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This *Quarterly Review* is published by the Research and Statistics Group of the Federal Reserve Bank of New York. Remarks of E. GERALD CORRIGAN, President of the Bank, on international economic prospects: a case study in mutuality, begin on page 1.

A Payments System Studies Staff report on large-dollar flows from New York begins on page 6.

Among the members of the staff who contributed to this issue are CHRISTINE M. CUMMING and LAWRENCE M. SWEET (on financial structure of the G-10 countries: how does the United States compare? page 14); JEFFREY BARDOS (on the risk-based capital agreement: a further step towards policy convergence, page 26); and DOROTHY B. CHRISTELOW (on converging household debt ratios of four industrial countries, page 35).

Two quarterly reports on Treasury and Federal Reserve foreign exchange operations for the periods August through October 1987 and November 1987 through December 1988 begin on pages 48 and 54.

International Economic Prospects: A Case Study in Mutuality

I am pleased to have the opportunity once again to address the Mid-Winter Meeting of the New York State Bankers Association. In contemplating the occasion, it struck me that this would be my fourth such appearance before this gathering, which, if nothing else, reminded me of how fast time passes in this turbulent era. For example, only a year ago I unveiled before this audience my essay on a longer-term view of the emerging financial and banking structure in the United States. In the intervening period, we have seen some decided momentum in the Congress and elsewhere toward a much needed modernization of our banking system. But, the hard fact of the matter is that progressive legislation has yet to be enacted even as the force of events here and around the world makes the case for progressive change still more compelling. Under these circumstances, I believe it is crucial that the banking industry, including all of the institutions represented in this room, lend its full support to enacting legislation along the lines of the Proxmire-Garn bill now before the Senate Banking Committee.

Legislation of this nature would not be the final word in efforts to adapt our banking and financial structure to the needs of the future, but it would be a giant step in that direction. To squander that opportunity in an effort to forge a more sweeping approach that, for example, would permit a blending of banking and commerce is, in my view, politically insensitive and substantively wrong.

As important as developments in the banking field in 1987 may have been, or may turn out to be, I suspect that with the passage of time they will earn little more than a footnote in the historians' recounting of the past year. Indeed, there have been developments in the domestic and international economy, in financial markets (and I am not merely referring to the events of mid-October), and in ongoing efforts to cope with the debt problems of the developing world that have taken on new and far-reaching dimensions over the past year that must command our attention. Accordingly, I would like to take this opportunity to share with you my thoughts on the economic situation here and abroad, with particular emphasis on the tasks that lie ahead in maintaining noninflationary growth, restoring better balance in international trade and capital flows, and working toward further gains on the LDC debt front.

There have been developments in the domestic and international economy, in financial markets (and I am not merely referring to the events of mid-October), and in ongoing efforts to cope with the debt problems of the developing world that have taken on new and far-reaching dimensions over the past year that must command our attention.

In looking first at the U.S. economy, the situation is one with both good news and bad. The good news, of course, is that we are now into the sixth year of an economic expansion. That expansion has been extraordinary, not just because of its duration, but also because it has been maintained despite very difficult

Remarks by E. Gerald Corrigan, President of the Federal Reserve Bank of New York, before the 60th Annual Mid-Winter Meeting of the New York State Bankers Association on Thursday, January 28, 1988.

conditions in some regions and in some sectors of the economy and because it has been maintained without any significant rise in the underlying rate of inflation. The bad news, however, is that we have serious imbalances in the economy that simply must be dealt with if we are to sustain noninflationary growth into the next decade.

While the nature of these problems is not new, allow me as a matter of emphasis to cite several examples of things that lie at the heart of our difficulties:

- In the late 1970s, general government budget deficits in the United States consumed, on average, only about 10 percent of our net private domestic savings. By 1986, and despite large surpluses in state and local governments, overall government deficits were consuming almost two-thirds of net private domestic savings, with the federal deficit eating up an astonishing 90 percent of net private savings. While these figures fell somewhat in 1987, they remain far, far too high by any reasonable standard.

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- As recently as 1981, the United States was the world's largest net creditor nation. We are now its largest net debtor and sometime this year, our net external indebtedness will cross the $500 billion threshold. To put it differently, by the end of 1988 our net *external* indebtedness will reach or exceed the accumulated public debt of the United States from its inception through 1974.
- Since the end of 1983, nonfinancial corporate America has retired a cumulative total of almost $300 billion in equity while over the same interval corporate debt has increased by more than double that amount.
- On a global basis, the U.S. trade and current account deficits and their mirror-image, surpluses in several of our major trading partners, are of unsustainable proportions.

These examples reflect the harsh reality that for too long we in the United States have been borrowing more than we save and consuming more than we produce in an environment in which debt, deficits, and leveraging have become a way of life for government, for business, and for individuals. Fortunately, we have both the underlying economic strength and the opportunity to remedy these problems—but only if we heed the warnings of the recent past and get on with the task now.

The task that lies ahead in seeking to address the imbalances in the United States and the world economy in a context of growth is, to put it mildly, formidable. To

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illustrate what is involved, it would be useful to consider what would have to happen between now and, say, mid- to late 1991 if, over that time frame, the United States were to eliminate or largely eliminate its trade deficit—keeping in mind that even that result will leave us with a not inconsequential current account deficit. At the risk of oversimplification, and assuming no major changes in inflation, interest rates or exchange rates, achieving that result would entail something along the following lines:

- In the United States, the growth in real GNP would, for the period as a whole, have to average something like 2.5 to 3.0 percent—not an easy task in its own right. But—and this is a very large "but"—there would have to be a major and sustained change in the composition of GNP growth. That is, over this entire period, the *rate* at which the U.S. economy consumes goods and services relative to GNP must *fall* if net exports are to rise, as they must if our trade deficit is to be eliminated. It is in this sense that we are facing a long period in which our standard of living must rise at a slower rate than it has in the past. To put it differently, we must make the very difficult transition from an economy paced by consumer spending to one in which export-oriented activities and investment in hard productive capital are at the cutting edge of sustainable and therefore moderate growth.

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- In the rest of the industrialized world, a growth rate in GNP of about 3 percent for the period as a whole would have to be coupled with a rise in domestic

demand in those countries to about 3.5 percent. For the large surplus countries, the spread between domestic demand growth and GNP would have to be even wider. Here too, we are talking about rates and patterns of growth that are, in general, quite at odds with the experience of recent years.

- In the United States, growth in manufacturing output—both to displace imports and to provide the needed export growth—would have to average, at the very least, 4 percent in a context in which manufacturing capacity will have to rise significantly. While these results can be achieved, they will not come easily nor without clear risks of higher inflation, especially considering that we start with little slack in labor markets and with capacity constraints already in evidence in several key manufacturing industries.
- In the United States, we must achieve a reduction in the domestic savings gap about equal to the reduction in the current account deficit implied by the sharply reduced or eliminated trade deficit. Thus, the domestic saving gap must be reduced by an amount well in excess of $100 billion. That reduction can be achieved by a rise in the domestic saving rate, by a reduction in the rate of private investment, by a reduction in the budget deficit, or by some combination of all three. Since the rate of private investment is, if anything, too low, the answer is not to be found there. Similarly, while a gradual rise in the private saving rate would be most welcome, it is by no means assured. To the extent it does occur, it would be far better to see the added savings used to help finance a highly desirable increased rate of private investment. Therefore, the great bulk of the reduction in the saving gap must come from cutting the budget deficit over the next several years. Sadly, and despite great effort, the details of a credible budget deficit reduction program in the needed amount are not yet in place.

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- Finally, even if all of the conditions I have mentioned were realized, the external indebtedness of the United States would continue to rise, though at a slower pace, over the entire period. Indeed, under a scenario along these lines, the U.S. external indebtedness by the second half of 1991 could easily be in the area of $850 billion and still rising by the amount of the residual current account deficit remaining at that time. This means, of course, that over the period as a whole foreign investors will have to be willing to accumulate, in net terms, something like $350 billion of additional dollar-denominated assets on top of the $500 billion they will hold sometime this year. It also means that we as a nation must conduct our affairs in a manner that will command the continued confidence of our current and prospective external creditors. Current account deficits are always financed; the only question is at what price.

If the scenario I have just laid out sounds challenging, it should, because surely it is. While the numbers I've cited are broad estimates, they do give a sense of the order of magnitude of the adjustment process that lies ahead. Moreover, they reflect an adjustment process that, in some respects, leans toward a best-case scenario. The key point, of course, is that even under such a scenario there is no quick and painless fix for our current economic ailments. For example, it would be nice to think that the United States could somehow manage a sufficiently rapid growth in GNP to have *both* a rise in net exports and a rate of increase in domestic demand that is in line with earlier experience. However, in my view, such an approach would carry with it the virtual certainty of renewed inflation that in the end would be highly destabilizing here and abroad. In fact,

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I know of no surer way to create a truly nasty recession than to fall victim to the illusion that we can inflate our problems away.

Similarly, it would be tempting to think that a further fall in the dollar would somehow make life easier. I, for one, simply don't see it that way. Indeed, in my judgment a further fall in the dollar would only serve to magnify inflationary dangers (in part by placing a further burden on the output and investment needs of the U.S. manufacturing sector), impede much needed growth prospects abroad, and complicate the task of financing our prospective current account deficits. Accordingly, the

economic fundamentals—including the need to maintain an environment conducive to capital investment here and abroad—point strongly to the need for a sustained period of stability in exchange rates.

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The point I am seeking to make is, of course, that at the end of the day we must come to grips with our underlying economic problems, not merely with the symptoms of those problems. To repeat, we simply cannot go on borrowing more than we save and consuming more than we produce, just as other countries cannot go on producing far more than they consume. The issue, therefore, is not whether the necessary adjustments—including the major changes in the composition of output and spending in the United States—will take place; those adjustments will take place one way or another. The issue is whether we will have the vision, the will, and the discipline to recognize the constraints we face and to conduct our affairs in a manner that permits the necessary adjustments to occur in an orderly way and in a context of growth.

Success in maintaining noninflationary growth in the industrial world is also central to efforts to cope with the LDC debt crisis. As an extension of that, it is also true that, today as several years ago, the LDC debt situation still poses a major threat not just to the debtor countries or their creditors but to the prospects for growth and stability in the global economy and trading system.

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For reasons that are understandable, we have reached a point in the evolution of the LDC debt situation in which frustration and fatigue are very much in evidence on all fronts. However, the past five and a half years have not been without important progress: bank exposures relative to capital have been cut in half or more; growth in the LDCs, even if uneven and at subpar rates, has re-emerged; major improvements in debtor country current account and trade positions have been achieved; public sector deficits have been cut and, I might add, for the so-called "Baker 15," these deficits are not wildly out of line with our own deficit relative to GNP; and, in general, interest rate and exchange rate policies have become more realistic. Despite all of this, however, the crucial debt and debt service ratios of most of the LDCs have not improved in any material way relative to the situation at the outbreak of the debt crisis in the early 1980s.

While there are many reasons—both economic and political—why we have not seen definitive turns in the various debt ratios of the LDCs, three economic factors strike me as particularly relevant: first, for the decade of the 1980s as a whole, the LDCs have experienced a sharp and protracted deterioration in the terms of trade; second, despite slack conditions in domestic economies, inflation rates in most of these countries have remained high and in some cases alarmingly high; third, fresh financing flows from official and bank sources have, if anything, been too modest. Moreover, even when financing has become available, it often comes only after inordinately long and costly delays in the negotiation and syndication process.

Under these circumstances, the yearning for that mystical masterstroke that will put the problem behind us becomes all the more evident. I'm sorry to say, however, that such a masterstroke simply does not exist. Today, as a year ago or five years ago, there are certain fundamental prerequisites that must be a part of efforts to resolve the LDC debt problem. Those prerequisites—

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in addition to growth in the industrial countries as cited earlier—include, among others, the following:

- First, growth in the debtor countries in the 5 percent range they have all experienced in the past must be attained. Needless to say, achieving such growth presupposes appropriate macro- and micro-policies on the part of the debtor countries.
- Second, the maintenance by the LDCs of businesslike relationships with their creditors, which means the timely servicing of financial obligations. In that regard, in a context in which a country has

an established track record of servicing its obligations, innovative steps such as the recently announced voluntary Mexican debt repurchase plan can play a constructive role, especially if such efforts are viewed essentially as exit-type vehicles. But here too, we must be realistic. Such efforts can be a constructive step in appropriate circumstances, but no more than that. They are not, nor will they ever be, either a substitute for the willingness and ability of debtor countries to service their debts or a sustainable channel for needed financing.

- Third, a reasonably stable and predictable flow of appropriate amounts of external finance—including bank credit—to the LDCs must be maintained. Approaches to the LDC debt problem that fail to take explicit account of the need to provide new financing to the LDCs over time should be viewed with skepticism. At the extreme, a debt strategy that cannot hold out the hope of renewed debtor access to market sources of external finance is no strategy at all. The object of the exercise is to restore creditworthiness and confidence, not to further impair them.

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- Fourth, strong and well-funded multilateral official institutions are a must. These institutions are central to the process not only because they can provide the added financing needed to close external financing gaps in the LDCs but also because they and they alone can be the locus of policy coordination and conditionality—a process which should become more flexible but which remains a crucial ingredient for success.
- Fifth, an appropriate degree of solidarity and commonality of purpose among private bank creditors, and especially major bank creditors, must be maintained. This means, among other things, that the advisory committee process or something like it is still needed, but that process must find ways to expedite procedures and decision making.

In saying that the fundamentals have not changed, I am not suggesting that the process as a whole has been or should remain static. Clearly it has not and it cannot. Indeed, we have already seen important adaptations on all fronts, including fresh and constructive ideas from the Secretary of the Treasury, the President of the World Bank and the Managing Director of the International Monetary Fund, as well as from debtors and private creditors alike. But as new ideas and approaches emerge, it seems to me that such ideas must be put to the test of how well, over time, they will serve the basic prerequisites I laid out a moment ago.

I said earlier that frustration and fatigue regarding the LDC problem were understandable: they are. But defeatism is not! Success in containing and gradually reducing the debt problem is not assured but it is attainable. To achieve that success will require cooperative and complementary efforts on all sides and it will require vision. To cite just one example, the case for further strengthening of bank capital and reserve positions is clear, but how that result is achieved can matter. That is, to the extent that reserving decisions by individual banks or groups of banks have the unintended effect of encouraging debtors to disregard their obligations or to abandon efforts aimed at sound policies, or to the extent that they imperil the needed flow of new money to the debtors, they can become self-fulfilling prophecies.

The theme of this address is mutuality: whether we live in Buffalo or Buenos Aires, Ticonderoga or Tokyo, Freeport or Frankfurt, we all have a mutual interest in how well each of us, and all of us, face up to the challenges of maintaining growth and stability in the national and international economy. But that mutuality cannot be used as an excuse to postpone needed initiatives at the national level or to place the blame for national problems at the doorstep of others. The essential things that need to be done—eliminate the budget deficit and the savings gap in the United States, achieve more rapid growth in domestic demand in the other industrial countries, promote growth and efficiency in the developing world, and firmly resist the seductive appeal of inflation on all fronts—happen, as I see it, to first coincide with national interests. From an international perspective, they are mutually reinforcing. But the reverse is also true. Failure on any one of these fronts will surely jeopardize prospects on all others. That is the essence of mutuality.

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Large-Dollar Payment Flows from New York

In recent years, the Federal Reserve has placed increased emphasis on the risks in the large-dollar electronic payments networks. In 1985, the Federal Reserve Board adopted a policy statement addressing daylight overdrafts on private networks such as the New York Clearing House Interbank Payments System (CHIPS) and on the Federal Reserve's wire transfer network (Fedwire).[1] Daylight overdrafts arise from an intraday Fedwire payment that exceeds an institution's balance with a Reserve Bank, or similar intraday payments in excess of receipts in CHIPS. The Federal Reserve policy was designed in part to curb the growth of daylight credit exposure related to payments, to contain systemic risk resulting from the failure of a participant, and to leave decisions on the treatment of individual transactions causing daylight overdrafts to payments system participants.

The policy statement treats all transactions going over the funds networks identically, regardless of the economic purposes of the payment or possible differences in the underlying risks associated with individual transactions. Because detailed information has not generally been available on the economic purpose underlying individual transactions, it is difficult to assess the impact of the policy statement on individuals or groups of payments system participants. Indeed, only anecdotal information and limited quantitative data from a few institutions exist on such a transactional level. In an effort to develop a more comprehensive base for understanding the nature of the transactions underlying the payments networks, the Federal Reserve Bank of New York embarked on a special study in 1985.

The study focuses on the nation's two large-dollar electronic payments systems—CHIPS and Fedwire. Together, these systems process about $1 trillion of electronic payments each day in New York City.[2] The study dealt with the nature, timing, and composition of the payments on a single day (June 4, 1986) by sampling individual transactions and researching these transactions.

The study was the product of a joint effort between the Federal Reserve Bank of New York, nine large New York Clearing House banks, and four foreign banks with New York City offices that are active participants in CHIPS.[3] The substantial work involved in researching the nature and purpose of the transactions was done entirely by these 13 commercial banks. The design of

[1]The policy statement and procedures for implementing it can be found in *Reduction of Payments System Risk: A Manual for Depository Institutions,* Federal Reserve System, September 1985. Since its full implementation in March 1986, the policy statement has been updated and revised. See *Interim Policy Statement Regarding Risks on Large-Dollar Wire Transfer Systems,* Federal Reserve System, July 30, 1987 [52 *Fed. Reg.* 29255 (August 6, 1987)].

[2]The Fedwire transactions addressed in this paper do not include transactions flowing over the Federal Reserve's book-entry securities system. Transactions over that system account for roughly an additional $300 billion a day at the Federal Reserve Bank of New York.

[3]The nine Clearing House banks that participated in both the CHIPS and the Fedwire survey were the Bank of New York; Bankers Trust Company; Chase Manhattan Bank, N.A.; Chemical Bank; Citibank, N.A.; Irving Trust Company; Manufacturers Hanover Trust Company; Marine Midland Bank, N.A.; and Morgan Guaranty Trust Company. The four foreign banks that were asked to participate in the CHIPS survey only were the Bank of Tokyo, Ltd.; Barclays Bank PLC; Credit Lyonnais; and Dresdner Bank.

the sampling procedure and the summary analysis that follows were prepared by the Federal Reserve Bank of New York.[4]

The payments researched were limited to those sent by the 13 participating banks. For that reason, the study focused on payments that flow through New York City, although such payments can and do have origins and destinations that are nationwide and worldwide. Thus, the survey helped provide a better understanding of the linkages between the funds transfer networks and the New York and international financial markets.

Transactions were divided into seven categories, each broadly representing the types of underlying financial transactions thought most likely to give rise to large dollar payments:

(1) Transfers related to securities purchase/redemption financing[5]
(2) Bank loan transactions
(3) Federal funds transactions
(4) Commercial and miscellaneous transactions
(5) Settlement transactions for other payments systems
(6) Eurodollar placements and returns
(7) Dollar transfers related to foreign exchange

Within each category, no attempt was made to analyze the risks associated with individual transactions or to compare the risks of one category with those of another. Rather, basic characteristics of transactions within each category were analyzed to identify the party initiating the payment, the nature and purpose(s) of the payment and characteristics of any underlying instrument, the destination of the payment, and the time of day the payment occurred.

[4]Single copies of the full study, *A Study of Large-Dollar Payment Flows through CHIPS and Fedwire*, are available free of charge from the Public Information Department, Federal Reserve Bank of New York, New York, New York 10045, upon written request.

[5]Note that book-entry securities transfers are *not* included in the survey. These transactions are processed separately by the Federal Reserve outside the funds environment.

AN OVERVIEW OF FEDWIRE AND CHIPS

Since the 1950s, major corporations and financial institutions have increasingly replaced checks as the principal means of payment with electronic transfers over payments networks. Currently, two payments networks—one private and one run by the Federal Reserve—handle virtually all large-dollar payment transactions in the United States.

The **Clearing House Interbank Payments System,** or CHIPS, is a large-dollar payments transfer system owned and operated by the New York Clearing House Association. CHIPS consists of approximately 140 participant financial institutions with offices in New York City. The participants exchange irrevocable payment messages electronically throughout the day, then settle their multilateral net positions at the end of the day by making or receiving a single payment to or from the CHIPS settlement account at the Federal Reserve. These payments are made either directly with the Federal Reserve for a settling participant or indirectly through a settling participant serving as a correspondent.

Fedwire is a real time electronic payments system run by the Federal Reserve. Almost 10,000 institutions across the country have access to the network through their local Federal Reserve Bank. While CHIPS is settled at the end of the day, every transaction going over Fedwire is immediately debited to the paying bank's account with the Federal Reserve and credited to the receiver's account.

RISKS IN THE PAYMENTS SYSTEM

Sender risk is the risk a depository institution assumes when it makes an irrevocable payment on behalf of the customer through the extension of credit. Credit can be extended either explicitly, by granting a loan, or implicitly, by paying against uncollected or provisional funds or an insufficient balance.

Receiver risk is the risk that an individual institution bears on networks other than Fedwire where, as the receiver of funds, it must rely on the sending institution's ability to settle its position at the end of the day.

Settlement risk describes the overall situation in networks where payments are provisional and a participant in the network is unable to settle its position at the appointed time, thereby preventing settlement from occurring normally. Networks often have special provisions that are invoked in these circumstances.

Systemic risk is an outgrowth of settlement risk. The failure of one participant to settle deprives other institutions of expected funds and prevents those institutions from settling in their turn. To the extent that chains of obligations develop, it is possible for a participant doing no business at all with the failed institution to suffer because of the impact that the failed institution had on an intermediate participant and its ability to settle.

In short, by capturing fairly basic information, this study was intended to provide additional quantitative and qualitative understanding of payments going over the two largest volume U.S. dollar payment networks and to serve as a benchmark for further analysis of the payments system.

Structure of the sample and survey

The survey was conducted by sampling payment originations for the participating institutions. The survey samples were structured to provide a reasonably representative sample of all transactions of $1 million or more in size, while assigning progressively greater importance to the larger size transactions. Thus, transactions ranging in size from $1 million to $5 million were sampled in relatively small percentages, those ranging from $5 million to $30 million were sampled at higher percentages, and transactions of $30 million or more were sampled at 100 percent. Because the size distribution of payments on Fedwire and CHIPS differs rather substantially, some variation between the two in the sampling percentages below $30 million was necessary in order to keep the two samples at manageable and comparable size. Specifically, the two samples were drawn according to the percentages for each transaction size shown in Table 1.

The samples were drawn from CHIPS and Fedwire payments traffic occurring on Wednesday, June 4, 1986, an essentially normal day on both wire transfer systems.[6] Total CHIPS transactions that day came to 119,279, with an aggregate value of $432,446 million. Second District Fedwire payment originations numbered 55,636, with a total dollar value of $265,163 million. CHIPS closed the day on schedule at 4:30 p.m., while the Fedwire closing was delayed 30 minutes, largely because of a late (5:15 p.m.) Fedwire securities close. Thus, Fedwire shut down at 7:00 p.m.

On the survey day, the 13 banks participating in the CHIPS survey accounted for $204.9 billion of CHIPS payments of $1 million or more, or 48 percent of the $426.5 billion total of CHIPS payments of that size made that day. The nine banks participating in the Fedwire survey made $197,043 million of Fedwire payments of $1 million or more, or 76 percent of the $259,919 million total of all payments of that size outgoing through New York Fedwire on the survey date. Table 2 summarizes the number of transactions and the dollar amount of those transactions by size category for the participants.

Within the sample as drawn, detailed responses on the individual transactions were obtained for 61.2 percent of the CHIPS sample and 72.6 percent of the Fedwire sample. The number of responses and percentage of response rates within each sampling bracket are shown in Table 3.

Table 4 indicates the estimated number and percentage of transactions falling in each category and the estimated aggregate dollar amount of transactions represented.[7] Several results are striking:

- CHIPS handled payments for almost all foreign exchange transactions.
- Fedwire accounted for virtually all payments related to transactions for securities purchase/redemption/financing and Federal funds purchases and sales.
- Significant overlap between the two systems was evident in the categories of payments related to bank loans, commercial and miscellaneous transactions, settlement, and Eurodollar placements.

The dominance of internationally oriented transactions on CHIPS is striking, with foreign exchange and Eurodollar placements making up more than 82 percent of CHIPS' dollar volume. In contrast, these two categories of transactions made up only 10 percent of Fedwire volume. Similarly, for the two categories in which Fedwire was dominant, less than 5 percent of the dollar volume in each category moved over CHIPS.

Even the areas of overlap are more apparent than real because substantial differences exist on the location of payment origin and the nature and purpose of the transactions. CHIPS was internationally specialized in both respects while Fedwire was focused domestically.

The comparatively sharp dichotomy between the systems may be less surprising if the membership and evolution of each system are considered. From an international perspective, 265 foreign-based depository institutions currently have a banking presence in the

[6]Since June 1986, the average daily payments volume on both networks has increased about 50 percent.

Table 1

Sampling Percentages by Payment Size Classification

(In Percent)

	1-5 Million Dollars	5-30 Million Dollars	30 Million Dollars and Over
CHIPS	7.5	20.0	100.0
Fedwire	15.0	40.0	100.0

[7]These estimates were blown up from the sample data by multiplying each of the three size classifications by the appropriate factor to obtain "100 percent" coverage. Except as noted, the results reported for the rest of the study do not attempt to adjust for either this sample bias toward large payments or differences in the completeness of the information available for particular types of transactions or from participating banks.

Table 2

Combined Fedwire and CHIPS Payments for Participants by Size Classification

	1-5 Million Dollars	5-30 Million Dollars	30 Million Dollars and Over	Total
Number				
Fedwire	5,350	4,958	1,528	11,836
CHIPS	16,725	10,642	1,127	28,494
Total	22,075	15,600	2,655	40,330
Amounts (In millions of dollars)				
Fedwire	12,662	61,652	122,729	197,043
CHIPS	35,772	97,232	71,852	204,857
Total	48,434	158,884	194,581	401,900

United States. Of these foreign institutions, 91 are CHIPS participants, representing about two-thirds of all CHIPS participants. In contrast, while virtually all major depository institutions based in the United States are Fedwire participants, fewer than 50 are represented on CHIPS.[8]

Similarly, from an evolutionary standpoint, CHIPS origins can be traced to the Eurodollar market that developed in the 1960s when official checks were still the predominant method for third-party payments. Because many foreign banks were not known to U.S. customers, payments (checks) were drawn on New York Clearing House institutions and exchanged at the Clearing House in New York. Over the years, these paper checks became next-day electronic payments and then same-day funds. While the form of payment

[8]About 350 depository institutions with $1 billion or more in assets are currently chartered in the United States.

Table 3

Survey Response Rates by Payment Size Classification

	1-5 Million Dollars		5-30 Million Dollars		30 Million Dollars and Over		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
CHIPS	769	61.9	1,320	61.9	663	58.8	2,779	61.2
Fedwire	553	67.0	1,341	72.4	1,167	75.9	3,041	72.6

Table 4

Estimated Aggregate Transactions by Survey Category by Wire System
(In Millions of Dollars)

Schedule/Transactions Category	CHIPS				Fedwire			
	Number of Transactions	Percent	Dollar Amount	Percent	Number of Transactions	Percent	Dollar Amount	Percent
I. Securities purchase/redemption/financing	274	1.0	2,842	1.4	4,458	37.7	54,856	27.8
II. Bank loan	399	1.4	3,476	1.7	272	2.3	3,956	2.0
III. Federal funds	107	0.4	788	0.4	2,361	19.9	66,269	33.5
IV. Commercial & miscellaneous	1,295	4.5	12,793	6.2	2,690	22.7	33,593	17.0
V. Settlement	945	3.3	16,198	7.9	915	7.7	18,664	9.5
VI. Eurodollar placements	4,800	16.8	56,255	27.5	966	8.2	18,848	9.6
VII. Foreign exchange	20,674	72.6	112,505	54.9	173	1.5	858	0.4
Total	28,494	100.0	204,857	100.0	11,836	100.0	197,043	100.0

Totals may not add due to rounding.

changed, the original Eurodollar and foreign exchange market business largely remained where it started.

Summary by transaction type

The principal findings of the study for each type of transaction are outlined below. The results are organized under three headings: description or classification of transactions, timing of transactions, and destination of transactions by Federal Reserve District. The discussion of each transaction type concludes with a brief statement highlighting the most significant or surprising findings.

Securities purchase/redemption/finance transactions

Description:

- Fedwire handles the vast majority of transfers related to the securities business:

	Number of Transactions	By Dollar Value
Fedwire	990	277,717 million
CHIPS	32	930 million

- Over 80 percent of securities transactions (both number of transactions and dollar volume) were initiated either by or for brokers/dealers (52 percent of Fedwire dollar volume) or investor customers (29 percent). Transactions for survey participants' own account made up less than 7 percent, with slightly

Table 5

Fedwire Securities Purchase/Redemption/Financing Transactions Composite Summary

	Estimated Number of Transactions	Percent	Estimated Dollar Amounts (In Millions)	Percent	Average Size of Transactions (In Millions of Dollars)
Initiated by/for					
Broker/dealer	1,727	38.7	28,613	52.2	16.6
Investor customer	1,905	42.7	16,088	29.3	8.4
Security issuer	541	12.1	6,638	12.1	12.3
Own other account	157	3.5	1,878	3.4	12.0
Own trading account	102	2.3	1,289	2.3	12.6
Own investment account	27	0.6	353	0.6	12.9
Total	4,458	100.0	54,856	100.0	12.3
Instrument:					
Commercial paper	1,751	39.3	21,665	39.5	12.4
Bankers acceptance	492	11.0	3,543	6.5	7.2
Domestic CD	312	7.0	4,425	8.1	14.2
Book entry securities—Fedwire	195	4.4	5,961	10.9	30.6
Euro CD	208	4.7	3,061	5.6	14.7
Mortgage-backed securities—definitive	322	7.2	1,967	3.6	6.1
Municipal security	314	7.0	1,340	2.4	4.3
Other or unspecified	867	19.4	12,891	23.5	14.9
Total	4,458	100.0	54,856	100.0	12.3
Nature of transaction					
Secondary market	1,907	42.8	20,116	36.7	10.5
New issue	1,319	29.6	15,630	28.5	11.8
Payment at maturity	970	21.7	13,990	25.5	14.4
Unspecified	263	5.9	5,119	9.3	19.5
Total	4,458	100.0	54,856	100.0	12.3
Purpose of transaction					
Investment	1,389	31.2	13,167	24.0	9.5
Trading	1,040	23.3	12,808	23.3	12.3
Repurchase agreement	624	14.0	14,139	25.8	22.6
Safekeeping	483	10.8	3,421	6.2	7.1
Other or unspecified	922	20.7	11,326	20.6	12.3
Total	4,458	100.0	54,856	100.0	12.3

Totals may not add due to rounding.

more than 10 percent relating to transactions for securities issuers. (See Table 5. Note that Table 5 has been blown up by the sample characteristics to represent all transactions over $1 million for the participating banks.)

- The average size of a transaction by or for a broker/dealer was about double that by or for an investment customer (Table 5).
- Of the possible types of securities instrument underlying the payment, commercial paper represented about 40 percent of Fedwire transactions. Euronotes account for about one-third of the very limited CHIPS activity.
- The most common purposes of the transactions were (1) investment, (2) trading, and (3) repurchase agreements.[9] Although ranking third by the number of transactions, repurchase agreements qualified as the principal purpose by dollar volume, claiming over 25 percent. The larger average size of these transactions accounts for their considerable share of the dollar volume.

Timing:

- Securities-related Fedwire transactions cluster heavily between 4:00 p.m. and 5:30 p.m., when almost 60 percent of the transactions and 57 percent of the dollar volume occur. Half of this volume is related to commercial paper—primarily payments for new issues—while the other half is spread across the remaining eight classes of instruments.

Destination:

- Seventy-six percent of the value of securities-related payments went to Second District counterparties, with 87 percent of that volume (two-thirds of total volume) going from one of the nine Clearing House bank survey participants to another.

CHIPS handles an insignificant amount of the securities-related traffic. Transactions related to commercial paper are the predominant transactions on Fedwire. While neither of these conclusions is particularly surprising, the trivial volume on CHIPS indicates that the differences between CHIPS and Fedwire may be even sharper than expected.

Bank loan transactions

Description:

- Loan transactions were low in frequency and value, indicating that much of this business is done directly on the bank's own books.
- Customer repayment of loans from third-party lenders represented the most significant type of transaction observed.

Timing:

- For loan transactions, both CHIPS and Fedwire payment times are fairly well distributed throughout the day.

Destination:

- Fedwire payments to depository institutions outside the Second District are concentrated to Chicago and San Francisco.

Before the study, bank loan transactions were thought to be a fairly common type of transaction going over both networks—certainly not one of the highest volume categories but one representing reasonable volume and dollar value. The study showed that such transactions in fact accounted for less than 2 percent of the dollar volume, a surprisingly low figure.

Federal funds transactions

Description:

- Virtually all transactions occur over Fedwire; CHIPS usage is confined largely to foreign bank customers lacking direct or convenient access to Fedwire.
- Sixty percent of Federal funds payments are for the survey banks' own accounts, indicating that the nine Clearing House banks in the survey are active as net borrowers.
- Although insignificant numbers of term Federal funds were identified, the transaction nature of this study understates the outstanding term Federal funds at least in direct proportion to the average maturity of such term borrowing.[10]

Timing:

- Federal funds returns tend to occur fairly early in the day, but not as early as expected, with only 40 percent of the dollar volume before noon but over 75 percent by 2:00 p.m. (Table 6).
- In contrast, almost 82 percent of payments representing Federal funds sales were concentrated after 4:00 p.m.

Destination:

- A broad nationwide distribution of payments representing Fedwire Federal funds was observed in the data, but with a particularly heavy flow to the Kansas City Federal Reserve District, reflecting the presence of a large net seller of Federal funds.

The results on Federal funds transactions generally confirmed conventional wisdom. The exception was the observation that a substantial amount of Federal funds were returned between noon and 2:00 p.m. and not earlier, as most anecdotal descriptions suggest.

[9]For book-entry government securities, the transactions captured represent some form of third-party or held-in-custody transaction not associated with the movement of securities. As noted earlier, securities delivered-against-payment transactions—those in which the ownership of a security is transferred on the Federal Reserve's books—are processed on a separate system outside the funds environment on Fedwire.

[10]Term Federal funds transactions would be visible only at origination and maturity, when funds actually move.

Commercial and miscellaneous transactions

Description:

- Out of six subcategories for this type of transaction, those relating to cash management concentration and disbursement for customers (as opposed to the bank's own account) dominated the dollar volume in both the CHIPS and Fedwire surveys:

	Cash Disbursement Downstreaming Funds (In Percent)	Cash Concentration Upstreaming Funds (In Percent)
CHIPS	49.9	30.5
Fedwire	67.3	25.3

- No other category accounted for as much as 7 percent of the *dollars* transferred, although purchases of goods accounted for 11½ percent of the commercial *transactions* on CHIPS.

Timing:

- Most commercial and miscellaneous items on both wires fell in the latter half of the day.

Destination:

- Of these payment transactions, 74 percent of the dollar value remained in the Second District; 94 percent of these intradistrict transactions items flowed between the nine banks participating in the survey.

Cash concentration and dispersion represented a greater portion of the commercial and miscellaneous transactions category than might have been expected. In part, this finding may be due to the exclusion of transactions smaller than $1 million from the sample. However, even if smaller transactions had been studied, it appears unlikely that the dollar volume represented by "small" commercial transactions would have materially affected the conclusion that the networks handle relatively little commercial business other than traffic relating to cash management.

Settlement transactions

Description:

- Correspondent balance adjustments were the dominant purpose for settlement transactions on both CHIPS (67 percent of transactions, 84 percent of dollar volume) and Fedwire (81 percent of transactions, 61 percent of dollar volume).
- CHIPS settlement transactions over Fedwire represent 5 percent of the settlement transactions on Fedwire but more than 30 percent of the dollar volume.

Timing:

- Over 20 percent of the CHIPS transactions, or 16 percent of the dollar volume, occurred before 9:00 a.m., probably reflecting overnight margin calls on European customers. For Fedwire, early day movements were more modest; less than 15 percent of the volume moved before 12:00 noon, with about half of that moving between 11:00 a.m. and 12:00 noon.
- CHIPS volume begins to build substantially after 12:30 p.m., when European markets are generally closed. Fedwire does not begin to peak until after 4:00 p.m.

Destination:

- More than 65 percent by value of Fedwire settlement dollars went to Second District receivers, but only 31 percent of that amount went to the Clearing House bank survey participants. This finding reflects the netting function of CHIPS and its settlement account.

The transactions relating to settlement were largely as expected. Caution should be used in interpreting the data, however, because both the number of transactions and the dollar volume severely understate the underlying economic transaction values. Many of the transactions observed relate to net settlement systems where a single net transfer in one direction is all that is seen to support numerous transactions flowing between participants.

Table 6

Fedwire Sales and Returns of Federal Funds by Time of Day

Time of Day	Sales		Returns	
	Number of Transactions	Percent	Number of Transactions	Percent
8:31 to 10.00	3	1.7	77	10.8
10:01 to 12:00	2	1.2	225	31.6
12:01 to 14:00	16	9.3	256	36.0
14:01 to 16:00	27	15.7	71	10.0
16:01 to close	124	72.1	83	11.7
Total	172	100.0	712	100.0
	Dollar Amount (In Millions)	Percent	Dollar Amount (In Millions)	Percent
8:31 to 10:00	99	1.2	4,900	15.8
10:01 to 12:00	26	0.3	7,643	24.6
12:01 to 14:00	335	3.9	11,173	35.9
14:01 to 16:00	1,089	12.8	3,361	10.8
16:01 to close	6,983	81.8	4,023	12.9
Total	8,533	100.0	31,098	100.0

Totals may not add due to rounding.

Eurodollar placements/returns

Description:

- In CHIPS, approximately 90 percent of the Eurodollar-related transactions and dollar volume originate outside the United States. In contrast, only 22 percent of the Fedwire transactions originate outside the United States, constituting about 26 percent of the dollar volume.
- Bank customers (including a bank's own offshore branches) account for 94 percent of the dollar volume of Eurodollar transactions on CHIPS and about 76 percent on Fedwire.
- Customers accounting for the remaining dollar volume of Eurodollar transactions on Fedwire are about equally divided between nonbank financial entities and nonfinancial entities. However, transactions for nonfinancial entities generally have a much smaller average size than those for either banks or nonbank financial entities.
- One-day Eurodollar transactions comprised about 75 percent of the dollar volume on both CHIPS and Fedwire.

Timing:

- By noon (Eastern time), almost 45 percent of the dollar value of Eurodollar placement returns had been processed by CHIPS but only about 25 percent of the Eurodollar placements. Further, 42 percent of the placements—but only 27 percent of the returns—were processed in the final two hours on CHIPS (2:30 to 4:30 p.m.).
- A similar pattern occurs on Fedwire, where at 2:30 p.m. 72 percent of the returns have been processed but only 27 percent of the placements.

Destination:

- A high percentage of payments went to the Boston District, reflecting the return of Eurodollar placements to banks for money market mutual funds headquartered there.

The differences between CHIPS and Fedwire are again apparent in the Eurodollar transactions. More CHIPS activity originates outside the United States while Fedwire activity originates inside the United States. Also, Eurodollar placements make up more than half of CHIPS traffic while Eurodollar repayments dominate Fedwire. The study might have yielded more interesting conclusions about the customer base of both systems, but particularly that of CHIPS, if the survey's treatment of transactions originating outside the United States had distinguished between transactions for foreign customers and those for the bank's own foreign offices.

Foreign exchange transactions

Description:

- The survey findings on foreign exchange underscored the sharp contrast between the international orientation of CHIPS and the domestic focus of Fedwire:

	Total Foreign Exchange Transactions	
	Number	Dollar Amount in Millions
CHIPS	1,773	23,476
Fedwire	27	245

- The customer base and point of origin of the foreign exchange transactions are also noteworthy:

	Originated by U.S. Customers (In Percent of Dollar Volume)	Originated by Foreign Customers or the Bank's Offshore Offices (In Percent of Dollar Volume)	Bank Customer (In Percent of Dollar Volume)
CHIPS	12	82	84
Fedwire	80	18	16

- The Japanese yen, with 32 percent of dollar volume, and German mark, with 28 percent, were the dominant currencies. The British pound comprised about 11 percent, the French franc about $7\frac{1}{2}$ percent, the Canadian dollar $5\frac{1}{2}$ percent, and the Swiss franc $4\frac{2}{5}$ percent.

Timing:

- CHIPS transactions were spread fairly evenly over the day.
- On Fedwire, 70 percent of the dollar volume was after the 4:30 p.m. CHIPS closing.

Destination:

- All but 4 percent of the transactions remained in the Second District.

CHIPS dominance in foreign exchange transactions was certainly not unexpected. However, the miniscule amount of such transactions on Fedwire was certainly even lower than most expectations, particularly when one recognizes that over 70 percent of the Fedwire dollar volume for foreign exchange occurred after CHIPS was closed. Once again, the data might have been more revealing if the survey had distinguished between the business of a bank's own offices abroad and the business of third-party foreign customers.

Financial Structure of the G-10 Countries: How Does the United States Compare?

The current debate over the U.S. financial structure can benefit from information on the financial systems of other industrial nations. Key public policy questions now facing the United States have been answered or are being addressed elsewhere in a variety of ways. Individual country approaches often reflect unique historical factors, yet broad international developments have increasingly influenced the financial systems of most nations—including the United States. By examining different financial structures found among the industrial countries, we can visualize more clearly the options before us and discern where various proposals might place the U.S. market in relation to other markets.

Four central issues in the U.S. public policy arena provide a useful framework for comparing the financial systems of the Group of Ten (G-10) industrial countries.[1] The first is the separation of "banking" and "commerce," since their integration can challenge the independence of a bank's credit decision process and stretch the reach of the public banking safety net. The second issue is the degree of separation of "banking" and "nonbank" financial services, as competition and technological change have led to innovations that make these services closer substitutes for each other. The third issue is the nature of official supervision, as overlapping activities and ownership ties of different types of financial institutions highlight the importance of regulatory convergence and consolidated supervision. The last issue is access to central bank account and liquidity facilities, since expanded powers and institutional affiliations may influence access to central bank services, including the final settlement of payments.

Recognizing that rapid changes and major differences in the financial structures of the G-10 nations would make an up-to-date description of their systems worthwhile, representatives of the G-10 central banks and staff at the Federal Reserve Bank of New York last summer began to compile data on the structure of each country's financial markets and institutions. This information, along with a series of country-specific papers prepared by analysts at this Bank, provided the foundation for this article.[2]

Separation of banking and commerce

The integration of banking and commerce can occur through commercial ownership and control of banks and through bank ownership and control of commercial firms. However, in most G-10 countries, banking and commerce are generally kept apart (Table 1). Indeed, in these countries it is by far the exception rather than the rule to find situations in which major banking institutions are owned and controlled by commercial firms. Instead, in the few countries where banking-commercial ties exist, banks typically own commercial enterprises or are affiliated with them through a common holding company with safeguards for the independence of the bank's credit decisions. Furthermore, those nations with sig-

[1]The Group of 10 includes 11 countries: Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the United Kingdom, and the United States.

[2]The authors are indebted to many of their colleagues at the Federal Reserve Bank of New York who provided valuable research and comments. The authors also are greatly obligated for information used in this article to a host of individuals from G-10 central banks, government agencies, and financial firms. The authors are responsible for any remaining errors.

nificant industrial-banking links have a long history of close ties between the two sectors. Even in these countries, possible risks associated with the integration of banking and commerce have been a matter of public debate.

Recent events in Canada illustrate current efforts to maintain and strengthen the barriers between banks and commercial firms, even in the face of widescale financial reform. Commercial control of Canadian banks has been prevented largely by a 10 percent limit on ownership by a single shareholder of a chartered bank's stock. However, this restriction did not preclude nonfinancial firms from acquiring large trust companies. The risks associated with such commercial-financial integration were discussed during the Canadian government's drafting of a proposal to permit the common ownership of banks, trust companies, securities firms, and insurance companies. Rather than allowing financial institutions with existing commercial interests to acquire banks, the present proposal eliminates this possibility and limits future commercial links with any large financial institution.

Table 1

Predominant Form of Banking-Commerce Integration in the G-10 Countries

	Commercial Ownership of Banks	Bank Ownership of Commerce	Common Holding Company*	Generally Limited Integration†
Universal Systems				
France			X	
Germany		X		
Italy				X
Netherlands				X
Switzerland				X
Blended Systems				
Belgium			X	
Canada				X
Japan				X
Sweden				X
United Kingdom				X
United States				X

*The typical form of integration is for a single holding company to have significant ownership interests in both banks and commerce.
†In general, there are no controlling ownership affiliations between individual banks and commercial firms.

Significant ties between banks and commercial firms are also generally not found in the Netherlands, Sweden, Switzerland, and the United Kingdom. It is noteworthy that in Switzerland and the United Kingdom, industrial-banking integration is not prohibited by legislation, yet commercial firms typically do not control banks. Similarly, Switzerland does not prohibit bank ownership of commercial firms. However, partly reflecting associated heavy capital requirements, majority ownership of commercial firms by Swiss banks is not common and typically has arisen out of troubled-loan restructurings.

The continued separation of banking and commerce in the United Kingdom reflects the Bank of England's ongoing policy of keeping them apart. As in Canada, this separation has been maintained in the midst of major financial reforms. Since this administrative policy apparently could be changed relatively easily, its continuation supports the observation that traditional barriers separating banking and commerce, where they exist, are not being removed. In fact, the Governor of the Bank of England has recently expressed a predisposition to oppose close associations between banks and commercial firms, citing the potential for conflict of interest, the risk of problems spreading from owner to bank (and vice versa), and an unwanted extension of the banking safety net.

Additional evidence of separation is provided by Italy, another country that has generally segregated banks and commercial firms despite the absence of specific legal restrictions.[3] This policy of separation, however, may be tested by the intended sale of government-owned banks to the public and by the recent lifting of a ban on new bank creation. These developments raise the possibility that commercial firms could purchase existing banks or set up their own banks if Italy does not formalize the separation of banking and commerce. However, the interministerial committee that sets financial policy guidelines endorsed the separation of banking and commerce and strengthened the Bank of Italy's administrative powers to maintain their separation. Furthermore, in recent speeches the Governor of the Bank of Italy has emphasized the dangers of commercial control of banking.

In contrast, ties between banks and industrial firms have long been prominent in Germany. Germany appears to be the only country where banks, through their equity holdings, exert significant ownership control over industrial firms, although direct ownership links are not unlimited. For instance, the sum of a bank's equity investments in excess of 10 percent of a commercial firm's capital, plus a bank's other fixed investments, can-

[3]The public sector holding company that controls the government's shares in three of Italy's largest banks has substantial industrial interests as well, but the banks are managed independently.

not exceed the bank's capital. This limit, however, is made less binding by a bank's ability to value its assets at the lower of cost or market. The equity investments of German banks, along with both the proxy votes by banks of their clients' shares and the presence of bankers on most of the largest corporations' management committees, are seen as giving these banks great influence over commercial enterprises. The reverse, however, is not true—although nonbank ownership of banks is also permitted, in practice such links are not common.[4]

Germany's traditional integration of banking and industry has no doubt contributed to the corporate sector's relatively heavy reliance on bank loans for funding, even as many other countries' corporate sectors have shifted towards funding in the securities markets. And, despite the benefits often attributed to banking-commercial ties, offsetting concerns recently led the German Federal Monopolies Commission to recommend lowering a bank's permitted share holdings in nonbanks.

Although commercial firms within the G-10 countries typically do not control banks through majority ownership of their stock, there are a few examples of important banking-industrial affiliations through a common holding company. In Belgium, for instance, one holding company owns the nation's largest bank and controls a major share of Belgium's industries. Some of France's larger banks are also wholly owned or majority-owned by holding companies with sizable industrial connections. In practice, however, French bank holding companies have tended to keep their ownership participations in commercial firms well below 50 percent.

A recent draft proposal from the European Commission suggests the continuation of barriers between banking and commerce even as the European Economic Community (EEC) moves toward a genuine common market by 1992. According to press reports, the plan calls for a single EEC banking license that specifies approved activities and uniform prudential standards. The license would rely on ownership ceilings and bank capital constraints to limit a bank's commercial equity investments. With this EEC license, a bank would be free to establish a branch or subsidiary in any other member country. Although any nation could tighten or relax these restrictions for their domestic banks, no country could deny entry to an EEC-licensed bank that met these requirements. Thus, by including fairly restrictive equity investment limits, the plan does not envision widescale controlling ownership of commercial firms by banks.

Links between banks and commercial firms in Japan are unique in that they are not based on majority stock ownership or holding company affiliations. Rather, a group of companies, which can include a bank, may be loosely affiliated through shared directors, long-term financial and management relationships, and small ownership interests in each other. Through these ties, banks and commercial firms can influence each other even if no single firm has a controlling share of another.

Although banking and commerce are generally kept apart in the United States, their separation is not absolute. While Federal Reserve member banks must adhere to tight regulations on industrial equity investments, some state-chartered banking institutions are subject to less restrictive limitations. Bank holding companies are also permitted to maintain up to a 5 percent interest in any individual commercial enterprise, although such holdings are not widespread. In addition, through the former "nonbank" bank loophole of the U.S. Bank Holding Company Act, commercial firms may own on a "grandfathered" basis a bank that voluntarily restricts its permitted activities. By limiting its activities, a nonbank bank escapes the definition of a "bank" and thus the associated ownership restrictions.

In summary, the separation of banking and commerce that characterizes the United States is the predominant pattern throughout the G-10 countries. Most G-10 nations are maintaining or strengthening barriers between the two sectors. Where links exist, commercial interests typically do not own banks, and in only a few countries do banks exert a strong influence on commercial firms.

Separation of financial services

Proposals that suggest greater integration of the U.S. financial system raise two questions: Which nonbank financial services are compatible with banking? Under what corporate structure should these services be integrated? All major industrial countries historically have had some type of officially sanctioned, if not required, specialization of financial functions. For example, in addition to banks, most countries have specialized lending institutions that provide mortgages or long-term business financing, as well as institutions that operate on stock exchanges as brokers or market makers. Some nations still retain a high degree of segmentation of financial services. However, compared with barriers separating banking and commerce, those separating banking and nonbank financial services are not as rigid or extensive in most industrial countries.

To abstract from the institutional detail of the G-10 financial systems, it is helpful to define broadly what we mean by "banking" and "nonbank" financial activities. In this paper, "banking" describes deposit-based lending in a single entity. "Nonbank" financial services can be

[4]Commercial firms, such as automobile companies, do own banks that often provide specialized services such as consumer finance. Nevertheless, such nonbank ownership only accounts for approximately 5 percent of German banking assets.

thought of mainly as securities activities—underwriting, trading, and investing—and insurance underwriting. Although many different types of institutions are active in the G-10 financial markets, to facilitate international comparisons we can refer respectively to organizations specializing in one of these three general areas as "banks," "securities firms," and "insurance companies."

Two dimensions to financial integration can be identified. One is the range of activities a financial institution is permitted to engage in directly, or "in-house." For example, a banking license might also allow a bank to provide directly certain securities services. As in-house powers expand and overlap, institutions of different types can compete directly with each other in more areas, and distinctions between them tend to blur. The second aspect of financial integration is the extent of common ownership links between different classes of financial institutions, even if broad regulatory limits on their in-house activities are retained. With cross-ownership capabilities, one type of financial firm might be the subsidiary of another, or different types of institutions might be affiliated through a common holding company. To some degree, financial integration through both overlapping powers and ownership links can be found in all G-10 countries.

At some risk of oversimplification, the extent and corporate form of financial integration distinguishes two broad categories of financial structures within the G-10 countries—the "universal banking" system and the "blended" system. In the universal banking system, financial integration has been achieved mainly with a single institution—a "universal" bank—directly providing in-house the widest range of financial services currently permitted among the G-10 members. Universal banking countries retain few of the significant restrictions on a "bank's" provision of "nonbank" financial services that still exist in other industrial countries. In contrast, financial integration in the blended system countries involves some mixture of ownership links between banks and nonbank financial firms as well as expanded in-house powers for banks.

France, Germany, Italy, the Netherlands, and Switzerland are best described as universal banking countries. In these nations a firm with a banking license may also provide a broad array of securities services and other financial activities. However, even in these countries, insurance underwriting is generally limited to separate insurance companies, although most of these nations permit some form of affiliation between insurance companies and universal banks. To be sure, every financial institution in a universal banking country does not offer every permitted service. Some firms may choose to develop expertise in specialized areas while others may limit their activities either to bypass or to take advantage of certain regulations. Nevertheless, the existence of large universal banks directly providing all banking and securities services distinguishes these nations from the blended system countries (Table 2).

Along with the United States, the blended system countries include Belgium, Canada, Japan, Sweden, and the United Kingdom. All of these nations maintain some degree of separation between those financial institutions providing banking services and those providing securities and insurance services. Yet every blended system country also permits at least some degree of overlapping institutional powers. For instance, both banks and securities firms in all these nations participate in their governments' securities markets. Financial integration frequently takes place through affiliate relationships, contributing to the often complex structure of blended system financial institutions.

Table 2

Predominant Form of Financial Service Integration in the G-10 Countries

	Expanded Bank Powers*	Nonbank Subsidiary of Bank†	Common Holding Company‡	Degree of Integration of Banking and Securities Services§
Universal Systems				
France	X			High
Germany	X			High
Italy	X			High
Netherlands	X			High
Switzerland	X			High
Blended Systems				
Belgium		X		High
Canada		X		High‖
Japan		X		Low
Sweden		X		High‖
United Kingdom		X		High‖
United States			X	Low

*Single "universal" banks directly provide in-house all banking and securities services.
†The typical form of integration is for banks to have wholly owned nonbank financial subsidiaries.
‡A single holding company typically has significant ownership interests in both banks and nonbank financial firms.
§Either through expanded in-house powers or through institutional affiliations.
‖Financial structure liberalization recently has increased the integration of banking and securities services.

Canada limits the overlapping of institutional powers, but financial integration is accelerating with the removal of cross-ownership restrictions. In 1987, Canadian legislation allowed banks to purchase and to create wholly owned securities subsidiaries. Current proposals also envision additional ownership links between all types of financial institutions, including insurance companies, through either subsidiaries or a holding company structure. Augmented in-house powers have been proposed as well, although important institutional distinctions are likely to remain. With these changes, the Canadian financial structure approaches the universal system from the standpoint of ownership and control.

Like the separation of banking and commerce, the form of financial integration in the United Kingdom appears to reflect policy more than legislation, although rules are becoming more formal. No laws restrict the activities, investment, or ownership of U.K. banks. Nevertheless, financial service integration in the United Kingdom—which, as in Canada, nears that of a universal system—has tended to take place through institutional affiliations rather than through an expansion of activities conducted in-house. For instance, a bank interested in underwriting corporate debt would typically do so through a securities subsidiary even though it could legally do so directly. Placing the securities activities in a subsidiary has been further encouraged by the capital rules issued by new self-regulatory organizations under the U.K. Financial Services Act. Insurance companies, however, are generally not affiliated with banks.

Financial integration in Belgium and Sweden is also greater than in the United States. In both countries banks may set up nonbank financial subsidiaries and may be linked to other financial institutions through a common holding company. Banks in Belgium and Sweden are also permitted to underwrite corporate debt and equity directly, although these markets are relatively small.

Next to the United States, Japan currently maintains the greatest separation of financial services among the other G-10 countries. In Japan, under legislation modeled after the Glass-Steagall Act in the United States, banks are prohibited from underwriting and trading corporate debt and equity, while securities firms cannot accept deposits and make uncollateralized commercial loans. Further segmentation exists within the banking sector, where different categories of banks are only allowed to hold certain types of assets and liabilities. Along with institutional specialization, Japan limits financial integration through ownership links, with banks and securities firms not permitted to own controlling interests in each other or to be owned by the same company. The common ownership of banks and insurance companies is restricted as well.

Within the United States, the bank holding company is the predominant form of large bank ownership. A bank holding company owns the shares of a bank and often other companies conducting banking-related businesses. The holding company usually centralizes the debt and equity funding of its bank and nonbank subsidiaries.

Outside the United States, a parent bank and a series of bank and nonbank financial subsidiaries make up the typical banking-finance group. Thus, rather than a holding company, an operating company—often a bank or bank-like entity—is typically the lead or parent firm. When the lead institution does not provide every financial service directly, additional activities are generally conducted through subsidiaries.

Holding companies, where they exist outside the United States, are used more to link banking and commerce than to integrate financial services. By virtue of the wide range of permitted in-house powers in universal banking countries, financial institutions in those nations do not need holding companies to place banking and securities activities under common control. In blended system countries that permit ownership ties between banks and securities firms—Canada, Sweden, and the United Kingdom—affiliations occur through subsidiaries more often than through holding companies, generally with a bank as the ultimate parent. Similarly, holding companies are not the primary vehicle for financial integration in Belgium, since banks there may conduct several in-house securities activities and may set up nonbank financial subsidiaries.

In the United States, the Bank Holding Company Act and the Glass-Steagall Act limit the in-house activities of banks and ownership linkages between banks and nonbank financial firms. Current proposals would permit greater integration, generally along the lines of the institutional affiliations found among the blended system countries, but under a bank holding company structure rather than through subsidiaries.

In summary, the United States, along with Japan, retains the greatest degree of separation of financial services among the G-10 nations. In other countries, the process of financial integration is well advanced. Banks historically have had broad in-house powers in universal banking system countries. In most of the blended system countries, financial integration is being achieved by expanding permitted affiliations between financial firms.

Official supervision

The proposed integration of banking and securities activities in the United States raises three broad policy questions related to the supervision of financial firms. The first is the extent of consolidated reporting and capital adequacy assessment, both at the financial firm

and the financial holding company level, since activities carried out by overseas branches, by subsidiaries, or by affiliates may affect the health of a bank or securities firm. The second is how to structure supervision to achieve consistent regulation across types of firms and types of businesses and still monitor the overall financial health of the integrated financial firm. The third is the extent to which a bank within a financial group is limited in seeking financial support from or providing it to affiliates.

Consolidation

Supervision is said to be "consolidated" when all the entities in a financial group are subject to some degree of prudential oversight and the group as a whole is covered by standards that measure the adequacy of capital, liquidity, and management. Thus, consolidation takes account of the effects that the branches, subsidiaries, or affiliates can have on the health of a financial firm.

Over the last several years, bank supervisors in the G-10 countries have widely adopted the principle of consolidation in bank reporting requirements and in assessing bank capital adequacy. Consolidation typically extends to securities and other nonbank activities carried out in-house by banks or by their subsidiaries (Table 3). Germany and Japan are partial exceptions, although in both countries the few remaining gaps are being filled. Germany excludes some subsidiaries in its consolidated reporting requirements but includes them in assessing capital adequacy. Consolidated reports in Japan exclude some foreign subsidiaries, but the subsidiaries file separate reports. The Japanese Ministry of Finance also has amended its bank capital adequacy measures to include a foreign subsidiary if it accounts for 10 percent or more of the firm's assets or profits. This provision captures roughly half of the overseas subsidiaries of the city banks, Japan's larger banks. Moreover, both Germany and Japan are parties to the proposed international agreement on bank capital adequacy standards to be applied on a worldwide consolidated basis.

In the few countries other than the United States in which the holding company structure is used for joint ownership of banks and commercial firms, consolidation does not generally extend to holding companies. A holding company that jointly owns banking and commercial firms is subject to some oversight in Belgium, but not in France, and is not subject to capital requirements in either. In Canada, where a holding company structure may soon be permitted for the common ownership of financial, but not commercial firms, supervisory rules for the holding company have not been finalized.

While consolidation has been widely adopted in the supervision of banking, it is not as prevalent in the supervision of securities firms. This opens up a divergence of practices between universal system and blended system countries, and within most blended system countries. In universal banking countries, consolidated supervisory treatment applies to both banking and securities activities, since securities activities are usually carried out by a firm with a banking license or by its subsidiary. In blended system countries, however, the extent of consolidation for securities firms depends on whether or not they are affiliated with banks. Securities subsidiaries owned by banks in Belgium, Canada, and Sweden are included in the reporting and capital adequacy assessment of the bank. This is also true in the United Kingdom, although the assessment of capital adequacy is somewhat different. The Bank of England computes the capital required by the securities regulator for the securities subsidiary, deducts this amount from

Table 3

Consolidated Reporting and Capital Adequacy Requirements of Banks and Securities Firms in the G-10 Countries

	Extent of Consolidation of Banking Activities		Presence of Similar Consolidation Requirements for Banking and Securities Activities	
	Full	Partial	For Most Securities Firms*	Only for Bank-Affiliated Firms†
Universal Systems				
France	X		X	
Germany		X	X	
Italy	X		X	
Netherlands	X		X	
Switzerland	X		X	
Blended Systems				
Belgium	X			X
Canada	X			X
Japan		X		X
Sweden	X		X	
United Kingdom	X			X
United States	X			X

*In universal banking system countries, banks are the principal providers of securities services.

†Securities activities conducted directly in-house by a bank (in countries in which banks are not the principal providers of securities services), by a bank's securities subsidiary, or by an affiliate of a bank holding company.

the parent bank's capital, and then assesses the bank's capital adequacy against the remainder. This is similar to the proposed approach for computing bank holding company capital adequacy in the United States should bank holding companies be permitted to own full-service securities affiliates.

Consolidated supervision is the exception for securities firms not affiliated with a bank. In Canada, consolidation of overseas activities in capital adequacy assessment is at the option of the securities firm. In the United Kingdom, securities firms are not routinely supervised on a consolidated basis, although U.K. authorities have shown an inclination to extend the principle of consolidated supervision beyond banking. In Japan, only the domestic branches of securities firms are included in consolidated reports. However, the Ministry of Finance also receives periodic reports from domestic and overseas subsidiaries, providing the Ministry with an overview of the firm's worldwide activities.

In the United States, banking and securities supervisors also differ from one another in their approach to consolidation. A bank reports its activities on a worldwide consolidated basis—including subsidiaries engaged in securities or other nonbanking activities. A bank holding company must also report its worldwide bank and nonbank activities on a consolidated basis. In contrast, the reporting requirements and capital adequacy assessment of a securities firm are not on a consolidated basis if the firm is not affiliated with a bank. Rather, the Securities and Exchange Commission (SEC) assesses the capital of the registered securities broker/dealer only. Thus, in the prevailing corporate structure in the securities industry, a holding company, which is not subject to regulatory oversight, owns a registered broker-dealer as well as other, unregulated, affiliates that can carry on a significant part of the group's overall financial activities.[5]

In summary, consolidated banking supervision is the norm throughout all G-10 countries. As a byproduct of banking regulation, securities activities are also supervised on a consolidated basis in the universal banking countries. In blended system countries, however, including the United States, supervision of securities activities is consolidated generally only when the parent is a bank. Nevertheless, some inclination toward consolidated supervision of securities activities is evident in other blended system countries.

The supervisory structure

Growing integration of banking and securities activities within blended system countries has increased the importance of coordinating domestic regulatory policies. Where regulatory authority is segmented mainly by type of firm (rather than by type of activity), as it is in the United States, financial integration raises questions about who sets the rules for firms engaged in a particular business, who applies the rules, and who, if anyone, supervises the consolidated firm when it is engaged in more than one activity. Greater international competition also creates a need for increased international regulatory coordination.

Functional supervision has been proposed in the United States as a way to allocate domestic supervisory responsibilities and to promote competitive fairness when financial firms of different types compete in the same business lines. It also presents a potential route for greater international coordination. Under functional supervision, the nature of supervision, including rules and standards, is based on the financial activity or function rather than the type of institution conducting the activity.

Coordinating domestic regulatory policies in most G-10 countries is simplified because the supervisory structure is less segmented than in the United States. Regulatory authority is extensively distributed between federal and state governments in the United States. In virtually all other G-10 countries, however, one authority is the chief supervisor of banks, one authority—most frequently, the banking supervisor—is also the principal or predominant supervisor of securities firms, and one authority is the insurance regulator. Moreover, in those countries with a small number of large financial institutions, the supervisory relationships can be very focused and informal.

At the same time, most countries have at least some areas of longstanding supervisory overlap. Thus, if the central bank is not the principal bank regulator, it usually has some supervisory role because of its broader responsibility for the liquidity of the financial system. In the securities markets, exchanges and regional authorities often provide rules and oversight.

In a majority of G-10 countries, a single supervisor is responsible for both banking and securities firms (Table 4). That primary regulator is either a banking commission (Belgium, France, Germany, Sweden, and Switzerland) or the central bank (Italy and the Netherlands). In these seven countries, the role of the central bank ranges from consultation to principal responsibility for carrying out supervision. Since the banking commission or central bank responsible for both banking and securities activities typically does not set different rules or capital standards for the two activities, functional supervision is not a broadly applied principle in these countries. Moreover, the capital rules and standards

[5]The reasons for this difference in approach are discussed by Gary Haberman in "Capital Requirements of Commercial and Investment Banks: Contrasts in Regulation," this *Quarterly Review*, Autumn 1987, pp. 1-10.

applied are typically geared to the risks of traditional commercial banking and generally do not explicitly incorporate the market-making risks of securities activities.[6]

In the United Kingdom, Canada, and Japan, regulatory segmentation is somewhat higher. These countries have separate supervisors for banking and securities activities. In the United Kingdom, the Bank of England supervises U.K. banks and firms engaged in wholesale money market activities while the Department of Trade and Industry, the Securities and Investments Board (SIB) and, under SIB oversight, self-regulatory organizations (SROs) are responsible for supervising firms engaged in securities activities. In Canada, banks are supervised by a federal regulator, the Office of the Superintendent of Financial Institutions (OSFI), and the Bank of Canada can require the OSFI to examine individual institutions. However, provincial authorities along with SROs supervise securities firms.

In Japan, the Ministry of Finance oversees both banks and securities firms, but the individual bureaus within the Ministry operate with some independence. The Banking Bureau of the Ministry of Finance is the principal supervisor of banks, while the International Finance Bureau oversees the banks' international and foreign exchange business, and the Securities Bureau oversees their government bond business. The Securities Bureau is the principal supervisor of securities firms. In addition to the Ministry of Finance, the Bank of Japan supervises banks and a number of securities firms, including the largest ones, in connection with their accounts at the Bank of Japan.

A few examples of functional supervision have appeared in the United Kingdom, Canada, and Japan as permitted powers of banks and securities firms have begun to overlap. Both the United Kingdom and Canada, which integrate banking and securities activities primarily through bank ownership of securities subsidiaries, are moving toward functional supervision, while retaining the principle of consolidated supervision for banking firms. In the United Kingdom, the Bank of England applies rules made by the SIB to banks' securities subsidiaries. The SIB in turn applies the Bank of England's commercial paper dealing rules to securities firms. This voluntary arrangement is meant to be a first step toward a pattern of functional supervision. In Canada, bank-owned securities subsidiaries are regulated by provincial securities authorities and are included in the consolidated supervision of the parent bank by the OSFI. The Canadian reform plans express the intention to apply functional supervision more broadly as financial integration in Canada proceeds.

Functional supervision is also evolving to a limited extent in Japan. As noted, the Securities Bureau already supervises the government securities activities of banks, with additional oversight from the Banking Bureau. As new domestic markets for instruments such as swaps and commercial paper have developed, both securities firms and banks have been allowed to deal in them, and the Ministry of Finance has expressed interest in common regulations. For example, both banks and securities firms are permitted to engage in the recently introduced commercial paper market under a single set of rules developed jointly by the Banking and Securities Bureaus. In other areas, however, the Ministry of

[6] Swiss bank capital adequacy requirements, however, contain detailed treatment of both banking and securities risks.

Table 4

Regulatory Segmentation and Functional Supervision in the G-10 Countries

	Regulatory Segmentation for Banking and Securities Activities			Functional Supervision for Banking and Securities Activities
	One Principal Supervisor (One for Both)	Two Principal Supervisors (One for Each)	Multiple Supervisors	Degree of Current or Planned Use
Universal Systems				
France	X*			Low†
Germany	X			Low†
Italy	X			Low†
Netherlands	X			Low†
Switzerland	X			Limited†
Blended Systems				
Belgium	X			Low
Canada		X		High
Japan		X‡		Limited
Sweden	X			Low
United Kingdom		X		High
United States			X	Limited

*The Banking Commission, the principal bank supervisor, shares responsibility for supervising the securities activities of banks with the Stock Exchange Council.

†In universal banking countries, banks are the principal providers of securities activities, so that the need to allocate supervisory responsibility has not spurred the development of functional supervision as it has in some blended system countries.

‡The Banking Bureau and the Securities Bureau are both part of the Ministry of Finance, but they operate somewhat independently.

Finance has continued to allocate supervisory responsibility along institutional lines. Thus, a foreign banking subsidiary of a Japanese securities firm is supervised by the Securities Bureau (the regulator of the parent firm), rather than by the Banking Bureau.

The examples of functional supervision in the United Kingdom, Canada, and Japan have so far been modest both in number and in the scope of the activities covered. Functional supervision seems to have been facilitated by the use of separate affiliates for different activities. However, the limited experience with functional supervision in these countries and in the United States suggests that difficult practical problems arise in applying rules from one regulatory framework to institutions supervised within another.

Splitting supervisory authority along functional lines raises the question of oversight of the overall firm. The United Kingdom has addressed this issue with the concept of a "lead" regulator. An agreement between the Bank of England and the SIB assigns supervisory responsibility for the overall safety and soundness of the financial group to the regulator who covers the bulk of the group's business. In Canada, integration of banking and securities activities currently is possible only through bank ownership of a securities subsidiary, with the integrated firm subject to consolidated supervision by the OSFI. Canadian proposals would also allow a nonbank financial institution to own a banking subsidiary and a holding company to have separate securities and banking affiliates. The proposals do not yet specify, however, whether or not in all cases these financial groups would be subject to consolidated oversight, and if so, by whom.

In summary, regulatory segmentation is generally much lower in other G-10 countries than in the United States. In the majority of these nations, banking and securities businesses are principally supervised by the same authority and the "lead" regulator is readily apparent. In Canada, Japan, and the United Kingdom, three G-10 countries where segmentation is relatively high, functional supervision is an emerging approach, but it has been applied to relatively few activities. The concept of a "lead" regulator to oversee an entire financial group has accompanied the development of functional supervision in the United Kingdom.

Separating banks from their affiliates

In the United States, regulations governing the relationship between banks and their nonbanking affiliates have reflected certain policy concerns. These concerns are: ensuring competitive fairness, avoiding conflicts of interest, inhibiting the nonbanking activities of the bank holding company from draining resources from the bank, and preventing the extension of the bank safety net to nonbanking activities.

The holding company structure favored by many recent proposals is intended to promote these various goals and, more narrowly, to facilitate functional supervision. These proposals would tighten existing restrictions on bank lending to a holding company securities affiliate. They would also limit indirect forms of support such as bank lending either to the affiliate's investing customers to purchase securities, or to its issuing customers to pay interest or principal.

Some other G-10 countries have restrictions on bank lending to affiliates, but the restrictions appear to be aimed chiefly at maintaining the independence of a bank from its commercial affiliates. In Belgium, for instance, the supervisory approach tends to be strict on interaffiliate lending when the bank is owned by a holding company with substantial commercial interests. The bank must sign a protocol with the central bank covering lending to affiliates.

In the United Kingdom, transactions between banks and their securities affiliates are subject to few explicit restrictions, but the transactions receive close scrutiny from the Bank of England. In general, banks do not engage directly in underwriting and other securities activities, but own subsidiaries which do. A limited number of specific activities (for example, gilt-edged market-making) must be conducted in separate subsidiaries, and the parent bank must allocate (or "earmark") a portion of its capital to each subsidiary, but only an inadequate capital position at the bank would prevent it from supporting its affiliated securities unit. Furthermore, there are no formal limits on a bank's short-term lending to affiliates, and wholly owned subsidiaries controlled and funded by the bank, as well as any affiliate supervised by the Bank of England or another U.K. authority, are exempt from the Bank of England's large exposure policy. Indeed, the bank can, with sufficient justification, serve as the treasury for the entire financial group in order to realize the potential cost reduction of centralized funding. The Bank of England would then determine limits on bank exposures to affiliates for maturities up to one year on a case-by-case basis.

The financial reform plans in Canada would strengthen existing restrictions on "self-dealing," transactions with persons considered to be "non-arm's length" to the financial institution, including owners, directors, affiliates, internal auditors, and any businesses they control. Proposed rules to preserve the independence of the bank's board of directors would also limit the number of bank directors representing affiliated financial firms.

However, restrictions imposed by Canada on transactions between regulated financial affiliates within the

same financial group would be substantially milder than those on "non-arm's length" persons. The less restrictive framework is meant to allow financial firms to take advantage of the "synergies" created by affiliations with other financial firms. The Canadian reform plans would still limit asset sales and loans between holding company affiliates but would exempt wholly owned subsidiaries of a bank from even these restrictions. Since the financial reform will not require banks and securities firms to operate as separately capitalized firms under a holding company, banks could continue to own securities subsidiaries and thus have considerable freedom to move banking capital and funds to support the securities activities of the financial group.

In the United States, current regulations already enforce considerable separateness between a bank and its parent and between a bank and its affiliates within a bank holding company. These regulations strictly limit the size of credit extensions by the bank to its affiliates, require collateralization of all interaffiliate lending, and restrict the purchase of an affiliate's assets or securities. In addition, to assure that the bank holding company can serve as a source of strength to the bank, the holding company must meet separate capital adequacy requirements. The bank's relationship to its subsidiaries, however, is not generally subject to the same limitations. The bank's capital is at stake in a subsidiary and, absent special supervisory limitations, little impedes the bank from supporting a subsidiary by advancing it funds or acquiring its assets.

Proposed U.S. regulations would be more restrictive. With few exceptions, they would prohibit a bank from extending credit to a securities affiliate, purchasing assets from the affiliate, and enhancing the credit of the affiliate's securities. Other rules would limit a bank's indirect support of the securities affiliate in the form of bank credit extensions to the affiliate's investing and issuing customers.

Thus, both current and proposed U.S. rules governing transactions between banks and affiliates appear to be more restrictive than practices overseas. In other countries, securities activities of banks are undertaken either directly in-house or in a subsidiary of a bank. Under either corporate structure, the bank can freely shift capital and funds from banking to securities activities. Few barriers prevent the bank from supporting its securities affiliate, and indeed, it is often presumed and expected that it will if circumstances warrant.

In summary, supervisory practices within the G-10 countries diverge in the major areas at issue in the integration of banking and securities activities in the United States. As in the United States, the principle of consolidation is widely applied to banks but usually not to securities firms unaffiliated with banks. In most blended system countries, securities firms face different reporting and capital adequacy standards depending on whether or not they are owned by banks, although in some nations an inclination toward extending consolidation to all firms is evident. Because most securities activities are conducted by banks in universal system countries, securities activities in those nations are supervised on a consolidated basis.

Functional supervision has not been applied broadly in any G-10 country, in most cases because supervision is not very segmented. In countries with a relatively high degree of supervisory segmentation, such as Canada and the United Kingdom, functional supervision has been applied on a limited basis to divide supervisory responsibilies, and both countries plan to extend its use.

Current and proposed U.S. rules diverge sharply from overseas practices in the separation of banks from affiliated financial companies. In this area, other countries generally do not impose the barriers to the movement of capital and funds among affiliates that currently exist in the United States. Differing philosophies about the ability to isolate a bank or securities firm from its affiliates or to confine the assistance of the banking safety net to banks may underlie the different regulatory approaches, although these philosophies are rarely laid out explicitly.

Central bank accounts and central bank lending

Two major policy concerns in allowing broader powers for U.S. financial institutions have been to protect the integrity of the payments system and to control access to central bank lending, as well as the broader banking safety net. In all countries, access to final settlement in the payments system is linked to central bank accounts. In the United States, all insured depository institutions, including thrifts, are eligible to open Federal Reserve accounts and to use Fedwire. All depository institutions also have access to central bank credit.

In the United States, the proposed separation of banking and securities affiliates within a single holding company is expected to restrict access to the payments system and to central bank lending to firms conducting only a banking business. In other G-10 countries, however, the securities activities of banks, whether conducted in-house or by a subsidiary, appear not to have prompted the same concerns about limiting access. Other nations do not segregate to the extent proposed in the United States those units of the bank carrying out securities activities from those that use the payments system and have access to central bank lending. No additional explicit mechanism specifically buffers the payments system and the lender of last resort from securities problems in an integrated financial firm, although moral

suasion may. In part, concern about building in such protection may be lower outside the United States because bank failures have been fewer in number.

In the G-10 countries, banks are usually the only institutions with direct payments system access (Table 5). Japan, however, is an important exception. The Bank of Japan has determined that a number of domestic and foreign securities firms are eligible for central bank accounts. The accounts effectively provide a basis for access to the Bank of Japan's payments system as well as for a potential borrowing relationship. For these reasons, the Bank of Japan has linked access to its accounts with Bank of Japan supervision.[7]

[7]Swiss finance companies have access to the payments system, but only the more regulated companies that take deposits have access to central bank lending. In Italy and Belgium, some stock market firms keep accounts at the central bank for *securities* clearance but do not have access to the payments system or central bank credit. In Sweden, some savings and cooperative banks also have accounts but do not have direct access to the payments system.

Table 5

Access to Central Bank Payments Systems and Central Bank Lending in the G-10 Countries

	Access to Central Bank Payments System Limited to:		Access to Central Bank Lending Limited to:	
	Depository Institutions	Depository Institutions and Some Securities Firms	Depository Institutions	Depository Institutions and Some Securities Firms
Universal Systems				
France	X*		X	
Germany	X		X	
Italy	X		X	
Netherlands	X		X	
Switzerland	X		X	
Blended Systems				
Belgium	X		X	
Canada	X*			X
Japan		X		X
Sweden	X†		X	
United Kingdom	X*		X‡	
United States	X		X	

*A small number of large banks have direct access to the final settlement payments system in France and the United Kingdom. Similarly, in Canada, a relatively small number of depository institutions, including loan and trust companies, have such access.
†Only commercial banks have direct access to the payments system.
‡Only discount houses have routine access to central bank lending.

In general, where payments system characteristics most resemble those in the United States, particularly in the development of real-time electronic payments, there has been no attempt to isolate banking activities from securities activities. Rather, one strategy has been to prevent overdrafts altogether (Switzerland), an approach facilitated by the large central bank balances of the Swiss banks; another strategy has been to restrict direct access to the central bank's payments system to relatively few large banks (France and the United Kingdom) or to the largest clearers (Canada).[8]

While access to central bank credit is limited in practice to banks in almost all G-10 countries, some Japanese securities firms have potential access, as noted, and Canadian securities dealers with inventories of money market securities have some access to the Bank of Canada's discount window. Only Germany, however, appears to have specific legislation that limits central bank lending to banks.[9] In theory, almost all central banks could legally provide assistance to nonbanks through discounting commercial bills or government paper, through outright purchase of securities, or through lending against collateral. Virtually all central banks in the G-10 are prohibited from unsecured lending, but the range of collateral acceptable by law—as distinguished from practice—in some countries extends to goods and almost any security or debt instrument. In all countries, the secured nature of central bank lending should protect the central bank from significant loss.

Nevertheless, the lender of last resort function is construed differently from country to country. In many countries in which securities problems could conceivably spill into the banking safety net, such as the United Kingdom and the universal banking countries of Germany, the Netherlands, and Switzerland, a considerable emphasis has been placed on private sector support for troubled institutions, with strong moral suasion from the central bank. In other countries, such as the United States and Canada, central bank lending, usually with significant help from private banks, has played an important role in providing temporary support for a troubled banking institution while the problem is worked

[8]In Canada, the final settlement payments system is owned by the Canadian Payments Association and administered by the Bank of Canada.

[9]In the United Kingdom, routine access to central bank credit is limited to the discount houses, so that banks would not normally borrow directly from the central bank.

out. Canada, however, is seeking to lay out more explicitly the functions of the lender of last resort and federal deposit insurance.

In summary, U.S. proposals to use the holding company structure and strict controls on interaffiliate transactions to isolate the payments system and the discount window from the securities activities of banks provide a layer of protection not found in other G-10 countries. With the exception of banks in the United States and Japan, banks that engage in securities activities in-house, or that own a subsidiary which does, face no specific restrictions on their access to the payments system or to central bank credit.

Conclusion

Most G-10 countries maintain the strict separation of banking and commerce that characterizes the U.S. system. In general, significant banking-commerce ties are only found in a few countries with a history of such links. Even there the trend in the domestic policy debate has been to recommend reducing their intermingling. Commercial ownership of banks is not the predominant form of integration in any country. Furthermore, outside of Germany, bank control of commercial enterprises is not a prominent feature of any economy. In nations allowing the common ownership of banks and commercial firms by a single holding company, regulatory policy is aimed at insuring the independence of the bank.

In contrast, the separation of financial services found in the United States has a counterpart today only in Japan, and the issue of separation is being debated there as well. Elsewhere in the G-10, some nations have long permitted a single institution to provide directly both banking and securities services. In other countries, recent legislation and regulations have expanded the integration of banking and securities activities through increased institutional powers or ownership affiliations.

The supervisory issues raised by the integration of banking and securities activities in the United States have divergent resolutions among the G-10 countries. Consolidated reporting and capital adequacy assessment have been adopted by banking regulators throughout the G-10 nations, but securities firms not affiliated with a bank are not generally subject to similar requirements. In countries with segmented supervisory authority, functional supervision has emerged as an approach for allocating responsibility among regulators in a limited number of activities, but it is not yet a broadly applied principle. Where an extensive application of functional supervision is intended, as in the United Kingdom, it is not seen as a substitute for consolidated supervision. To preserve this type of supervision, the United Kingdom has introduced the concept of a "lead" regulator.

The treatment of transactions between banks and affiliated companies tends to be much less restrictive in other G-10 countries than under existing and proposed regulations in the United States. Moreover, those countries that have recently examined affiliate transactions have emphasized the benefits of fairly free movement of funds from a bank to its financial affiliates.

Similarly, financial integration in the G-10 countries has not been accompanied by measures to remove nonbanking activities from banking firms having access to the payments system or central bank lending. While most countries continue to limit such access to banks, Japan allows access to these services to some securities firms it supervises, and the Bank of Canada lends to some securities firms.

Despite the rich diversity of financial structures in the G-10 countries, extensive integration of banking and securities activities is common, except in Japan and the United States. Moreover, corporate structures and regulations generally allow banks considerable flexibility in funding and managing securities activities. Current U.S. proposals would bring the level of integration of banking and securities activities in the United States closer to the level prevailing within the industrial world. Nevertheless, proposed restrictions on affiliate transactions would preserve a greater separation between banking and securities activities than is currently found in most other G-10 countries.

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The Risk-based Capital Agreement: A Further Step towards Policy Convergence

On December 10, 1987, the central banks of the major industrial countries published for comment a framework for assessing the capital adequacy of international banking organizations. The central banks negotiated this agreement as part of a continuing effort to coordinate bank supervisory policies, with the ultimate objective of strengthening the international banking system and alleviating competitive inequities. The convergence process, which has focused on the development of an internationally accepted definition of regulatory capital and a common risk-weighting system, reflects the desire and ability of national bank supervisors to adapt to a changing international financial environment. This article highlights the chief developments in the negotiations that led to the international agreement and explains several of the major issues that had to be resolved in designing the proposed capital standard.[1]

Background

Over the past decade or so, various events have had a major effect on the business of banking and the nature of competition in the banking industry, both in the United States and abroad. These events include the disintermediation of short-term corporate lending, the transformation of excess international liquidity into loans to less developed countries, substantial growth in products not accounted for on the balance sheet, and technological advancements enabling instantaneous global communications and twenty-four-hour trading. As a by-product, the business mix in which banks now engage is more diverse, and the risk characteristics of many of the newer financial instruments are more complex than the risks associated with instruments prevalent a decade ago.

In the United States, the effort to develop a risk-based capital measure began in 1985 as a response to the changes in banking activities and an attempt to move U.S. capital standards more closely in line with the standards used in many other industrial countries. Of particular concern in the United States were the rapidly growing risk exposures of certain U.S. banks stemming from off-balance sheet activities. For example, standby letters of credit issued by the 10 largest banking organizations had grown from 7.6 percent of total assets at year-end 1981 to 11.6 percent by mid-year 1985, even as total assets increased. Similarly, the ten largest banks' interest rate swaps, first introduced in 1981, had increased to 14 percent of total assets as of June 30, 1985, based on notional values (which are not directly comparable to asset values). Finally, the same banks' foreign exchange contracts had risen to 105 percent of total assets over this period, again based simply on notional values. None of these activities is systematically factored into existing U.S. capital guidelines, which focus on the level of capital relative to total balance sheet assets. While a multitude of factors have influenced the growth in off-balance sheet activities, the lack of quantitative capital requirements to support these activities most likely had a positive impact on their growth.

Another change in banking risk profiles addressed by the risk-based capital measure relates to balance sheet

[1]This article does not provide a detailed analysis of the risk-based capital proposal. For an extensive technical description of the framework, see the recently released *Federal Register* notice on the subject.

activities. By some measures, U.S. banks' investments in relatively low-risk liquid assets had declined during the early 1980s in relation to total assets. The current capital guidelines do not distinguish between higher- and lower-risk assets and thus require banks to hold the same amount of capital against lower-yielding U.S. government securities as against higher-yielding private sector loans. This treatment may have tempered many banks' desires to hold low-risk, relatively liquid assets.

The effort by U.S. bank regulatory authorities to develop a risk-based capital measure also reflected a recognition of the growing divergence between U.S. capital standards and the risk-related capital adequacy measures introduced by other major industrial countries. For example, France introduced a risk-related capital standard in 1979; the Bank of England adopted a formal risk-based approach in 1980; and German capital measures, set out in the Banking Act (as amended in 1985), recognize certain credit risk and interest rate risk distinctions.

Thus, in the summer of 1985, in an attempt to address the growing inadequacies of the existing capital-to-assets guidelines and to bring U.S. capital policies more closely in line with those used in other industrial countries, the three Federal bank supervisory authorities—the Office of the Comptroller of the Currency (OCC), the Federal Deposit Insurance Corporation, and the Federal Reserve—began working together to develop a risk-based capital measure for U.S. banking organizations. In January 1986, the original U.S. proposal was issued for public comment.[2]

A majority of the comments from banks and other market participants expressed general support—at least in principle—for the original proposal. However, many of the respondents asserted that, without similar requirements for foreign bank competitors, the proposed requirements would put U.S. banks at a competitive disadvantage both at home and abroad, particularly in the area of off-balance sheet products, which generally are not incorporated in capital standards abroad. At a minimum, foreign banks competing in the United States but not subject to comparable minimum capital standards might be able to underprice domestic banks. Concern was also voiced that capital standards applied to commercial and standby letters of credit would force domestic commercial banks to raise their prices relative to the prices charged by foreign bank competitors, eroding the ability of U.S. banks to compete in those markets.

[2]The first proposal assigned risk weights to assets and certain off-balance sheet activities according to broad gradations of risk. U.S. supervisors envisioned that this risk-weighted measure of exposure would be used as an additional tool in assessing an organization's capital adequacy.

During the summer of 1986, the U.S. supervisory authorities reviewed and revised their capital proposal in light of the comments received from the public and the further analyses pursued as a result of those comments. During the process, however, it became clear that an opportunity to move toward more explicit international convergence of supervisory policies was at hand. The United Kingdom's system of risk-weighting assets was conceptually similar to the U.S. proposal, and the U.K. authorities were in the process of revising their system to incorporate a wider range of off-balance sheet activities. Banking supervisors in both countries felt that, in light of the importance of New York and London as international banking centers, agreement on a single risk-based capital framework to be applied in both the United States and the United Kingdom would indeed represent a major step forward in international convergence.

As a result, in the fall of 1986, the U.S. authorities deferred action on their own proposal to work with the Bank of England on the development of a common approach to assessing capital adequacy. Significantly, this effort required a fundamental rethinking of the appropriate definition of capital, since each country brought its own definition to the negotiations. In fact, an important aspect of the ultimate agreement between the two countries was its two-tiered definition of total capital. "Base capital," consisting of specified capital elements, would be included in the measure of regulatory capital on an unlimited basis, while "limited capital," consisting of other types of capital instruments, would be restricted to the amount of base capital held by a banking organization.

Shortly after negotiations began, the two countries agreed to introduce the credit risk exposures stemming from interest rate and foreign exchange contracts in the capital adequacy framework. During the preceding twelve months or so, the Bank of England had investigated such a step in the course of reviewing and revising its own capital standards. In contrast, U.S. supervisory authorities had begun work on this aspect of risk-based capital only a few months before the bilateral negotiations started. Given the relative complexity of measuring rate contract credit risk, a special task force comprising representatives of the Bank of England, the Federal Reserve and the OCC was established to develop a measure acceptable to both countries.

In January 1987, a modified proposal, the United States/United Kingdom Agreement (U.S./U.K. Agreement), was announced simultaneously in the two countries. However, the task force assigned to address interest rate and foreign exchange contracts had not yet agreed on the appropriate measure of rate contract

credit risk. Consequently, a supplemental agreement on rate contracts was issued somewhat later, in March 1987.

Multilateral convergence efforts

Even as the negotiators were developing the U.S./U.K. Agreement, they were giving consideration to expanding participation to achieve a multilateral agreement. Senior Japanese officials had indicated both publicly and privately their commitment to maintaining and strengthening the financial condition of international banking organizations, in part through increased cooperation among supervisory authorities. Consequently, it seemed possible that a trilateral agreement encompassing the world's three major financial centers might be achievable. Toward that end, the U.S. and U.K. supervisory authorities began discussions in late 1986 with the Japanese banking authorities.

When Japan entered the negotiations, the issues surrounding the appropriate definition of regulatory bank capital became even more complicated. Japanese banks maintain sizable unrealized gains on their securities (largely equity) positions, and these unrealized gains have traditionally been realized when necessary to offset losses. The Japanese bank supervisory authorities, in fact, had recently introduced capital guidelines that explicitly recognized these gains—called "hidden reserves"—as a form of capital. Those guidelines defined capital for Japanese-based international banks as equity plus 70 percent of hidden reserves. In contrast, U.S. and U.K. capital standards did not recognize hidden reserves, thus further complicating the task of developing a uniform definition of capital.

During the spring of 1987, after the U.S./U.K. Agreement had been published, the potential scope for convergence expanded once again. At an April meeting, the Cooke Committee, sponsored by the Bank for International Settlements (BIS), took the U.S./U.K. Agreement under consideration and addressed the possibility of expanding the agreement to include all of the countries represented on the committee (the G-10 countries and Luxembourg).[3] The Cooke Committee had been working for several years to develop a common measure of capital and, more recently, a risk-based capital model. The agreement reached by two of its members—the United States and the United Kingdom—and the negotiations being held with a third member—Japan—provided the impetus to accelerate the pace of these deliberations. On December 10, 1987, the outcome of the committee's efforts was published and has become known as the "Basle Agreement."

The issues

While the original U.S. proposal paid relatively little attention to the definition of regulatory bank capital, the definition of capital became an increasingly important issue as the negotiations expanded to include more countries. In fact, the appropriate definition of capital was perhaps the most difficult issue confronted by the Cooke Committee in negotiating the multilateral agreement. Nevertheless, a variety of other issues relating to the appropriate treatment of certain assets and off-balance sheet instruments presented the committee with significant difficulties as well. The most important of these were (1) the extent to which transfer risk distinctions would be incorporated in the capital framework, (2) the types of collateral to be recognized in the proposal, (3) the appropriate treatment of interest rate risk stemming from holdings of government securities, (4) the appropriate treatment of loan commitments, and (5) the measurement of credit risk exposure associated with interest rate and foreign exchange contracts.

Defining capital

At least in hindsight, the complexity of designing an internationally acceptable capital definition is not surprising. Each country involved in the Basle Agreement has its own definition of regulatory capital, and each of these definitions reflects a different set of country-specific accounting practices, banking activities, and supervisory philosophies. Furthermore, a change in the definition of capital can greatly affect measured capital ratios within a banking system and thus alter the market's perception of the financial strength of the banking organizations in that system. Consequently, a key element in achieving the multilateral agreement was to design a definition of capital that would be uniform across countries yet accommodate the many different components of capital as currently defined in the twelve different banking systems.

Reserves. A significant complicating factor in the negotiations was the differential treatment of reserves across countries. The various types of reserves, which differ in their financial and accounting features as well as their ability to absorb losses, had traditionally been viewed as regulatory capital in certain of the member countries. Reserves, including loan loss reserves, hidden reserves, and property revaluation reserves, hold varying degrees of importance in member countries'

[3]The committee comprises representatives of the central banks and supervisory authorities of the Group of Ten countries (Belgium, Canada, France, Germany, Italy, Japan, Netherlands, Sweden, Switzerland, United Kingdom, United States), and Luxembourg. Although its official name is the Committee on Banking Regulations and Supervisory Practices, it is often called the "Cooke Committee," after Peter Cooke of the Bank of England, its current chairman. More recently, the Committee has also been referred to as the "Basle Committee" after Basle, Switzerland, the city in which the BIS is located.

existing capital regulations. For example, although the loan loss reserve is a significant component of regulatory capital for U.S. banks, it is a less important component of capital for Japanese banks.

Efforts to achieve a compromise on the capital definition were influenced by actions taken by major banking organizations during 1987 when large LDC-related provisions were made to loan loss reserves. The banking supervisors represented on the Cooke Committee hold differing views regarding the degree to which these reserves are available to absorb credit losses generally—that is, the degree to which these reserves are "unencumbered." Conceptually, the loan loss reserve, to be included in regulatory capital, should be unallocated and thus available to absorb anticipated, but as yet unidentified, credit losses. To the extent that reserves are clearly allocated against specific assets, they should not be considered eligible for inclusion in capital. Because of the practical difficulties in defining "unencumbered reserves," the member countries have agreed to further discussions regarding the extent to which loan loss reserves should be included in capital.

Another type of banking "reserves" not universally recognized by supervisory authorities on the Cooke Committee is hidden reserves. These reserves, which are especially important for Japanese banks, are measured as the difference between the book value (usually cost) and market value of debt and equity securities. As their name suggests, hidden reserves are not disclosed in banks' financial statements. Consequently, only the home country supervisory authorities and the banks themselves know the size of hidden reserves available to absorb losses. Perhaps more importantly, because the market values of securities fluctuate over time, the current market value of securities may not represent the future realizable value of these securities. For example, Japanese supervisory authorities have recognized the uncertainty of future realizable values by applying a 30 percent discount to hidden reserves and including the remainder in capital. Within the context of the multilateral discussions, however, the appropriate size of the discount to be applied to hidden reserves was the subject of much debate.

A third type of banking reserves, asset revaluation reserves, are also included in bank capital in some countries (most notably the United Kingdom) but not in others. Asset revaluation reserves are generated when a bank revalues certain specified assets—usually real estate—at current market values. The difference between historical and current market values is recorded as a reserve that is part of the bank's capital. Like the size of hidden reserves, the size of asset revaluation reserves depends on current market values and may not be indicative of future realizable gains.

Other capital instruments. In addition to the variety of reserve accounts included in regulatory capital, various forms of equity and debt instruments qualify as regulatory capital in some, but not all, member countries. These instruments include preferred stock, certain hybrid debt instruments (such as mandatory convertible debt in the United States), and term subordinated debt. The appropriate treatment of these instruments in a multinational definition of capital proved to be difficult to determine, given the disparate nature of the instruments.

First, the characteristics of preferred stock vary widely, even within individual countries. Preferred stock can be issued for limited maturities (limited-life) or in perpetuity (perpetual), and pricing can be fixed or floating. Limited-life preferred can in some countries (for example, France) be redeemed at the issuer's option. Dividend payments can be deferred in some countries, notably in the United States, but not eliminated altogether. Second, a group of instruments referred to in the proposal as hybrid debt/equity instruments encompasses an even broader range of capital instruments. Generally, eligible hybrid instruments have some characteristics of debt—for example, fixed and regular interest payments—and also some characteristics of equity—for example, interest payments that can be suspended without bringing the banking organization into default. Third, various types of long-term subordinated debt have been included in member countries' capital definitions provided that the debt meets certain criteria. The types of debt instruments in this category vary by maturity as well as by covenants attached to the debt. For most types of subordinated debt issues, breach of covenants can compel the issuing banks to accelerate repayment, possibly generating or exacerbating bank liquidity pressures.

The proposed definition. Amid this diversity of capital components, only common shareholders' equity was found to be acceptable as capital by all the bank supervisors on the Cooke Committee. This universal acceptance of common equity served as the foundation for the two-tiered definition of capital ultimately developed by the committee. In the proposed approach, the first tier of capital comprises common shareholders' equity, and the second tier allows for the inclusion of the wide range of capital components recognized in the twelve countries participating in the agreement. Thus, the Cooke Committee's definition of capital provides for uniformity across countries through the common equity requirement of tier one, while accommodating country-specific differences in banking traditions and practices through the diversity allowed in tier two.

In the treatment of reserves, the second tier incorporates certain limitations that seek to address the dif-

ficulties in measuring the degree to which various forms of reserves are, in reality, available to absorb losses. Hidden reserves arising from unrealized gains on securities are discounted to 45 percent of their current market value and then included in the supplemental tier of capital. In addition, general reserves against credit-related losses, which are allowable in the second tier, are limited to a certain percentage of total risk assets, although organizations are free to maintain reserves in excess of this limitation.

Deductions from capital

In addition to agreeing on a common set of capital instruments eligible for inclusion in total capital, both the U.S./U.K. and Basle proposals suggested that certain assets should be deducted from both the capital base and total risk-adjusted assets. Of particular note with regard to the multilateral negotiations are goodwill and investments in other banks' capital instruments.

Goodwill. While goodwill is deducted under both proposals, the Basle framework differs from the U.S./U.K. Agreement in its approach to deductions of other types of intangibles.[4] First, the bilateral proposal deducted *all* intangibles from the total capital base as then defined, whereas the Basle framework explicitly deducts only unidentifiable intangibles (goodwill) from core capital and total risk-adjusted assets.[5]

In their comments on the U.S./U.K. Agreement, many bankers were critical of the proposed deduction of intangibles. In their opinion, intangible assets have value and should only be deducted on a case-by-case basis. Moreover, some bankers were concerned about the competitive implications of the proposed treatment. Deduction of intangibles, especially goodwill, would in their view place banking organizations at a competitive disadvantage in prospective acquisitions relative to other less-regulated companies.

From a prudential perspective, however, the "realizable" value of goodwill is highly uncertain. In theory, goodwill represents the present value of *expected* future benefits to the buyer—value not reflected in the acquired firm's quantifiable net assets but expected to accrue to the buyer in the future. Consequently, the book value of goodwill does not necessarily reflect any precise economic value that will be realized with certainty. Moreover, since goodwill is purely an estimate of future benefits, the realizable value of goodwill may very well fall to zero for financially troubled banking organizations.

The Basle proposal, while maintaining the goodwill deduction, does not explicitly call for exclusion of other intangibles from the capital base. However, the Federal Reserve has frequently stressed the importance of maintaining strong tangible common equity ratios when undertaking expansions and retains for itself the flexibility to deduct identifiable intangibles on a case-by-case basis when assessing expansion proposals.

Holdings of other banking organizations' capital instruments. Bank supervisors in several industrial countries (for example, France and the United Kingdom) currently require the deduction of holdings of other banking organizations' capital instruments, presumably to inhibit artificial increases in banks' capital positions while improving the prospects for drawing new capital into the banking system. The Basle framework does not propose to require such an across-the-board deduction for at least two reasons: 1) to date, such holdings have been widely accepted in certain countries, and 2) many banking organizations in the U.S. hold equity positions in other banks in anticipation of the relaxation of interstate banking laws. Here also, the Basle framework provides for national flexibility in deducting such holdings. The Federal Reserve plans to review such holdings in the examination process and to deduct them from capital when deemed appropriate. Interbank holdings not deducted will receive a "standard" risk weight of 100 percent.

Transfer/country risk

In addition to defining capital, Cooke Committee members had to agree on an approach to the risk-weighting framework. Perhaps the most complex issue regarding assets and off-balance sheet items was whether to incorporate transfer risk distinctions. Transfer risk, or country risk, is the risk of credit losses stemming from the inability of a country and its private sector borrowers to raise the necessary foreign exchange to repay their external debt.

Before the LDC debt servicing problems of the early 1980s, commercial bank and supervisory systems designed to assess credit risk gave little attention to transfer risk. But by 1985, when the U.S. bank supervisory authorities were developing their original risk-based capital proposal, the importance of transfer risk in assessing the risk profiles of major banking organizations had become clear, and U.S. supervisors wanted to include at least some recognition of transfer risk in the measure. For this purpose, the original U.S. proposal divided countries into two groups: the International Monetary Fund's (IMF's) list of industrial market economies and all other countries. Claims on governments

[4]Under current Federal Reserve capital guidelines, goodwill is explicitly deducted at the bank level only, not at the bank holding company level. However, tangible capital ratios are considered as part of the overall assessment of capital adequacy.

[5]The Basle framework provides national supervisors some flexibility in the treatment of goodwill during a transitional period; subsequently, existing goodwill must be deducted from capital.

and banks in the former group were afforded lower risk weights. During the subsequent public comment period, the U.S. approach was criticized as being arbitrary, since the IMF list is based on structural development indicators rather than on indicators of debt-servicing ability. Since 1986, other lists of "low risk" countries have been considered—for example, a list consisting of members of the European Community (EC) and the G-10 countries, or a grouping of EC members and members of the Organization for Economic Cooperation and Development. All of the techniques considered for categorizing countries into relative transfer risk groups were fraught with difficulties, both analytical and political.

Some U.S. market participants argued that the relative transfer risk rankings assigned by the Interagency Country Exposure Review Committee (ICERC) should be used to reflect differences in transfer risk in a risk-based capital measure. Although ICERC ratings specifically address transfer risk exposures, they are confidential ratings used only by bank examiners in the United States. The public generally would not have access to the list of ICERC ratings of country debt and therefore would be constrained in their ability to replicate supervisory assessments of capital adequacy. Furthermore, the use of ICERC-type ratings might place unwarranted pressure on the process of assigning transfer risk ratings to country exposures and would require an internationalization of this process that would be, at best, complicated to administer and carry out.

Another approach suggested by some market participants entails grouping countries on the basis of whether they have recently experienced debt-servicing difficulties. This approach also suffers from several problems. First, historical performance on external debt-servicing requirements is not necessarily indicative of future performance. Indeed, some countries appear willing to sustain interest payments as long as possible, even in the face of deteriorating economic conditions. Consequently, countries with good payment records could in fact represent increasing transfer risk. Conversely, this type of grouping might place an official mark of weakness on certain countries, even if their potential debt servicing ability has improved significantly. By categorizing countries based on past performance, the measure could thus overstate or understate the transfer risk of certain countries. Furthermore, a distinction based on recent debt-servicing experience would run counter to the objective of supervisory capital adequacy requirements: to insure the capacity of bank capital to absorb *prospective* losses.

Because country risk assessments depend on qualitative judgments, any discrete grouping of countries in a relatively simple, quantitative capital framework is bound to be somewhat arbitrary. Recognizing the arbitrariness of these assessments and the political difficulties associated with the supervisory identification of high- and low-risk countries, the Cooke Committee decided to use a relatively simple approach to transfer risk in the published framework.[6] Although some members of the committee felt that ignoring entirely the material differences in the transfer risk associated with lending to different foreign borrowers might limit the usefulness of the risk-based capital framework, the committee was not able to achieve a consensus on this issue. Still, the absence of country-risk distinctions does not significantly weaken the approach since the proposed risk-adjusted capital measure is envisioned as only one of many analytical tools to be used by both bank supervisors and market analysts.

Finally, it should be noted that the Cooke Committee's effort to develop a risk-based capital measure has paralleled efforts within the EC to develop a similar measure, and that the EC is likely to decide, within the next several years, to treat all claims on EC member governments and banks similar to domestic institutions. Designation of a "domestic zone" comprised solely of EC countries would, of course, introduce an element of inconsistency across industrial countries in the assessment of capital adequacy. For example, under this approach, a French bank would slot a long-term claim on the German government in a lower risk category than would a U.S. bank with a similar claim. Consequently, the Cooke Committee most likely will find it necessary to return to this issue at some point.

Collateral

The Basle agreement's recognition of collateral expands on both the original U.S. proposal and the subsequent U.S./U.K. Agreement. In the original U.S. proposal, only loans to broker/dealers secured by cash, U.S. government and agency securities, or other marketable securities were slotted in a risk category below 100 percent. The U.S./U.K. Agreement broadened the recognition of collateral to all loans collateralized by securities issued by the central government and its agencies. Both domestically and internationally, it was difficult to reach consensus on the degree to which collateral could be reasonably incorporated into the risk-based capital measure.[7] In theory, the risk-reducing effects of many

[6] The Basle framework generally assigns claims on a bank's home-country central government to a low-risk category, while claims on foreign governments are assigned to the standard risk category, that is, weighted at 100 percent.

[7] The same degree of difficulty was encountered when deciding on the appropriate treatment of guarantees. In the final Basle proposal, recognition of guarantees has been expanded to include not only central government guarantees, but also guarantees of domestic banks, and those of states, counties, and municipalities.

types of collateral could have been incorporated; however, the cost would have been tremendous administrative complexity. Moreover, it would seem inappropriate to include in a general measure of this type forms of collateral that have highly uncertain value (either because of credit or market risks).

Some comments on the first U.S. proposal advocated an even broader recognition of collateral. Most notably, respondents called for a lower risk weighting on one- to four-family residential mortgages. This sentiment was shared by supervisors in Europe who noted that the historical losses on such exposures have been relatively low across most industrial countries. Thus, the multilateral agreement's recognition of collateral is the broadest of any of the three proposals that have been issued for public comment. In the Basle agreement, exposures collateralized by cash, domestic central government debt, and residential mortgages attract risk weights below the standard risk weight of 100 percent.

Although U.S. supervisors have some sympathy for the arguments regarding residential mortgages, they also feel that the nature of protection afforded by residential collateral varies widely across the United States, as experience has shown that real estate values can drop sharply in response to sectoral economic weaknesses. Also, U.S. supervisors are reluctant to favor within this framework one sector of the economy over another. For these reasons, the U.S. version of the risk-based capital proposal diverges from the Basle framework by slotting residential mortgages in the 100 percent risk category. However, although the proposed measure does not explicitly recognize a wider range of collateral, such treatment does not imply that other types of collateral will be ignored in the U.S. examination process or that banks should disregard their own internal collateral requirements.

Interest rate risk: U.S. government securities

Although a banking organization's capital base must be available to absorb all losses beyond credit-related losses, pragmatism restrained the broad inclusion of other banking risks such as foreign exchange risk, liquidity or funding risk, and interest rate risk in the Cooke Committee's measure of capital adequacy. One partial exception is the treatment of interest rate risk on securities that bear no credit risk.

The question whether interest rate risk should be incorporated in the risk-based capital framework was one of the more controversial issues throughout the entire negotiation process. It is not surprising, therefore, that the treatment of securities has undergone substantial change since the U.S. proposal was published in early 1986. That first proposal made a distinction between securities held in banks' investment accounts and those held in trading accounts, and weighted all trading account assets at 30 percent. Investment account securities were segregated into short-term U.S. Treasuries (zero percent risk weight), long-term U.S. Treasuries and all Federal agency securities (30 percent), and all other investment securities (100 percent).

Respondents to the U.S. bank supervisors' initial request for comment on this issue were generally opposed to the inclusion of interest rate risk in the proposed risk-based capital framework. Many contended that a banking organization's exposure to interest rate fluctuations was a function of the entire range of its assets, liabilities, and off-balance sheet exposures. Moreover, many bankers argued that a relatively simple focus on the dollar amount of U.S. government securities held by banks would not be indicative of the degree of interest rate risk facing those banks. A number of respondents advocated no capital charge for government securities, arguing that the examination process was a more appropriate vehicle for evaluating interest rate exposures.

At the multilateral level, the treatment of interest rate risk stemming from government securities positions was once again challenged. Several members of the Cooke Committee argued that the proposed treatment might not accurately reflect a banking organization's interest rate risk profile. Some national supervisors contended that, although the inclusion of interest rate risk might be desirable, any incorporation of this risk should be postponed until more refined approaches could be developed. Thus, the multinational agreement provides national supervisory authorities with the flexibility to apply low risk weights (10 or 20 percent) to securities issued by the domestic central government to reflect the "investment risk" associated with holding these securities, or to apply a zero risk weighting to these securities, thereby excluding them from the risk-asset measure.

In the Federal Reserve's proposal, short-term (91 days or less remaining maturity) U.S. government and agency securities are assigned to the zero percent category, while a 10 percent weight is attached to all other U.S. government and agency securities.[8] The three U.S. Federal bank supervisors are committed, however, to undertaking further research on a more comprehensive supervisory approach to measuring interest rate risk that might be incorporated in the Basle framework at some later date.

Loan commitments

The debate over how to incorporate unused lending commitments in a risk-based capital framework also

[8] U.S. government-sponsored agency securities are slotted in the 20 percent risk category.

began with the issuance of the original U.S. proposal in which most commercial and consumer commitments were effectively converted to balance sheet equivalent amounts at 30 percent of their notional principal values. The major issues raised in the letters commenting on this proposal and the subsequent U.S./U.K. Agreement included the proposed use of original maturity in determining conversion factors, the degree of protection against loss provided by "material adverse change" (MAC) clauses, and the appropriateness of incorporating consumer commitments in this framework.

While the U.S. proposal did not include a maturity distinction, the U.S./U.K. Agreement assigned credit conversion factors based on the original maturity of the commitment, that is, the length of time before a bank can, at its option, unconditionally cancel its commitment to the borrower. This approach was intended to be a proxy for the risks associated with various types of commitments. The industry criticized this approach, arguing that it was arbitrary and would not accurately reflect banks' credit exposures on these commitments. Many commented that, if a maturity approach was to be used, remaining maturity was a better indicator of credit risk. In fact, U.S. bankers maintained that remaining maturity is widely used in internal reports and that the focus on original maturity would represent a significant reporting burden.

Despite these criticisms, some members of the Cooke Committee strongly supported the use of original maturity. They viewed this relatively simple technique as a useful means of distinguishing among a variety of instrument types within the context of the proposal without increasing the complexity of the calculation. Thus, in the end, the use of original maturity was retained in the Basle framework.

The U.S./U.K. Agreement also addressed the issue of MAC clauses by explicitly including commitments with such clauses in the risk asset framework. Although many of the comment letters expressed the view that these clauses provided effective protection against deterioration in the creditworthiness of a prospective borrower, contrasting arguments prevailed in favor of excluding consideration of MAC clauses from this framework.

MAC clauses are generally more effective under conditions of rapid deterioration in the credit quality of an obligor than in other situations. In cases of more gradual decline in the customer's financial condition, the criteria contained in MAC clauses might be insufficiently specific to afford the lender any significant degree of protection. Furthermore, a borrower is likely to anticipate his own problems before the lender becomes aware of them, by which time the drawdown could have occurred.

Even in situations where MAC clauses are adequately worded to allow protection, banks may nonetheless be reluctant to exercise their right to deny lending. Refusing to lend funds in any but the most extreme cases might damage other customers' perceptions of both the bank and the value of their own credit lines. Bank managements may also be concerned about their potential exposure to lender liability suits.

The treatment of consumer loan commitments has varied widely among the three versions of the risk-based capital framework. Such commitments were not explicitly addressed in the original U.S. proposal, and the proposal's lack of specificity in this regard raised questions by market participants. The U.S./U.K. Agreement clarified the issue by explicitly including consumer loan commitments and applying the same credit conversion factors to these commitments as to other loan commitments. This proposed treatment of consumer commitments in turn evoked strong criticism, especially from banking organizations competing heavily in the consumer credit card market. These bankers argued that many types of consumer commitments (for example, credit card lines and overdraft facilities) are unconditionally cancelable at any time, for any reason, and therefore do not require capital support. Partly in response to this argument, the Basle framework treats consumer commitments as short-term commitments.

Interest rate and foreign exchange contracts

The original U.S. proposal did not include interest rate and foreign exchange contracts (rate contracts) in its measure of risk-adjusted assets. These rate contracts clearly expose banks to credit risk, but by late 1985, U.S. bank regulators had not yet developed a practical way to incorporate a measure of this risk in the risk-based capital framework.

The March 1987 supplement to the U.S./U.K. Agreement, which set out an approach to measuring rate contract credit exposure, proposed two measures: one for interest rate contracts and one for foreign exchange contracts. Both measures consisted of the current market value of contracts and an "add-on" factor intended to capture future potential credit risk exposure.

The comments received by the Federal Reserve on the supplemental proposal offered general support for the basic approach to measuring rate contract credit exposure but were often critical of many of the specifics of the proposal. In particular, most of the market participants commenting on the proposal argued that the amount of capital that banks would have to hold to support rate contracts would be excessive. Market participants provided detailed analyses of the underlying methodology used by the regulators to calculate the proposed add-on factors. In virtually every case, these analyses concluded that specific aspects of the regu-

lators' methodology produced overly conservative estimates of the degree of credit risk exposure stemming from rate contracts.

Further, a number of commercial and investment bankers argued that the proposed risk weightings to be applied to rate contract credit exposure were too high. These bankers asserted that the counterparties to interest rate and foreign exchange contracts are, on average, more creditworthy than bank customers more generally. Consequently, they argued, it would not be reasonable to assign the same risk weight to rate contract credit exposure as that assigned to, say, a bank's loan portfolio credit exposure.

In the context of the multilateral discussions on the appropriate measure for rate contract credit risk, several of the European members of the Cooke Committee contended that the proposed U.S./U.K. approach was unduly complex, especially for banks with relatively minor involvement in these activities. Furthermore, a minority of the committee members did not favor the use of a mark-to-market approach for determining capital requirements on rate contracts.

Reflecting these divergent views, the Cooke Committee was not able to agree on a single measure of rate contract credit exposure that could be used by all member countries. Ultimately, a compromise was reached allowing each member country to use one or both of two approximately equivalent measures of credit exposure.

The first of these proposed measures, the "current exposure" measure, retains the basic structure of the original measure, which combined current market exposure and an add-on for future potential exposure. This measure was developed by refining the original U.S./U.K. methodology to incorporate suggestions made by market participants and by simplifying the measure in response to the general feeling that the original proposal was too complex.

The alternative measure proposed in the Basle agreement was based on "original exposure." It was developed to provide an even simpler measure of credit exposure that would still result in approximately the same amount of required capital as the current exposure approach for similar rate contract portfolios. Using the original exposure approach, a bank would not have to mark its rate contracts to market. Instead, the notional principal amounts of a bank's rate contracts would be multiplied by specified conversion factors to calculate an estimate of its credit exposure.

The Cooke Committee proposed that, regardless of the approach used,[9] credit exposure on rate contracts would be assigned a risk weight based on the broad categories of obligors used elsewhere in the proposed capital framework. However, most committee members believe that a maximum risk weight of 50 percent should be used because of the relatively high quality of rate contract counterparties.

[9]U.S. bank supervisors are proposing to use the "current exposure" approach.

Going forward

Most of the issues that the Cooke Committee confronted were replete with technical, analytical, and political complexities. In addressing each issue, members of the committee had to weigh several competing factors. Simplicity in approach had to be balanced against precise risk measurement. More generally, the desire for a broad-based agreement that would strengthen the international banking system had to be weighed against country-specific practices and policies. In the end, the agreement on risk-based capital encompasses a considerable range of banking activities and sets uniform minimum target capital ratios for all banking organizations active in international financial markets.

In reaching the Basle Agreement, the banking authorities in the participating countries had to make significant compromises. Each member of the committee had to strike a balance between achieving the goal of a "more level playing field" through more uniform global supervision of banking organizations' capital levels on the one hand, and accommodating country-specific institutional structures on the other. For this reason, the proposal embodies a number of compromises that, taken in isolation, may not be optimal. But viewed within the broader context of an international agreement that encompasses the major industrial countries, these compromises reflect the desire of the international supervisory community to overcome national differences and to respond in a coordinated fashion to the changing international banking environment. In this context, the agreement represents a milestone in international bank supervisory cooperation.

Convergence is not, however, a discrete set of events consisting of major multinational agreements; rather, convergence is an ongoing process involving dialogue and the sharing of information among the various supervisors of financial institutions. In the United States, the increasingly ambiguous division between banking organizations and other financial services firms is providing a steady impetus to the domestic supervisory communication and convergence process. Moreover, the changing nature of the global financial services industry will necessitate continuing cooperation among the national supervisory authorities that together regulate the global financial marketplace. Significantly, the negotiation of the risk-based capital agreement may provide a model for this ongoing effort towards supervisory policy convergence.

Jeffrey Bardos

Converging Household Debt Ratios of Four Industrial Countries

U.S. households traditionally have borrowed substantially more in relation to income than their counterparts in other major industrial countries. It has been suggested that this pattern helps explain the low personal savings rate and high consumption propensity here compared with abroad. The relations between debt and spending have raised increasing concern in recent years, as a sharp decline in the U.S. personal saving rate accompanied by a surge in consumer borrowing has added to this country's unprecedentedly large external payments deficit.

Differences between the United States and other industrial countries in the use of household credit have declined markedly over the last two decades, however. In Japan and Germany, primarily during the 1970s, and in the United Kingdom during the 1980s, household debt grew much more rapidly relative to income than in the United States. As a result, personal debt ratios in the three foreign countries are now between 70 and 90 percent of the U.S. ratio, compared with 30 to 60 percent in the late 1960s. The trend toward convergence in the debt ratios, to the extent that it reduced disparities in national spending rates, probably helped moderate imbalances in these countries' external accounts. Since 1983, however, debt growth in the United States has accelerated above that in Japan and Germany, bringing the prior trend toward convergence to at least a temporary halt. These changing debt ratio patterns raise questions about their underlying determinants and their implications for macroeconomic performance, past as well as future.

This article argues that both economic forces and government policies have contributed to debt ratio convergence in the 1970s and 1980s. Among economic influences, rapid growth in real per capita income and thus in the ability to service debt is identified as an important source of stronger debt growth in Japan and Germany in the 1970s. And in the 1980s, stronger growth in net wealth relative to income and hence in the ability to take on new debt emerges as a likely stimulus to debt growth in Japan, Germany, and the United Kingdom.

Important policy influences on the evolution of debt ratios have included tax law, credit controls, interest rate regulations, government lending, and insurance of home mortgage debt instruments. The analysis suggests that the effect of these policies was strongest in the decade immediately following their initiation. For the United States, positive policy effects were most evident in the early postwar years and again in the mid-1980s. In Japan and Germany, positive policy initiatives were most influential in the 1970s, and in the United Kingdom, in the 1980s.

Future debt ratio convergence could contribute to a reduction in external payments imbalances if lower debt growth in the United States and a continued rise in the debt-income ratios of Japan and Germany combine to reduce disparities in national spending rates. The analysis suggests, however, that the prospects for such debt convergence over the next five years or so are mixed. Economic forces, mainly wealth effects, will probably tend to reduce disparities in debt ratios. But the net effect of country policies now in place depends in part on the as-yet-uncertain U.S. household response to the

Tax Reform Act of 1986.

Trends in household debt ratios

Household debt is defined here as home mortgage debt and consumer debt incurred by households to finance the acquisition of their own homes, consumer durables, and other consumer goods and services.[1] Such debt is mostly accumulated in the first half of the adult life cycle in order to finance consumption expenditures and investment in housing and durable goods at an earlier age than would otherwise be possible.

Chart 1 shows the postwar behavior of household debt relative to disposable income in the four countries. In the first two decades, U.S. household debt grew very rapidly, from about 20 percent of personal disposable income to 65 percent in 1965. Little information is available on household debt in that earlier period for the other three countries, especially in the case of Japan and Germany. But by 1969, the first year for which data exist for all four countries, the household debt ratio in the United Kingdom was a little less than two-thirds, the German ratio only one-third, and the Japanese ratio a little more than one-fourth of the U.S. debt ratio.

While all four debt ratios have converged since then, the character of this convergence has changed over time: from stronger to weaker convergence among U.S., German, and Japanese debt ratios; and from divergence to strong convergence between the U.K. and U.S. ratios. In analyzing these changing trends and economic and policy contributions to them, it is useful to break the period into two, with 1979 as the dividing line. That year, a cyclical peak for the U.S. debt ratio, represents the best point for comparison with more recent high points; it was also the last year before a major policy change in the United Kingdom and a breakpoint year for Germany's debt ratio trend.

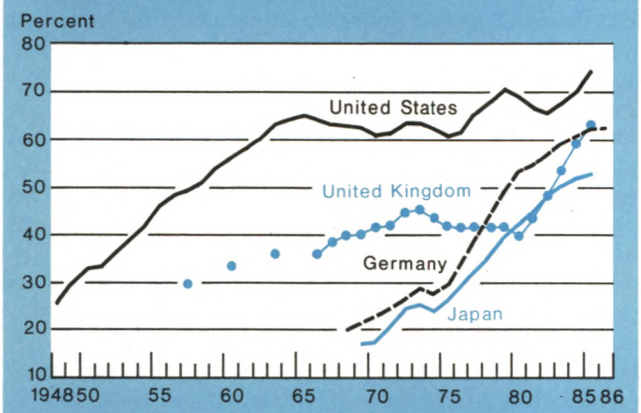
In the 1970s, both Japanese and German debt ratios more than doubled, advancing to 56 and 70 percent of the U.S. ratio, respectively, while the U.K. debt ratio remained little changed and thus lost ground relative to the other three. But in the 1980s, the British ratio shot ahead to within 90 percent of the U.S. ratio in 1986 while the Japanese and German ratios showed smaller net gains, ending the period at about 70 and 80 percent, respectively, of U.S. levels. In 1985 and 1986, Germany and probably Japan lost ground relative to the United States. Given the cyclical character of the U.S. debt ratio, it is too early to conclude that the trend toward convergence has actually been reversed, but it does seem to have been temporarily arrested.

The ratios of home mortgage debt to disposable income, shown in Chart 2, have displayed somewhat similar growth patterns. However, the U.K. ratio has risen especially strongly in the 1980s, reaching levels higher than in the United States in both 1985 and 1986. Consumer debt ratios have also converged, as Chart 3 reveals. In this case, Japan has been a star performer.[2]

[1]See Appendix for data sources.

Chart 1

Household Debt as Share of Disposable Income



Note: United Kingdom data for three-year intervals for 1957-66.

Sources: United States - United States Department of Commerce (National Income and Product Accounts Tables), Survey of Current Business; Board of Governors of the Federal Reserve System, Flow of Funds Accounts. United Kingdom - Central Statistical Office, Economic Trends, Financial Statistics, and author's estimates. Japan - Economic Planning Agency, Annual Report on National Accounts. Germany - Monthly Report of the Deutsche Bundesbank; Statistisches Bundesamt, Wirtschaft und Statistik; and author's estimates.

The relative importance of economic and policy influences

The striking convergence in household debt ratios leads one to ask what economic and policy forces were responsible and what their relative importance may have been. This section investigates these broad questions; the succeeding two sections describe economic and policy influences in greater detail.

Among economic factors likely to affect the ratio of household debt to disposable income, two stand out as especially important. First, as family budget studies have shown, the debt ratio rises as household income

[2]The lower level of consumer debt in the United Kingdom is at least in part attributable to the omission of charge account debts due in full monthly at retail stores.

increases (up to the median income range).[3] One apparent reason is that the portion of income available for discretionary expenditure, including debt service, rises faster than total disposable income. Second, increases in household net wealth relative to disposable income are likely to spur household debt since they increase creditworthiness in the eyes of both the lender and the borrower.[4] Such increases in net wealth relative to income are normally the cumulative result of household savings; however, they may also be significantly affected by inflation-related increases in the prices of housing, land, and equities, and in the value of equity in unincorporated business relative to outstanding debt and to income. Increases in both real per capita income and net wealth relative to income may also generate expectations of future increases and thus add to households' appetite for debt.

[3]For a recent example, see Robert B. Avery, Gregory E. Elliehausen, and Arthur B. Kennickell, "Changes in Consumer Installment Debt: Evidence from the 1983 and 1986 Surveys of Consumer Finances," *Federal Reserve Bulletin*, October 1987.

[4]Donald D. Hester, "An Empirical Examination of a Commercial Bank Loan Offer Function," in Donald D. Hester and James Tobin, eds.,

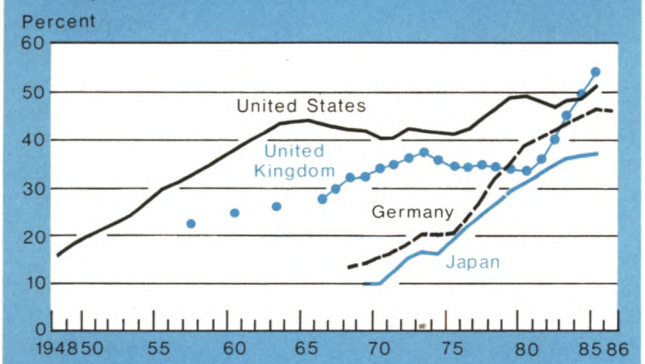
Country policies likely to influence the growth of household debt relative to income are those which, by accident or design, affect the availability or cost of credit to households relative to other borrowers. Examples of such policies are controls on consumer lending as such, interest rate ceilings on household debt, and tax concessions related to interest on or amortization of household debt. Included as well are regulations giving preferential treatment to business borrowers relative to households. The effective impact of such provisions can vary with macroeconomic conditions; for example, ceilings on consumer loan rates pose more of a constraint on consumer lending when market interest rates are high than when they are low.

The response of the household debt ratio to changes in policy may be played out over a considerable number of years. When a new policy supportive of borrowing is introduced, households in their early high-borrowing

Footnote 4 continued
Studies in Portfolio Behavior, Cowles Foundation Monograph no. 20, 1967.

Chart 2

Home Mortgage Debt as Share of Disposable Income

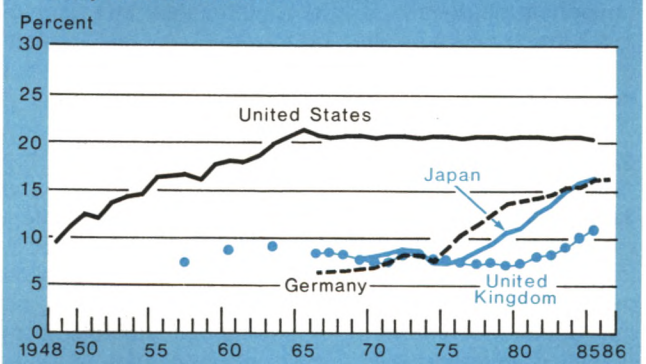


Note: United Kingdom data for three-year intervals for 1957-66.

Sources: United States - United States Department of Commerce (National Income and Product Accounts Tables), Survey of Current Business; Board of Governors of the Federal Reserve System, Flow of Funds Accounts. United Kingdom - Central Statistical Office, Economic Trends, Financial Statistics; and author's estimates. Japan - Economic Planning Agency, Annual Report on National Accounts. Germany - Monthly Report of the Deutsche Bundesbank; Statistisches Bundesamt, Wirtschaft und Statistik; and author's estimates.

Chart 3

Consumer Debt as Share of Disposable Income



Note: United Kingdom data for three-year intervals for 1957-66.

Sources: United States - United States Department of Commerce (National Income and Product Accounts Tables), Survey of Current Business; Board of Governors of the Federal Reserve System, Flow of Funds Accounts. United Kingdom - Central Statistical Office, Economic Trends, Financial Statistics; and author's estimates. Japan - Economic Planning Agency, Annual Report on National Accounts. Germany - Monthly Report of the Deutsche Bundesbank; Statistisches Bundesamt, Wirtschaft und Statistik; and author's estimates.

years are likely to borrow substantially more relative to income than their predecessors, thus raising the total household debt/disposable income ratio. The upward adjustment will continue for a number of years as new adults borrow at similarly higher rates. But ultimately the entire borrowing household population will have completed the adjustment, leaving the household debt ratio at a higher level but no longer rising in response to that particular policy.[5]

It is possible to estimate the relative contribution of the various influences very roughly by applying standard regression analysis to the relation between debt-income ratios and the economic factors mentioned above. However, any conclusions suggested by such analysis are subject to several reservations. One is that the existence of a statistical relationship between a presumed cause and effect does not prove causality. Second, when presumed causes are numerous and changing, specifying each one separately can become unmanageable, especially when the number of observations is limited. Third, other forces not specifically taken into account—acting alone or in combination with specified factors—may be largely responsible for observed changes in household debt. Finally, the quality of the data varies considerably. Except for the United States, the countries examined here have only recently developed official estimates of household debt and household net wealth, and their estimates cover only a limited period of time. In fact, for Germany, the absence of official estimates of household net wealth rules out this approach.

For the three countries for which reasonably comparable estimates of the relevant economic variables are available—the United States, the United Kingdom and Japan—the first step was to compute the statistical relationship between the household debt/disposable income ratio and the economic factors assumed to be most important (that is, per capita real income and the net wealth/income ratio). An additional variable, representing adjustments to a major policy change in 1980, was added to the equation for the United Kingdom. The results are shown in Table 1. (Note that because of an apparent shift in the relation in the mid-1960s, separate estimates for the United States for 1948-65 and 1966-85 are presented.)

Perhaps the most remarkable feature of the results is the substantially lower response of the debt ratio to income for the later U.S. period as compared with the estimates for Japan and the United Kingdom and with the estimate for the United States in the earlier period. Budget studies show that the household debt response falls at higher income levels, although not by an amount sufficient to account for more than a small portion of the differences in the Table 1 coefficients. A more plausible explanation, supported by the analysis in the next section, is that differences across countries and over time in government policies and other institutional factors largely account for the differences in the response of debt ratios to income and wealth.

If this assumption is adopted, the contribution of the economic variables to debt convergence can be measured using the responses (coefficients) from the U.S. relation; the procedure amounts to estimating what the effect of the two economic variables on the debt ratio in each country would have been if policies and all other unspecified economic and noneconomic conditions had been the same as in the United States in 1966-85. The differences between the estimated growth in the U.S. household debt ratio in response to the two economic influences and the hypothetical responses for the other two countries are taken to represent the contribution

Table 1

Household Debt Response to Economic and Policy Influences*

	Intercept	Real per Capita Disposable Income	Net Wealth/ Disposable Income	Deregulation Effect†	R-squared
United States					
1948 to 1965	−15.35	1.899 (0.153)	2.000 (0.439)	—	0.967
1966 to 1985	−0.33	0.403 (0.067)	0.595 (0.161)	—	0.706
Japan					
1969 to 1985	−12.66	1.681 (0.245)	1.069 (0.316)	—	0.884
United Kingdom					
1957 to 1985‡	−2.84	0.653 (0.100)	0.641 (0.178)	0.148 (0.031)	0.933

*The household debt ratio, real per capita disposable income, and the net wealth ratio are entered in logarithmic form. Thus the income and net wealth coefficients signify the percent increase in the household debt ratio associated with a 1-percent increase in income or net wealth to income.

†The dummy variable representing the effects of deregulation in the United Kingdom is given a value of 1 for 1981. This is increased by 10 percent in each succeeding year.

‡At three-year intervals until 1975.

Note: Figures in parentheses are standard errors of the coefficients.

[5]Alain Enthoven traces these developments in "The Growth of Installment Credit and the Future of Prosperity," *American Economic Review*, December 1957. Consumer debt had responded strongly to deregulation and new tax incentives, and Enthoven was seeking to quiet fears that this response would continue indefinitely.

made by the specified economic factors to the convergence of country debt ratios. Debt ratio convergence not thus accounted for is attributed to differences in policy and other influences.

This calculation is made for two periods, 1969-79 and 1979-85 (1985 is the latest date for which full information is available). The results, shown in Table 2, suggest that in 1969-79, economic factors may have been responsible for about 60 percent of the convergence of Japanese and U.S. debt ratios and 40 percent of the divergence between U.S. and U.K. debt ratios. In the 1980s, by contrast, differences in policy and other influences appear to have been the main contributor to convergence between the U.S. and U.K. ratios. Economic factors continued to be the dominant influence on U.S.-Japan debt ratio convergence.[6]

This exercise, by itself, provides at best a rough and suggestive guide to the importance of policy influences on debt convergence. A more reliable determination requires a closer look at the policies themselves and the likelihood that they contributed to debt convergence. It also requires consideration of any other factors equally or more likely to have produced such results.

In particular, one influence that cannot be ignored is demographic changes. Since debt/disposable income ratios are higher among households in the 20-44-year age groups than they are in older age groups, changes in the proportion of the population in the high-debt age groups will clearly affect the household debt ratio for the country as a whole. However, the demographic trends of the 1970s and 1980s, shown in Table 3, have been working against, rather than in favor of, convergence of the U.S. debt ratio with the ratios of Germany and Japan. In the United States, where debt ratio growth has been slowest, the importance of high-borrowing age groups in the total adult population has been rising; in Germany and Japan, where debt ratio growth has been fastest, the relative importance of younger adults has been falling. In the United Kingdom, demographic trends have been quite similar to those in the United States

Table 2

Estimated Contribution of Economic Factors and Policy and Other Influences to Convergence of Foreign Household Debt Ratios with U.S. Ratio

(In Debt Ratio Percentage Points)

	1969 to 1979		1979 to 1985	
	United Kingdom	Japan	United Kingdom	Japan
Convergence due to differences in:*				
Real per capita disposable income	−0.4	5.4	−0.6	0.0
Net wealth/ disposable income	−2.0	2.9	4.1	6.3
Both†	−2.7	8.9	3.6	6.4
Actual convergence	−7.0	15.2	20.2	9.2
Inferred contribution of policy differences and other factors	−4.3	6.3	16.6	2.8
Memorandum: Estimated percent contribution of: Specified economic factors	38.6	58.6	17.8	69.6
Policy differences and other factors	61.4	41.4	82.2	30.4

*Estimates based on country data and estimated U.S. relationships for 1966-85. Convergence is measured by the percentage point change in the foreign ratio minus the percentage point change in the U.S. ratio.

†Does not necessarily equal the sum of the two determinants considered separately because the logarithmic form of the estimating equation implies a multiplicative relationship among the economic determinants.

[6]An alternative approach would be to estimate the contribution of economic factors to each country's debt ratio growth using its own equations (rather than those for the United States as in Table 2). In the Japanese case, this alternative would imply that economic influences would have produced *more* convergence than actually occurred, suggesting that policy and other factors made a modest negative contribution. For the U.K.-U.S. convergence, the alternative calculation produces results quite similar to the estimates in Table 2. In any case, calculations based on each country's equations are probably misleading, since the text analysis shows that differences in country policies and other institutional factors appear to be at least partly responsible for the estimated differences in the debt responses to economic factors.

Table 3

Percent of Adult Population in the 20-44 Years Age Group*

	1970	1980	1985
United States	51.0	54.5	56.4
United Kingdom	46.5	47.4	49.0
Germany	49.3	48.9	48.0
Japan	62.5	55.7	52.3

*For Germany, the percentage in the 1970 column refers to 1973 and the percentage in the 1985 column refers to 1984.

Table 4

Changes in Economic Determinants of Household Debt Ratios

(1969 to 1985)

	Real per Capita Disposable Income (Percent Change, Annual Rate)	Net Wealth/ Disposable Income (Percent Change, Annual Rate)
1969 to 1979:		
United States	2.4	−0.2
United Kingdom	2.6	−1.0
Germany	3.8	n.a.
Japan	5.7	0.6
1979 to 1985:		
United States	1.0	0.2
United Kingdom	0.8	2.3
Germany	0.6	n.a.
Japan	1.1	3.1

and thus have had no effect on the earlier divergence and more recent convergence of the two nations' debt ratios.

Thus, unless some other important influences have been overlooked, it seems reasonable to regard policy differences among countries as responsible for at least some of the convergence among country debt ratios not explainable in terms of economic influences. In the following two sections, economic and policy influences are examined in more detail.

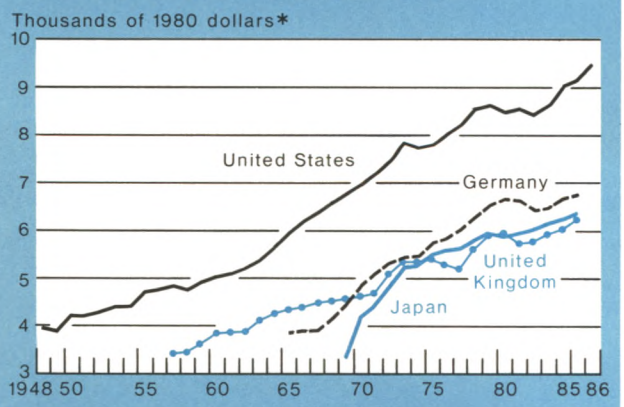
Economic influences

In order to understand the contribution to household debt convergence made by per capita income and the net wealth/income ratio, it is useful to look at their behavior, shown in Charts 4 and 5. Table 4 supplements the charts, comparing the changes in the two variables in the 1970s and in the 1980s.

Chart 4 shows real per capita disposable income in the four countries expressed in 1980 consumption purchasing power parity (PPP) dollars. Consumption PPP exchange rates between the currencies of any two

Chart 4

Real Per Capita Disposable Income

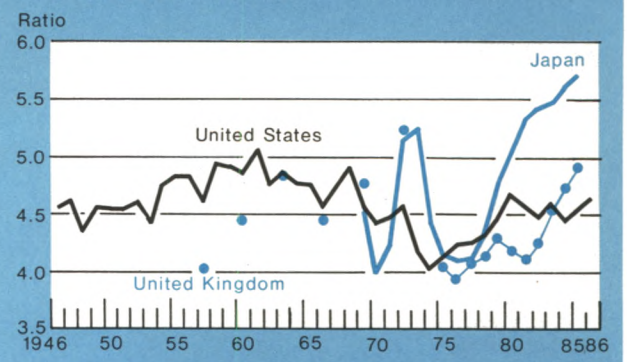


*Calculated using 1980 purchasing power parity exchange rates computed by OECD staff.

Sources: United States - United States Department of Commerce (National Income and Product Accounts Tables), Survey of Current Business.
United Kingdom - Central Statistical Office, Economic Trends, Annual Supplement.
Japan - Economic Planning Agency, Japanese Economic Indicators Quarterly.
Germany - Statistisches Bundesamt, Wirtschaft und Statistik.
For all countries - OECD staff estimates, OECD National Accounts, vol. 1.

Chart 5

Household Net Wealth as Ratio of Disposable Income



Note: United Kingdom data for three-year intervals for 1957-75.

Sources: United States - United States Department of Commerce (National Income and Product Accounts Tables), Survey of Current Business; Board of Governors of the Federal Reserve System, Flow of Funds Accounts.
United Kingdom - Central Statistical Office, Economic Trends, Financial Statistics; and author's estimates.
Japan - Economic Planning Agency, Annual Report on National Accounts.

countries are those rates which would, on average, equalize the price of consumption goods and services in those countries.[7] The high costs of residential land in Germany and Japan and of food in Japan relative to the United States are reflected in these PPP exchange rates.

Converting real per capita income of each country in domestic currencies into consumption PPP dollars permits the levels of real per capita income in the four countries to be compared. Given the evidence that the ratio of household debt rises as real income rises, differences in levels of country real per capita income help to explain differences in household debt levels. In the 1970s, stronger growth of real income in Japan and Germany—5.7 percent and 3.8 percent per annum, respectively, as compared with 2.4 percent per annum in the United States—helps to explain the stronger growth in their debt ratios. In the 1980s, however, real per capita income growth was quite similar in all four countries and thus contributed little to debt convergence.

The pronounced fluctuations in the net wealth/disposable income ratios evident in Chart 5 are largely due to rising and falling inflation, which (because of its strong impact on asset prices) affects the value of large segments of existing wealth relative to household debt and to disposable income. These fluctuations primarily reflect differences in the timing of asset and income responses to inflation and thus tend to be of a temporary, self-reversing nature. The resulting cyclical swings in the net wealth ratio, possibly reinforced by expectations of further changes in the same direction, have apparently contributed to cyclical swings in the household debt ratio.

The level and long-term trends in the net wealth ratio, of chief interest here, depend largely on the cumulative effect of past and current savings out of income. Although savings rates in all four countries are lower in the 1980s than they were in the 1970s, differences among them have been very large at all times. In 1980-85, the ratio of savings to disposable income averaged about 6 percent in the United States, 17 percent in Japan, 13 percent in Germany, and about 12 percent in the United Kingdom.

Although the 1970s witnessed very large swings in net wealth/disposable income ratios in the United States, Japan and the United Kingdom, the *net* changes between 1969 and 1979 were rather small. In the U.S. case, there was a long downswing in the net wealth ratio from the early 1960s until 1974, and this trend in turn apparently helped to arrest the growth of the household debt ratio during that period. But rising inflation in the later 1970s led to a partial recovery of the net wealth ratio, and the household debt ratio apparently responded. Thus the net change in the U.S. net wealth ratio from 1969 to 1979 was negligible. In Japan and the United Kingdom, the year-to-year swings in the net wealth/disposable income ratio were larger than in the United States, mainly because inflation in those two countries was higher and more variable. But on balance, the Japanese net wealth ratio rose, thus contributing modestly to debt ratio convergence, while the British net wealth ratio fell, producing the opposite result.

In the more recent and shorter period, 1979-85, the net wealth ratio rose in the United Kingdom and Japan (and probably in Germany as well) as the U.S. wealth ratio changed little on balance. These developments very likely contributed to debt convergence. But given the strong cyclical swings characteristic of net wealth relative to disposable income, some of the gain may prove transitory.

Policy contributions to debt ratio convergence

A comparison of U.S. and foreign policies toward debt over the last two decades underscores their increasing similarity. Indeed, the timing of policy changes helps to explain the timing of debt convergence. In the latter half of the 1960s, U.S. policies were more supportive of household borrowing and had been established for a much longer period than those of the other three countries. Thus it is very likely that borrowers and lenders had already completed their adjustments to these policies, leaving the U.S. debt ratio higher but no longer growing on that account. But measures adopted in the 1960s and after in the other three countries brought the net thrust of their policies closer to U.S. policy. The time at which new policies were introduced varied from country to country. In Germany and Japan, incentives to household borrowing introduced in the 1960s contributed to the very strong debt growth of the 1970s. But by the 1980s, the strong initial responses to these policies seem to have played themselves out, while new initiatives were fewer and/or weaker and hence contributed less on balance to debt ratio growth and convergence. In the United Kingdom, by contrast, restrictive policies dominated until 1980; the response to financial deregulation in 1980 was the main force driving the subsequent relatively rapid growth of the U.K. debt ratio. In the United States, the interaction of inflation and a wide variety of policies resulted in moderate debt growth during the 1970s and early 1980s. More recently, however, renewed stimulus from policy and other factors has led to an acceleration in debt growth here.

Such are the broad outlines of the movement toward policy convergence. A more detailed examination of

[7]Real per capita income in dollars was computed from local currency real income using 1980 PPP exchange rates estimated by the Organization for Economic Cooperation and Development (OECD). See OECD, *National Accounts, 1972-1984*, vol. 1.

policy developments in each of the four countries follows.

The United States

At the end of the 1960s, long-established policies provided encouragement and support for both consumer and home mortgage debt in the United States. Tax deductibility for interest on all household debt, in effect since the introduction of the income tax in 1916, became a particularly important incentive to household borrowing when the Revenue Act of 1942 expanded the range of taxable income into middle and low income ranges. An elaborate support system for home mortgage finance was initiated in the 1930s to avoid repetition of the banking collapse of 1930-33 and to assure a ready source of home mortgage loans. Twelve Federal Home Loan Banks met the short-term liquidity needs of member savings and loan associations (S&Ls) specializing in home mortgage lending. Government insurance of home mortgages reduced credit risk for lenders and thus encouraged the supply of home mortgage credit.[8] The insurance of deposits at S&Ls protected the ability of the thrifts to attract retail deposits by making them more competitive with insured bank deposits.

These well-established policies contributed to the strong growth of the U.S. debt ratio in the 1950s through the first half of the 1960s; after the mid-1960s, however, their impetus to debt growth abated. More recent policy developments affecting debt growth in the 1970s and 1980s have included additional support for home mortgage debt, as well as policies designed to reduce the uneven impact of inflation on households relative to other borrowing sectors. Most recently, the Tax Reform Act of 1986 has reordered priorities among borrowers once again.

Beginning in the late 1960s, the government stepped up its efforts to encourage development of a secondary market for home mortgages. Government agencies and federally sponsored government agencies purchased mortgages from primary lenders, financing the acquisitions by issuing various forms of mortgage-backed securities. Some of these agencies also insured mortgage-backed securities issued by private financial institutions.[9] The development of these new markets has encouraged primary mortgage lenders by providing a ready source of liquidity and an opportunity to reduce the interest rate risk inherent in holding long-term fixed-interest-rate assets. Securitization of mortgage debt enjoyed moderate growth in the 1970s as the share of total home mortgages outstanding held by federally sponsored agencies and by mortgage pools issuing agency-guaranteed securities rose from 4.5 percent in 1969 to about 16 percent in 1979. However, the inflationary experience of the late 1970s and early 1980s and the related volatility of interest rates have greatly increased the appeal of these instruments in the 1980s. Largely as a result, the share of home mortgages held by the federally sponsored agencies and guaranteed pools approached 40 percent in September 1987, more than double the 1979 ratio.

During the late 1970s and early 1980s, a number of policy changes were made under the pressure of rising rates of inflation that had mixed effects on household borrowing. These policy changes related to the interest rates lending institutions could pay to attract funds, the rates they could charge consumer borrowers, and tax law provisions influencing the channeling of credit among competing groups of borrowers.

Federal and state restrictions on certain interest rates have tended to restrict the supply of credit to households, especially during periods of rising inflation and higher market yields. During the 1960s and much of the 1970s, ceilings on deposit interest rates in the face of rising market rates on other instruments available to small investors (such as Treasury bills and money market funds) reduced the supply of funds to banks and thrifts, the major lenders to households. However, by the late 1970s, the growing secondary mortgage market greatly reduced the vulnerability of home lenders to such conditions because it enabled them to originate mortgages without having to provide long-term funding. At the state level, usury laws limiting rates charged on personal loans seriously limited lenders' ability to extend consumer loans when funding costs were high. These distortions were reduced temporarily when the more restrictive state interest limits were raised periodically during the 1970s. But the extraordinarily high interest rates of 1979-82 created a problem much more severe and widespread than before.[10] The problems created by deposit interest ceilings and state usury laws were substantially resolved during the 1980s by gradual deregulation of interest rates on retail deposits, culminating in the Depository Institutions Deregulation and Monetary Control Act of 1980, and the revision of state usury laws applying to consumer lending. This dereg-

[8]While this insurance was limited to mortgages of moderate size, its influence was far wider because standards required for insured loans (including longer maturities and amortization) were adopted by all mortgage lenders. For an account of these early developments, see John C. Weicker, *Housing: Federal Policies and Programs* (Washington, D.C.: American Enterprise Institute for Public Policy Research, 1980), chap. 7.

[9]For a summary description of these agencies and their activities, see Michael J. Moran, "The Federally Sponsored Agencies: An Overview," *Federal Reserve Bulletin*, June 1985.

[10]For an account, see Charles A. Luckett, "Recent Developments in Mortgage and Consumer Credit Markets," *Federal Reserve Bulletin*, May 1982; and Charles A. Luckett and James D. August, "The Growth of Consumer Credit," *Federal Reserve Bulletin*, June 1985.

Table 5

Household Debt Response to Economic and Policy Influences: Home Mortgage Debt*

	Intercept	Real per Capita Disposable Income	Net Wealth/ Disposable Income	Selected Policy Influences†	R-squared
United States 1966 to 1985	−1.12	0.361 (0.126)	0.859 (0.158)	0.093 (0.044)	0.855
Japan 1969 to 1985	−18.44	2.340 (0.269)	0.894 (0.347)	—	0.907
United Kingdom 1957 to 1985‡	−5.06	0.892 (0.119)	0.614 (0.211)	0.144 (0.037)	0.931

*See footnote * in Table 1.

†For the United States, response to change in ratio of house price index to industrial share price index. For the United Kingdom, response to change in monetary control methods. See footnote † in Table 1.

‡At three-year intervals until 1975.

Note: Figures in parentheses are standard errors of the coefficients.

Table 6

Household Debt Response to Economic and Policy Influences: Consumer Debt*

	Intercept	Real per Capita Disposable Income	Net Wealth/ Disposable Income	Selected Policy Influences†	R-squared
United States 1966 to 1985	1.37	0.174 (0.157)	0.168 (0.281)	−0.083 (0.049)	0.154
Japan 1969 to 1985	−4.37	0.513 (0.235)	1.454 (0.304)	—	0.781
United Kingdom 1957* to 1985‡	2.67	−0.201 (0.099)	0.747 (0.176)	0.153 (0.031)	0.829

*See footnote * in Table 1.

†For the United States, response to the U.S. Treasury bill rate. For the United Kingdom, response to change in monetary control methods. See footnote † in Table 1.

‡At three-year intervals until 1975.

Note: Figures in parentheses are standard errors of the coefficients.

ulation was largely completed by 1982, just as inflation was declining.

A second area of policy change that may have affected the growth of household debt involved the tax system. During the high and rising inflation of the 1970s, existing tax laws effectively favored investment in owner-occupied housing over corporate investment in plant and equipment. For corporations, the depreciation of plant and equipment deductible from taxable income is based on original cost. Inflation causes depreciation allowances to fall relative to income, and corporate after-tax earnings suffer correspondingly. For homeowners, imputed income from owner occupancy is not taxed and rises with inflation. Thus, inflation-related increases in actual and expected rates of return on housing relative to corporate investment, reflected in the rise of house prices relative to industrial share prices during the 1970s, tended to encourage investment in housing and, therefore, home mortgage borrowing.[11]

A new tax law enacted in 1981 provided a correction for this inflation-related bias, not by altering the original-cost basis for depreciation but by shortening the depreciation period through the Accelerated Cost Recovery System. The 1981 law is estimated to have reduced the marginal effective corporate tax on new investment in equipment from over 20 percent (in 1973-80) to a negative 14 percent and that on investment in structures from about 50 to 36 percent.[12] No doubt both the new tax law and subsiding inflation contributed to the rise in industrial share prices relative to house prices after 1982.

The effects of the interest regulations and tax policies were estimated from regressions of U.S. consumer and mortgage debt on the income and wealth variables used in the prior (Table 1) results. The index of house prices relative to industrial share prices was added to the home mortgage equation to capture the effects of the interaction between tax policy and inflation described above; the U.S. Treasury bill rate was added to the consumer debt relation as proxy for the spread between the cost of funds to lenders in unregulated markets and regulated consumer loan rates. As the results in Table 5 show, the home/industrial share price ratio is positive and significant in the mortgage equation, suggesting that tax

[11]Two contributions to an extensive literature on this problem are Martin Feldstein, "Inflation, Tax Rules, and the Accumulation of Residential and Nonresidential Capital," paper presented at conference on "Allocation and Structural Consequences of Short-Run Stabilization Policy in Open Economies," Stockholm, 1981; and Patrick H. Hendershott and Sheng Cheng Hu, "Inflation and Extraordinary Returns on Owner-Occupied Housing: Some Implications for Capital Allocation and Productivity Growth," *Journal of Macroeconomics*, Spring 1981.

[12]Charles R. Hulten, "Tax Policy and the Investment Decision," *American Economic Review*, May 1984.

policy and inflation did encourage household borrowing in this category. Likewise, the yield on U.S. Treasury bills is negative and marginally significant in the consumer debt relation (Table 6); this result provides some support for the hypothesis that interest regulations discouraged household borrowing. (The bill rate was tested in the mortgage debt equation but was not statistically significant, possibly because of the development of the secondary mortgage market and gradual deposit deregulation in the late 1970s.) Thus interest regulation and tax policy in an environment of high inflation appear to have had opposing impacts on household debt as a whole, and their net effect may have been small.

The more recent policy changes, however, appear on balance to have encouraged household borrowing, at least prior to the Tax Reform Act of 1986. The deviations of actual debt ratios from the estimated ratios generated by the U.S. equation for 1966-85 in Table 1 describing economic influences on total household debt may provide a rough indication of the net impact of all policy developments in the 1980s. This deviation was somewhat cyclical and averaged less than 3 percent through 1984. But in 1985 it widened to a positive 5½ percent while the 1986 debt ratio was 8 percent above the equation projection for that year. This suggests that the cumulative thrust of the government's support for securitized mortgages and deregulation of interest rates may have outweighed any negative effects of tax concessions to corporations in 1981 and indeed provided a strong positive boost to the growth of the household debt ratio.

The provisions of the Tax Reform Act of 1986 reflect concern over the rising growth of household debt. The act phases out deductibility from taxable income for interest on consumer debt, places limits on the deductibility of home mortgage interest, and reduces personal tax rates, thereby reducing the value of mortgage interest deductibility. However, the new law has already led to some substitution of "home equity" mortgage loans for consumer loans. In addition, students of corporate taxation have concluded that the new law reduces incentives to corporate investment relative to investment in owner-occupied housing.[13] If their assessment is correct, the new law may tend to boost home mortgage debt. Thus the net effect of the contrasting influences of the 1986 law on household debt as a whole is not yet clear.

Germany

While Germany has never offered any positive encouragements to consumer borrowing, possible constraints were removed with the abandonment of interest rate ceilings on all loans and deposits at deposit-taking institutions in 1967. These ceilings had been adjusted upward and downward with changes in central bank discount rates and were considered as an aid to enforcing monetary policy. But they may have inhibited the growth of consumer debt since ceilings on personal loans had been set relatively low in order to discourage riskier loans.[14]

Policies on home mortgage debt, however, have been strongly positive since the 1960s. The initial focus was on bonuses and deductibility from taxable income for savings placed in low-interest deposits with building and loan associations. These deposits were a prerequisite to low-interest loans from the associations and were committed for use as downpayments when the house purchase was made. These measures not only encouraged savings tied to later home mortgage borrowing but also assured the associations of a ready source of low-cost funds.

In the late 1970s and 1980s, these concessions were reduced, but new tax inducements to home mortgage borrowing were introduced. House buyers were permitted to deduct from taxable income an amount equal to house depreciation in the first eight years of ownership, and purchasers of new houses were given temporary exemptions from property tax.[15]

The cumulative effect of these policies is reflected in the strong rise in German home ownership. While the percentage of families owning their own homes has remained lower in Germany than in the other three countries (where it has averaged over 60 percent), the German ratio has risen continuously from 30 percent in 1965 to 43 percent in 1983. These policy influences are no doubt also reflected in the rising household debt ratio in Germany.

It is difficult to judge whether the most recent changes in German tax law have strengthened incentives to incur home mortgage debt. But if they have, the overall impact is probably small. With the initial strong household borrower response to policy changes in the 1960s clearly complete and further portfolio adjustment in response to the more recent incentives likely to have been small, it is not surprising to find a slowdown in the growth of German home mortgage debt in recent years.

Japan

During much of the 1960s in Japan, household bor-

[13]For a useful analysis, see Alan J. Auerbach, "The Tax Reform Act of 1986 and the Cost of Capital," *Economic Perspectives*, Summer 1987.

[14]"Regulation of the Terms for Banking Business under Article 23 of the Banking Law (Interest Rates Order)," *Monthly Report of the Deutsche Bundesbank*, March 1965.

[15]"Recent Developments in the Building and Loan Association Business," *Monthly Report of the Deutsche Bundesbank*, April 1983; and A. Andrzejewski and M. Lujanen, *Major Trends in Housing Policy in ECE Countries*, Committee on Housing, Building and Planning, Economic Commission for Europe (New York: United Nations, 1980).

rowing enjoyed none of the privileges accorded to industry, and especially to export sectors, which received preferred tax treatment and preferential Bank of Japan discount rates. This was a period of strong industrial and export growth and tight official control of the growth of bank credit, and consequently nonpreferred lending tended to suffer. In addition, constraints on banks discouraged loans to consumers; the banks were not permitted to make consumer installment loans and were subject to loan interest rate ceilings too low to make most consumer lending profitable.

In the 1970s and 1980s, the growth of home mortgage debt has benefited from the reduced industrial demand for bank lending associated with lower economic growth and the elimination of the Bank of Japan's low discount rates on export paper. Further, from the late 1960s on, the government has offered encouragement to home mortgage borrowing. Since 1967, home mortgage borrowers have been permitted tax deductions on combined interest and amortization payments in excess of specified amounts in the first three years of the life of the mortgage. Over the past two decades, the government's Housing Loan Corporation (HLC) has been making low-interest mortgage loans to moderate income families. HLC has played a strong supportive role in home finance and by 1985 held 28 percent of all home mortgage debt outstanding.

While restrictions on bank lending to consumers remain, their effectiveness began to diminish in the 1960s and by now is modest. The restrictions had been effective in the early postwar period when there were few alternative sources of funds for consumers. But by the mid-1960s, the gap began to be filled by the growth of other lending institutions: several varieties of sales finance companies that made secured consumer installment loans and consumer loan companies (the "sarakin," or salary-man's lenders) that offered a wide variety of unsecured and riskier loans.[16] The relaxation of pressures on banks to lend to priority sectors helped not only mortgage lending but also consumer lending since bank credit became more available to sales finance and consumer loan companies.

The changing character of Japanese consumer finance has been recognized by the authorities, who have moved to regulate the new lenders as they assumed importance. The latest such move occurred in 1983, when the consumer loan companies, whose share of consumer lending had reached 20 percent compared to 1 percent in 1969, became subject to Ministry of Finance regulation. Many of the smaller loan companies had made highly risky loans at annual interest rates exceeding 100 percent and had used very questionable tactics to force repayment. Legislation enacted in 1983 provided for a gradual reduction of maximum allowable interest rates to 73 percent in 1983, 54¾ percent within three years, and a goal of 40 percent at some unspecified future date.[17] This new element of regulation and consumer protection has not curbed the strong growth of consumer debt relative to income, but the consumer loan company share of this debt appears to have leveled off.

A consideration of the effects of Japanese policy developments in the past two decades suggests that household responses are still being felt but may have lost some of their forward momentum. Because the modest tax incentive to home mortgage debt was introduced in 1967, initial borrower adjustment was probably completed some time ago. However, the share of mortgages held by the government's HLC has continued to grow and averaged 7.5 percentage points more in 1980-85 than in 1970-79; thus HLC may still be contributing to the rise in the home mortgage debt ratio. Further, deregulation of banks' direct consumer lending is reportedly under consideration.

United Kingdom

Until 1980, the growth of household debt in the United Kingdom was subject to both encouraging and discouraging forces. The principal policy of encouragement was tax deductibility of interest on mortgage debt (and, until 1967, consumer debt). These elements of British policy were probably at least partly responsible for debt ratios in the United Kingdom that exceeded those in Japan or Germany in the 1960s and early 1970s. The element of British policy that discouraged further growth of household debt in the 1960s and 1970s was the discriminatory impact of the British postwar system of credit controls.

The constraints were especially heavy on consumer installment debt. Growth in this form of debt was limited by regulations governing down payment and maturity similar to U.S. wartime controls. The growth of home mortgage debt was constrained by the Bank of England's practice of implementing its monetary restraint policies by imposing tight ceilings on the growth of bank credit whenever needed from 1947 to 1971 and on the growth of interest-bearing liabilities from late 1972 until 1980. Those ceilings caused banks to avoid home mortgage lending in order to make sure that they could accommodate their business borrowers at times of monetary restraint.[18] This practice left mortgage lending mainly in

[16]For a brief description, see "Changing Consumer Finance Market in Japan," *Tokai Monthly Economic Letter,* Tokai Bank, Ltd., June 1982.

[17]*Monthly Finance Review*, Japan Ministry of Finance, May 1983.

[18]A brief experiment with deregulation in 1971, cut short by inflation and a secondary banking crisis in 1972, was largely responsible for

the hands of the long-established building societies, thrift institutions specializing in home mortgage lending and depending for funds exclusively on savings deposits and shares.[19] It may well be that barring household borrowers access to banks limited the total availability of funds to them.

In 1980, in line with the deregulatory program of the Conservative government, limits on bank liabilities were lifted. Soon after, consumer credit was deregulated, and building societies were allowed to borrow in wholesale markets and to offer checking accounts.[20]

The home mortgage and consumer debt ratios appear to have responded to this major and abrupt deregulation by rising at an accelerating rate. In the case of home mortgage lending, most of the increased lending came from banks, whose share in mortgages outstanding increased from 5 percent in 1979 to well over 15 percent in 1986. However, if experience in other countries is any guide, this strong borrower and lender response to a new policy environment should begin to subside in the early 1990s. Whether this will leave the British ratio even closer to the U.S. ratio remains to be seen.

Conclusion

Over the past two decades, there has been a striking convergence among the household debt ratios of the United States, Japan, Germany, and the United Kingdom. Convergence among the first three was strongest in the 1970s; it has become increasingly weaker in the 1980s as debt ratio growth has accelerated in the United States while slowing in Japan and Germany. By contrast, convergence between the U.S. and U.K. debt ratios has been confined to the 1980s.

The relative importance of economic and policy influences in bringing about this convergence has varied with the countries concerned. For the United Kingdom, Japan, and Germany, economic influences were probably responsible for at least 60 percent of the debt ratio convergence. In the 1970s, faster growth of real per capita income in Japan and Germany was the prime impetus while in the 1980s stronger growth of household net wealth relative to income appears to have played a similar role. But country policies have also been important. In the 1970s, Japan and Germany were introducing new policies encouraging household borrowing at a time when the initial impetus of similar U.S. policies adopted decades earlier had abated. In the 1980s, however, U.S. deregulation of interest rates and the cumulative effect of government support for securitized mortgages seem to have given a boost to U.S. debt ratio growth while the initial impetus of earlier Japanese and German policies has begun to subside. The convergence of the U.S. and the U.K. debt ratios in the 1980s was primarily related to the strong U.K. deregulation moves in 1980.

The slower growth of the household debt ratio in the United States and its faster growth elsewhere probably made a positive contribution to international payments equilibrium, which depends on a reasonable balance between domestic saving and borrowing in each country. In the United States, domestic saving, especially household saving, has tended to be low, both absolutely and, in recent years, relative to domestic investment and government sector borrowing. Thus, slower household debt growth, to the extent that it encouraged saving relative to spending, tended to promote domestic and international equilibrium. In the other three countries, particularly Japan and Germany, domestic savings rates have been higher than in the United States and thus capable of absorbing substantial growth in household debt. Especially in the 1970s, when economic growth and business investment and borrowing in Germany and Japan declined, growth in household debt provided a welcome counterbalance, contributing to internal and external equilibrium. Thus, the recent acceleration of household debt growth in the United States and deceleration in Japan and Germany may be a cause for concern since these developments come at a time of exceptionally large payments imbalances among the three countries.

International recognition of the potential problems associated with household debt is beginning to produce new policy initiatives. In the United States, the Tax Reform Act of 1986 removes tax incentives to the growth of consumer debt, although its net impact on household debt as a whole remains uncertain. In Japan, more careful regulation of consumer credit may affect credit growth positively in the long run. In addition, Japan's elimination of the tax exemption for interest on small savings accounts, effective this April, attacks the savings-debt imbalance from another angle, and deregulation of direct consumer lending by commercial banks is reportedly being studied. But the evidence thus far suggests that further policy changes may need to be considered.

Dorothy B. Christelow

Footnote 18 continued
the upsurge in home mortgage debt in 1972. See E.P. Davis and I.D. Saville, "Mortgage Lending in the Housing Market," *Bank of England Quarterly Bulletin*, September 1982, for comments on the effect of bank credit restraints on bank mortgage lending and on the 1972 episode.

[19]For a comprehensive description of the building societies' operations up to 1980, see *Report of the [Wilson] Committee to Review the Functioning of Financial Institutions*, Cmnd. 7637, HMSO, 1980.

[20]For commentary on recent changes, see "The Future of the Building Societies: A Central Banker's View," *Bank of England Quarterly Bulletin*, June 1983.

Appendix: A Note on the Data

Data on household debt, personal disposable income, and household net wealth are largely drawn from official sources in the countries concerned.

However, adjustments or supplementary estimates have been made in the following cases:

(1) It was necessary to estimate U.K. consumer debt for the years before 1975. The procedure was to apply the ratio of consumer debt to the total nonmortgage debt of the personal sector (including unincorporated business) in 1975-80 to official estimates of total nonmortgage debt of the personal sector in the earlier years.

(2) British estimates of household net wealth, available for only every third year from 1957 to 1975, are adjusted for level differences among successive official estimates that are evident in overlap years.

(3) For Germany, Bundesbank data on the banking sector's holdings of home mortgage debt of the household sector were tripled in 1980, reflecting a much needed change in definition. Their data for 1969-79 are therefore multiplied by three before being added to mortgage debt held by building and loan associations and to the small amounts estimated to be held by insurance companies. These adjustments obviously have a wide margin of error.

Net wealth estimates, all official, refer specifically to the household sector in U.S. data and to the personal sector (including unincorporated business) in the Japanese and British data. But since the U.S. estimates include household equity in unincorporated business, household net wealth and personal sector net wealth are conceptually identical.

(This report was released to Congress and to the press on December 3, 1987.)

Treasury and Federal Reserve Foreign Exchange Operations

August-October 1987

The dollar came under heavy downward pressure in mid-August and again in October to close the three-month period under review down 7 to 8 percent on balance against major foreign currencies (Chart 1). There were three episodes of U.S. intervention in the exchange markets during this period. The U.S. authorities intervened first to restrain the dollar's rise in early August and then to support the dollar in late August-early September and again in late October.

As the period opened, the dollar was extending an advance that had begun in late spring. Market participants had been impressed by official efforts to stabilize dollar rates earlier in the year, both through heavy intervention and through coordination of economic policies among the major nations. The dollar had shown increasing resilience to potentially adverse developments. The U.S. external performance finally appeared to be improving, with U.S. net exports in real terms rising for three consecutive quarters. The U.S. economy was relatively buoyant, with output and employment up significantly, especially in the manufacturing sector. Thus market participants bid for dollar-denominated assets, believing that they offered attractive investment opportunities with limited exchange rate risk.

Meanwhile, the dollar benefited from developments abroad. Doubts persisted that the German economy had shaken off the weakness so apparent early in the year. Disappointing figures for German industrial production and employment stood in sharp contrast with indicators from the United States and Japan that pointed to a brighter outlook (Chart 2). Against this background, there were substantial long-term capital outflows from Germany during the summer. Also, increasing hostilities in the Persian Gulf raised the possibility of a disruption of oil shipments, which would have greater adverse effects on Europe where oil inventories stood at relatively low levels. When, in addition, reports of a violent riot in Mecca on August 1 revived interest in the dollar as a safe haven, the dollar rose abruptly. As it passed its highs of March against the mark, market participants began to sense that the dollar might advance much further. The demand for dollars became intense, and commercial and other interests began defensively to bid for dollars.

On August 4, with the dollar's rise against the mark accelerating, the Desk intervened on behalf of the U.S. authorities to resist the upward pressure. In keeping with the Louvre accord, the U.S. authorities continued to intervene to foster greater exchange rate stability on subsequent days, selling a total of $631 million against marks by August 10. The intervention by the U.S. authorities was undertaken in cooperation with the authorities in Germany and other countries. On August 11, the dollar touched a 7-month high of DM 1.9030 against the mark, up 2¼ percent from the end of July.

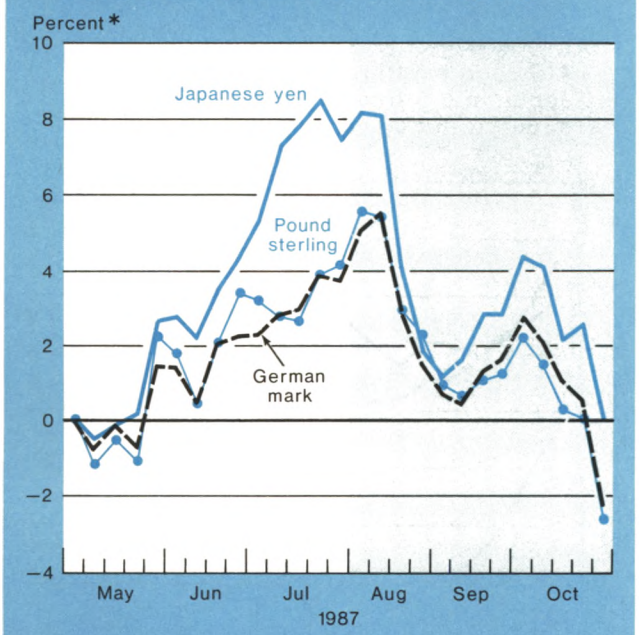
On August 14, the report of a $15.7 billion U.S. trade deficit for June brought into question the view that the U.S. trade performance was on an improving trend. Not only was the deficit larger than any previous month in 1987, but also the deterioration was pervasive, appearing in every regional and commodity group. The

A report presented by Sam Y. Cross, Executive Vice President in charge of the Foreign Group at the Federal Reserve Bank of New York and Manager of Foreign Operations for the System Open Market Account. David L. Roberts and Thaddeus D. Russell were primarily responsible for preparation of the report.

Chart 1

The dollar again came under heavy downward pressure during the three-month period under review . . .

declining 7 to 8 percent on balance against major foreign currencies and moving below the lows of late spring.



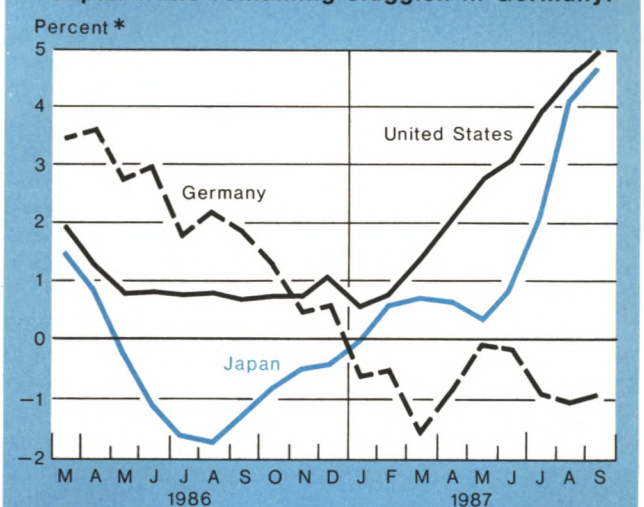
* The top chart shows the percentage change of monthly average rates for dollars from February 1985. The bottom chart shows the percentage change of weekly average rates from the week ending May 1, 1987. All figures are calculated from New York noon quotations.

exchange market response to this disappointing news was initially limited. Many market participants temporarily postponed selling dollars in the expectation that the resilience the dollar had shown to negative news earlier in the summer would reappear, and that they could avoid taking any significant exchange rate loss. But a few days later, when the dollar failed to show signs of renewed buoyancy, heavy selling emerged as many market participants perceived that further postponement of dollar sales could expose them to substantial exchange rate risk. A decline in dollar rates began. By early September the dollar had declined to lows of Y 140.35 against the yen and DM 1.7880 against the mark, levels not seen since late spring.

The dollar's decline was accompanied by a rise in inflation expectations. Although there was little evidence of a generalized increase in inflation, the U.S. economy was operating at relatively high levels of employment and capacity utilization, and there were some signs of upward pressure on materials prices. Against this background, some market participants worried that a further dollar depreciation would quickly be reflected in price increases for a wide range of imports and import-competing products. In these circumstances, U.S. market interest rates, particularly at the long end of the market,

Chart 2

Industrial production continued to rise in the United States and picked up strongly in Japan while remaining sluggish in Germany.



*The chart shows a three-month moving average of the percentage change in industrial production over a year earlier.

moved sharply upward. Some also argued that U.S. interest rates would have to be higher to compensate investors for the risk that the dollar might decline further.

In late August and early September, when dollar rates moved toward levels that had not been tested since the period of dollar weakness of late spring, the U.S. authorities intervened on several occasions. The Desk purchased a total of $389.5 million against Japanese yen on five occasions between August 24 and September 2. After the dollar moved through DM 1.80 against the mark on September 2, trading conditions deteriorated briefly not only in the foreign exchange market but also in the domestic securities markets, and the Desk purchased $50 million against marks along with its continuing operations in yen. The Desk's operations in late August and early September were undertaken in coordination with the Bank of Japan, the German Bundesbank, and several other central banks.

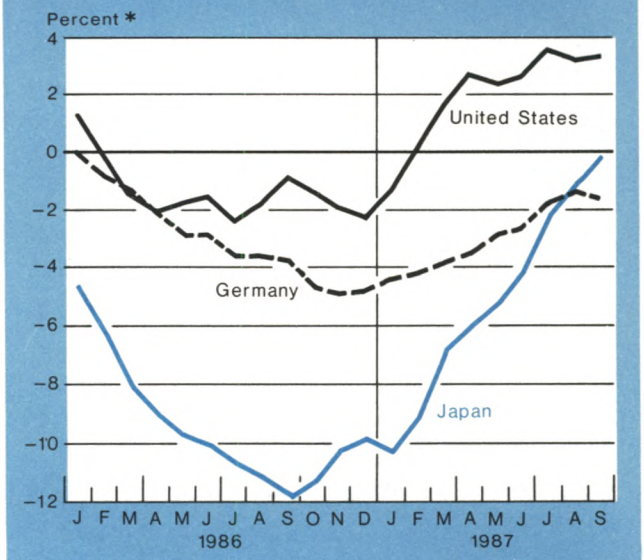
The announcement of a one-half percentage point increase in the Federal Reserve's discount rate to 6 percent on September 4 helped to interrupt the dollar's decline. This action, which was undertaken to signal the intent of the Federal Reserve "to deal effectively and in a timely way with potential inflationary pressures," helped reassure market participants. As the month progressed, the dollar benefited in addition from further increases in U.S. market interest rates. The dollar also firmed in anticipation of, and then following, meetings in Washington late in September, at which the Finance Ministers and Central Bank Governors of the Group of Seven (G-7) reaffirmed their commitment to cooperate closely to foster the stability of exchange rates around current levels. News that President Reagan would sign legislation mandating further reductions in the U.S. fiscal deficit also encouraged the market's sense of progress in the G-7's efforts to coordinate economic policies to promote the adjustment of external imbalances.

Against this background, demand for dollars increased, particularly on the part of some foreign investors who reportedly bought dollars to remove hedges on their U.S. investments, given the renewed expectation that the dollar would remain reasonably stable. Even the report on September 11 of a $16.5 billion U.S. trade deficit for July had only a limited effect on exchange rates. By the beginning of October, the dollar recovered to DM 1.8500 against the mark and Y 147.60 against the yen.

At the same time, however, market participants began to feel that, in view of the diminished pressures on exchange rates, foreign monetary authorities would place more emphasis on other policy objectives. Officials of both the German and Japanese central banks had for some time been publicly emphasizing the importance of responding promptly to a possible renewal of inflationary pressures. In both countries, money supply growth was well above official targets or projections. In Japan, price rises in equity and real estate markets were interpreted as indicating excess liquidity and potential inflationary pressures. Moreover, in both countries the beneficial effects of declining oil prices and currency appreciation on domestic prices were wearing off, so that price indices were beginning to tilt upwards (Chart 3). Notwithstanding the continued disappointment about economic growth in Germany, market participants expected the monetary authorities of both countries to take advantage of any opportunity to absorb liquidity. As operators moved to secure their funding needs, long-term interest rates remained under upward pressure and short-term interest rates started to rise as well (Chart 4). Then, Japanese officials announced new curbs on commercial bank lending for the October-December quarter; rumors began to circulate that the Bank of Japan would soon raise its discount rate, and Japan's long-term credit banks raised their prime lending rate by more than had been expected. In Germany, the key interest rate on the Bundesbank's repurchase agreements moved progressively to moderately higher levels, from 3.60 percent in mid-September to 3.85 percent by

Chart 3

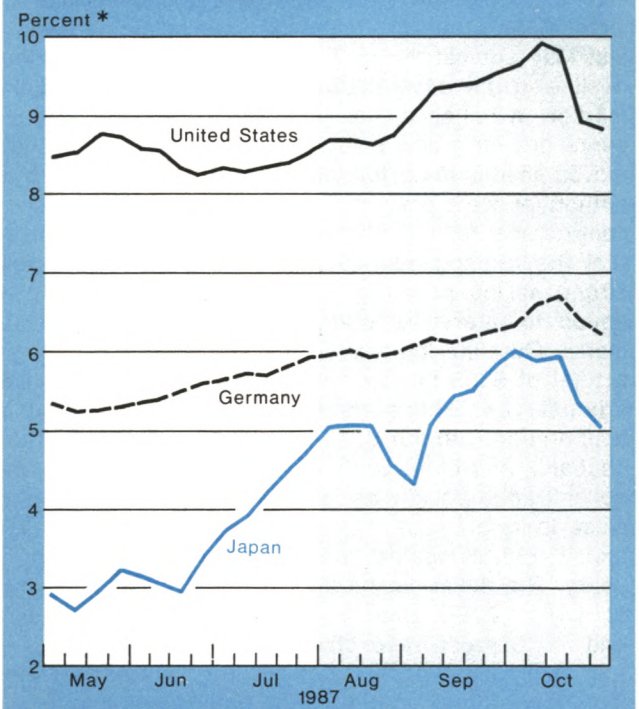
Although inflation remained low in Japan and Germany, price indices had begun to tilt upwards.



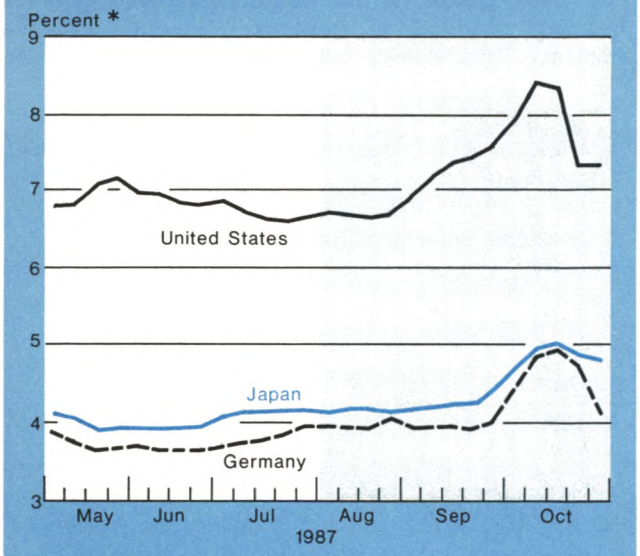
*The chart shows changes in wholesale prices for each month relative to the same month of the previous year.

Chart 4

Through mid-October, long-term interest rates remained under upward pressure in the United States, Germany, and Japan . . .



and short-term rates started to rise as well in all three countries.



*The top chart shows government bond yields and the bottom chart shows domestic three-month interest rates.

mid-October, following sharp increases in short-term money market rates.

As interest rates moved higher abroad, market participants took the view that, given the commitment to exchange rate stability, interest rates in the United States must move up at least as much to maintain sufficient interest rate differentials. In this context, the announcement on October 14 of another large U.S. trade deficit for August at first had a much more pronounced impact on securities and equities markets than on the exchange markets.

But over the following days, the exchange markets grew more concerned about the lack of adjustment in the U.S. trade performance and perceived greater scope for a further downward movement of the dollar. Then, comments by Secretary of the Treasury Baker—to the effect that surplus countries should not raise interest rates in the expectation that U.S. interest rates would surely follow, and that the Louvre framework could accommodate further currency adjustments—imparted new uncertainties to the markets. A press article asserting that Secretary Baker wanted to see the dollar decline was widely assumed to be true, despite his express denial of its accuracy. In these circumstances, some market participants questioned the depth of international cooperation, and others speculated that, in the context of the Louvre accord, the authorities had

Table 1

Federal Reserve Reciprocal Currency Arrangements

In millions of dollars

Institution	Amount of Facility October 31, 1987
Austrian National Bank	250
National Bank of Belgium	1,000
Bank of Canada	2,000
National Bank of Denmark	250
Bank of England	3,000
Bank of France	2,000
German Federal Bank	6,000
Bank of Italy	3,000
Bank of Japan	5,000
Bank of Mexico	700
Netherlands Bank	500
Bank of Norway	250
Bank of Sweden	300
Swiss National Bank	4,000
Bank for International Settlements:	
Dollars against Swiss francs	600
Dollars against other authorized European currencies	1,250
Total	30,100

decided to let the dollar depreciate to a lower level. Consequently, the dollar, which had moved down to around the DM 1.80 level in the days immediately following the release of the trade figures, moved decisively below this level during the weekend of October 17. In the turmoil immediately surrounding the sharp decline in world equity markets on October 19, dollar rates moved without clear direction as market participants positioned themselves defensively. The dollar then gained temporary support from news that Secretary Baker and German officials had met in Frankfurt and had agreed to continue economic cooperation under the Louvre agreement.

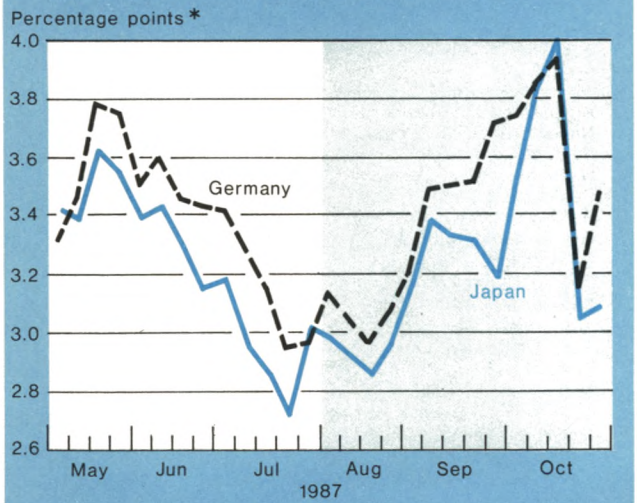
But soon strong downward pressure on the dollar resumed. Press commentary about the U.S.-German discussions in Frankfurt suggested that an agreement had been reached on a lower range for the dollar. In addition, all interest rates in the United States fell sharply after the stock market decline, as investors shifted back into fixed interest rate securities, particularly Treasury bills and bonds. While interest rates abroad also declined, they declined by less than U.S. interest rates, so that interest rate differentials favoring the dollar contracted sharply (Chart 5). Later on, pessimism about efforts to reduce the U.S. fiscal deficit weighed on the dollar. Also, there was widespread commentary in the press questioning the priority for the United States of stabilizing exchange rates in view of concerns that the stock market decline might seriously weaken U.S. economic activity.

Selling pressure on the dollar became intense on October 27 when the dollar declined below its lows of last May against the mark. In order to resist a further decline in the dollar/mark rate, the Desk entered the market on behalf of the U.S. authorities. While these operations for a time stabilized the rate, the dollar again moved sharply lower following commentary that the U.S. authorities were prepared to allow the dollar to decline considerably further. Although the U.S. Treasury denied that the remarks reflected U.S. government policies, strong selling pressure persisted and the Desk continued to intervene, operating in yen as well as in marks. Over the three days, the U.S. authorities bought a total of $395 million against marks and $65 million against yen. These operations were conducted in cooperation with the Bank of Japan, the German Bundesbank, and other central banks. On October 29, the dollar traded as low as DM 1.7220 against the mark, close to its previous all-time low of eight years earlier, and Y 137.15 against the yen, its lowest level in 40 years. The dollar closed the period only slightly higher at DM 1.7275 and Y 138.30, down 7 percent and 7¾ percent, respectively, from end-July levels.

In summary, over the three months the United States monetary authorities intervened both to sell and to buy foreign currencies. They sold a total of $899.5 million equivalent of German marks and Japanese yen. The Treasury and Federal Reserve intervened in equal amounts. The Treasury sold $284.75 million equivalent

Chart 5

After widening progressively, interest differentials favoring the dollar contracted sharply in late October in the aftermath of the worldwide drop in stock market prices.



*This chart shows weekly average differentials at the three-month maturity between Eurodollar deposit rates and Euromarket deposit rates for marks and yen.

Table 2

Net Profit (+) or Losses (−) on United States Treasury and Federal Reserve Currency Foreign Exchange Operations

In millions of dollars

Period	Federal Reserve	United States Treasury Exchange Stabilization Fund
August 1, 1987 - October 31, 1987	+$92.6	+$117.2
Valuation profits and losses on outstanding assets and liabilities as of October 31, 1987	+$2,099.9	+$1,790.7

Data are on a value-date basis.

of yen and $165.0 million equivalent of marks. The Federal Reserve sold $169.75 million equivalent of yen and $280.0 million equivalent of German marks. In the intervention activity early in the period, the Federal Reserve and Treasury each bought $315.5 million equivalent of German marks. The Federal Reserve also bought from customers $85.3 million equivalent of Japanese yen during the period.

In the period from August 1 through October 31, the Federal Reserve and the Treasury's Exchange Stabilization Fund (ESF) realized profits of $92.6 million and $117.2 million, respectively. Valued at end-October exchange rates, the valuation gains on outstanding foreign currency balances were $2,099.9 million for the Federal Reserve and $1,790.7 million for the Treasury's ESF. These valuation gains represent the increase in the dollar value of outstanding currency assets valued at end-of-period exchange rates, compared with the rates prevailing at the time the foreign currencies were acquired.

The Federal Reserve and the ESF invest foreign currencies acquired in the market as a result of their foreign operations in a variety of instruments that yield market-related rates of return and that have a high degree of quality and liquidity. Under the Monetary Control Act of 1980, the Federal Reserve is authorized to invest in securities issued by foreign governments, and as of October 31, 1987, $980.1 million equivalent of its foreign currency holdings were invested in such securities. In addition, the Treasury held the equivalent of $2,473.5 million of its foreign currency holdings in such securities as of the end of October.

On October 30, the Treasury Department through the ESF joined with several central banks to provide a multilateral near-term credit facility totaling $500 million for the Central Bank of the Argentine Republic. The ESF's portion of the facility was $200 million. No drawing was made during the period under review.

(This report was released to Congress and to the press on March 4, 1988.)

Treasury and Federal Reserve Foreign Exchange Operations

November 1987-January 1988

The dollar experienced recurrent periods of downward pressure throughout November and December, then firmed in early January. On balance, the dollar ended the three-month period 7½ percent lower against the Japanese yen and 3 to 4 percent lower against most European currencies and the Canadian dollar. The U.S. authorities intervened to support the dollar at various times during the period, most heavily in early November and around the turn of the year.

Early November pressure on the dollar

In November, as the period under review opened, the dollar was already under selling pressure stemming from several sources.

Given the sharp decline in stock prices in October and the relatively greater importance of equity holdings in the United States than elsewhere, the U.S. economy was seen to be in danger of weakening considerably, and more so than the economies of other countries. Under these circumstances and with the Federal Reserve acting to provide liquidity to the market, U.S. interest rates had declined significantly. Meanwhile interest rates in other countries had declined less sharply. As a result, interest rate differentials favoring the dollar had narrowed.

Following the stock market developments in October, market participants looked to the Administration and Congress for decisive action to reduce the U.S. fiscal deficit. Progress was not yet visible, even though the Administration and Congress had begun discussions on a two-year deficit reduction program.

In light of these factors and the continuing large trade imbalances, many doubts were expressed in the press and in the market that the Group of Seven (G-7) countries would place a high priority on maintaining exchange rate stability and international policy coordination. As a result, market participants were looking for evidence that the economic policy coordinating mechanisms established at the February 1987 Louvre accord were still intact.

During the first week of November, the dollar's decline began to accelerate. Some press reports asserted that the U.S. authorities' primary concern, at least for the moment, was to prevent a recession, even at the risk of a further decline in the dollar. Other reports tended to reinforce doubts about the strength of the commitment of the G-7 countries to foster stability in exchange rates. The dollar's decline continued despite explicit reaffirmation of the U.S. adherence to the Louvre accord.

In fact, the Desk had already begun to intervene in the market on behalf of the U.S. monetary authorities. In concert with other central banks, the Desk purchased $1,095 million from November 2 through November 10, of which $717 million was against marks and $378 million against yen. The dollar traded as low as DM1.6485 against the mark and Y133.20 against the yen on November 10.

Following these intervention operations and a statement by President Reagan on November 10 that he did not want to see a further decline of the dollar, the selling

A report presented by Sam Y. Cross, Executive Vice President in charge of the Foreign Group at the Federal Reserve Bank of New York and Manager of Foreign Operations for the System Open Market Account. Christopher Rude was primarily responsible for preparation of the report.

pressures subsided. The report a few days later that the U.S. trade deficit had declined in September and President Reagan's subsequent statement that the budget negotiations could result in $80 billion in deficit reductions over two years seemed to suggest progress toward reducing the U.S. external and internal imbalances. At the same time, the Bundesbank took action to lower German short-term interest rates, which reduced the tendency for the German mark to appreciate against its partner currencies within the European Monetary System (EMS) as well as against the dollar. In that environment, market participants questioned whether the stage was being set for a G-7 meeting that would reaffirm the commitment to exchange rate stability. The dollar firmed to DM1.7170 against the mark and Y137.30 against the yen on November 16.

Reemergence of pressure in late November and December

The dollar came under pressure again as hopes faded for rapid progress in the budget reduction negotiations. Expectations of an early G-7 meeting receded after statements by a number of foreign officials seemed to indicate that a meeting would not occur until a U.S. budget accord had been negotiated and approved by Congress. By November 20, when the Administration and Congressional negotiators agreed upon a plan to reduce the budget deficit by around $75 billion over two years, the dollar was already moving lower as market participants wondered whether the program would be adequate and how long it would take for Congress to enact the measures. With market attention focused almost exclusively on the progress of the budget reduction plan through Congress, news of coordinated interest rate adjustments in Germany and several other European countries on November 24 again helped to ease tensions within the European Monetary System but provided only limited support for the dollar. In the presence of continued doubts about the strength of the G-7 commitment to foster stability in exchange rates, the dollar continued to move lower.

During late November and early December, the U.S. authorities again entered the market to contain the dollar's decline on various occasions when it came under pressure. Between November 27 and December 4, the U.S. authorities purchased $272 million against marks and yen, again in cooperation with other central banks.

The dollar steadied during the first week of December. The Bundesbank cut its discount rate on December 3

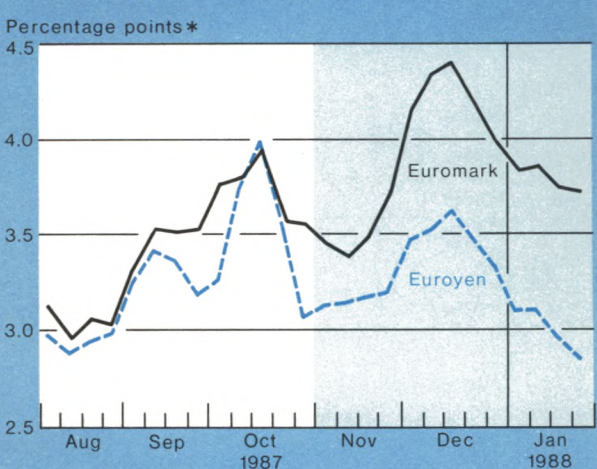
Chart 1

The dollar came under recurrent downward pressure in November and December — then firmed in early January.

*The chart shows the percent change of weekly average rates for dollars from January 1987. All figures are calculated from New York noon quotations.

Chart 2

Interest rate differentials favoring the dollar fluctuated widely.



*This chart shows weekly differentials at the three-month maturity between Eurodollar deposit rates and Euromarket deposit rates for marks and yen.

to 2½ percent in a move accompanied by official rate cuts in France, the United Kingdom, Switzerland, Belgium, the Netherlands, and Austria. Market participants were encouraged by these signs of renewed international cooperation.

The announcement on December 10 that the U.S. trade deficit had jumped to a record $17.6 billion (not seasonally adjusted) in October underlined the difficulties in reducing the U.S. external imbalance and had a strong market impact. As traders rushed to liquidate their dollar positions, the dollar gapped downward by 1½ to 2 percent within a few minutes of the announcement. The U.S. authorities entered the market, in concert with several European central banks, to restrain the dollar's decline. The next day, when market conditions again deteriorated, the Desk reentered the market. Over the two-day period, the U.S. authorities purchased $351 million against marks and yen.

For the rest of the month, market sentiment remained bearish as the dollar came under recurrent strong selling pressure in an atmosphere of pessimism and uncertainty. Market participants remained skeptical that the budget reductions being considered by Congress would be sufficient to deal effectively with the U.S. fiscal deficit problem. Erroneous press reports, though quickly denied, raised doubts about the commitment of the Administration to exchange rate stability and added to the uncertainty.

Table 1

Federal Reserve Reciprocal Currency Arrangements

In Millions of Dollars

Institution	Amount of Facility January 31, 1988
Austrian National Bank	250
National Bank of Belgium	1,000
Bank of Canada	2,000
National Bank of Denmark	250
Bank of England	3,000
Bank of France	2,000
German Federal Bank	6,000
Bank of Italy	3,000
Bank of Japan	5,000
Bank of Mexico	700
Netherlands Bank	500
Bank of Norway	250
Bank of Sweden	300
Swiss National Bank	4,000
Bank for International Settlements:	
Dollars against Swiss francs	600
Dollars against other authorized European currencies	1,250
Total	30,100

Meanwhile, market participants were reassessing the economic outlook generally and found the performance abroad to be mixed. The Japanese economy remained buoyant, driven by accelerating domestic demand, while in Germany the mark's continuing rise was seen as possibly leading to a decline in both German net exports and investment spending. The view that the Japanese economy was fairly strong and that the Japanese authorities had less scope than others to lower interest rates added to the selling pressure on the dollar against the yen. In these circumstances, the dollar fell more rapidly against the yen than against other major foreign currencies during the second half of December. The strength of the yen relative to European currencies also was consistent with a view that, since Japan's trade surplus with Europe had widened in previous months, the yen had considerable scope to appreciate vis-a-vis the European currencies.

At the same time, market participants were no longer quite so pessimistic about the effects of the October stock market decline on the U.S. economy. Evidence that consumer confidence may have fallen sharply in October and remained weak in November kept alive concerns about the possible effect of the stock market decline on U. S. economic growth. But the release of other statistics, including better-than-expected employment and industrial production figures for November, suggested that the market's initial worries that the decline might seriously weaken U.S. economic activity were exaggerated.

On December 22, officials of the G-7 nations issued a statement reaffirming the basic objectives and policy directions set forth in the Louvre accord, agreeing that a further decline of the dollar could be counterproduc-

Table 2

Net Profit (+) or Losses (−) on United States Treasury and Federal Reserve Currency Foreign Exchange Operations

In Millions of Dollars

Period	Federal Reserve	United States Treasury Exchange Stabilization Fund
November 1, 1987-January 31, 1988	+612.4	+749.7
Valuation profits and losses on outstanding assets and liabilities as of January 29, 1988	+1,846.8	+1,350.5

Data are on a value-date basis.

tive. However, traders were disappointed that the statement offered no explicit new economic policy moves aimed at stabilizing exchange rates and redressing trade imbalances.

Against this background, the dollar again came under strong downward pressure as the year drew to a close. U.S. corporations and Japanese banks sold dollars in thin holiday markets, at a time when most banks in Europe and the United States were unwilling to adjust their positions ahead of year end, and the market became one-sided. The U.S. monetary authorities intervened heavily in concerted intervention operations. During the period December 16 through December 31, the Desk purchased a total of $1,707 million, approximately half of which was against marks and half against yen. By early morning January 4 the dollar had declined to record lows of DM1.5615 against the mark and Y120.20 against the yen in the Asian/Pacific markets. At that point, the dollar was almost 10 percent lower against the mark and more than 13 percent lower against the yen from the start of the period.

Recovery of the dollar in January

Market sentiment changed dramatically beginning later that day, when active trading resumed in New York after the New Year, in response to unmistakable evidence of concerted, visible, and aggressive intervention operations. These operations provided a clear signal that U.S. and foreign officials were seriously committed to fostering exchange rate stability and gave new weight to the December G-7 statement. Reported comments by foreign officials also reinforced the view that new initiatives to halt the dollar's decline might be underway. The dollar advanced by 1 3/4 percent against the mark and 2 1/4 percent against the yen by the close of New York trading from its lows earlier that day and continued to strengthen during the remainder of the first week of January.

In this context, the announcement of reductions in official interest rates in three European countries on January 5 was interpreted as a further sign that officials were willing to take steps to adjust their monetary stance and coordinate policy to support the dollar. The release on January 8 of better-than-expected U.S. employment statistics for December helped to strengthen the view that a sharp slowdown in domestic economic activity was not imminent and, accordingly, that there might be less downward pressure on U.S. interest rates. On January 13, Japanese Prime Minister Takeshita and President Reagan met in Washington and reaffirmed the December G-7 statement. They indicated that arrangements had been made to assure the ade-

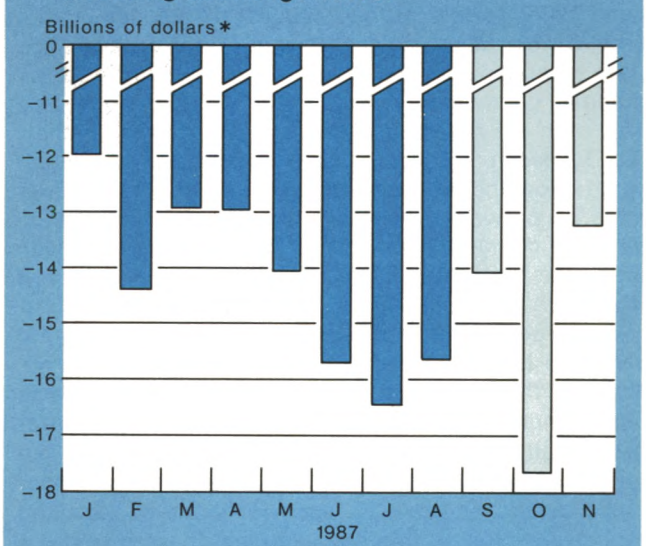
Statement of the Group of Seven on December 22

Paragraph 8

The Ministers and Governors agreed that either excessive fluctuation of exchange rates, a further decline of the dollar, or a rise in the dollar to an extent that becomes destabilizing to the adjustment process could be counterproductive by damaging growth prospects in the world economy. They re-emphasized their common interest in more stable exchange rates among their currencies and agreed to continue to cooperate closely in monitoring and implementing policies to strengthen underlying economic fundamentals to foster stability of exchange rates. In addition, they agreed to cooperate closely on exchange markets. The Ministers and Governors stressed the need for consistent and mutually supportive policies and believe that the measures being taken will accelerate progress toward the increased, more balanced economic growth and sustainable external positions necessary for greater exchange rate stability.

Chart 3

The wide swing in trade figures released during the period was an important factor affecting exchange rates.



*Monthly U.S. merchandise trade balance, not seasonally adjusted, census basis. Shaded bars indicate trade figures released in November - January.

quacy of resources needed for their cooperative efforts.

On January 15, the report that the U.S. trade deficit for November had narrowed to $13.2 billion (not seasonally adjusted) pushed the dollar sharply higher. Market participants were encouraged that the deficit, which had declined with virtually all geographic regions and across all commodity groups, was finally narrowing, albeit slowly and erratically. Stronger-than-expected U.S. retail sales figures for December, released at about the same time, reinforced earlier evidence that a recession was not likely in the immediate future. The dollar closed on January 15 at Y130.85 against the yen and at DM1.6865 against the mark, 9 percent and 8 percent higher, respectively, from its period lows on the morning of January 4. Although profit taking brought the dollar back from its highs, market participants had gained confidence in the view that the dollar had stabilized, at least for the time being.

Between January 4 and January 15, intervention dollar purchases by the U.S. monetary authorities totaled $685 million against marks and yen. The bulk was purchased during the first two business days of the new year.

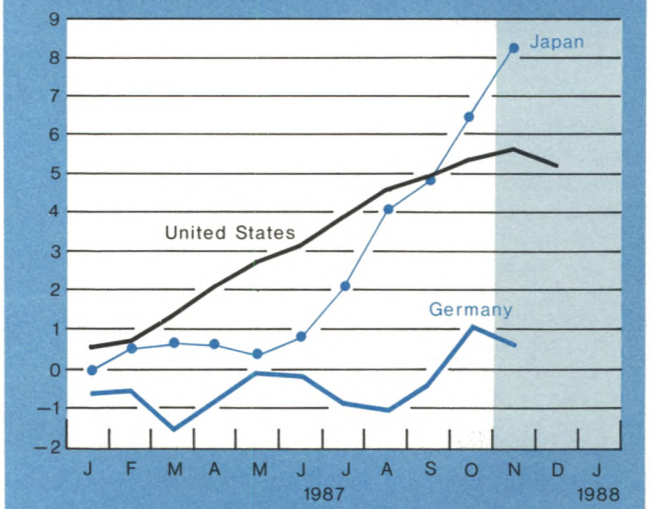
The dollar traded within a narrow range from the release of the U.S. trade figures through the remainder of the month. Market participants were impressed by the early January intervention operations and expected the U.S. authorities to act forcefully to counter any renewed sharp decline of the dollar. As it happened, the U.S. authorities intervened on only one other occasion, purchasing $30 million against yen on January 21 when the dollar came under some downward pressure. At the same time, events abroad reinforced the sense that policies were being directed toward lessening exchange market pressures. In Germany, the Bundesbank changed its monetary target to a broader aggregate (M3) from the narrower aggregate central bank money. The Bundesbank issued a statement that the new target would allow the German authorities to pursue the twin goals of providing monetary stability and stimulating domestic demand. Although the change was technical, observers felt that it might imply a reduced likelihood of a tightening of monetary policy.

As the period came to a close, the exchange market was quiet and the dollar was trading in a narrow range. However, the dollar was perceived as still vulnerable to disappointing trade figures. Market participants, therefore, awaited further evidence that a bottom for the dollar had been reached and that the underlying economic conditions were in place for a more sustained period of exchange rate stability. The dollar closed the three-month period at DM1.68 against the mark and at Y128 against the yen, down on balance almost 3 percent and 7½ percent, respectively, from levels at the

Chart 4

The sharp fall in stock prices . . .

led to concerns about the economic outlook, but data released during the period indicated that the initial worries were exaggerated.



The top chart shows the percent change of weekly averages for the Dow Jones Industrial, Commerzbank, FT 30, and Nikkei Dow stock market price indices from January 1987. The bottom chart shows a three-month moving average of the percent change in industrial production over a year earlier.

Table 3

Drawings and Repayments by Foreign Central Banks under Special Swap Arrangement with the U.S. Treasury

In Millions of Dollars; Drawings (+) or Repayments (−)

Central Bank Drawing on the U.S. Treasury	Amount of Facility	Outstanding as of November 1, 1987	November	December	January	Outstanding as of January 29, 1988
Central Bank of Argentina	200	0	+190	−190	0	*
Central Bank of Ecuador	31	0	*	+31	−31	*

Data are on a value-date basis.

*No facility.

end of October.

During the three-month period, the U.S. monetary authorities purchased a total of $4,140 million dollars, of which $2,388.5 million was against German marks and $1,751.5 million against Japanese yen. The U.S. Treasury and the Federal Reserve intervened in nearly equal dollar amounts, though the currency composition differed. The Federal Reserve sold $2,030 million equivalent of German marks and no yen; the Treasury's Exchange Stabilization Fund (ESF) sold $358.5 million equivalent of marks and the entire $1,751.5 million equivalent of yen.

Over the same period, the U.S. authorities acquired yen in a variety of ways. In particular, $30.9 million equivalent was received representing interest payments under the Supplemental Financing Facility of the International Monetary Fund (IMF), $184.5 million equivalent resulted from the exchange of SDRs with other monetary authorities, and $1.4 million equivalent was purchased from customers.

In the November-January period, the Federal Reserve and the ESF realized profits of $612.4 million and $749.7 million, respectively, from foreign currency operations. As of the end of January, cumulative bookkeeping or valuation gains on outstanding foreign currency balances were $1,846.8 million for the Federal Reserve and $1,350.5 million for the ESF. These valuation gains represent the increase in the dollar value of outstanding currency assets valued at end-of-period exchange rates, compared with the rates prevailing at the time the foreign currencies were acquired.

The Federal Reserve and the ESF regularly invest their foreign currency balances in a variety of instruments that yield market-related rates of return and that have a high degree of quality and liquidity. A portion of the balances is invested in securities issued by foreign governments. As of end January, holdings of such securities by the Federal Reserve amounted to $1,051.7 million equivalent, and holdings by the Treasury amounted to the equivalent of $996.1 million.

During the period under review, the U.S. Treasury through the ESF provided short-term financing facilities to Argentina and Ecuador.

Argentina. As noted in the previous report, on October 30, 1987, a $500 million near-term credit facility was made available jointly by the ESF, the Bank for International Settlements (acting for certain central banks), and the central banks of Mexico, Uruguay, and Colombia to the Central Bank of the Argentine Republic. On November 12, the Argentine central bank drew $190 million from the ESF's portion of $200 million. The central bank of Argentina repaid $90.1 million on December 7, $84.3 million on December 21, $10.3 million on December 23, and the remaining $5.3 million on December 30.

Ecuador. On December 3, 1987, the ESF agreed to provide a $31 million short-term credit facility for the Central Bank of Ecuador. On the next day, the Central Bank of Ecuador drew the full amount, which was subsequently repaid on January 26, 1988.

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