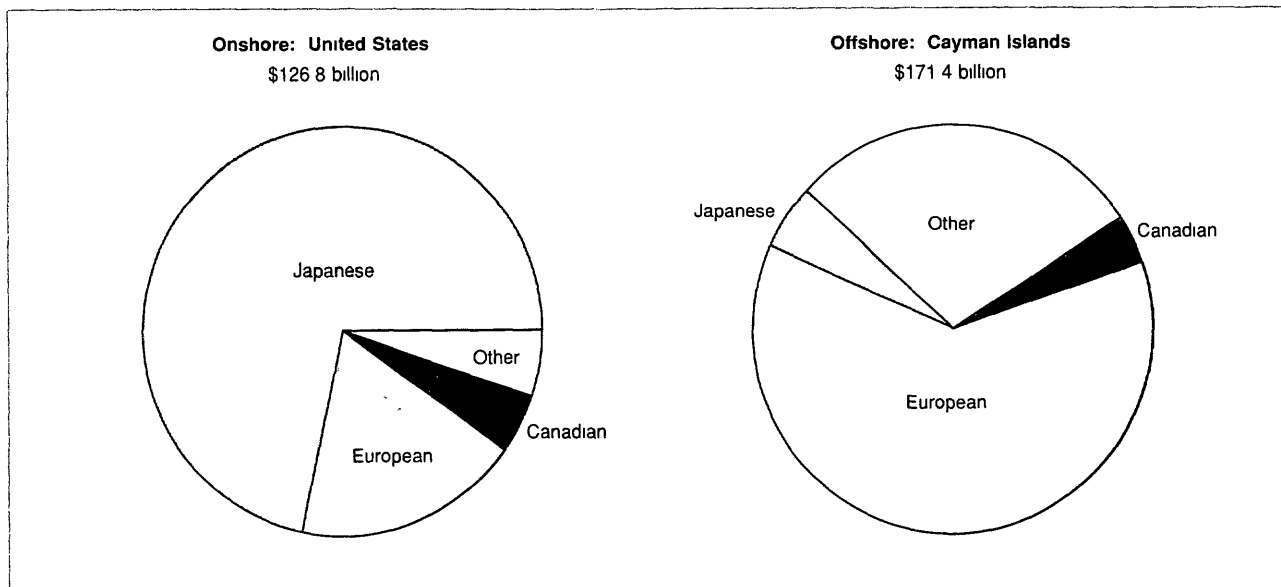
booking loans offshore. 85 percent of these loans were booked by non-U.S. banks. U.S.-chartered banks might have realized tax advantages from booking loans in the Caymans, but such banks could not thereby avoid the reserve requirements.

<sup>13</sup>This calculation assumes that the Japanese share in loans to U.S. corporations made by all foreign banks in the Cayman Islands is the same as the Japanese share in all nonbank loans made by foreign banks in the Cayman Islands.

Chart 5

**Loans by Foreign Banks in the United States and Cayman Islands**

By Nationality of Bank, Year-End 1990



Sources: Federal Financial Institutions Examinations Council, Reports of Condition, national sources

Notes: Onshore loans are commercial and industrial loans by foreign banks' branches and agencies in the United States. Offshore loans are claims on all nonbanks by foreign banks in the Cayman Islands.



*Did the configuration of onshore and offshore rates favor offshore booking?*

At the beginning of the 1980s, U.S. wholesale certificate of deposit rates were substantially below the Eurodollar rate, that is, the London Interbank Offered Rate (LIBOR). In this circumstance, most foreign banks could fund a loan most cheaply in the U.S. money market, even if the foreign bank had to pay a Yankee premium (a premium paid by foreign banks to raise funds in the United States) of 5 basis points and to post the 3 percent reserve requirement<sup>14</sup> Indeed, in the early 1980s, banks in the United States arbitrated the New York and London dollar markets by raising funds in the former and placing funds in the latter and thereby accumulated a net claim on their affiliates abroad.<sup>15</sup>

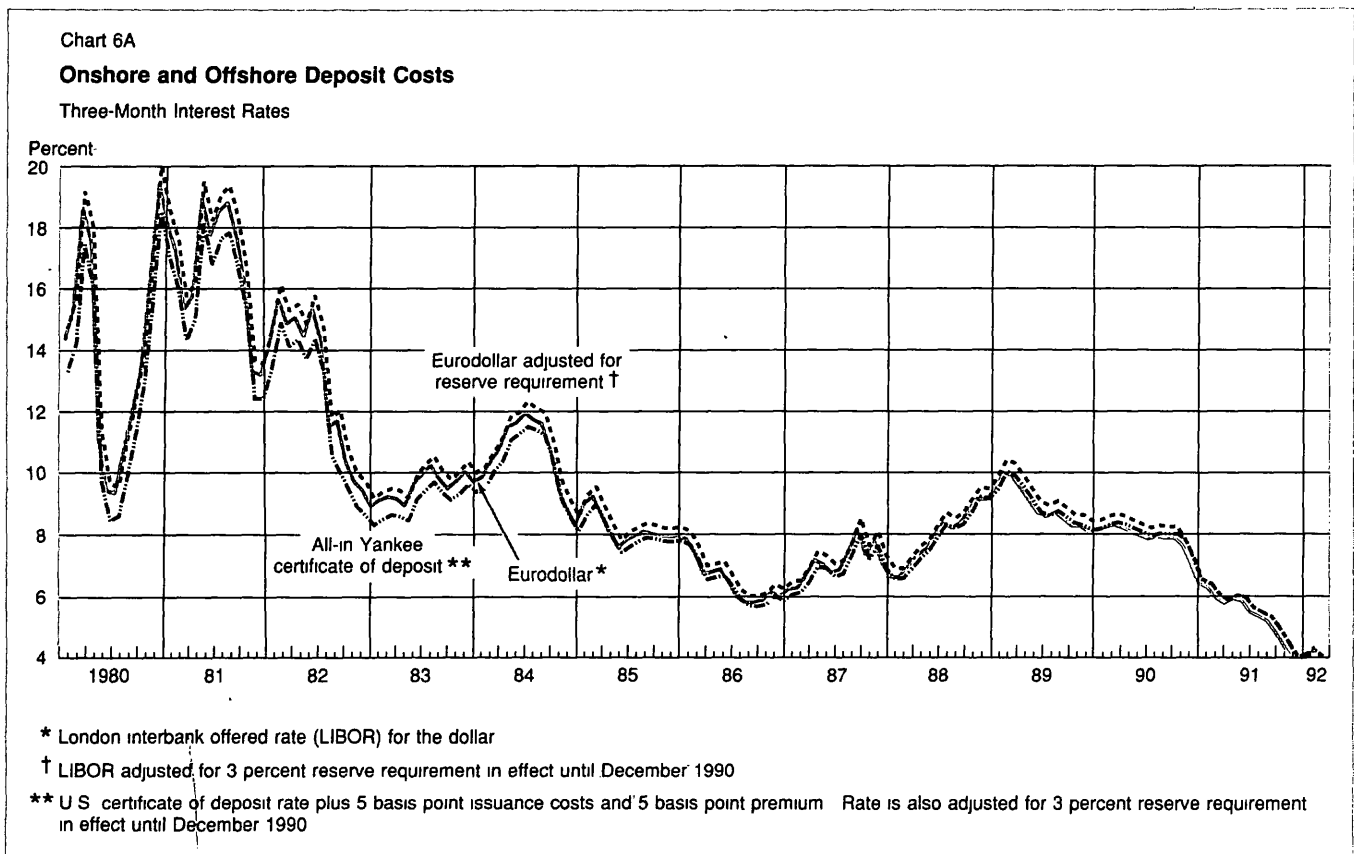
Through the 1980s, however, rates in the New York

<sup>14</sup>See, for example, Marcia Stigum, *The Money Market* (Homewood, Illinois: Dow Jones-Irwin, 1983), p. 539. For a treatment of the foreign premium in the U.S. commercial paper market, see Robert N. McCauley and Lauren Hargraves, "U.S. and Eurocommercial Paper: Converging Money Markets?" *Federal Reserve Bank of New York Quarterly Review*, vol. 12 (Autumn 1987), pp. 24-35.

<sup>15</sup>See Lawrence L. Kreicher, "Eurodollar Arbitrage," *Federal Reserve Bank of New York Quarterly Review*, vol. 7 (Summer 1982), pp. 10-22.

money market rose relative to those in the London dollar market (Charts 6A and 6B). This change in relative rates was consistent with first the cessation of net bank outflows from the United States and then the reflux of net bank funds into the United States, both of which helped to finance the U.S. current account deficit. The reflux tended to make the Eurodollar reserve requirement bind.

Beginning in 1984 and regularly after 1985, a foreign bank choosing between (1) booking a U.S. corporate loan onshore and funding it with a reservable deposit and (2) booking the loan offshore and funding it with an unreservable Eurodollar deposit (see appendix) faced a new incentive. Booking a loan to a U.S. company offshore and funding it without holding any reserve became the course that would minimize funding costs. (From 1984 on, the bold and dashed lines on Chart 6B are above the zero line, which represents LIBOR.) In 1989-90, it was cheaper to fund an onshore loan with a reservable Eurodollar than with a Yankee certificate of deposit, but it was still cheaper to book the loan offshore (The dashed line in Chart 6B cuts below the bold line, but both remain above the zero line.) The cost saving of



booking a loan offshore varied with the relationship between onshore and offshore rates, but it reached about a quarter of 1 percent (Chart 6B, shaded area).

In short, the opportunity to engage in regulatory arbitrage only became valuable to foreign banks in the United States as onshore rates rose relative to offshore rates. The more than doubling of the share of the U.S. commercial loans booked offshore by foreign banks in the years 1985-90 (Table 1) is consistent with our reading of how the rate configuration created opportunities for regulatory arbitrage

*Has the removal of the Eurodollar reserve requirement made a difference?*

Once the Eurodollar reserve requirement was reduced to zero at the end of 1990, the growth of offshore loans slowed to a crawl after years of rapid growth. Loans booked at shell branches in the Cayman Islands actually fell for the first time in 1991 after growing steadily between 1983 and 1991 (Chart 1)<sup>16</sup> In addition,

<sup>16</sup>Some rebooking occurred on the liability side of the balance sheet. Some foreign banks that had not been bound by the Eurodollar reserve requirement found it cheaper to fund U.S. loans with unreservable Eurodollars as long as Yankee certificates of deposit were reservable. But once large nonpersonal time deposits, including Yankee certificates of deposit, were no longer reservable, these banks compared Eurodollar rates directly with the rates on Yankee certificates of deposit and found the latter attractive. If these banks were large, well-rated foreign banks with little paper outstanding in the U.S. market, money market mutual funds may

responses to inquiries prompted by sizeable changes in U.S. claims of weekly reporting branches and agencies suggest that a fair amount of shell branch loans have been rebooked into the United States—at least \$12 billion between February 1991 and May 1992.

Although the incentives to book offshore have clearly declined, it may be premature to consider them nonexistent. Some foreign banks may fear that the reserve requirements lowered to zero in late 1990 might be raised again<sup>17</sup> In addition, they may fear the imposition of the Federal Deposit Insurance Corporation insurance premia on their branches and agencies, bringing their loans onshore might increase some future burden. Finally, not only regulatory arbitrage but also tax arbitrage is a consideration in the booking of loans.

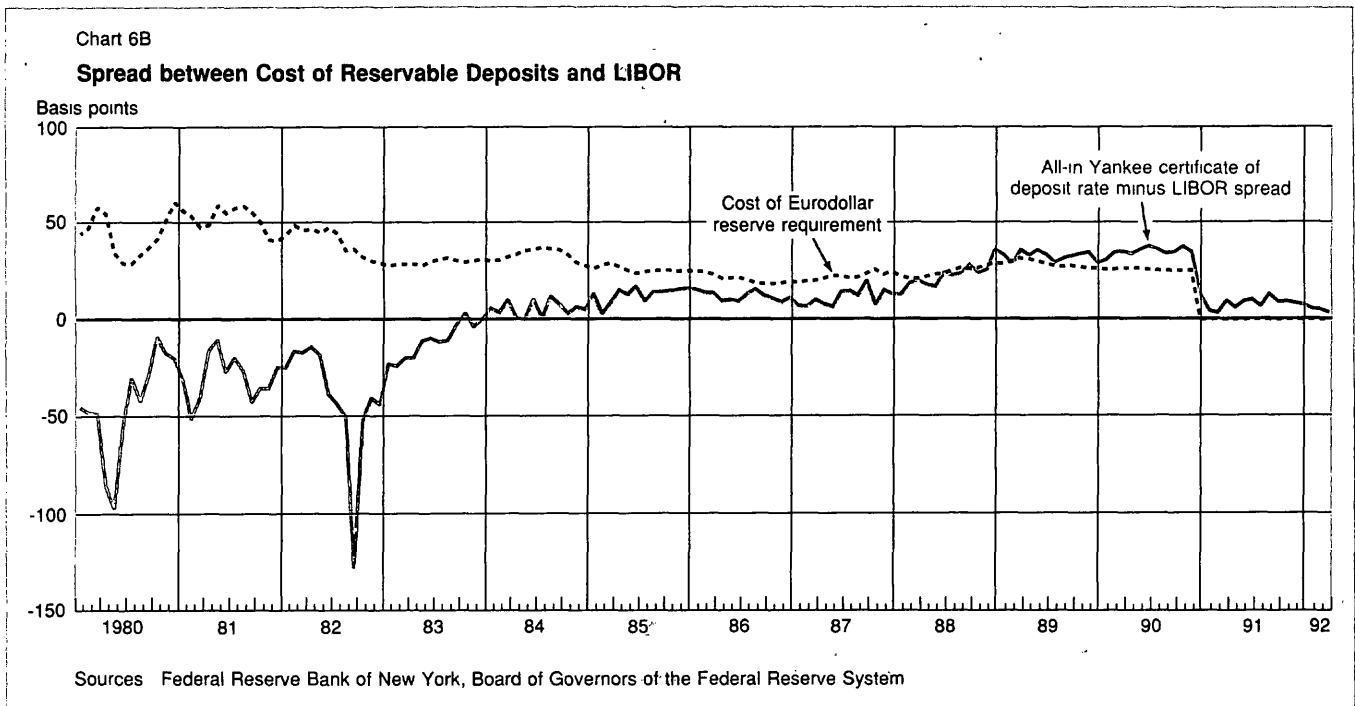
**Why didn't foreign banks book all their loans offshore?**

As we have seen, loans booked at U.S. offices of for-

*Footnote 16 continued*

not have imposed on them much of a premium over the best U.S. banks' rates. See "Monetary Policy Report to the Congress," *Federal Reserve Bulletin*, vol. 77 (September 1991), p. 701

<sup>17</sup>Regulation D sets a range of reserve ratios on Eurocurrency liabilities and transaction and nontransaction accounts. In 1991 the Federal Reserve Board determined that these ratios would be reduced to zero for Eurocurrency liabilities and all nontransaction accounts, but it did not eliminate reserve requirements. An act of law is not required to reinstate these requirements.



eign banks continued to expand in the late 1980s, and banks from different countries appear to have taken varying advantage of the opportunity to book loans offshore. These developments prompt us to ask why foreign banks as a group did not take fuller advantage and why some seem to have taken advantage more than others.

At the outset, recall that all foreign banks were not bound by the Eurodollar reserve requirement: only about half the foreign banks were (Chart 4). In other words, about half the foreign banks could fund a loan at the margin with Eurodollars and not pay any reserves.<sup>18</sup>

Still, foreign banks and agencies did hold a Eurodollar reserve in the amount of \$485 million as of October 15, 1990. At a 3 percent reserve ratio, this sum translates into over \$16 billion of loans that might have been profitably rebooked offshore. Two rather tentative explanations may be offered.

First, some banks may have sought to avoid discussion with federal or state tax authorities over offshore loans. This consideration may apply particularly to Cayman Island shell branches managed in New York.

Second, some foreign banks bound by the Eurodollar reserve requirement may have been reluctant to book at Caribbean shell branches out of bankerly caution and the fear of official opprobrium. Over the years, the Federal Reserve has discouraged U.S. banks from using shell branches to relocate deposits and loans alike because of the implications for monetary control. Other authorities did not view shell branches with enthusiasm: the Japanese authorities were slow to authorize branches in the Cayman Islands, and perhaps as a consequence, Japanese banks used this option relatively little.<sup>19</sup> Italian banks may be underrepresented in the Cayman Islands owing to official discouragement before and after the Banco Ambrosiano affair.<sup>20</sup>

<sup>18</sup>For instance, foreign bank branches in the first half of 1991 were replacing unreservable Eurodollar funding with newly unreservable domestic liabilities (see footnote 16). These branches sold such a large volume of Yankee certificates of deposit that growth in M3 was distorted during this period.

<sup>19</sup>Bank of Tokyo was the first to have a branch in the Cayman Islands. Nippon Long Term Credit Bank followed in 1982, Sumitomo Trust in 1983, and Sumitomo Bank in 1984. Subsequently, two banks started operations in 1986, one in 1987, five in 1988, and two in 1989.

<sup>20</sup>A freeze was imposed on subsidiaries of Italian banks in countries where the supervisory structure was inadequate and where the Bank of Italy did not have access to aggregate information. This freeze was lifted only in 1986 for reasons of international competitiveness. Although there was no explicit freeze on branches and agencies, shell branches in offshore centers of Italian banks were largely authorized after 1986. According to a 1982 study, Japanese and Italian banks had a very limited presence in the Caribbean. See Henry S. Terrell and Rodney H. Mills, Jr., "International Banking Facilities and the Eurodollar Market," in

### **How large was the cost advantage from regulatory arbitrage in relation to the cost of capital advantage of foreign banks?**

On balance, the cost saving from regulatory arbitrage was smaller than foreign banks' cost of capital advantage. At most, foreign banks saved 26 basis points from funding with unreserved Eurodollars rather than with reservable Yankee certificate of deposit rates. Over the period 1987-90, the cost saving averaged no more than 15 basis points. Only for British and Canadian banks did the savings approach the size of their modest cost of capital advantage. For Continental and especially Japanese banks, the passing advantage from regulatory arbitrage was quite small in relation to the measured cost of capital advantage. Certainly the large gains in market share in U.S. commercial lending were won by Japanese and Continental banks, as one would expect if the cost of capital differences had dominated regulatory arbitrage.

### **Reassessing the growth of corporate credit in the 1980s**

Offshore bank loans to U.S. corporations grew at a rate faster than onshore loans until the U.S. reserve requirements on wholesale deposits were reduced to zero at the end of 1990.<sup>21</sup> Since the policy change, offshore loans have continued to grow faster than the aggregate of onshore loans, but at a rate lower than that of onshore loans extended by branches and agencies of foreign banks.

As argued above, the relatively fast growth of offshore loans in the late 1980s reflected reserve incentives that came into play only as offshore dollars cheapened in relation to onshore dollars and as banks in the United States tapped their foreign offices for funds. Behind these forces lay a U.S. current account deficit that placed dollar wealth in the hands of foreign investors who were more prepared than U.S. residents to hold Eurodollars.

Whatever its causes, rapidly growing and substantially unaccounted offshore credit to U.S. corporations has obscured the profile of U.S. corporate leveraging in the 1980s and the deceleration and decline in corporate borrowing since 1989. Again, the flow of funds data (Chart 7, broken line) serve as the point of reference for our restatement of bank credit (Chart 7, solid line). The difference between credit growth as measured by

*Footnote 20 continued*

Paolo Savona and George Sutiya, eds., *Eurodollars and International Banking* (New York: St. Martin's Press, 1985), p. 188

<sup>21</sup>Thus, before the reserve change, offshore lending never reached a mature phase of balanced growth in comparison to onshore lending. See Robert Z. Aliber, "The Integration of the Offshore and Domestic Banking System," *Journal of Monetary Economics*, vol. 6 (1980), p. 520

the flow of funds data and credit growth according to our estimate widened fairly steadily after 1985 (Chart 7). When we use the more comprehensive figure for offshore bank credit to U.S. corporations, the growth of corporate bank debt in the years of the merger and acquisitions boom of the 1980s emerges as even higher than conventional measures have suggested.

With a closer approximation of offshore loans, bank credit appears less squeezed after 1989. That is, the more inclusive measure of bank credit shows considerably less shrinkage in 1991—1 percent by our estimates, as opposed to 14 percent according to conventional measurement. By the same token, we estimate that bank credit also decelerated less after 1989 than has generally been believed. When offshore loans are taken into account, foreign banks provided a greater offset to the contraction of credit by U.S. chartered banks than has been appreciated.

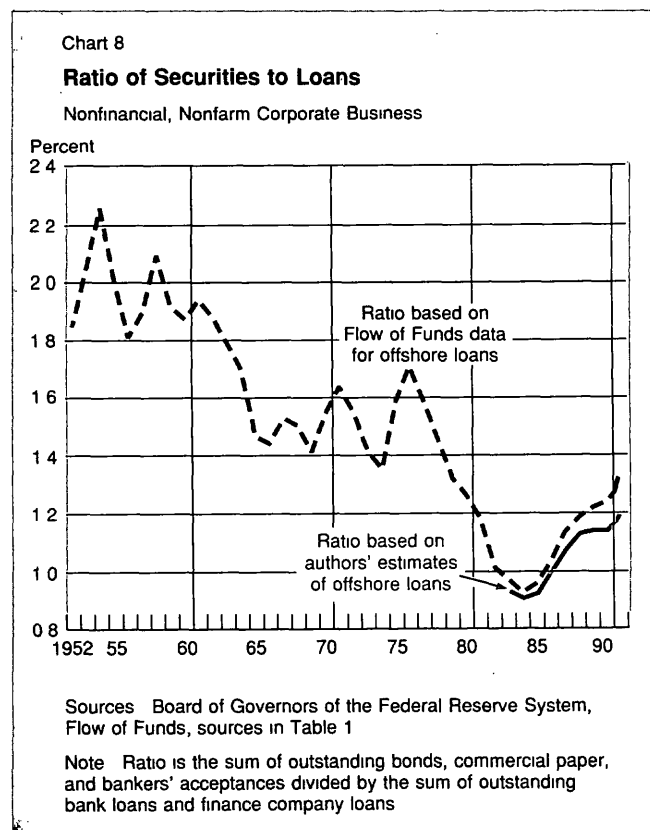
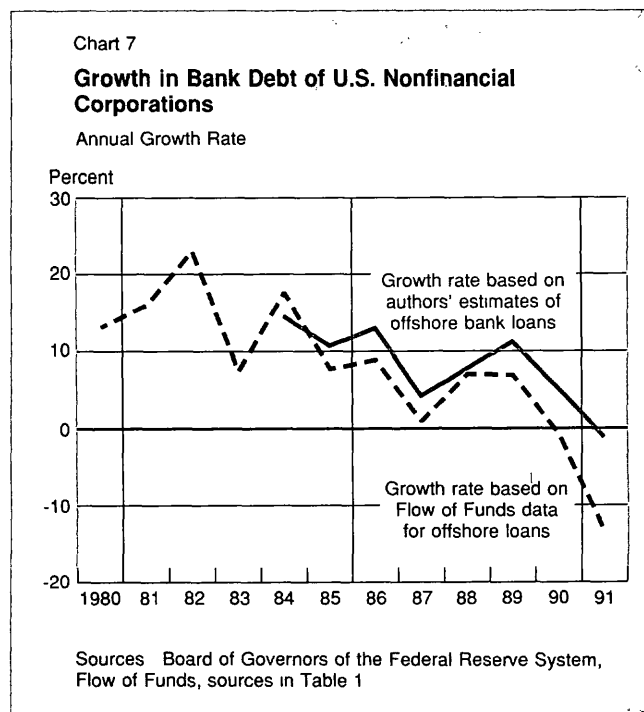
### Import of offshore lending to U.S. firms for securitization

The existence of a substantial sum of generally unrecognized bank loans to U.S. corporations means that the rise in corporate reliance on securities markets for borrowed funds in the 1980s has been overstated. We compute the ratio of funding from the securities markets—mostly corporate bonds, but also commercial paper and bankers' acceptances—to funding from inter-

mediated sources—banks and finance companies. We calculate this ratio in two ways: first, using the offshore loans as captured by the U.S. balance of payments data in the flow of funds accounts (Chart 8, broken line); second, using the offshore loans as we have computed them (Chart 8, solid line). Our calculations suggest that the ratio of securities borrowing to intermediated corporate credit rose less in the 1980s than conventional measures have indicated.

### Conclusions

In the latter half of the 1980s, U.S. reserve requirements interacted with money market interest rates to give foreign banks an incentive to book loans offshore. The rapid growth in this offshore component of foreign loans was in part missed by the U.S. reporting system, notwithstanding improvements in that system. This article argues that bank lending to U.S. corporations in the 1980s rose more rapidly, and securitization proceeded more gradually, than conventional measures have suggested. When the foreign loans booked offshore are estimated more comprehensively, foreign penetration of the U.S. market for commercial and industrial loans emerges as more extensive than generally recognized.



## Appendix: Loan Booking by a Foreign Branch—Onshore or Offshore?

This appendix shows how the configuration of New York and London dollar money market rates interacted with the Eurodollar reserve requirement to provide an incentive for offshore booking. Rates characteristic of 1984 and 1989 will be examined under the assumption, first, that the Eurodollar reserve did not bind and then that it did. We begin with the configuration of rates in 1984.

$$\begin{aligned} CD_{1984}^{US} &= 10.3 \text{ percent} \\ E\$_{1984} &= 10.8 \text{ percent} \\ \left. \begin{array}{l} RR^{CD} \\ RR^{ES} \end{array} \right\} &= 3 \text{ percent,} \end{aligned}$$

where  $CD_{1984}^{US}$  is the secondary market yield of New York three-month certificates of deposit of prime U.S. banks,  $E\$_{1984}$  is the Eurodollar offered rate payable by major internationally active banks for three-month deposits in London, and  $RR^{CD}$  and  $RR^{ES}$  are, respectively, the required reserves against large nonpersonal time deposits and required reserves against net Eurodollar liabilities.<sup>†</sup> We estimate that foreign banks had to offer a premium on their certificates of deposit of 5 basis points, this so-called Yankee premium was consistent with the extra yield offered by foreign commercial paper issuers and reflected the same home-name preference on the part of managers of money market mutual funds, managers of trust accounts, and others.<sup>‡</sup> In addition, we assume that issuing costs amount to another 5 basis points.

The foreign bank maximizes profit for a given yield on a loan by booking it where it can be funded most cheaply. The foreign branch faces an incentive to book a loan to a U.S. resident offshore if

$$\begin{array}{l} \text{cost of offshore} < \text{cost of onshore} \\ \text{booking and} & \text{booking} \\ \text{funding} & \end{array}$$

This inequality will hold if

$$\begin{array}{l} \text{Cost of} \\ \text{offshore} \\ \text{booking} \\ \text{and} \\ \text{funding} \end{array} < \text{minimum of} \left\{ \begin{array}{l} \text{cost of} \\ \text{onshore} \\ \text{booking} \\ \text{and onshore} \\ \text{funding} \end{array} \text{ or } \begin{array}{l} \text{cost of} \\ \text{onshore} \\ \text{booking} \\ \text{and offshore} \\ \text{funding} \end{array} \right\}$$

<sup>†</sup>See "Revision of Regulation D," *Federal Reserve Bulletin*, vol. 66 (September 1980), pp. 758-73.

<sup>‡</sup>Robert N. McCauley and Lauren A. Hargraves, "Eurocommercial Paper and U.S. Commercial Paper: Converging Money Markets," *Federal Reserve Bank of New York Quarterly Review*, vol. 12 (Autumn 1987), pp. 24-35.

or if

$$E\$_{1984} < \min \left\{ \frac{(CD_{1984}^{US} + .05 + .05)}{(1 - RR^{CD})}, \frac{E\$_{1984}}{(1 - RR^{ES})} \right\}$$

If the branch was not bound by the Eurodollar reserve requirement in 1984, the booking choice became

$$10.8 < \min \left\{ \frac{(10.3 + .05 + .05)}{(1 - .03)}, \frac{10.8}{(1 - 0)} \right\}$$

or

$$10.8 < \min \{10.7, 10.8\}.$$

Since the inequality did not hold, the unbound branch faced no incentive for offshore booking. Onshore booking and funding minimized cost.

If the branch was bound by the Eurodollar reserve requirement, offshore funding of the loan booked onshore became more expensive.

$$10.8 < \min \left\{ \frac{(10.3 + .05 + .05)}{(1 - .03)}, \frac{10.8}{(1 - .03)} \right\}$$

or

$$10.8 < \min \{10.7, 11.1\}.$$

Since onshore booking and funding remained the least costly choice, the foreign branch faced no incentive for offshore booking. The New York market remains the cheapest source for dollars whatever the reserve position of the foreign branch. The net claim position of U.S. banks against their foreign branches is consistent with this observation.

Now revisit the problem in 1989.

$$\begin{aligned} CD_{1989}^{US} &= 9.0 \text{ percent} \\ E\$_{1989} &= 9.1 \text{ percent,} \end{aligned}$$

and  $RR^{CD}$  and  $RR^{ES}$  are unchanged. The unbound branch checked

$$9.1 < \min \left\{ \frac{(9.0 + .05 + .05)}{(1 - .03)}, \frac{9.1}{(1 - 0)} \right\}$$

$$9.1 < \min \{9.4, 9.1\}.$$

and concluded again that the strict inequity did not hold. The unbound branch was indifferent between onshore or offshore booking but found it cheaper to fund offshore. Thus the unbound branch tended to become a bound branch.

The bound branch checked

$$9.1 < \min \left\{ \frac{(9.0 + .05 + .05)}{(1 - .03)}, \frac{9.1}{(1 - .03)} \right\}$$

$$9.1 < \min \{9.4, 9.4\}.$$

### Appendix: Loan Booking by a Foreign Branch—Onshore or Offshore? (Continued)

Since the strict inequity held, the bound branch faced an incentive to book offshore. Convergent onshore and offshore rates interacted with the Eurodollar reserve requirement to induce offshore booking. Note that, according to the last two calculations, foreign branches not bound by the Eurodollar reserve requirement faced the greatest cost incentive *not* to sell Yankee certificates of deposit. And it was precisely these banks that increased their Yankee certificates of deposits outstanding when reserve requirements on such deposits were removed.<sup>§</sup>

<sup>§</sup>The banks' switching from offshore to onshore liabilities affected M3 so noticeably that their behavior merited special attention in Chairman Greenspan's Humphrey-Hawkins testimony in mid-1991. "Monetary Policy Report to the Congress," *Federal Reserve Bulletin*, vol. 77 (September 1991).

Although no foreign branch would have had reason in 1989 to sell a Yankee certificate of deposit, certificates were in fact sold. The puzzle of foreign branch behavior is somewhat like the question why foreign banks did not book all their loans offshore. Recognizing the cost and time required to gain acceptance in domestic U.S. portfolios, banks may not have been quick to withdraw in response to a particular rate configuration that might prove temporary. In addition, the possibility of liquidity problems in the London deposit market that would not affect the New York dollar market would discourage extensive reliance on either market, given reasonable rate differentials.<sup>||</sup>

<sup>||</sup>See *Recent Changes in Liquidity Management Practices at Commercial Banks and Securities Firms* (New York: Federal Reserve Bank of New York, 1990).